

TRUST AND SOCIAL REPRESENTATIONS OF THE MANAGEMENT OF THREATENED AND ENDANGERED SPECIES

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ABSTRACT: Using quantitative analysis of questionnaire responses, observations during focus group discussions, and qualitative assessment of discussion statements, the present study examined trust and social representations of the U.S. Forest Service's management of Southern California national forests for the protection of endangered species. Supporting expectations based on the salient values similarity (SVS) model, it was found that (a) trust was highly correlated to assessments of shared salient values, and (b) trust and both the evaluation and acceptance of specific forest management practices were strongly related. Four patterns of social representations of shared value saliency and trust of U.S. Forest Service forest management to protect species were identified. Results demonstrate the importance of trust to the acceptance of forest management practices. They also suggest the need to recognize the influence of perceived variations in saliency of values in the SVS model.

Keywords: trust; endangered species; salient value similarity

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Concern in the United States about the risks posed by human activities to wildlife species led to the enactment of the Endangered Species Act (ESA). According to the act, “federal departments and agencies shall seek to conserve endangered species and threatened species” (U.S. Fish and Wildlife Service, 2001, section 2). The present study examines the extent that ability to carry out the legal mandate of the ESA may be influenced by social trust. *Social trust*¹ is the willingness to rely on those who have the formal responsibility to develop policies and take actions. The importance of social trust to the operation of government and other organizations in democratic societies has been widely recognized (e.g., Kasperson, Golding, & Kasperson, 1999; Luhmann, 1979; Slovic, 1999). It has been argued that trust produces social capital by reducing transaction costs and facilitating effective management (Fukuyama, 1996; Putman, 1995). The existence of trust avoids the need to explicitly ensure that participants in an exchange will act acceptably. Organizations that are trusted can work effectively because they do not need to continuously explain and defend their policies and actions. Trusted agencies also enjoy the political support that is needed for obtaining adequate funding. Suggestions and recommendations of trusted organizations are more likely to be followed by citizens without the need for expensive and perhaps coercive inducements such as legal penalties for failure to comply.

There is evidence of the importance of trust for the effective management of environmental issues such as waste management (Petts, 1998; Wiedemann & Femers, 1993), genetically modified organisms (Siegrist, 1999), and various environmental hazards (Slovic, 1999). National polls indicate that general trust of the U.S. Forest Service (USFS) and other government agencies ranks closely behind trust of environmental groups (Dunlap, 2000). Seventy-two percent of the American public trusts federal and state agencies to solve environmental problems. Although general trust in government agencies is high, there are numerous indications of distrust of the USFS and other agencies regarding the management of particular forest-related issues. Recent protest demonstrations, the sabotage of forest products, threatened and actual bombings of USFS offices and other facilities, and lawsuits indicate an unwillingness to rely on USFS management practices (Du Bois, 2000; Hudson, 1999). The loss of the social capital of trust is illustrated by one supervisor of a national forest in Nevada who recently resigned because of “the hostility and distrust toward federal employees in the state” (Associated Press, 2000). Distrust apparently made the job of management impossible for this individual. The present study had two goals: (a) to systematically demonstrate the importance of trust to the evaluation of USFS management practices for the protection of species and (b) to identify the patterns of social representations

related to variations in the willingness to trust the USFS to manage forest lands for the protection of species.

TRUST AND REPRESENTATIONS OF SALIENT VALUE SIMILARITY

This investigation is grounded in recent efforts to understand the social-psychological processes of trust (Earle & Cvetkovich, 1995, 1997; Siegrist, Cvetkovich, & Roth, 2000). This effort, the salient values similarity (SVS) model, construes trust as a social emotion elicited by a situation implying the question, "Should I rely on this person?" The answer to the question of whether to rely on another is provided by a social representation of the decision situation and the other person compared to self. A social representation is

a system of values, ideas and practices with a twofold function; first to establish an order which will enable individuals to orient themselves in their material and social world and to master it; and secondly to enable communication to take place among the members of the community by providing them with a code for social exchange and a code for naming and classifying unambiguously the various aspects of their world and their individual and group history. (Moscovici, 1973, p. xiii; see also Bergman, 1998)

As is true of other aspects of person perception, three kinds of representations of information are involved in the making of judgments of the trustworthiness of another person.

1. Procedural/semantic representations include general understandings of how the human mind works (Baron-Cohen, 1999; Gauvin, 1998), how the minds of members of a particular group work (e.g., politicians, bureaucrats, and USFS employees), and mental models of risk-related processes (M. G. Morgan, Fischhoff, Bostrom, & Atman, 2001). Examples of these general representations are: "When people smile they are usually happy" and "The USFS is concerned about protecting endangered species."
2. Primary episodic representations include information about what the person being judged did (e.g., "Jennifer smiled" and "The USFS has banned recreational activities in my favorite camping area"). Primary episodic representations encompass what Yamagishi and others (Yamagishi, Cook, & Watabe, 1998; Yamagishi, Kikuchi, & Kosugi, 1999) called the *assurance of established social relationships* and what Earle, Siegrist, and Gutscher (2000) termed *confidence*.

3. Secondary episodic representations consist of attributions (imaginings) of the character or state of the person being judged (“Jennifer smiled because she is happy” and “The USFS banned recreational activities because it wants to protect endangered species”) formulated on the basis of procedural/semantic representations and primary episodic representations.

The human mind uses two systems to process trust-related and other person perception representations: (a) an automatic, unconscious, associative system and (b) an intentional, conscious, rule-based system (Damasio, 1994; Hammond, 1996; Smith & DeCoster, 2000). Operation of the first system is often referred to as social emotion. Operation of the second system is often referred to as decision making, problem solving, or more generally, logical thinking. Evidence suggests that both are used simultaneously and that the human mind combines their products in various balances into a cognitive continuum of information processing (Hammond, 1996).²

According to the SVS model, procedural/semantic, primary episodic, and secondary episodic representations combine to produce representations of salient values and of value similarity. Representations of salient values comprise the individual’s sense of what the important goals (ends) and/or processes (means) are that should be followed in a particular situation. Salient values result from the individual’s implicit and explicit understanding of the meaning of a specific situation. The inferred meaning of a situation includes procedural/semantic representations of what problem is being faced, what options are available, and the expected effectiveness of available options.

Representations of value similarity involve a comparison of one’s own salient values to those that are concluded to be salient for the person whose trustworthiness is being judged. Construals of value similarity are based on secondary episodic representations of the other person’s mind, character, and emotional state (Cvetkovich & Lofstedt, 1999). These attributions are “computed” on the basis of primary episodic representations of that person’s verbal statements and actions (either directly experienced or known indirectly) combined with procedural/semantic representations relating to identity (e.g., federal regulator, nuclear plant operator, and USFS employee).

TRUST AND ACCEPTANCE OF FOREST MANAGEMENT POLICIES AND PRACTICES

There is general recognition supported by a limited number of studies of the importance of social trust to the acceptance of forest management

practices. Trust of USFS scientists was a better predictor of acceptance of adaptive management research plans in the national forests of Northern California than were self-assessed understanding of the research and judged technical ability of the researchers (Cvetkovich, 1995). Public acceptance of more intrusive management practices (e.g., banning some recreational activities) in efforts to control water quality in the Colville National Forest was predicted by trust of the USFS and the judged effectiveness of the practice (Cvetkovich, Winter, & Earle, 1998). Based on discussion statements and questionnaire responses regarding the introduction of forest recreational use fees, Winter, Palucki, and Burkhardt (1999) concluded that "social trust was . . . the most significant predictor of anticipated impacts of new fees, general attitudes toward recreational fees, and amounts respondents were willing to pay for daily and annual passes" (p. 207).

Sjöberg (1998, 2001) recently claimed that the case for the importance of social trust has been overstated. This is concluded because general trust in politicians, for example, was not significantly related to magnitude of perceived risks of specific environmental hazards (Sjöberg, 1998). The SVS model suggests a contrasting interpretation. Evaluations of general trust may not be related to reactions to specific issues because different social representations are elicited. Being asked to evaluate trust in a government agency in general may elicit representations with different salient value similarities than being asked to evaluate a government agency with regard to a particular forest management issue. As has already been noted, surveys indicate high trust of government agencies to solve environmental problems, but there is evidence of distrust with regard to the management of specific issues. It was expected that the present study would find a strong relationship between trust of USFS forest management for the protection of species and evaluations of specific species' protection management practices.

SPECIES' PROTECTION AND REPRESENTATIONS OF VALUES AND ATTITUDES

Identifying and understanding diverse values specific to wildlife species has been cited as critical to the survival of forest management agencies (Decker & Enck, 1996). National surveys and other research indicate an abiding general concern for species and support for species' protection among the American public (Cook & Cable, 1996; Czech, Krausman, & Borkhataria,

1998; Dunlap, 2000; Ekstrand & Loomis, 1998; Galli & Penkala, 1981; Kellert, 1985; Kempton & Boster, 1995; Leuschner, Ritchie, & Stauffer, 1989; Peyton & Langenau, 1985; Phillips, Boyle, & Clark, 1998). Interpreting the results of one of these studies, Nahan (1997) stated,

Most Americans share deep-seated values about the environment that can be called on to support biodiversity. Despite Americans' being globally criticized for placing everything in which they believe on their T-shirts—and changing their values as often as they change their shirts—they do ascribe to a lasting value with regard to spiritual, aesthetic, and practical worth of species' natural world, a value they share with their forefathers and their foremothers. (p. 22)

Other studies, however, indicate that it is a mistake to conclude with Nahan (1997) that there is a uniform hegemonic social representation of species' protection that persists and prevails under all circumstances (Moscovici, 1988). Level of support for species' protection is related to a number of specific factors such as type of species (Czech et al., 1998; Glass, More, & Stevens, 1990; Kellert, 1980, 1993; Opatow, 1994), level of personal knowledge of species' protection issues (Loomis & Giraud, 1997), degree of direct personal effect of the management action (Krausman, Shaw, Etchberger, & Harris, 1995; Schoenecker & Shaw, 1997), and variations in models of justice (Clayton, 2000) and values (Dunlap, Van Liere, Mertig, & Jones, 2000; Stern, 2000; Stern & Dietz, 1994).

The possibility of conflicting social representations is indicated by observed strong relationships between judged salient value similarity and trust of the USFS's management of forest research, water quality, and recreational use fees (Cvetkovich et al., 1995; Cvetkovich & Winter, 1998; Winter et al., 1999). Individuals who represented the USFS as sharing the values salient for them trusted the USFS's forest management for the respective issue. Individuals representing the USFS as not sharing the values salient for them were distrusting. Strong relationships between trust and shared value similarities also have been found for other environmental management issues (Cvetkovich & Lofstedt, 1999; Earle & Cvetkovich, 1997, 1999; Siegrist, 1999, 2000; Siegrist & Cvetkovich, 2000; Siegrist et al., 2000). These past studies have measured perceived value similarity but have not attempted to describe the related social representations. Using quantitative and qualitative approaches, the present study was designed to identify social representations of USFS species' protection management in terms of salient values and value similarities.

RESEARCH METHODS

RATIONALE FOR METHODS AND DESCRIPTION OF SAMPLE

Focus group methods used in this study are applied when there is an interest in obtaining in-depth information about a purposely selected group of individuals rather than obtaining a statistically representative sample (D. L. Morgan, 1998; Patton, 1990). In a properly structured and moderated focus group, members are stimulated to express their views and do not feel pressured to reach consensus or agreement with other group members. Interactions between group members stimulate dialogue and set members at ease, an advantage over individual interviews (Asquith, 1990).

One hundred twenty-seven individuals agreed to participate in 1 of 13 groups based on their membership in selected communities of interest and communities of place. Communities of interest included different forest user groups: miners ($n = 8$), forest volunteers ($n = 33$), and members of organizations interested in forest recreational activities such as off-road vehicle use or hiking ($n = 21$). Communities of place ($n = 38$) consisted of residents of areas potentially affected by a regional conservation strategy being applied to the Southern California national forests. Potential participants were identified through two procedures. Key contacts known for their interest in forest management issues were asked to identify individuals who might be interested in participating in a discussion on the protection of species. When these additional individuals were contacted by phone, the group of potential participants was further expanded by asking for the names of others who might be interested in participating in the discussions. Meeting places were either within one of the four Southern California national forests or in nearby communities. Participants were not meant to be representative of the larger population potentially affected by forest management for the protection of threatened species. They were selected to obtain a view of the styles and ranges of thinking regarding these management practices.

Before the focus group discussion, all participants were asked to complete a questionnaire, and 100 did so. The purpose of combining the two methods of focus group and questionnaire included (a) a multimethod approach to more fully capture responses to management practices, (b) the use of a validated scale to assess trust among the focus group members, and (c) gathering accurate background information on participants. This multimethod approach provides a depth of information derived from group discussions

and specific individual information useful for clarifying trends emerging from the discussion (Herek & Glunt, 1993; Wolff, Knodel, & Sittitrai, 1993).

Fifty-five percent of participants were men, with 86% having attended at least some college. Reported ethnic identification was: 75% White, 13% Native American, 13% Asian or Pacific Islander, 4% Mexican American, and 2% Hispanic. (The total is greater than 100% because multiple categories were sometimes selected.) Annual household income varied, with 55% reporting between \$25,000 and \$74,999. Participants engaged in a wide variety of forest recreational activities. Possibly because of small sample size, age, gender, education, annual income, distance of residence from a national forest, and self-reported nonrecreational interests in the national forests were not related to trust of the USFS and other variables of interest. Analyses including these variables are not included in this report. Detailed descriptions of participants, complete questionnaire and discussion protocol, other statistical analyses, and other information not included in this article can be found in Cvetkovich and Winter (2001).

The sample mean reflected a moderate personal concern about threatened and endangered species in the national forests of Southern California ($M = 6.0$, $SD = 1.9$; 1 = *not at all concerned*, 8 = *very concerned*). Sixty-eight percent agreed that their view about the protection of threatened and endangered species was best described by, "We probably have to let some species go, we can not save them all." Twenty-five percent agreed that their view was best described by, "We must preserve all species regardless of cost." Only 6.7% agreed that "Economic growth and human concerns must come first" best described their view on the protection of species.

PROCEDURES

After the facilitator's introduction and statement of purpose, participants completed a questionnaire and then participated in discussions focused on the protection of threatened and endangered species in the Southern California national forests. The questionnaire included items measuring social trust of the Forest Service (based on Earle & Cvetkovich, 1995), degree of concern about the protection of threatened and endangered species, judged effect of recreational activity on threatened and endangered species, reactions to specific forest management interventions, background information (age, gender, level of education, annual household income, ethnicity, and annual forest visitation), and other items of interest. Overall, the usable response rate for the questionnaire was 78.7% of the total attendance at the discussion meetings. The large majority of nonrespondents (81.5%) occurred in one group.

Group discussions focused on questions related to forest uses, protection of threatened and endangered species, trust of the Forest Service, conservation and management approaches, and perceived needs for information about threatened and endangered species. Discussions lasted approximately 1 to 1½ hours. Each session was audio taped, and a focus group recorder simultaneously entered notes directly into a laptop computer. Transcripts consisting of individual statements made by participants were constructed based on the notes entered by the recorder with cross-verification and elaboration from the audiotapes (Cvetkovich & Winter, 2001).³ The QSR NUD*IST 4.0 qualitative content analysis program was used in creating sorting categories. Each statement was first categorized by the question asked. The topic of the statements was further differentiated on the basis of the content of the statements.⁴

RESULTS

An index of trust of USFS's management of threatened and endangered species was computed using the mean of seven questionnaire items (see Appendix). Two of the items measured trust in USFS species' protection management in general, and five of the items measured trust relating to particular management practices. The resulting trust scale was highly reliable ($\alpha = .94$), with a mean of 4.34 and a standard deviation of 1.92.

TRUST AND EVALUATIONS OF MANAGEMENT PRACTICES

The trust index score was entered as a predictor in multiple regression analyses of judged effectiveness and acceptance of two management practices: providing information and restricting forest use. In each case, the set of predictors accounted for a significant percentage of variance in judgments, as shown by the square of the adjusted multiple regression coefficients (see Table 1). Trust of USFS was found in all four analyses to be a significant predictor.

Standardized beta coefficients indicating the relative importance of each predictor are also shown in Table 1. Those who rated the effectiveness of restrictions of forest use as high tended to trust the USFS, be concerned about the protection of threatened and endangered species, and assess their knowledge of species' protection issues as high. Those who approved of the restriction of forest uses trusted the Forest Service, were concerned about the protection of threatened and endangered species, and believed that they would not be bothered by the restrictions.

TABLE 1
Beta Weights and Square of Adjusted Multiple Correlations for Predictions of Effectiveness and Approval of Restrictions and Providing Information

	<i>Effectiveness of Restrictions</i>		<i>Approval of Restrictions</i>		<i>Effectiveness of Providing Information</i>		<i>Approval of Providing Information</i>	
	<i>Beta</i>	<i>Significance</i>	<i>Beta</i>	<i>Significance</i>	<i>Beta</i>	<i>Significance</i>	<i>Beta</i>	<i>Significance</i>
Trust	0.266	0.0001	1.167	0.050	0.409	0.0001	0.390	0.0001
Concern about species	0.351	0.0001	0.272	0.002	-0.103	0.054	0.160	<i>ns</i>
Knowledge	-0.164	0.060	-0.091	<i>ns</i>	0.047	<i>ns</i>	0.118	<i>ns</i>
Bother of practice	-0.204	<i>ns</i>	-0.394	0.002	-0.296	0.001	-0.542	0.028
Personal impact	-0.188	<i>ns</i>	-0.168	<i>ns</i>	0.076	<i>ns</i>	0.055	<i>ns</i>
	<i>Adjusted R² Significance</i>		<i>Adjusted R² Significance</i>		<i>Adjusted R² Significance</i>		<i>Adjusted R² Significance</i>	
	0.477	0.0001	0.498	0.0001	0.195	0.001	0.540	0.0001

Those who rated the effectiveness of providing information about threatened and endangered species as high trusted the USFS, were concerned about the protection of species, and believed that they would not be bothered by efforts to provide information. Those who approved of providing information trusted the USFS and believed that providing information would not bother them.

TRUST AND SOCIAL REPRESENTATIONS OF SALIENT VALUE SIMILARITY

Although often qualified and not very specific, a number of participants' statements represented the USFS as sharing their personal views on forest management and the protection of species (see Table 2). Those who trusted represented the USFS as sharing their beliefs that the national forests should be managed for the preservation of species and habitat. A multiple regression analysis predicting level of trust on the basis of responses to three items assessing perceived similarity with the USFS was completed (see the appendix). Responses to each of the three items were significant predictors of expressed level of trust (see Table 3). Each item made an approximately equal contribution to the overall high percentage of variability in trust accounted for ($R^2_{\text{adj}} = .98, p < .0001$). Those participants who most trusted represented the USFS as (a) sharing their own values about how the forests should be managed to protect species, (b) sharing their goals for threatened and endangered species, and (c) supporting their views about the management of threatened and endangered species.

The mean of responses to the three items on judged sharing of values, goals, and views was used as an index to assess perceived similarity ($\alpha = .93$; $M = 4.73, SD = 1.94$). Judged similarity to the USFS was significantly related to view on protection of species, $F(2, 86) = 36.22, p < .001$. Scheffé tests indicated that those who believed that forest management should be guided primarily by concerns for human use rated the USFS as less similar to themselves on salient goals, values, and views than did both those who believed that not all species can be preserved ($p < .0001$) and those who believed that all species must be preserved ($p < .0001$). There was not a significant difference between these latter two groups in the level of judged similarity of USFS to self.

Participants representing the USFS as having similar species' protection values also identified some dissimilar values. Analysis of participants' statements indicated three categories of reasons for the perceived saliency of

TABLE 2
Examples of Statements Indicating Shared Salient Values

"I think the Forest Service [USFS] wants to see the forests endure, but sometimes I think our ideas of their goals are at crossroads."
"The goals [mine and USFS's] are the same, but how they achieve it sometimes are miles apart."
"I think the Forest Service has a general desire to protect the forests and I feel we could do a good job for them if we were better informed."
"I conceptually agree [with the USFS]. We have multiple use of our forests, so how do you work out the problem of usage and still protect the forests?"

TABLE 3
Beta Weights for Perception of U.S. Forest Service's (USFS) Similarity in Views About Threatened and Endangered Species as Predictors of Trust of the USFS

	<i>Beta Standardized Coefficients</i>	<i>t</i>
USFS shares values	.403	10.927*
USFS goals	.310	8.061*
USFS supports views	.333	9.275*

* $p < .0001$.

these dissimilar values. Table 4 shows these were funding limitations, lack of power, and political influences. Observations during the focus group discussions indicated that some participants represented these as nonlegitimate reasons for the saliency of dissimilar values. In this representation, the USFS could not be fully trusted because of the operation of these factors.

Focus group observations also indicated that for other participants some of these reasons were represented as legitimate explanations for why the USFS could not always operate on the basis of shared values. In these representations, the factors "excused" the USFS for failing to keep species' protection as its most salient objective. Representations of the USFS by the most distrustful participants also sometimes noted the effects of political influence on forest management. In addition, statements of participants most distrustful of the USFS's management represented the organization as incompetent and as having engaged in intentional mismanagement and deception (see Table 5).

TABLE 4
Examples of Reasons for the Saliency of Dissimilar Values

Funding limitations

"They have quality people working for them but they are understaffed. It is tempting for the Forest Service to close areas because it is convenient to do so."

"I think it has to do with money, attitude and being burnt out. It is very difficult to get things done."

"My perception is that they are so underfunded that they would not have the capability to implement some sort of protection act and implement it the way it should be done. They don't have the money, the resources or the manpower to do the job."

"It's because the Forest Service doesn't have the funds that they have adopted the attitude that it is them against the outside world. They don't want help. They don't trust anyone else and if volunteers want to help them in any way, their first thought is, there goes my job."

Lack of power

"I don't think they [the Forest Service] have a lot of clout."

"I think it [management for species' protection] is imposed and that they have very little say in matters."

"U.S. Fish and Wildlife has more to do with what gets listed than the Forest Service. They are the listing agency and once a species is listed there is not much the Forest Service can do."

"In the paper today the Forest Service was overruled trying to set aside a piece of land. With this in mind I don't feel they have a lot of power to make these decisions."

"They have no power."

"Regarding the setting of rules and regulations, the Forest Service has a lot of power, however they don't have the power to enforce the protection of threatened and endangered species."

Political influences

"I think they're at the mercy of the politicians there in Congress."

"Not much [latitude to manage for protection of species]. It involves politics in as much as the Forest Service has to answer to certain contingencies."

"The power of environmental groups and their ability to sue the Forest Service puts a tremendous pressure on their decisions. Extreme groups are affecting the ability of the Forest Service to deal with many issues."

"The Forest Service is supposed to make money so they are logging, cutting down old trees and ruining the environment for spotted owls, flammulated owls, woodpeckers, etc. for a couple of bucks. But that is their assignment from Congress—to make a couple of bucks."

"I am confident with the Forest Service employees, but my confidence lapses with the pressures on the Forest Service to provide for high impact areas uses such as mining. There are pressures on the Forest Service to allow these uses to continue as usual. These political pressures decrease public confidence."

"Yes. What we have here are managers of the Forest Service not living up to the public trust. Their philosophy is coming from environmental groups who want to preserve everything and they are misusing the public trust to use their authority to

TABLE 4 (continued)

Political influences (continued)

abuse the public trust. I, as a former government employee, can see quite clearly what is going on. We used to get rid of those people because you're supposed to support the laws of the country. We are very upset that they are taking our tax money and violating the public trust."

"I have low confidence in the Forest Service because they have so much political pressure to manage the forests in a particular way. Politics strongly influences the Forest Service. I think the Forest Service does try to do a good job, but are we really doing the best thing by closing campgrounds and losing public support?"

"The Forest Service is a government organization and it should answer to the public, but I think it is all political and I don't have much confidence that the Forest Service can fairly balance interests."

DISCUSSION

Several features of the design of the study limit generalizations. Because of the inability to match questionnaire responses and discussion statements, conclusions about patterns of saliency and similarity of values based on both sources of information cannot be directly tested. As already acknowledged, the representativeness of the results is unknown due to limits of the sampling strategy. The study was not designed to obtain findings that could be generalized to all residents within the communities of interest and place of residence. The study provides information useful for the examination of processes affecting trust and provides a view of the range of social representations of management of threatened and endangered species. A study using a larger, more systematically selected sample is now in progress.

As expected, the study confirms that both approval and judged effectiveness of management practices is strongly related to trust of the managing organization, the USFS. Evidence for claims to the contrary (e.g., Sjöberg, 1998, 2001) should be examined from the perspective of possible alternative social representations. Low correlations may signify trust judgments based on different social representations than those that underlie evaluations of management practices. This may explain low correlations between evaluations of trusting in general and evaluations of specific management practices. From this perspective, it is not surprising that in spite of the distrust of government held by Californians in many domains, reflected by a series of citizen-supported steps to limit the power of government agencies, government intervention to avert environmental problems is still supported (Baldassare, 2000).

TABLE 5
Examples of Statements Expressing
Distrust of the U.S. Forest Service (USFS)

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- “Concerning another claim, there were a number of old campsites, campgrounds that were no longer in use except for maybe permanent sights on that claim. Six years ago they planted trees and put boulders in the middle of all the side roads so we could not use those areas. Now they are claiming that the trees in that area are being endangered by trees of the varieties that they planted.”
- “The river tortoise is protected. The Fish and Wildlife Department cut a deal with Nevada to develop land in Vegas. They took tortoise from the land and put them up for adoption. If they were not adopted within six months, the Fish and Wildlife Department killed them. Now they are taking them out because I embarrassed them too many times and are dumping them on a poor rancher in Nevada who is probably put out of business because of millions of tortoises running around on his property. These are the actions that make us distrust the government.”
- “When you see the mismanagement of sensitive areas like the Olympic Peninsula and the Tongas in Alaska, it degrades your confidence in the organization.”
- “If you do a good job at the Forest Service you get promoted to a job you can’t do very well but you get paid more for doing it. That incentive is very evident in the Forest Service.”
- “I do not have much confidence. The Forest Service closed fishing because of the Arroyo Toad. The Forest Service gave the explanation for the closure that a fisherman might step on a toad while fishing. This is not very realistic since I must watch where I am walking for a multitude of reasons like not wanting to trip or step on a snake. Another example is the closure of a well-regulated campground in the area and yet the Forest Service left the backcountry backpacking open. I see a big impact from the use of these areas by the backpackers. I feel the Forest Service is being discriminatory toward the designated camping areas since the backcountry has a very high impact from very heavy use. I don’t understand the decision and it shook my confidence in the Forest Service.”
- “The endangered species are managed solely to affect the management goals of the Forest Service. They have nothing to do with protecting or preserving the species. Their agenda is to use this to close areas they want closed, force mining out, stop recreation activity that they do not approve of. They use it as a management tool, and that is how the Forest Service and many other federal entities look at the Endangered Species Act. It is merely a vehicle for extortion and a vehicle for management.”
- “It’s my opinion that the longer they keep the studies going, the longer they can hold off what it is they want done. That’s basically what they’ve been doing for years.”
-

Prior research indicates an abiding concern for species’ protection among a majority of the American public. Despite this, there is no evidence from this study of a single hegemonic representation of species’ protection. Indeed, the identified social representations indicate the extreme difficulty, if not impossibility, of creating an inclusive hegemonic social representation encompassing the variety of relevant values, beliefs, and understandings.

Quantitative analysis of questionnaire responses, observations during the focus group discussions, and qualitative assessment of the discussion statements of participants identified the following four representations of the USFS: (a) a salient value similarity representation of trusting the USFS because it persistently operates according to shared primary management principles of protecting threatened and endangered species, (b) a legitimate inconsistency of salient value similarity representation of trusting the USFS because inconsistencies in following shared primary management principles of protecting threatened and endangered species are due to factors that the agency cannot control, (c) a nonlegitimate inconsistency of salient value similarity representation of lower trust of the USFS because inconsistencies in following shared primary management principles of protecting threatened and endangered species could be controlled by the agency but are not, and (d) a salient value nonsimilarity representation of distrusting the USFS because it consistently follows protecting threatened and endangered species as a primary management principle rather than giving preference to human use.

Three of the four identified social representations (a, b, and c) agree on value similarity but differ on the consistency and legitimacy of value saliency for the USFS. The apparent influence of saliency identified across these three social representations indicates a degree of complexity in trust-related representations previously not incorporated in the SVS model. The original SVS model predicted trust if salient values were similar and distrust if salient values were dissimilar. The three representations identified here suggest a need for revision of the model to incorporate the possible influence of perceived variations in saliency and the represented reasons for the variation. The three factors influencing assessments of saliency—adequacy of funding, lack of power, and political influence—relate to USFS's ability or willingness to operate consistent to its values.

The fourth identified social representation differs from the other three on the basis of value similarity. Future research might profitably be directed toward examining the possibility raised by the present study that value similarities or differences seem to affect trusting or distrusting more strongly than does saliency, at least within the range of saliency perceived by the participants to exist.

Following the recent change in the administration of the federal government, the possibility has occurred that the USFS will reconsider its primary management values. A shift from a management principle of preservation of species and habitat to one giving primary consideration to human use and incorporating the views of local communities and industry in management decisions could occur (McAllister, 2001; Pflieger, 2001; Pianin, 2001). Such a shift obviously would have considerable practical implications for the

meaning of the present results. National surveys reviewed earlier indicate the majority of U.S. citizens support species' protection. The shift in primary management values could jeopardize trust in the USFS by producing social representations of dissimilar values. However, to the extent that management practices actually reflect local community positions, the shift in primary management values could produce social representations of salient value similarity.

APPENDIX Trust and Attributions of Similarity Items

Trust of USDA Forest Service

- (QA7) To what extent do you trust the U.S. Forest Service in their efforts to address threatened and endangered species problems? (1 = *I do not trust the FS at all*, 8 = *I trust the FS completely*; $M = 4.64$, $SD = 2.09$)
- (QA8) How much confidence do you have in the U.S. Forest Service to protect threatened and endangered species? (1 = *I am not confident in the Forest Service at all*, 8 = *I am completely confident in the Forest Service*; $M = 4.71$, $SD = 1.96$)
- (QB1 to QB5) How confident are you in having the Forest Service decide if (each of 5 practices to protect threatened and endangered species) is necessary to do? (1 = *not confident at all*, 8 = *very confident*)

The 5 practices were:

- (1) Banning certain uses in the forest, or areas of the forest, such as off-road vehicle use or fishing (QB1, $M = 4.01$, $SD = 2.01$);
- (2) Have signs at recreation sites informing forest users of their negative impacts on threatened and endangered species (QB2, $M = 4.36$, $SD = 3.09$);
- (3) Forest Service staff visit recreation sites and informally discuss activities that don't adversely affect threatened and endangered species (QB3, $M = 4.46$, $SD = 2.31$);
- (4) Forest Service were to close some campsites or picnic sites to protect threatened and endangered species but keep the majority of the areas open to use (QB4, $M = 4.18$, $SD = 2.15$);
- (5) Forest Service were to close whole campgrounds or picnic areas for a year or longer to allow species to recover (QB5, $M = 4.00$, $SD = 2.18$).

Perception of shared values

- (QA4) To what extent do you believe the U.S. Forest Service shares your values about how the national forests should be managed to protect threatened

and endangered species? (1 = *does not share values*, 8 = *shares values*; $M = 4.62$, $SD = 4.10$)

(QA5) To the extent that you understand them, do you share the U.S. Forest Service's goals for threatened and endangered species? (1 = *different goals*, 8 = *same goals*; $M = 4.95$, $SD = 2.10$)

(QA6) To what extent does the U.S. Forest Service support your views about the management of threatened and endangered species? (1 = *opposes views*, 8 = *supports views*; $M = 4.78$, $SD = 1.87$)

NOTES

1. The term *social trust* emphasizes that the individual or a group of individuals being trusted has institutional responsibilities affecting the individual making the trust attribution but may not be personally known to that person.

2. Imaging and other studies of brain functioning are beginning to suggest the location in the brain of the trust-related operations of the two information processing systems (C. D. Frith & Frith, 2000a, 2000b; U. Frith & Frith, 2001; Ochsner & Lieberman, 2001). It can be speculated that automatic, unconscious, associative processing related to primary episodic representations involves the ventral stream of information processing, at the "bottom" of the brain, which is activated in the performance of social intelligence tasks. Secondary episodic representations likely involve the coordinated operations of the ventral stream and the dorsal stream, at the "top" of the brain (including the anterior cingulate cortex), connected through the temporo-parietal junction. Activity in these areas has been observed during the detection of goals and during mentalizing or mind reading tasks. The amygdala and other parts of the limbic system function for emotion learning and response. This system may be involved in reactions of fear and anger, for example, connected to procedural/semantic trust-related representations. Intentional, conscious, rule-based information processing involves activation of parts of the cerebrum. The prefrontal cortex performs executive functions related to decision making as well as receiving messages funneled from the limbic system.

3. Stipulations of the Research on Human Participants Institutional Review Board and practical limitations made it impossible to either identify individual participants across statements or to match questionnaire responses to discussion statements.

4. The topic categories are fairly obvious (see Tables 2, 4, and 5). Categorizations by two independent raters were nearly perfectly matched, and the few differences were easily reconciled through brief discussion. Cvetkovich and Winter (2001) contains a catalog of all statements made and other details.

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