

THE RELATIONSHIP BETWEEN PLACE BONDING AND SOCIAL TRUST, AS EXPLORED IN A STUDY IN THE BIG THICKET NATIONAL PRESERVE, TEXAS

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Abstract.—The management of feral hogs surrounding the Big Thicket National Preserve (BTNP) in southeastern Texas requires that National Park Service (NPS) staff and stakeholders manage resource issues collaboratively. Past research has indicated that place bonding can be the common ground upon which managers and stakeholders develop social trust with one another to form a basis for collaborative management. However, such research has not examined the different types of social trust (e.g., trust in local managers versus trust in the entire agency) that exist. The present study tested the hypothesis that the relationship between respondents' place bonding and their trust in BTNP managers to manage feral hogs is moderated by whether or not the respondents trusted the agency (i.e., NPS) as a whole. The results of the analysis failed to confirm the hypothesis, but the place belongingness dimension of place bonding was positively related to trust in BTNP NPS staff.

1.0 INTRODUCTION

Many issues face managers of natural resource recreation areas in southeastern Texas, including the expansion of the wildland-urban interface, changing visitor demographics, and management of feral hog populations. This last issue stems from the early

beginnings of European exploration of the North American continent. Legend suggests that the first hogs to become feral escaped from Hernando de Soto's expedition in the first half of the 16th century. These hogs, undoubtedly along with others from subsequent European settlement, expanded their territory to cover most of the southern United States. Today feral hogs feed on crops, damage landscaping, increase erosion through rooting, and compete with native species for food and habitat. Hunting and trapping feral hogs also has become a recreational activity that many people enjoy. Given that feral hogs range in and out of natural resource recreation areas, managers of these areas have begun to work with local residents to manage the feral hog population collaboratively.

The paradigm shift in the decision-making processes of recreation land management agencies, from being agency-centered to involving stakeholders, over the past quarter of a century has been well documented (Williams and Stewart 1998, Cortner and Moote 1999). Managers have begun to embrace stakeholder involvement and public collaborative efforts rather than relying upon traditional agency-driven decisions. Although this style of decision-making encourages and empowers the public, collaborative efforts can become cumbersome by bringing a myriad of values and attitudes to the discussion (Lee 1993, Winter et al. 1999). The concept of place bonding has been used to help understand the subjective and symbolic meanings people associate with natural settings (Williams and Vaske 2003, Kyle et al. 2004). Research by Payton et al. (2005) and by Williams and Stewart (1998) has indicated that bonding with a setting not only provides insight into the thoughts and feelings people have towards that place, but can also serve as a starting point for reaching a common ground that fosters social trust between stakeholders and managers of protected areas. In turn, this trust can facilitate the collaborative management process. Because social trust and place

bonding have been suggested as important concepts in the understanding of the decision-making process, it is imperative that recreation resource scholars and managers alike understand the relationship between the concepts. By improving our comprehension of place bonding and social trust, we may be able to suggest ways to encourage and improve the collaborative decision-making process.

2.0 RELATED RESEARCH

2.1 Place Bonding

For hundreds of years scholarly and literary authors have written about places that are special to themselves and others. Thoreau, Emerson, London, and Abbey have all highlighted the importance of natural settings to us. To understand the person-place relationship, researchers have developed the concept of place bonding. Place bonding has been defined as “the extent to which an individual values or identifies with a particular environmental setting” (Kyle et al. 2003, p. 250). It is a social psychology concept involving the beliefs, attitudes, and identities that a person holds with regard to specific settings. Place bonding research has also been labeled “place attachment,” “sense of place,” and “genres of place” (Altman and Low 1992). Related literature has indicated that being bonded with a place implies a strong emotional tie between the person and place that can vary from temporary sensory delight to long-lasting rooted attachment (Tuan 1974). Shumaker and Taylor (1983) suggested that the person-place bond evolves from the perceptions people have of the physical conditions of a setting. Furthermore, several authors have indicated that we develop place bonds to certain settings because we attribute meanings to a setting that reflect our social and cultural experiences (Greider and Garkovich 1994, Eisenhauer et al. 2000, Kyle & Chick 2007).

To understand the nuances of the person-place bond, Hammitt and colleagues (2004) have conceived of place bonding as comprising five dimensions. The first dimension in their taxonomy is labeled *place familiarity*. Place familiarity is bonding due to remembrance and cognition of a place and is indicated by a sense of familiarity and “typicality” (Nasar

2000). The second dimension is *place belongingness*, or attachment to a place through social bonding. This bonding causes individuals to feel they have connected with, and hold “membership” within, an environment (Mesch and Manor 1998). Another dimension is *place identity*. It involves using the bonded place in creating and expressing an individual’s self-identity. In fact, we can consider place identity a sub-structure of the self-identity. The fourth dimension suggested by Hammitt and colleagues’ taxonomy is *place dependence*. This dimension is characterized as bonding due to the functional necessity of a certain resource. In other words, the physical attributes of the place contain features and conditions that support specific goals and desired activities (Stokols and Shumaker 1981). Defined as everyday rootedness (Hummon 1992), the final dimension is *place rootedness*. This high level of bonding is indicated by an individual’s elevated sense of security in a place and by a sense of possession over that place.

2.2 Social Trust

One of the many lessons learned during the Spotted Owl controversy in the Pacific Northwest in the 1980s and 1990s was that for collaborative management to be effective in managing the resource, a certain level of trust between stakeholders and the management agency was necessary (Yaffee 1994). Subsequently, several studies have identified an association between social trust and natural resource policy acceptance (Winter et al. 1999, Shindler and Toman 2003, Winter et al. 2004). In the context of recreation resource management, social trust is the willingness to rely on the managers and institutions that are responsible for the resource. An individual can hold multiple social trusts in an agency concerning a given issue. For example, individual trust occurs when a stakeholder trusts a specific person or specific people, whereas overall trust in an agency to manage resources is labeled “institutional trust.” Moreover, the trust an individual holds in an agency may be specific to a single issue or resource (e.g., feral hog management). According to Barber (1983), trust develops when one believes that an agency will act in an ethical manner and consider the needs and wants

of the stakeholder. Because resource management decisions are often very complex, stakeholders do not have the time or knowledge to evaluate whether the managers are acting in accordance with their needs and in the interest of the resource. Hence, as a proxy, stakeholders quantify trust in terms of shared values, direction, goals, views, and thoughts between themselves and agency managers (Earle and Cvetkovich 1995). Winter et al. (1999) found empirical support for this conceptualization of trust among stakeholders interested in fees charged on National Forest lands.

2.3 Place Bonding and Social Trust

Several authors have suggested that knowledge about a stakeholder's place bonding with the resource and social trust in managers are important to understanding the collaborative decision-making process. However, few studies have explored the relationship between place bonding and social trust. One study that sought to identify the relationship between these concepts examined the civic action of stakeholders at the Sherburne National Wildlife Refuge (NWR) in Minnesota (Payton et al. 2005). Specifically, the researchers tested a model that included a two-dimensional place bonding conceptualization (i.e., place identity and place dependence) and two levels

of trust (i.e., individual and institutional trust in the local refuge). One of their conclusions was that place identity can facilitate the development of individual trust. However, the researchers examined only respondents' individual trust in managers and other stakeholders and their institutional trust with local NWR staff. They did not consider respondents' institutional trust in the Fish and Wildlife Service (FWS) as a federal land management agency, nor did they examine respondents' trust in the FWS regarding specific resource management issues.

Although previous research supported the existence of a relationship between place bonding and social trust, it did not examine the effects of institutional trust in the land management agency on the relationship between place bonding and trust in the agency to manage a specific resource issue. Hence, the purpose of the present study was to further explore the relationship between respondents' place bonding, overall trust in the agency, and trust in the agency to effectively manage a specific resource. We hypothesized that the relationship between place bonding and social trust regarding a management issue (i.e., feral hogs) would be moderated by whether or not the individual trusted the agency (i.e., the NPS) as a whole (Fig. 1).

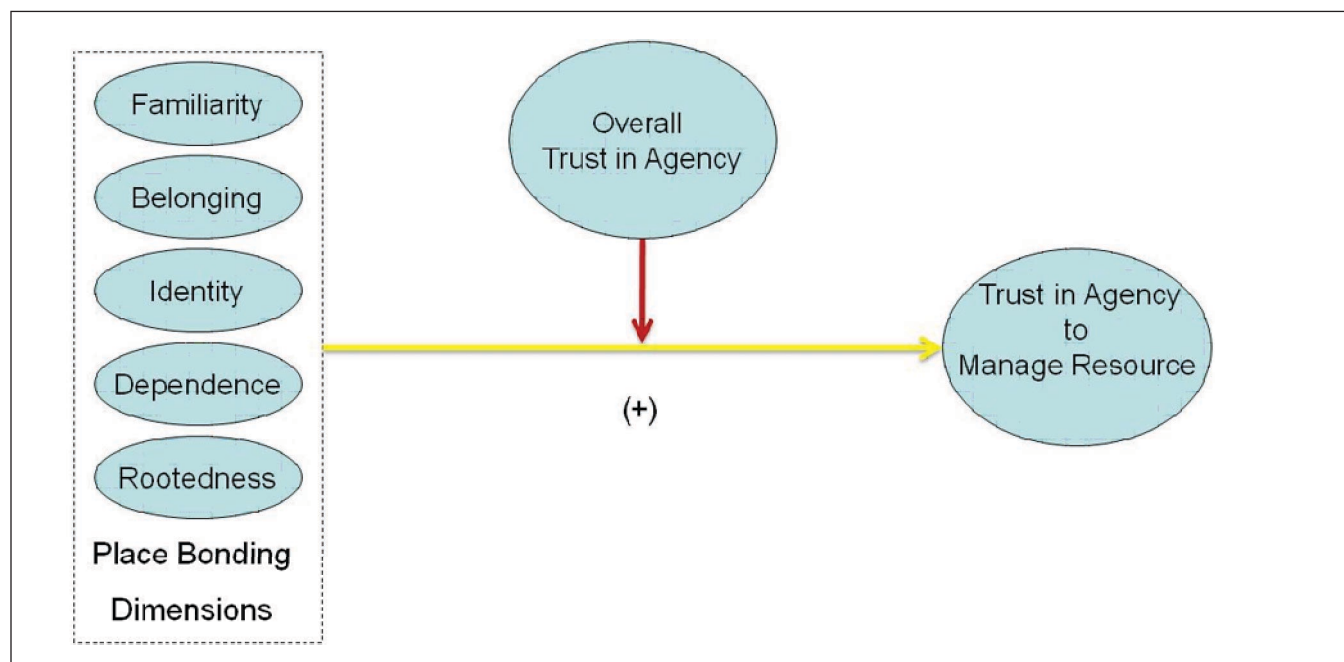


Figure 1.—Hypothesized model.

3.0 METHODS

3.1 Study Area, Population, and Response Rate

The data for this analysis were collected during fall 2007 from residents who lived near the BTNP in southeastern Texas. We mailed 1,500 surveys to a random sample of residents living in the six counties (i.e., Hardin, Jasper, Jefferson, Orange, Polk, and Tyler) adjacent to the preserve. A modified Dillman (2000) approach was used. Two hundred and twelve individuals returned a usable survey, thus achieving a 14.1-percent response rate. Although this response rate is low, it is important to remember that the survey was mailed to the general population and the topic of the survey was relatively specific. That is, many people may not have responded to the survey because they were not interested in feral hog management and/or the Big Thicket National Preserve.

3.2 Survey Instrument

The items used in this analysis measured the five dimensions of place bonding and two types of social trust. The place bonding scale consisted of 22 place bonding items adapted from Hammitt et al. (2004). These items were measured using a 5-point agreement scale (1=strongly disagree; 3=neutral; 5=strongly agree). The scales measuring social trust were adapted from Earle and Cvetkovich (1995). Respondents' overall social trust in the NPS was measured using five items on a 4-point agreement scale (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree; and an option to indicate "no opinion"). Social trust in the NPS to manage the feral hogs was measured by four items on a 7-point scale specific to each item.

4.0 ANALYSIS

Respondents' ages ranged between 23 and 96, with a mean age of 50 years. Most indicated that they were Caucasian (n=189, 89 percent) and over three-quarters were male (n=161, 76 percent). Twenty-seven percent (n=57) of the sample had not attended any college. Respondents' household incomes were well dispersed, with about half earning more than \$60,000 a year.

The results of the confirmatory factor analysis (CFA) of the items measuring respondents' place bonding and trust in the NPS to manage feral hogs are reported in Table 1 and Table 2. Concerning the place bonding items, the reliability coefficients and the factor loadings indicated that the five-dimensional model of place bonding (familiarity, belongingness, identity, dependence, and rootedness) exceeded the minimum acceptable criteria. The means and standard deviations for each of the place bonding dimensions signify that as a group, the respondents were only marginally bonded to the BTNP. Regarding the respondents' trust in the NPS to manage the feral hog problem, the factor loadings and reliability coefficient were acceptable. The respondents indicated they had a moderate level of trust in the NPS (m=4.31; sd=1.33).

To test for the moderating effect of institutional trust on the relationship between respondents' place bonding and trust in BTNP managers to manage feral hogs, a composite score was created using the institutional trust items. After excluding respondents who indicated they had no opinion, we used the five items measuring the respondents' overall institutional trust in the NPS to form a mean composite score of institutional trust for each respondent (Table 3). The mean of the composite score for all respondents indicated that they held a minimal amount of institutional trust in the NPS on the 4-point scale (m=2.91; sd=.54). We used the composite score to create a dichotomous variable that signified whether the respondent trusted the NPS in general. Respondents who had a composite trust score of three or higher were assigned to the group that trusted the NPS; individuals whose composite score was less than three were labeled as people who did not trust the NPS overall. After this grouping process, we found that 139 of the respondents trusted the NPS and 73 did not. The mean institutional trust composite score for those who trusted the NPS was 3.16 (sd=.35). For respondents whose scores indicated that they did not trust the NPS, the mean institutional trust score was 2.43 (sd=.50).

We tested the hypothesized model (Fig. 1) of the relationship between place bonding and trust in the agency to manage a resource issue, moderated by

Table 1.—Factor loadings, standard errors, and reliabilities of the place bonding scale

Dimension-Items	λ	SE
Place familiarity ($\alpha=0.82$; $m=2.43$; $sd=0.84$)		
I know BTNP like the back of my hand	0.77	0.05
I have many memories of the BTNP	0.81	0.06
I could draw a rough map of the BTNP	0.78	0.05
Place belongingness ($\alpha=0.80$; $m=2.95$; $sd=0.82$)		
I feel like I belong at BTNP	0.56	0.05
I feel connected to BTNP	0.94	0.05
When I visit the BTNP, I feel a part of it	0.79	0.05
Place identity ($\alpha=0.89$; $m=2.70$; $sd=0.90$)		
I am very attached to BTNP	0.84	0.05
I identify strongly with the BTNP	0.80	0.05
I feel like BTNP is part of me	0.90	0.05
Place dependence ($\alpha=0.84$; $m=2.39$; $sd=0.84$)		
There are no substitutes for the BTNP	0.64	0.06
For the activities I enjoy most, the BTNP is more important to me than any other place	0.91	0.05
I get more pleasure visiting the BTNP than visiting other wildland places	0.87	0.05
Place rootedness ($\alpha=0.83$; $m=2.03$; $sd=0.73$)		
I rarely recreate outdoors at places other than BTNP	0.74	0.05
BTNP is the only place I desire for the activities I enjoy most	0.88	0.05
I consider only the BTNP when I visit wildland places	0.90	0.05

Means based on a 5-point agreement scale: 1=strongly disagree; 3=neutral; 5=strongly agree

Table 2.—Factor loadings, standard errors, and reliabilities of the respondents' social trust in BTNP management scale

Dimension-Items	λ	SE
Trust in an agency to manage the resource ($\alpha=0.92$; $m=4.31$; $sd=1.33$)		
To what extent do you believe the NPS shares your values with regard to the management of feral hogs on the BTNP?	0.83	0.07
To the extent that you understand them, do you share the NPS's goals for managing feral hogs on the BTNP?	0.95	0.07
To what extent does the NPS support your views about the management of feral hogs on the BTNP?	0.94	0.07
How much confidence do you have in the NPS to effectively manage feral hogs on the BTNP?	0.70	0.09

Table 3.—Mean and standard deviation of overall trust in the NPS items

Items	M	SD
The NPS shares similar values as me	2.97	0.53
The NPS shares similar opinions as me	2.93	0.58
The NPS thinks in a similar way as me	2.89	0.58
The NPS takes similar actions as I would	2.81	0.66
The NPS shares similar goals as me	2.96	0.55
Composite of trust items	2.91	0.54

institutional trust in the agency, by using the “groups” function of LISREL 8.80 to conduct covariance structure analysis. The results of this analysis are included in Table 4. The chi-square difference test indicated that the data from those who had institutional trust in the NPS did not differ from the data for the respondents lacking institutional trust in the NPS. The significant regression paths and coefficients were equal across the groups. This result failed to confirm the hypothesis that the relationship between respondents' place bonding with the BTNP and their trust in the NPS to manage feral hogs is moderated by their institutional trust in the NPS.

Table 4.—Results of test for the moderating effect of institutional trust

Model	χ^2	$\Delta \chi^2$	Df	Δdf	RMSEA	NFI	NNFI	CFI
Measurement Baseline	754.31	151	--	--	.10	.95	.96	.97
Trust	552.74	151	--	--	.10	.94	.96	.96
No trust	522.63	151	--	--	.13	.88	.92	.93
1 (H1-Structure)	1075.37	302	--	--	.11	.92	.95	.95
2 (H2-Final factor loadings)	1080.56	310	5.19	8	.11	.92	.95	.95
3 (H3-Regression coefficients)	1081.90	311	1.34	1	.11	.92	.95	.95

The lack of support for the moderation model suggests that the relationship between place bonding and trust involved only the respondents' trust in the BTNP NPS staff to manage feral hogs. Hence, we tested the relationship between the five dimensions of place bonding and respondents' trust in the NPS to manage feral hogs at the BTNP. The covariance structure analysis indicated that the data adequately fit the model, as represented in Figure 2. As respondents' level of the place belongingness dimension increased, so did their trust in the NPS to manage the feral hogs at BTNP ($\beta=.64$; $R^2=.29$).

5.0 DISCUSSION

The purpose of this study was to test for a moderating effect of institutional trust on the relationship

between place bonding and trust in a local unit of a land management agency to manage a specific resource. This hypothesis was unsupported. However, the data did support a relationship between place bonding and social trust that differed from previous research. Specifically, the data indicated that place belongingness is positively related to trust in the local agency unit to manage the resource. Previously, Payton et al. (2005) considered only the dimensions of place identity and place dependence and concluded that place identity was the salient dimension with regards to the relationship with individual trust in the local agency staff. Underlying methodological reasons may explain the differences between this study and the previous one, beyond the fact that the samples are different. The multi-dimensional

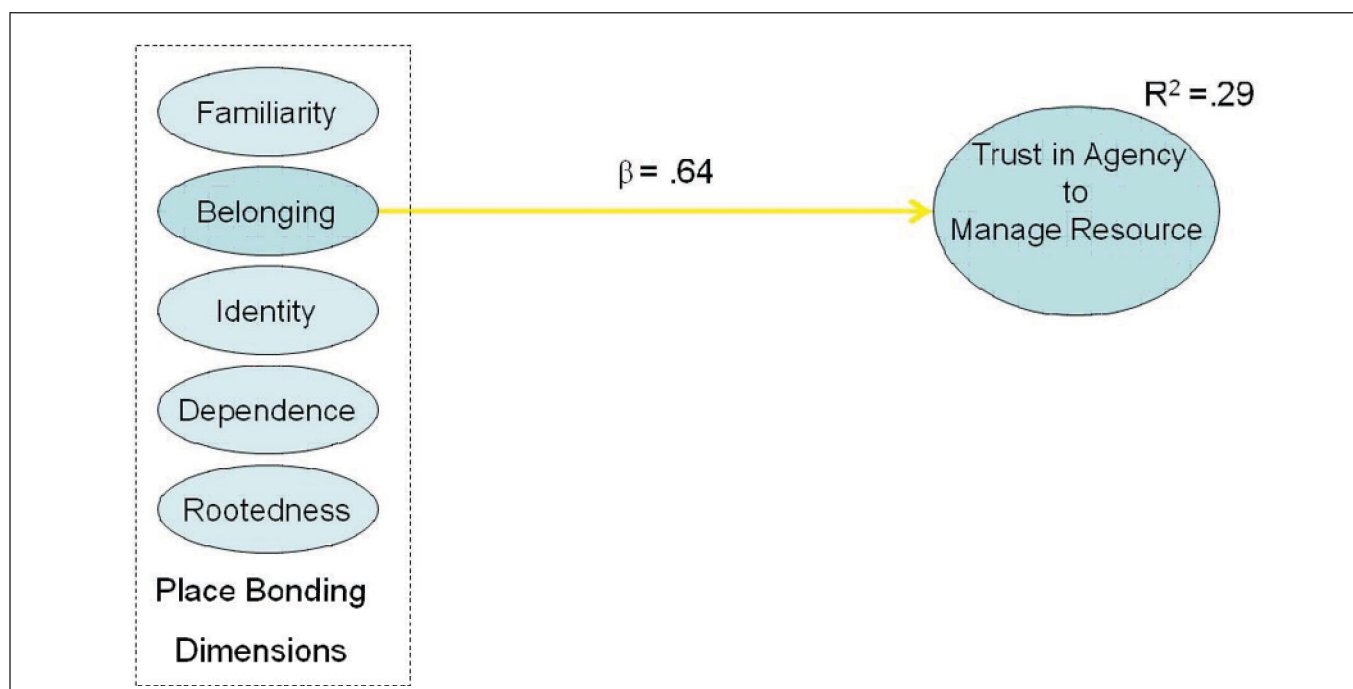


Figure 2.—Place bonding-social trust relationship model ($\chi^2=754.31$; RMSEA=.10; NFI=.95; CFI=.97).

conceptualization of place bonding, consisting of five dimensions, perhaps may allow for a different level of specificity than the two-dimensional model. This difference may influence: a) how the respondent answers the individual items in the place bonding scale and/or b) the correlations between the variables that each conceptualization has in common and other constructs of interest. Hence, the multi-dimensional conceptualization may provide more information on the nuances of place bonding.

It was not surprising that place belongingness proved to be the salient dimension of place bonding's influence on respondents' trust in the NPS at BTNP to manage feral hogs, given previous research on social trust. Barber suggested that trust develops through social interaction between individuals; it follows that the dimension that has been defined as attachment to a place through social bonding is important to the relationship. We find this a plausible explanation because previous research has concluded that an individual's social bonding with a setting can be influenced by interactions with other individuals in the setting through shared experiences and meanings (Kyle et al. 2005). We suggest that as individuals interact with protected area managers in a specific setting, they develop a connection with that setting and the managers they interact with there. In turn, this shared membership within the environment serves as common ground to develop trust between the individual and the manager. Hence the stronger a person's level of place belongingness, the more they trust the managers who represent the local unit of the management agency to manage a specific resource within the setting.

5.1 Implications

The theoretical and practical implications of this study are straightforward. Future research should continue to attempt to determine when it is appropriate to use a multi-dimensional conceptualization of place bonding versus a uni-dimensional or two-dimensional model. Although our investigation did

not support a moderating effect of institutional trust, we feel that given the limited literature regarding the relationship between place bonding and social trust, it is important to continue to include the different levels of trust (i.e., institutional trust, trust in management personnel, and trust in the agency to manage a specific resource) to better determine the relationship between the constructs. These data also support the idea that place bonding can serve as the starting point in the development of the social trust needed for collaborative management. Future research should be conducted to further understand the necessary antecedents of the collaborative management process.

Practically, local managers must understand that individuals' perceptions and social trust are influenced both by past experiences with specific management actions in the setting of interest and with interactions with agency staff. Hence, to use place bonding as a common ground to foster social trust and encourage participation in collaborative management, managers must address the stakeholder's setting-specific concerns and work to build positive relationships with all individuals interested in the management of the resource.

5.2 Limitations

As with all research, the interpretation of these findings is restricted by several limitations. The nature of the sample (i.e., a general population survey of local residents) limited the number of responses received. This investigation was further limited by the type of stakeholders who were involved in the analysis. All respondents lived near the BTNP; hence, potential stakeholders from a greater distance, who may have different concerns regarding feral hogs, were not included. Finally, the respondents to this survey were not very bonded to the BTNP, as demonstrated by the relatively low means for each of the place bonding dimensions. Therefore, results may be different for a sample of stakeholders who are highly bonded to, or vary greatly in their bonding to, the study site.

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