
Salient Value Similarity, Social Trust and Attitudes toward Wildland Fire Management Strategies

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Abstract

We predicted that social trust in the USDA Forest Service would mediate the relationship between shared value similarity (SVS) and attitudes toward prescribed burning and mechanical thinning. Data were obtained from a mail survey (n = 532) of rural Colorado residents living in the wildland urban interface (WUI). A structural equation analysis was used to assess the mediation role of social trust. Results indicated that respondents shared the same values as USDA Forest Service managers, and trusted the agency to use prescribed burning and mechanical thinning effectively. As hypothesized, social trust fully mediated the relationship between salient value similarity and attitudes toward prescribed burning and mechanical thinning. As salient value similarity increased, social trust in the agency increased. As social trust increased, approval of prescribed burning and mechanical thinning increased. These findings reinforce the role of social trust in gaining public support for wildfire management and support prior SVS research suggesting that trust mediates the relationship between value similarity and attitudes.

Keywords: salient value similarity, trust, attitudes, wildland fire management

Introduction

Recent severe wildland fires in the United States have heightened awareness of the potential risks associated with wildfires (Nelson et al. 2004; Winter et al. 2002). To minimize the negative consequences of wildfires, the USDA Forest Service has shifted from a traditional emphasis on total fire suppression to policies designed to reduce the probability/severity of wildfires and to restore ecological conditions. Two major techniques used are prescribed burning and mechanical thinning. Prescribed burning involves the controlled use of fire to burn off excess vegetation in the forest. Mechanical thinning reduces the amount of vegetation in the forest by physically removing some trees and shrubs. Fire management crews use heavy equipment (e.g., bulldozers) and/or light equipment (e.g., chainsaws). With either prescribed burning or mechanical thinning, management objectives are to: (1) reduce the severity of a fire and (2) improve the ability to control a wildfire (USDA 2004).

Although this policy change has potential ecological advantages, a successful fire mitigation program requires public support for management strategies (Cortner et al. 1984; Knotek 2006; Loomis et al. 2001; Taylor and Mutch 1986). Past research suggests that support for prescribed burning and mechanical thinning can vary by (1) demographics (e.g.,

age, education), (2) situational characteristics (e.g., proximity to a forest) and (3) psychological variables (e.g., beliefs and attitudes toward a management action or the managing agency) (Absher and Vaske 2007). Education, for example, may be linked to knowledge about agency initiated wildland fire management actions (Vogt et al. 2005). Situational factors define a given context and influence what the public believes is acceptable or feasible (Bright et al. 2007; Kneeshaw et al. 2004a, 2004b). Public support for fire management has been linked to whether the fire will affect private homes built in the wildland-urban interface (Davis 1990; Jacobson et al. 2001; Manfredo et al. 1990).

Studies of wildland fire beliefs and attitudes suggest that psychological variables are also important to understanding wildland fire policy support (Absher et al. 2006; Brenkert et al. 2005; Vogt et al. 2005; Winter 2003). The public often under- or over-estimates wildfire risks (Beebe and Omi 1993) and large attitudinal differences sometimes exist between experts and non-experts in risk situations (Zaksek and Arvai 2004). Other research suggests that public expectations and understandings of wildland fire management in the WUI change over time and need to be affected by well-crafted public education programs (Cortner et al. 1990). McCaffrey (2004), however, concluded that such educational campaigns do not seem to be working, perhaps because of a lack of understanding or trust.

Trust in the agency has been suggested as a key psychological predictor of public acceptability of management actions. Using Salient Value Similarity (SVS) measures, for example, Winter and associates (Winter and Cvetkovich 2004; Winter et al. 2004) examined the direct link between shared values and social trust in the management agency. Social trust is “the willingness to rely on those who have the responsibility for making decisions and taking actions related to the management of technology, the environment, medicine, or other realms of public health and safety” (Siegrist et al. 2000, 354). The adjective “social” emphasizes that the people being trusted are those with formal responsibilities within organizations that may not be personally known to the person making the trust attribution (Siegrist et al. 2000). In this paper, we attempt to build on this work by developing a conceptual model for understanding the relationships among shared values, social trust and attitudes toward prescribed burning and mechanical thinning.

Conceptual Model

Researchers suggest that social trust is based on perceived similarity rather than carefully reasoned attributions of trust or direct knowledge of the managing agency (Earle and Cvetkovich 1995; Siegrist et al. 2000; Siegrist et al.

2001). People base their trust judgments on whether they feel that the agency shares similar goals, thoughts, values, and opinions. This approach is known as salient value similarity, but has also been referred to as salient similarity, perceived shared values, and perceived similarity (e.g., Siegrist et al. 2001; Cvetkovich and Winter 2003; Earle 2004; Needham and Vaske in press).

Perceived similarity frequently predicts social trust; people who perceive that they share similar views as the managing agency tend to trust the agency more than those who do not (e.g., Siegrist et al. 2000; Cvetkovich and Winter 2003; Poortinga and Pidgeon 2003; Walls et al. 2004). Winter and Cvetkovich (2003), for example, found that trust ratings of the USDA Forest Service fire management policies (1) varied significantly by state (i.e., Arizona, California, Colorado, New Mexico); (2) were primarily influenced by shared values between the agency and the public; and (3) predicted respondents’ approval of management actions. Winter et al. (2004) found significant relationships between social trust in USDA Forest Service fuel management strategies and perceived agency competence (i.e., an alternative measure of shared values). Winter and Palucki (1999) conceptualized social trust similar to Winter and Cvetkovich (2004) and found that trust predicted attitudes toward willingness to pay National Forest recreation user fees.

People who trust agencies in charge of managing a potential hazard (e.g., prescribed burning) perceive less risk regarding the hazard compared to those who do not (e.g., Pijawka and Mushkatel 1991; Bord and O’Connor 1992; Flynn et al. 1992; Siegrist and Cvetkovich 2000; Siegrist et al. 2000; Siegrist et al. 2001). Examination of the strength of relationship between social trust and perceived risk, however, has provided mixed results. In some studies, up to 70% of the variance in perceived risk is explained by trust (Flynn et al. 1992; Siegrist et al. 2000). Other studies, however, report that 5% to 20% of the attitude (i.e., perceived risk) is explained by social trust (e.g., Sjöberg 2000b; Trumbo and McComas 2003; Viklund 2003). Weak to moderate relationships between trust and risk may suggest that people believe that there are clear limits to how much agencies and other experts know. People may trust a managing agency, but feel that potential risks (e.g., the ability to contain a prescribed burn) are beyond agency control (Sjöberg 2001).

Hypotheses

Based on previous research (e.g., Siegrist et al. 2000; Winter and Cvetkovich 2004; Winter et al. 2004), we predicted that trust will mediate the relationship between salient value similarity and attitudes toward prescribed burning and mechanical thinning. Figure 1 diagrams the predicted relationships. Stated more formally, we hypothesize:

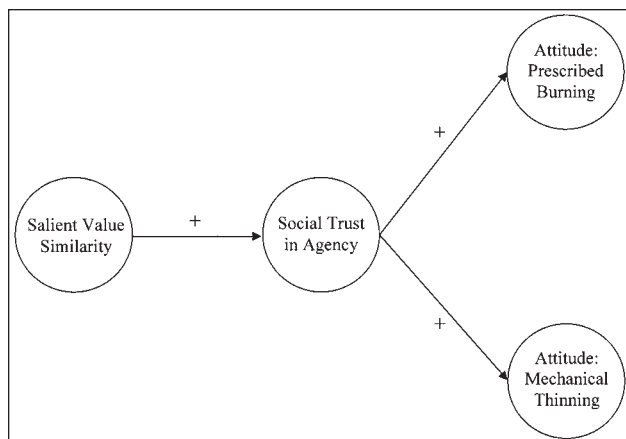


Figure 1. Hypothesized Relationships between Salient Value Similarity, Social Trust and Attitudes toward Prescribed Burning and Mechanical Thinning

- H₁ Social trust will mediate the relationship between salient value similarity and attitudes toward prescribed burning and mechanical thinning.
- H₂ As salient value similarity increases, social trust in the agency will increase.
- H₃ As social trust increases, approval of prescribed burning will increase.
- H₄ As social trust increases, approval of mechanical thinning will increase.

Study Area

The study area for this investigation included six counties in Colorado (Boulder, Clear Creek, Gilpin, Grand, Jackson, and Larimer). The populations in these counties increased by an average of 33% between 1960 and 2000, with the largest increases occurring in Gilpin (55%) and Grand (56%) counties. Although the six counties are considered part of Colorado's wildland urban interface, a mixture of rural and urban population centers is evident (e.g., Fort Collins, population = 137,177; Boulder, population = 94,673). Individuals living in developed locations can be affected by wildland fires. For the purposes of this study, however, our sampling frame was constrained to landowners living in rural locations in each of the six counties. We used the Census Bureau's 2000 definition of rural (i.e., population density < 1000 people per square mile, Census 2000) and operationalized "rural" using local maps and zipcodes. Individuals living in areas proximate to forested lands may be at greater risk from wildland fires and are more likely to be aware of prescribed burning and mechanical thinning.

Colorado has 22 million acres of forested landscape. A substantial portion of these lands are in the six counties in our study area. For example, over 50% of Larimer County is publicly owned, most of which is land within the Arapaho-

Roosevelt National Forest. The Arapaho-Roosevelt also extends into Boulder, Clear Creek, Gilpin, Grand and Jackson Counties. Although other private and public lands in these counties are managed by a variety of state (e.g., Colorado State Forests) and national agencies (e.g., National Park Service), the USDA Forest Service manages more forested land than any other agency. For this reason, our analyses of shared value similarity and agency trust focused on the USDA Forest Service. Other land management agencies may have a similar/different relationship with residents' views on SVS and social trust.

Although precise estimates are not available for the amount of land treated by prescribed burning and mechanical thinning, the USDA Forest Service and its partnership agencies (e.g., Colorado State Forest Service, National Park Service) identified 510,000 acres in Colorado as high priority for treatment (300,000 in the Pike National Forest, 140,000 in Arapaho-Roosevelt National Forest and 70,000 acres of non-federal land) (Baker et al. 2004).

Methods

The study population consisted of landowners over the age of 18 who reside in the rural areas (Census 2000) of the six Colorado counties (Boulder, Clear Creek, Gilpin, Grand, Jackson, and Larimer). A random sample of resident names and addresses was purchased from a commercial sampling firm in the summer of 2004.

Mail Survey Administration

Four mailings were used to administer the survey beginning at the end of May 2004. Residents first received the 12-page questionnaire, a pre-paid postage return envelope and a personalized cover letter explaining the study and requesting their participation. Ten days after the initial mailing a reminder postcard was sent to participants. A second complete mailing (questionnaire, pre-paid postage return envelope and cover letter) was sent to non-respondents 10 days after the postcard reminder. To further increase the response rate, a third complete mailing was sent one month following the second complete mailing. A total of 532 completed surveys were returned with an overall response rate of 47% (532 returned/1,200 sent — 56 non-deliverables).

As a check on potential non-response bias, a telephone survey was conducted of non-response residences ($n = 100$). Selected key issues (perceived effectiveness, approval, and aesthetic impacts of prescribed burning and mechanical thinning) were addressed in the telephone survey. Differences between respondents and non-respondents on these central topics were "minimal" (Hedges' g effect sizes $\leq .2$) (Vaske et al. 2002). Thus, non-response bias was not considered to be a problem and the data were not weighted.

Variables in Model

Predictor – Salient Value Similarity. Following Siegrist et al. (2000), salient value similarity was measured with five questions. Respondents were asked “With respect to forest fire management, I feel the USDA Forest Service: (1) shares similar values as me, (2) shares similar opinions as me, (3) thinks in a similar way as me, (4) takes similar actions as I would, and (5) shares similar goals as me. Responses were given on a 7-point scale ranging from “strongly disagree” (1) to “strongly agree” (7).

Mediator – Social Trust. Respondents were asked a series of questions to assess social trust. These were used to construct a multiple-item index of social trust, which served as the mediator in the models. One variable consisted of a 3-question “trust-in-management” index. Respondents were asked: “I trust the USDA Forest Service knows how to: (1) effectively plan prescribed burns, (2) use mechanical thinning effectively, and (3) respond to forest fires.” A second indicator of social trust was based on four questions concerned with trust in USDA Forest Service information: “With respect to forest fire management, I trust the USDA Forest Service to provide: (1) the best available information on forest fire issues, (2) me with enough information to decide what actions I should take regarding forest fire, (3) truthful information about safety issues related to forest fire, and (4) timely information regarding forest fire issues.” Survey items in both the “trust management” and “trust information” indices were measured on a 7-point scale from “strongly disagree” (1) to “strongly agree” (7). The third social trust variable, agency performance, was a single-item indicator. Respondents were asked to assign a letter grade to the USDA Forest Service based on their opinion of the job that the agency has done managing wildland fires. Response categories were based on an “A” (4) to “F” (0) scale that included intermediate grades (e.g., A- = 3.75, B+ = 3.50).

Criterion variables. Attitudes toward prescribed burning and mechanical thinning were each measured with three survey items. Respondents were asked (1) “How effective are prescribed burns (and mechanical thinning) in preventing subsequent fires from getting out of control?” [measured on a 9-point scale ranging from “not at all effective” (1) to “extremely effective” (9)]; (2) “Do you approve or disapprove of the use of prescribed burns (and mechanical thinning) in forests?” [measured on a 9-point scale ranging from “strongly disapprove” (1) to “strongly approve” (9)]; and (3) “Do prescribed burns (and mechanical thinning) make the forest look better or worse?” [measured on a 9-point scale ranging from “extremely worse” (1) to “extremely better” (9)].

Analysis Strategy

The internal consistency of the SVS, social trust and at-

titude latent indices were examined using Cronbach’s alpha and confirmatory factor analysis. A structural equation path analysis was used to assess the mediation role of social trust. Two separate models were fitted in AMOS 5 using the variance and covariance matrices. In the partial mediation model, the predictor (SVS) influenced the criterion constructs (attitudes toward prescribed burning and mechanical thinning) directly and indirectly through its effect on the mediator (social trust). In the full mediation model, the predictor (SVS) only influenced the criterion constructs (attitudes) indirectly through its effect on the mediator (social trust). Comparisons of the partial and full mediation models were based on indicators of robustness and goodness of fit ($\Delta\chi^2$, χ^2 / df , NFI, CFI, RMSEA).

Results

Sample Characteristics

Given our sampling design, 49% of the respondents lived within a forested area; another 22% lived less than one mile from a forest, and 22% resided between one to five miles from a forest. Nearly two-thirds (64%) of the respondents were male, with an average age of 56 years old and an average annual income of \$71,500. One-third had a 4-year college degree and another 27% held an advanced college degree (e.g., masters, Ph.D.). Over 80% were year around residents at the location where the survey was delivered and 93% owned their home.

Scale Reliabilities

With respect to forest fire management, Colorado residents believed that they shared the same values ($M = 4.86$, $SD = 1.53$), opinions ($M = 4.64$, $SD = 1.54$), thoughts ($M = 4.51$, $SD = 1.57$), and goals ($M = 4.70$, $SD = 1.57$) as USDA Forest Service managers (Table 1). Respondents also believed that they would act ($M = 4.48$, $SD = 1.62$) similar to the Forest Service managers. The reliability coefficient for these five survey items was .96, indicating that when the items are combined to create a single index, the index had high internal consistency. Deleting any of the items did not improve the scale’s overall reliability.

Social trust was measured using three sets of variables (i.e., a trust-in-management index, a trust-in-information index, and a single-item indicator of the agency’s performance grade). In general, respondents trusted Forest Service management to effectively plan prescribed burning ($M = 4.80$, $SD = 1.71$), use mechanical thinning effectively ($M = 5.17$, $SD = 1.60$), and to respond to forest fires appropriately ($M = 5.68$, $SD = 1.36$). The reliability coefficient for these three items was .77 (Table 2). The mean for the index was 5.22 with a standard deviation of 1.28. Similar evaluations

Table 1. Salient value similarity indicators¹

Salient Value Similarity Indicators	Mean	Standard Deviation	Cronbach	Cronbach's
			Alpha if Item Deleted	
With respect to forest fire management, I feel that the U.S. Forest Service ¹				.96
Shares similar values as me	4.86	1.53	.94	
Shares similar opinions as me	4.64	1.54	.94	
Thinks in a similar way as me	4.51	1.57	.94	
Takes similar actions as I would	4.48	1.62	.95	
Shares similar goals as me	4.70	1.57	.95	

¹ Responses given on 7-point scale: (1) Strongly disagree, (2) Moderately disagree, (3) Slightly disagree, (4) Neutral, (5) Slightly agree, (6) Moderately agree, (7) Strongly agree

were given regarding the trust in Forest Service information (e.g., provide the best available information on forest fire issues). The means for the four trust-in-information items ranged from 5.52 (provide timely information) to 5.77 (provide truthful information about safety issues related to forest fire) and the overall Cronbach's alpha for the trust-in-information index was .93. The final variable representing the social trust concept, overall agency performance grade with respect to handling forest fire in Colorado, had an average

score of 3.23 (a letter grade of B) and a standard deviation of 0.79. Taken together, the trust-in-management index, trust-in-information index, and overall agency grade had a reliability coefficient of .77.

Attitude toward prescribed burning was measured using three survey items that addressed effectiveness ($M = 6.74$, $SD = 1.44$), approval ($M = 6.85$, $SD = 1.87$) and aesthetic impact ($M = 5.65$, $SD = 2.04$). The overall Cronbach's alpha was .83 (Table 3). Attitude toward mechanical thinning was measured using an identical set of three variables. Results were similar to attitude toward prescribed burning. The means for mechanical thinning items ranged from 6.31 (aesthetic impact) to 7.04 (approval), and the index had a reliability coefficient of .81.

Mediation Models

Having demonstrated the reliability of the constructs separately, confirmatory factor analysis was used to examine the relationship between each of the observed variables and the four latent constructs (salient value similarity, social trust in the agency, attitude toward prescribed burning, and attitude toward mechanical thinning) (Figure 2). The standardized factor loadings were consistently greater than .64 ($p < .001$). Modification indices indicated that the fit of the model could not be improved by allowing any of the observed variables to load on a different latent construct.

Table 2. Social Trust Indicators

Social Trust Indicators	Mean	Standard Deviation	Cronbach Alpha If Item Deleted	Cronbach's Alpha
Trust in U.S. Forest Service management¹				.77
I trust that the U.S. Forest Service knows how to:				
effectively plan prescribed burns	4.80	1.71	.63	
use mechanical thinning effectively	5.17	1.60	.62	
respond to forest fires	5.68	1.36	.74	
Trust Management index	5.22	1.28		
Trust in U.S. Forest Service information¹				.93
With respect to forest fire management, I trust the U.S. Forest Service to provide:				
the best available information on forest fire issues	5.59	1.40	.92	
me with enough information to decide what actions I should take regarding forest fire	5.69	1.33	.91	
truthful information about safety issues related to forest fire	5.77	1.31	.91	
timely information regarding forest fire issues	5.52	1.50	.92	
Trust Information index	5.64	1.27		
Agency Performance Grade²				
Taking everything into consideration, how would you grade the U.S. Forest Service for handling forest fire in Colorado?	3.23	0.79		
Overall Social Trust³	4.69	0.92		.77

¹ Responses given on 7-point scale: (1) Strongly disagree, (2) Moderately disagree, (3) Slightly disagree (4) Neutral, (5) Slightly agree, (6) Moderately agree, (7) Strongly agree

² Responses originally given on a 10-point scale: (4.00) A, (3.75) A-, (3.50) B+, (3.00) B, (2.75) B-, (2.50) C+, (2.00) C, (1.75) C-, (1.00) D, (0.00) F

³ The "overall social trust" variable includes "trust management index," "trust information index" and "agency performance grade"

Table 3. Attitudes toward Prescribed Burning and Mechanical Thinning

Social Trust Indicators	Mean	Standard Deviation	Cronbach Alpha If Item Deleted	Cronbach's Alpha
Prescribed burning				.83
How effective are prescribed burns in preventing subsequent fires from getting out of control? ¹	6.74	1.44	.77	
Do you approve or disapprove of the use of prescribed burns in forests? ²	6.85	1.87	.65	
Do prescribed burns make the forest look better or worse? ³	5.65	2.04	.81	
Mechanical thinning				.81
How effective is mechanical thinning in preventing subsequent fires from getting out of control? ¹	6.84	1.56	.81	
Do you approve or disapprove of the use of mechanical thinning in forests? ²	7.04	1.89	.64	
Does mechanical thinning make the forest look better or worse? ³	6.31	1.98	.72	

¹ Responses given on 9-point scale: (1 and 2) Not at all effective, (3 and 4) Slightly effective, (5, 6, and 7) Moderately effective, (8 and 9) Extremely effective

² Variable coded on 9-point scale: (1 and 2) Strongly disapprove, (3 and 4) Slightly disapprove, (5) Neutral, (6 and 7) Slightly approve, (8 and 9) Strongly approve

³ Variable coded on 9-point scale: (1 and 2) Extremely worse, (3 and 4) Slightly worse, (5) Neither, (6 and 7) Slightly better, (8 and 9) Extremely better

Hypothesis 1 was tested using two structural equation models. We predicted that social trust would mediate the relationship between salient value similarity and attitudes toward prescribed burning and mechanical thinning. Support for this hypothesis was evident by comparing the full and partial mediation models (Table 4). The partial mediation model ($\chi^2 = 438.19$, $df = 72$, $p < .001$) was statistically

equivalent to the full mediation model ($\chi^2 = 440.94$, $df = 74$, $p < .001$); and the change in chi-square statistic was not significant ($\Delta\chi^2 = 2.75$, $df = 2$, n.s.). In addition, measures of model quality (χ^2 / df (5.96), NFI (.917), CFI (.930), and RMSEA (.079)) were acceptable for the full mediation model. For all of these reasons, the full mediation model was used to describe the data.

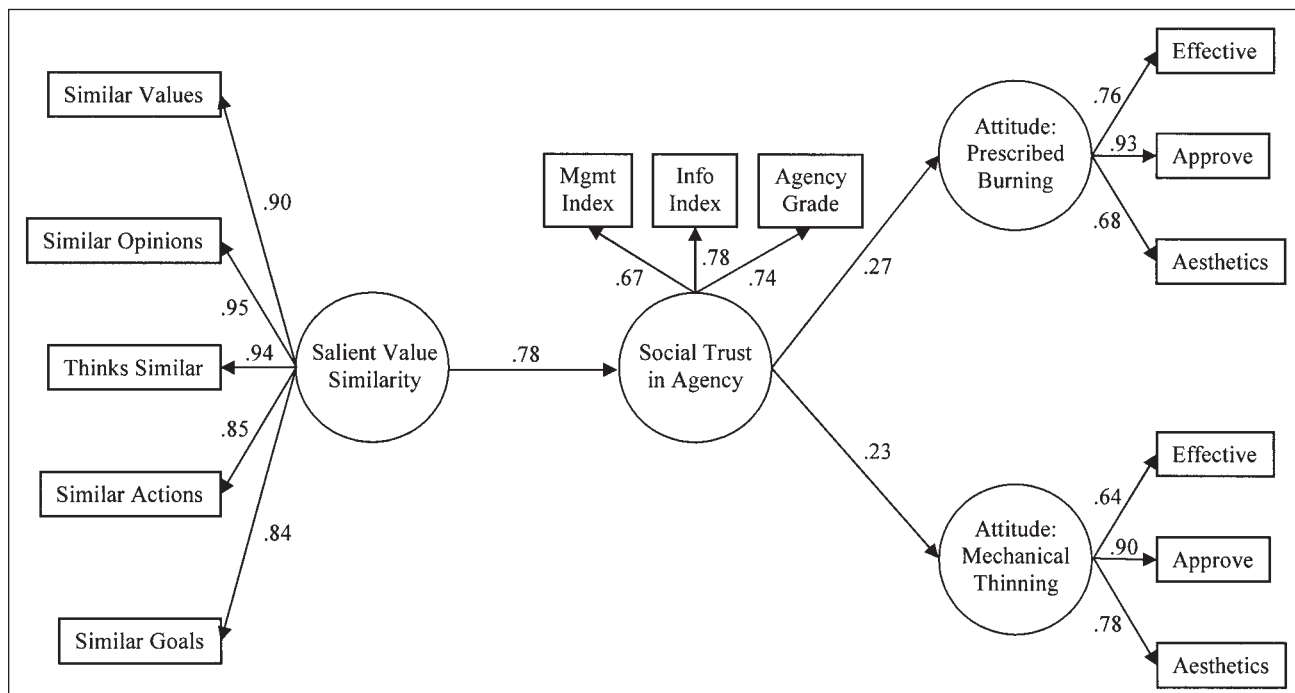


Figure 2. Confirmatory Factor Analyses and Full Mediation Structural Equation Model¹

1. Path coefficients are standardized regression coefficients. All coefficients are statistically significant ($p < .001$).

Table 4. Goodness-of-fit Indices for Structural Equation Models

Mediation models	χ^2	df	<i>p</i> -value	χ^2/df	NFI	CFI	RMSEA
Full mediation model	440.94	74	< .001	5.96	.917	.930	.097
Partial mediation model	438.19	72	< .001	6.09	.917	.930	.098
$\Delta\chi^2$ (Full – Partial models)	2.75	2	n.s.				

As predicted by hypothesis 2, as salient value similarity increased, social trust in the agency increased ($\beta = .78, p < .001$, Figure 2). Similarly, as social trust increased, approval of prescribed burning ($\beta = .27, p < .001$) and mechanical thinning ($\beta = .23, p < .001$) increased. These findings support hypotheses 3 and 4.

Conclusion and Discussion

This paper developed a conceptual model to explain the relationships among: (1) salient value similarity, (2) social trust in the USDA Forest Service, and (3) attitudes toward wildland fire management strategies. The SVS model served as the conceptual foundation for the predicted relationships. The findings highlighted both applied and theoretical implications for understanding attitudes toward wildland fire management strategies.

Management Implications

For land management agencies such as the USDA Forest Service, establishing and maintaining trust is an ongoing challenge. Our research shows why efforts to build and maintain trust are important. Social trust in the agency and attitudes toward prescribed burning and mechanical thinning are related. Studies of other issues such as nuclear power have shown a much stronger relationship between trust and related attitudes such as perceived risk (Flynn et al. 1992; Siegrist et al. 2000). Nuclear power, however, is a technology created and controlled by humans, whereas wildfires can occur naturally and are perhaps viewed as a force of nature. Homeowners may trust the managing agency, but feel that wildfires, even prescribed burning, are beyond agency control. Agencies may need to do more to communicate with individuals about their strategies for managing wildfires and their expectations, capabilities or objectives in fighting them.

Findings also revealed that, on average, homeowners agreed that they shared similar views as the Forest Service and trusted the agency to manage wildfires appropriately. This is important for several reasons. First, salient value similarity and trust can influence support of agency goals, objectives, and management (Earle 2004). For example, individuals in our study who shared similar values as the Forest Service reported more trust in the agency; those who trusted

the agency were more likely to support prescribed burning and mechanical thinning.

Second, what we know about persuasion (e.g., from models such as elaboration likelihood, heuristic systematic) suggests that value similarity and trust are important determinants of effective communication and persuasion (Petty and Cacioppo 1986; Chaiken et al. 1996). Our findings suggest that individuals who trust an agency may be more motivated to attend to information campaigns.

Third, agencies should strive to understand constituents' opinions, values, and goals. To preserve trust and a strong constituent base, management should be tailored to reflect local views whenever feasible. If constituents' views are not reflected in management, reasons for inconsistencies should be shared so they can be weighed in relation to considerations of trust (Cvetkovich and Winter 2003).

Theoretical Implications

From a theoretical perspective, finding a strong positive relationship between salient value similarity and trust is consistent with past research (Siegrist et al. 2000; Winter et al. 2004). Researchers should continue to examine measures of perceived similarity, as they seem to be important determinants of social trust. Given the factor loadings and reliabilities, variables used here and in other studies appear to be appropriate for measuring SVS.

The association between social trust and attitude is less clear. Some studies have reported strong relationships between related concepts (e.g., trust and perceived risk) (Flynn et al. 1992; Siegrist et al. 2000). Findings here, however, were consistent with research reporting relatively weak relationships (e.g., Needham and Vaske in press; Sjöberg 2000b, 2001; Viklund 2003). Given that most of the variance in these concepts remains unexplained by trust, other attributes such as knowledge, control, and newness may also contribute to respondents' perceptions (e.g., Fischhoff et al. 1978; Sjöberg 2000a).

There is inconsistency in the conceptualization and measurement of trust. Some researchers contend that trust is multidimensional and consists of dimensions such as caring, responsibility, competence, fairness, and confidence (Johnson 1999; Poortinga and Pidgeon 2003). Factor loadings and reliabilities reported here, however, support the unidimensional

interpretation of social trust (Winter et al. 1999; Siegrist et al. 2000; Siegrist et al. 2001).

Future Research

To increase the generalizability of these findings, the following research considerations are offered. First, this article examined homeowners' attitudes toward prescribed burning; not examined were the potential risks associated with prescribed burning that may influence individuals' views. People tend to believe that they are at less risk than others (i.e., risk denial) (Slovic et al. 1981; Sjöberg 2000a). Research is needed to assess how individuals assign judgments of risk.

Second, this article investigated respondents' perceptions of similarity, trust, and attitude. Research has shown that experts (i.e., scientists, agencies), constituent/interest groups, and the public can differ in their perceptions. Experts, for example, tend to judge risks differently and as less severe compared to others (Sjöberg 1999; Taylor et al. 1988).

Third, most studies investigating relationships among salient value similarity and social trust have focused on a single agency (e.g., USDA Forest Service). Whether our findings generalize to other natural resource agencies such as the Colorado State Forest Service or the National Park Service remains an empirical question.

Fourth, homeowners' attitudes were only partially influenced by trust in the agency. Researchers have identified various other determinants of attitudes and perceived risk including dread, knowledge, control, and newness (e.g., Fischhoff et al. 1978; Sjöberg 2002). Slovic (1987) explored these perceptions of risk in the context of a psychometric paradigm. Understanding wildland fires within the context of the psychometric model may facilitate risk analysis and policy development.

Fifth, our operationalization of salient value similarity in this paper was identical to prior theorizing and empirical work based on the SVS model (e.g., Siegrist et al. 2000). We have, however, also developed scales for measuring value orientations (i.e., patterns of basic beliefs) about wildfire management (e.g., Bright et al. 2005) based on the theoretical work of Rokeach (1973). These basic beliefs include dimensions such as biocentrism, anthropocentrism, responsibility, and freedom. Identification of these value orientations/basic beliefs has proven useful for predicting attitudes toward fire policies, norms for agency reactions to wildfire, and fire-related homeowner behaviors such as creating defensible space (Absher and Vaske 2007). Research that directly compares SVS measures of value similarity against the Rokeach-based value orientations may further facilitate understanding the foundations of individuals' attitudes, norms and behaviors associated with wildland fire management.

Sixth, identical to most previous research on salient value

similarity and social trust, this article is quantitative and cross-sectional in nature. It is likely, however, that these concepts are dynamic, not static. Longitudinal or panel design studies are needed to obtain time-series data. Studies have found utility in applying qualitative methods to examine these concepts (e.g., Winter et al. 1999; Cvetkovich and Winter 2003; Earle 2004). These approaches may be useful for providing depth and detail necessary for delineating underlying influences and dimensions of perceived similarity and trust.

Finally, the concepts of salient value similarity and social trust have generated considerable interest in the risk literature, but have received little attention in natural resource fields. Given the contentious nature of many natural resource issues, drawing on the risk literature may facilitate a better understanding of stakeholders and, consequently, the challenges faced by resource managers. This study should be viewed as a starting point in that direction. Researchers are encouraged to address research needs identified here and further understand the human dimensions of wildfire management.

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Endnote

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