TOWARD A SOCIAL PSYCHOLOGY OF PLACE
Predicting Behavior From Place-Based Cognitions, Attitude, and Identity

RICHARD C. STEDMAN *is an assistant professor of rural sociology at the Pennsylvania State University. He earned his Ph.D. from the University of Wisconsin–Madison in December 2000 and worked as a senior sociologist for the Canadian Forest Service until the fall of 2001. His research and teaching interests include sense of place, environmental attitudes, public participation in resource decision making, and the sustainability of resource-dependent communities.*

ABSTRACT: Sense-of-place writings have proliferated in recent years, yet research suffers from a relative lack of construct clarity and hypothesis testing. This research presents a model of sense of place based in conventional social psychology: cognitions, attitudes, identities, and behavioral intentions located in and fundamentally about place. A survey of property owners in Vilas County, Wisconsin, revealed the importance of symbolic meanings as underpinning both place satisfaction, conceptualized as an attitude toward a setting, and attachment, conceptualized as personal identification with a setting. In turn, attachment, satisfaction, and meanings all have independent effects on willingness to engage in behaviors that maintain or enhance valued attributes of the setting.

Sense of place, or the meanings and attachment to a setting held by an individual or group, is increasingly garnering attention in popular and academic writings, yet there have been few attempts to build systemic theory, and there remains a lack of agreement on the meanings of core concepts. This is partly due to inconsistent measurement and inadequate hypothesis testing. In response, this article translates place terminology into social psychology concepts with well-established measures and a strong tradition of hypothesis testing. Along with considering sense of place in this manner, I address a neglected area in sense-of-place theory: behavioral implications of sense of place.

ENVIRONMENT AND BEHAVIOR, Vol. 34 No. 5, September 2002 561-581

A place is a center of meaning or field of care (Tuan, 1977) based on human experience, social relationships, emotions, and thoughts. A three-component view of sense of place predominates: Places include the physical setting, human activities, and human social and psychological processes rooted in the setting (Brandenburg & Carroll, 1995; Relph, 1976, 1997). Despite these clear assertions, sense-of-place research has shown a relative lack of construct clarity and an avoidance of hypothesis testing. Low and Altman (1992) anticipated a progression in the development of place thinking beyond a presumed consensus about the meaning of core concepts to a second-stage analysis that examines relationships between concepts and develops theory. Despite the passage of a decade since this call, this second stage has not been forthcoming.

Sense-of-place theory and research can be divided into positivistic and phenomenological approaches (Lalli, 1992). Of these, the latter tradition, which emphasizes the particularistic nature of place (specific to the individual, the group, the setting), has tended to dominate; important place theorists (e.g., Relph and Tuan) either align themselves with this approach or eschew formal hypotheses testing in research. However, these scholars make strong statements about the nature of sense of place as based on, for example, length or depth of experience with the setting (Tuan, 1980), social mobility that allows abstraction necessary to develop a sense of place (Tuan, 1980), or social relationships in the setting as the basis of attachment rather than the physical landscape itself (Relph, 1976). These statements suggest testable hypotheses about the nature of place and yet are at odds with assertions that place concepts should be treated holistically, that dissecting place into component parts or cause-effect relationships may destroy the essence of the overall concept (e.g., Hummon, 1992; Kruger, 1996).

In contrast, positivistic research on sense of place is characterized by quantitative methods and traditional hypothesis testing (see Jorgensen & Stedman, 2001; Kaltenborn, 1998; Moore & Graefe, 1994; Shamai, 1991; Williams, Patterson, Roggenbuck, & Watson, 1992). These studies often neglect important theoretical tenets, including the relationship between symbolic meanings and evaluations, the importance of landscape characteristics as natural capital out of which sense of place may be created, and the effect of sense-of-place variables on subsequent behavior. We are thus left with a paradox: On one hand are interesting statements that sound like testable hypotheses but are derived from the phenomenological tradition that avoids positivistic hypothesis testing; on the other hand are quantitative treatments of place that have often failed to engage these important theoretical tenets (see also Hidalgo & Hernandez, 2001, for a recent discussion).

PLACE AND SOCIAL PSYCHOLOGY: TRANSLATIONS

Sense of place can be conceived as a collection of symbolic meanings, attachment, and satisfaction with a spatial setting held by an individual or group. Although anathema to some, this conception suggests a social-psychological model of human-environment interaction. This conception offers a number of advantages: Terms are clearer and more agreed upon, the relationships between variables are empirically specifiable, and there are established research questions in social psychology that correspond quite well to the gaps noted in sense-of-place theory. The next section of the article translates these core concepts.

Place attachment as identity. Place attachment[1] is a bond between people and their environment (Moore & Graefe, 1994; Williams et al., 1992) based on cognition and affect (Low & Altman, 1992; Proshansky, Fabian, & Kaminoff, 1983). Identity is a crucial component of place:

> Through extensive interaction with a place, people may begin to define themselves in terms of . . . that place, to the extent that they cannot really express who they are without inevitably taking into account the setting that surrounds them as well. (Ryden, 1993, p. 76)

Sack (1997) added that place is an agent of the self, because both places and the human self weave together nature, cognition, and social aspects. Hummon (1990) noted that "a community identity may be defined as an interpretation of self that uses community as a locus of attachment or an image for self-characterization" (p. 142).

Place attachment rests on symbolic meanings. We attribute meaning to landscapes and in turn become attached to the meanings. All settings are imbued, to varying degrees, with multiple meanings. Lynch (1960) noted that the identity of a place distinguishes it from other places but that this identity may vary between people. Some suggest individualistic place meanings: A given setting will contain as many different meanings as there are people using the setting (Meinig, 1979; Relph, 1976). Others (e.g., Greider & Garkovich, 1994) emphasized common meanings based on shared or similar experience.

Place attachment strongly resembles the social psychological concept of identity, one's personal location within social life (Hewitt, 1991). Based on symbolic interactionism, identities are meanings we attribute to ourselves (Burke, 1980; Osgood, Suci, & Tannenbaum, 1957), learned from others' expectations of how social category–based behaviors ought to be performed.

People play multiple roles and consequently hold multiple identities associated with different aspects of their lives. Identities are organized hierarchically according to their importance or salience (Stryker, 1980). Role-person merger (Callero, 1985; Turner, 1978) occurs when a role becomes critical to one's self-definition. Our important places may become crucial to our self-definition and place-person merger may occur. Identity researchers often use quantitative measurement, in contrast to those who assert that the symbolic nature of place attachment precludes such approaches. Kuhn (1964) in particular situated symbolic interactionism within conventional empirical social science.

Place satisfaction as attitude. Place satisfaction, or a multidimensional summary judgement of the perceived quality of a setting (Ladewig & McCann, 1980; Mesch & Manor, 1998), is a construct that is strangely absent from the sense-of-place literature but common in community sociology. Most have distinguished between community attachment and community satisfaction; others have argued that this distinction is not yet sufficiently clear (Theodori, in press). Satisfaction is viewed as "the utilitarian value [of a place] to meet certain basic needs" (Guest & Lee, 1983, p. 234), ranging from sociability to services to physical characteristics (Fried, 1982; Herting & Guest, 1983; St. John, Austin, & Baba, 1986). Mesch and Manor (1998) asserted that "it is possible to be satisfied with where one lives and to not be particularly attached to place" (p. 509). However, most view the relationship between satisfaction and attachment as positive (Feldman, 1990; Stokols & Shumaker, 1981). Some researchers consider satisfaction as a relatively "shallow" construct compared to attachment, which is "more symbolically meaningful than satisfaction" (Fried, 1984, p. 62). As a summary evaluative judgement about a spatial setting as object, satisfaction corresponds well to classic definitions of attitude or a summary judgement based on a collection of beliefs about an object that may predispose action toward it (Eagly & Chaiken, 1993; Fishbein & Ajzen, 1975; Rokeach, 1970). Despite assertions about the shallowness of satisfaction, both identity and attitudes are important: Previous research (described in the next section) has shown them to exert independent effects on behavior.

Finally, symbolic meanings about place can be translated into cognitions or beliefs: descriptive statements, rooted in symbols about "what kind of place is this." Meaning and attachment, so often touted as important components of sense of place (Brandenburg & Carroll, 1995; Relph, 1976; Tuan, 1975), are empirically separable phenomena but have not been treated as such in research. This is a crucial neglect. Social psychology, in contrast, nicely differentiates the bases of these constructs. Meanings are descriptive:

What does this place mean to me, rather than how much does it mean? Meanings are the cognitive building blocks of attitude (Bem, 1970). Key to these translations is that the physical setting and its attributes take on the role of object or locus for beliefs, attitudes, and identity.

When translated into social psychology, two important research domains are immediately evident: the relationship between (a) cognitions and attitude/identity (in place terminology, how place satisfaction and attachment are a function of symbolic meanings of the setting) and (b) cognitions, attitudes, identity, and behavior (how symbolic meanings, attachment, and satisfaction affect place-related behaviors). These questions are derived from established paradigms in social psychology and yet capture the essence of empirical gaps in sense-of-place research. The next section of the article briefly reviews the social psychological literature pertaining to each of these questions.

RESEARCH ON BELIEFS, ATTITUDES, IDENTITY, AND BEHAVIOR

Beliefs and attitudes. The relationship between cognitive and evaluative components of attitude is a traditional focus of social psychology: Attitudes are composed of affective, cognitive, and conative (behavioral) components. Two traditions suggest that understanding cognitions is crucial to understanding attitudes. One asserts that cognitive, evaluative, and conative responses represent distinct components of an overall construct called *attitude* (e.g., Bagozzi, 1978; Breckler, 1984; Katz & Stotland, 1959; Kothandapani, 1971; Ostrom, 1969). Here, the attitude itself is considered a multidimensional construct. The causal chain perspective, in contrast, views attitudes as a function of beliefs and empirically separable from them. In short, beliefs predict attitudes rather than being a component of attitude. Several models, most notably the expectancy-value model (see Eagly & Chaiken, 1993, for a cogent review), posit that an attitude is the sum of beliefs about an object multiplied by the evaluation of each (see Fishbein, 1967, for assertions of causality from beliefs to attitudes). Regardless of the particulars of the precise relationship between attitudes and beliefs, each perspective suggests that understanding cognitions (e.g., what meanings a setting holds) is key to predicting evaluations, such as satisfaction.

Beliefs and identity. Identity is a meaning-based concept as well (Stryker & Statham, 1985). The beliefs one has about oneself as a social actor are the foundations of the self. However, more empirical work has emphasized

identity importance (salience) than questions of what particular identities mean to social actors who hold them. Some exceptions exist. Burke and Tully (1977) asserted that for measurement to reflect theory, "we must measure the *meaning* of self-in-role as an object to the self" (p. 883). Burke (1980) measured the content of identities using a semantic differential format, following Osgood et al. (1957), and discovered four dimensions of meaning to the role identity of university student: academic responsibility, intellectualism, sociability, and personal assertiveness (see Serpe, 1987, for a similar analysis). Variation in the meanings of the identity implies little about differences in identity salience. The preceding, when applied to sense of place, suggests that research must deal not only with the strength of attachment but also with the meanings that one attributes to place or the beliefs one has about a spatial setting. Knowing that someone is strongly attached to place does not by itself suggest much about the nature of this attachment or what behaviors may ensue. One can be strongly attached to a spatial setting from a variety of loci.

Understanding behavior. The relationship between attitude and behavior is a core topic in social psychology. Generally, "people who hold positive attitudes should engage in behaviors that approach, support, or enhance the attitude object, and people who hold negative attitudes should engage in behaviors that avoid, oppose, or hinder the object" (Eagly & Chaiken 1993, p. 155). Statements such as these have led to a great deal of attention (and at times, consternation) among researchers. Studies such as that by LaPiere (1934) have demonstrated weak correlations between attitudes and behaviors (see also Deutscher, 1966; Wicker, 1969). Over time, the idea that people possess stable attitudes that consistently affect behavior came under greater scrutiny: Rather than asking whether attitudes predict behavior, research shifted to questions of under what conditions attitudes predict behavior. A robust relationship is expected when attitudes are based on direct experience with the attitude object (Fazio, 1989), when multiple indicators of behavior are used (Eagly & Chaiken, 1993), when behaviors are volitional (Ajzen, 1991), and at a similar level of specificity (Ajzen, 1989).

Research on the relationship between identity and behavior suggests that identity salience and role-person merger should lead to future behaviors consistent with the identity (Callero, 1985). Research has explored the relationship primarily by situating identity within the theory of reasoned action/planned behavior (Ajzen, 1991; Fishbein & Ajzen, 1975). Results suggest that identity affects behavior net of attitude (Biddle, Bank, & Slavings, 1987; Biddle et al., 1985; Callero, Howard, & Piliavin, 1987; Charng, Piliavin, & Callero, 1988). Generally, the conditions under which identities predict

behaviors parallel those that foster a strong attitude-behavior relationship. Especially important to this article, identity is more likely to foster behavior when the two constructs share common meanings (Burke & Reitzes, 1991).

RESEARCH QUESTIONS AND HYPOTHESES

The preceding suggests several hypotheses. The meaning hypothesis asserts that although identity (place attachment) and attitude (place satisfaction) are both potentially explained by cognitions about the spatial setting, this relationship is expected to obtain primarily for attitude. The literature demonstrates a strong and consistent empirical association between cognitions and attitudes. In contrast, identities can be salient and important to overall self-definition independent of their particular content. Thus, place cognitions will better predict place satisfaction than place attachment.

The behavioral hypothesis. Social psychology suggests that identity and attitude exert independent but positively associated effects on behavioral intention (i.e., more positive attitudes toward a behavior and a stronger identity based on the behavior are both associated with an increased likelihood of intending to continue participation). Several caveats are worth noting: Regarding place attachment, this research moves beyond predicting future behaviors that have formed the identity (predicting intention to continue donating blood from one's identity as a blood donor) to behaviors that are potential extensions of the identity (behavior that maintains valued qualities of a setting). Higher place attachment is nonetheless expected to be associated with greater willingness to engage in place-protective action. The relationship between satisfaction and behavior is potentially more tenuous: Are those with more favorable attitudes toward the setting (higher satisfaction) more willing to fight against change? Or are people more willing to do so when satisfaction is lower ("My place is in poor condition; something ought to be done about it")? Place theory suggests the latter: Concerns come to the fore when places are threatened; presumably, behaviors will follow. Therefore, I cautiously hypothesize that higher place attachment and lower place satisfaction are each associated with increased willingness to engage in place-protective behavior. Finally, the effect of meanings on behavior must be considered as well: Place-protective behaviors are especially likely to result when attachment and satisfaction are based on preferred meanings that are threatened by potential changes to the setting.

Empirically, this suggests that meanings will affect behavior net of effects on attachment and satisfaction.

RESEARCH SETTING AND METHODS

These hypotheses were explored in Vilas County, Wisconsin. Vilas County is a tourism-intensive and recreational home landscape: In 1990, 57.5% of all housing in Vilas County was classified as "for seasonal, recreational, or occasional use," the highest proportion in the state. This phenomenon is lake based: Vilas County has 1,320 lakes, more than any other county in Wisconsin (Wisconsin Department of Natural Resources, 1991). Recently, the area has experienced rapid development of lake shorelines with new cabins, single-family homes, and condominium units. Shore development density increased by 60% between 1960 and 1996 (Wisconsin Department of Natural Resources, 1996). Vilas County (1996), with only 17,000 permanent residents in 1990, experienced 3,500 new home starts between 1985 and 1995.

Public reaction to these trends has been articulated in sense-of-place terms, especially the loss of "up north" as the dominant meaning for the landscape. Planning documents by municipalities in Vilas County (e.g., Town of Arbor Vitae, 1996; Town of Eagle River, 1996; Town of Phelps, 1998) echo these concerns, noting the impacts of residential development on "northwoods character," which stands in contrast to "placelessness" that may arise with suburban-style overdevelopment. This "up north" symbolic meaning and its relationship to satisfaction, attachment, and behavior is a primary focus of this article; viewing one's lake as "up north" is expected to foster protective action, as this base of attachment is anticipated to be antithetical to these landscape changes.

MEASURES

The hypotheses were explored via a 16-page mail survey titled "People and Lakes: The Vilas County Property Owners' Survey," sent in 1999 to a stratified random sample of 1,000 Vilas County property owners. This random sample was drawn from the 1998 Vilas County tax records list and was stratified by gender to ensure adequate representation of females (in the

common case of joint property ownership—usually husband and wife—the male is nearly always identified as the primary property owner). The research used a three-contact mailing procedure (initial mailing, postcard reminder, and follow-up full mailing) and obtained a 72.1% response rate. Respondents were asked to describe and evaluate a particular lake of their own choosing. If their Vilas County property had lake frontage (as it did for 76% of the respondents), they were asked to answer the questions using the lake on which they owned property as their attitude object. Respondents who did not own lake frontage selected a lake that was near their property, they visited often, or was a favorite for another reason.

The questionnaire included six primary areas: experience with the lake (e.g., how many years since property was purchased or first visit, favorite activities), social network participation, beliefs and meanings about the lake, place attachment, place satisfaction, and willingness to become involved in lake-protective behaviors. As described earlier, this article focuses on the relationship between meanings/cognitions, attachment, satisfaction, and behavioral intention. More detail is included on each of these areas below.

Symbolic meanings and evaluative beliefs. To assess symbolic meanings, respondents were asked, "What kind of place is your lake?" A 5-point Likert-type scale measured the level of agreement (*strongly disagree* to *strongly agree*) with eight potential meanings respondents might hold for their lake (e.g., "a family place," " a place to escape from civilization," "a community of neighbors"). Evaluative beliefs are descriptions of one's lake that are cognitively based (what is "true" about the lake) but also contain an evaluative element. As such, they serve as the building blocks of attitudes (Bem, 1970). Fourteen items were used to assess evaluative beliefs, measured on a 5-point bipolar scale, as shown below:

My lake is:			Neutral			
Extremely scenic	1	2	3	4	5	Not at all scenic
Extremely peaceful	1	2	3	4	5	Not at all peaceful

Place attachment was operationalized as a unidimensional construct consistent with definitions of identity.[2] It was assessed via a series of items corresponding to those items used in previous research in the study area (Jorgensen & Stedman, 2001), modified from existing studies (Moore & Graefe, 1994; Williams et al., 1992). Respondents were asked, "How important is your lake to you?" and they were presented with nine items, each measured on a 7-point scale. For example,

How important is your lake to you?

	Strongly Disagree						Strongly Agree
It is my favorite place to be.	1	2	3	4	5	6	7
It reflects the type of person I am.	1	2	3	4	5	6	7

Place satisfaction is a composite variable composed of three separate measures. First, using a 4-point Likert-type scale ranging from *extremely dissatisfied* to *extremely satisfied*, respondents rated their satisfaction with nine different elements of their lake, such as water quality or the level of shoreline development. Factor analysis of the scale revealed a single, very reliable dimension (alpha = .846); therefore, these responses were summed to create a scale assessing overall satisfaction. A second item used to measure satisfaction was a rating of lake quality ("How would you rate your lake overall?"). Consistent with previous studies on recreational quality (Heberlein, 1988), lake quality was measured on a 6-point scale, ranging from *poor* to *perfect*. Finally, perceptions of the condition of one's lake were measured on a 4-point Likert-type scale, ranging from *strongly like* to *strongly dislike*.

Behavioral intention. Respondent willingness to protect their lake was measured via responses to a series of hypothetical changes to their lake: (a) increases in the number of homes or cabins around the lake, (b) a proposed condominium project, (c) declines in water quality, or (d) increases in crowding by other recreationists. Each of these four scenarios had several potential responses: voting for laws that might prevent the changes or joining/forming a group to prevent these changes. For each scenario, a 4-point Likert-type scale asked respondents whether they were *extremely likely*, *somewhat likely*, *somewhat unlikely*, or *extremely unlikely* to engage in the behavior in question.

SCALE CONSTRUCTION AND DESCRIPTIVE RESULTS

This section of the article provides more information on the measures: the scales that were created for each and the descriptive (marginal) results for each of the measures.

Symbolic meanings. What meanings do respondents hold for their lakes? A maximum likelihood factor analysis revealed a clear two-factor solution explaining 55% of the scale variation: my lake as "up north" (alpha = .824) or my lake as a "a community of neighbors" (alpha = .680). To the majority of

TABLE 1
Symbolic Place Meanings

My Lake Is	*Agree (%)*	*Factor 1 Up North*	*Factor 2 Community*
A place to escape from civilization	70.1	.7604	
The real "up north"	69.5	.7726	
A place of high environmental quality	64.3	.6710	
A pristine wilderness	46.5	.6716	
A place mostly for vacationers	40.8		
A community of neighbors	31.3		.9805
A residential "neighborhood"	26.2		.6623

Factor	*Eigenvalue*	*Percentage of Variance*	*Alpha*	*Correlatiion*
Up north	2.81	35.1	.824	–.135
Community	1.57	19.6	.680	

NOTE: Loadings of less than .30 have been suppressed in the display.

respondents, their lakes are high environmental quality places to escape from civilization and represent the "real up north." Fewer respondents agreed that their lakes are communities of neighbors or similar to residential neighborhoods (the proportion agreeing with each item as well as factor loadings are shown in Table 1). The two scales are negatively correlated, but only modestly.

Evaluative beliefs. Again using maximum likelihood factor analysis, a two-factor solution explaining 58.4% of the scale variation was achieved: (a) "The natural environment of my lake is in good condition ("pristine") versus (b) "Human use has negatively impacted my lake" ("impacted"). The reliability of each of these scales is strong (.806 and .828, respectively). Respondents had fairly positive attributions of their lake: They were most likely to agree that their lakes are scenic (64.8% agree), with many species of wildlife (57.9% agree). They were least likely to agree with human overuse attributions, for example, polluted water (16.9% agree) and crowding (22.8% agree). The proportion of respondents agreeing with each statement and the factor loadings appear in Table 2. As expected, the scales are negatively correlated.

Place attachment. Overall, respondents indicated high levels of attachment to their lake, with more than 70% agreeing with items such as "I can

TABLE 2
Evaluative Beliefs

My Lake	*Agree (%)*	*Factor 1 Pristine*	*Factor 2 Impacted*
Is extremely scenic	64.8	.8585	
Has many species of wildlife and plants	57.9	.7063	
Has property that is extremely expensive	52.1		
Has a shore that is extremely forested	50.6	.5796	
Is extremely peaceful	49.8	.6237	
Has extremely clear water	48.0	.4689	
Has changed a lot over the years	42.5		.5969
Has many houses and cabins on the shore	41.4		.8097
Has many recreationists using it	41.0		.7528
Is extremely likely to have more shore development in the future	34.2		
Has a shore that is extremely developed	33.9		.7452
Has a lot of public access	26.5		
Is extremely crowded	22.8	–.4555	.5739
Has water that is extremely polluted	16.9	–.5938	

Factor	*Eigenvalue*	*Percentage of Variance*	*Alpha*	*Correlation*
Pristine	3.97	36.1	.806	
Impacted	2.45	22.3	.828	–.279

NOTE: Loadings of .30 and less have been suppressed.

really be myself there," "I really miss it when I am away too long," and "I feel happiest when I am there" (see Table 3). Consistent with previous research (Jorgensen & Stedman, 2001), a maximum likelihood factor analysis revealed a single, highly reliable dimension underlying the scale (alpha = .937).

Place satisfaction. As described above, three variables were used to construct the composite place satisfaction scale. As an overall measure of satisfaction, these three items were standardized[3] and summed into a single, reliable (alpha = .822) place satisfaction scale. The descriptive results for each of the variables comprising the scale appear in Table 4. Respondents were satisfied with some elements of their lake: More than 80% were satisfied with the scenery, water quality, solitude/peacefulness, and wildlife populations around their lake. A near-normal distribution was observed in evaluations of the second element of satisfaction, lake quality: Only 7.1%

TABLE 3
Place Attachment (scale alpha = .937)

At the Lake	*Mean*	*Agree (%)*
I feel that I can really be myself there	5.50	73.7
I really miss it when I am away too long	5.42	72.7
I feel happiest when I am there	5.32	70.0
It is the best place to do the things I enjoy	5.17	68.5
It is my favorite place to be	5.14	65.4
It reflects the type of person I am	4.96	58.5
For the things I enjoy most, no other place can compare	4.82	57.3
Everything about it is a reflection of me	4.53	47.3
As far as I am concerned, there are better places to be[a]	3.18	23.8

a. Item asked in the negative and recoded for inclusion in the summed scale.

TABLE 4
Elements of Satisfaction

	Percentage Satisfied
Satisfaction with lake elements	
Scenery	94.2
Water quality	83.5
Solitude/peacefulness	82.9
Populations of wildlife	83.1
Number of users	68.4
Level of shore development	66.0
Others' recreation activities	53.0
Fishing quality	53.2
Cost of property taxes	29.4
Lake quality: How would you rate your lake overall?	
Poor	1.2
Fair	5.9
Good	24.5
Very good	34.1
Excellent	31.8
Perfect	2.5
How do you feel about the condition of your lake?	
Strongly dislike	1.6
Dislike	18.3
Like	52.1
Strongly like	28.0

thought their lake was only in poor or fair condition, but even fewer (2.5%) described their lake as perfect (31.8% regarded its condition as "excellent").

TABLE 5
Behavioral Intention (in percentages)

	Would Vote for Laws Against	*Would Join or Help Form a Group Against*
If the number of homes increased greatly	80.0	68.2
If a large condominium project was proposed	86.4	80.2
If water quality got a lot worse	94.7	87.8
If lake became much more crowded with recreationists	79.2	72.0

Regarding the third variable in the composite satisfaction measure, 80.1% of respondents liked the condition of their lake, and 19.9% disliked its condition.

Behavioral intention. Respondents demonstrated strong willingness to protect their lake against future environmental change. The responses were consistent across all four scenarios and potential responses, ranging from a high of 94.7% being willing to vote for laws that prevent water quality declines to a low of 68.2% being willing to join or help form a group that would fight against increased shoreline development (see Table 5).

HYPOTHESIS TESTING

The meaning hypotheses. How do the meanings attributed to the spatial setting predict identity (strength of attachment) and attitude (place satisfaction)? Recall that I had hypothesized that place satisfaction was strongly based in cognitions but that attachment was less so. Ordinary least squares regression mostly supports these hypotheses (see Table 6). Three of the cognitive domains strongly predict place satisfaction: People who believe their lake to be in pristine condition have more favorable attitudes, as do those who attribute to it "up north" meanings. Respondents who believe their lake has been affected by use ("impacted") have more negative attitudes ($p < .001$ for each of these domains). Together, these cognitions explain 41.4% of the variation in satisfaction.

Somewhat counter to my hypothesis, place attachment (identity) also is a function of cognitions, although to a much lesser degree than for satisfaction ($R^2 = .155$). Both the Impacted and Up North factors are associated with attachment: People identify not only with places that take on important

TABLE 6
The Effects of Cognitions on Attachment and Satisfaction

	Attachment			*Satisfaction*		
	Beta	t	*Significance*	*Beta*	t	*Significance*
Constant		8.77	.000		14.48	.000
Pristine	.068	1.760	.079	.174	5.306	.000
Impacted	.139	3.545	.000	–.268	–8.021	.000
Up north	.410	10.274	.000	.401	11.877	.000
Community	.084	2.335	.020	.044	1.432	.153

	ANOVA					
	SS	df	MS	F	*Significance*	Adjusted R^2
Attachment						
Regression	197.266	4	49.316	32.204	.000	.155
Residual	1033.678	675	1.531			
Total	1230.944	679				
Satisfaction						
Regression	68.403	4	17.101	116.006	.000	.414
Residual	95.524	648	.147			
Total	163.927	652				

symbolic meaning to them but also with places toward which they perceive to be under threat ($p < .001$ for each of these domains). To a lesser degree, perceptions of one's lake as a community of neighbors ("community") also foster attachment ($p < .05$). These findings counter the hypothesis that the degree of place attachment is relatively independent of the meanings on which the attachment is based.

Behavioral implications of sense of place. Recall that I had hypothesized independent effects of attachment (positive) and satisfaction (negative) on behavioral intention and that held meanings also affect behavior net of their effects on attachment and satisfaction. Clearly, the meaning potentially threatened from increasing pressure on the lakes is the "up north" domain that emphasizes wilderness and escape from civilization. Importantly, the "community of neighbors" domain may not be threatened by the changes described here and may even be enhanced by them. This suite of hypotheses is strongly supported (see Table 7). As predicted, attachment and satisfaction exert independent influences on intention to engage in place-protective behavior: Respondents with higher levels of place attachment and lower levels of place satisfaction are more willing to act to counter environmental

TABLE 7
The Effects of Cognitions, Attachment, and Satisfaction on Behavioral Intention

	Behavioral Intention: Willingness to Protect Lake		
	Beta	t	*Significance*
Constant		14.741	.000
Attachment	.350	8.719	.000
Satisfaction	–.367	–7.621	.000
Up north	.136	2.807	.005
Community	–.125	–3.338	.001
Pristine	.073	1.768	.088 (*ns*)
Impacted	–.037	0.860	.390 (*ns*)

	ANOVA					
	SS	df	MS	F	*Significance*	Adjusted R^2
Behavioral intention						
Regression	67.325	6	11.221	27.221	.000	.208
Residual	244.027	592	0.412			
Total	311.352	598				

changes to their lake ($p < .001$ for each). We are most willing to defend places that are strongly tied to our identity and for which we hold negative attitudes ("important but threatened"). In addition and as predicted, symbolic meanings affect lake-protective behaviors net of attitude and identity: believing one's lake to be up north fosters lake protective behavior ($p < .01$), whereas viewing it as a community of neighbors attenuates interest in participating in these behaviors ($p < .001$).

DISCUSSION AND CONCLUSION

Overall, a clear model of sense of place is obtained through turning to established social psychology hypotheses about beliefs, attitudes, and identity. Consistent with theories of attitude, place satisfaction is strongly based on cognitive attributions made about the setting. Place attachment, operationalized as identity salience, is also somewhat based in cognition, but to a lesser degree than satisfaction. In turn, each of these evaluations bears on hypothetical place-protective behavior, but with opposite effects: Place attachment fosters such behaviors; place satisfaction appears to inhibit

them—we are willing to fight for places that are more central to our identities and that we perceive as being in less-than-optimal condition. This is especially true when important symbolic meanings are threatened by prospective change. Those who feel their lake is an up north escape from civilization are more willing to fight against encroachment than those who emphasize its community attributes.

Treating sense of place as including cognitions, identity, attitude, and potential behaviors toward a spatial object helps organize hypotheses while remaining true to important theoretical precepts. First, the results of this research obviate the need to bring cognitions into the sense-of-place research stream. The role of meanings as underpinning attachment and satisfaction has not been explored in quantitative place research, yet their effect is demonstrated here: Attachment and satisfaction is with symbols attributed to the landscape. One cannot understand sense of place without knowing its cognitive content; meanings put the "sense" into sense of place. Second but no less important, previous neglect of place-protective behaviors—and the factors that predict them—is a problem. Scholars interested in the linkages between people and environment should care about sense of place not as an end in itself but as predisposing action.

The social psychological model used in this research is quite consistent with traditional sense-of-place theory, which implies the creation of meanings and evaluation through freely chosen experience. Such an approach brings clarity to cloudy relationships. However, this approach may sow the seeds of its own discontent, as the clarity obtained in this approach allows seeing where its limitations lie. How are cognitions produced? Experiential models of place (e.g., Brandenburg & Carroll, 1995; Greider & Garkovich, 1994; Tuan, 1977) suggest that meanings and attachment are formed through experience with the landscape, where humans have the agency to create significant symbols on the basis of experiences of our own choosing. The observant reader will have noted that the research reported here began with cognitions as given rather than as explained by other variables. My study gathered information on individual characteristics such as favorite activities and residence patterns, but these variables explained a very small proportion (5%-10%) of variation in meanings. Therefore, the source of cognition is a relative mystery using this framework and data. More research is needed on the source of symbolic meanings, and the search for understanding may need to move beyond conceptions that are based so completely in the agency of the social actor. Powerful outside interests will have a role in shaping cognition, through shaping the physical landscape, through interpretation of the landscape, and in favoring certain experiences over others. This is not to say that the cognition-attitude-identity framework used here (and implicit in so much

sense-of-place writing) is not useful. This research has demonstrated that once held, meanings are crucial determinants of attachment, satisfaction, and behavior. Far less is known on their origin, but by turning toward clear, empirically specifiable models, we are in a better position to discover where gaps in theory lie.

NOTES

1. It has been suggested (Moore & Graefe, 1994; Williams et al., 1992) that attachment should be divided into two components: dependence (the strength connection based on the ability of a setting to fulfill certain instrumental needs) and place identity, or the symbolic connection between the social actor and the setting that transcends instrumentality. This hypothesized multidimensionality is far from certain: Definitions suggest a great deal of overlap, and the authors' work is often characterized by factor structure that is by no means definitive (e.g., weak factor loadings and high cross-loadings). In addition, this work took place in recreational settings, which may bring instrumentality concerns to the fore. This and related research (Jorgensen & Stedman, 2001) tested for the multidimensionality of the attachment concept and found that it was more consistent with unidimensional solutions. Attachment is therefore treated as a unidimensional construct throughout this article. Further attention, however, ought to be paid to this question.

2. To assess the validity of considering attachment in this manner, the attachment scale is compared to items that compose a standard measure of identification: Callero's (1985) Role-Person Merger Scale (see also Charng, Piliavin, & Callero, 1988; Grube & Piliavin, 2001) is composed of the following items: (a) "My lake is something I rarely think about," (b) "I would feel a loss if I couldn't spend time at my lake," (c) "I really don't have any clear feelings about my lake," (d) "My lake means more to me than just the time I spend there," and (e) "My lake is an important part of who I am." These items were compared to those comprising place attachment via a maximum likelihood factor analysis. Although two factors emerged that correspond to the different scales, nearly all of the items loaded on both factors. As well, the bivariate correlation between the scales was .724, suggesting a overlap between the constructs. Finally, Callero's (1985) scale was substituted for the place attachment scale in the multivariate analysis, and nearly identical results were obtained (the beta values varied somewhat, but there were no changes in the significance levels for any of the relationships).

3. Two of the items were already in a 4-point scale. The 6-point quality scale was converted to a 4-point scale by compressing the two extreme categories on each end of the scale ("poor" and "fair" were folded into one response, as were "excellent" and "perfect" responses).

REFERENCES

Ajzen, I. (1989). Attitude structure and behavior. In A. Pratkanis, S. Breckler, & A. Greenwad (Eds.), *Attitude structure and function* (pp. 241-274). Hillsdale, NJ: Lawrence Erlbaum.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and Human Decision Processes*, *50*, 179-211.

Bagozzi, R. P. (1978). The construct validity of the affective, behavioural, and cognitive components of attitude by analysis of covariance structures. *Multivariate Behavioural Research*, *13*, 9-31.

Bem, D. J. (1970). *Beliefs, attitudes, and human affairs*. Pacific Grove, CA: Brooks/Cole.

Biddle, B. J., Bank, B. J., Anderson, D. S., Hauge, R., Keats, D. M., Keats, J. A., Marlin, M. M., & Valantin, S. (1985). Social influence, self-referent identity labels, and behavior. *Sociological Quarterly*, *26*(2), 159-185.

Biddle, B. J., Bank, B. J., & Slavings, R. L.. (1987). Norms, preferences, identities and retention decisions. *Social Psychology Quarterly*, *50*(4), 322-337.

Brandenburg, A. M., & Carroll, M. S. (1995). Your place or mine? The effect of place creation on environmental values and landscape meanings. *Society and Natural Resources*, *8*, 381-398.

Breckler, S. J. (1984). Empirical validation of affect, behaviour, and cognition as distinct components of attitude. *Journal of Personality & Social Psychology*, *47*, 1191-1205.

Burke, P. J. (1980). The self: Measurement requirements from an interactionist perspective. *Social Psychology Quarterly*, *43*(1), 18-29.

Burke, P. J., & Reitzes, D. C. (1991). An identity approach to commitment. *Social Psychology Quarterly*, *54*(3), 239-251.

Burke, P. J., & Tully, J. C. (1977). The measurement of role identity. *Social Forces*, *55*(4), 881-897.

Callero, P. L. (1985). Role-identity salience. *Social Psychology Quarterly*, *48*, 203-215.

Callero, P. L., Howard, J. A., & Piliavin, J. A. (1987). Helping behavior as role behavior: Disclosing social structure and history in the analysis of pro-social action. *Social Psychology Quarterly*, *50*, 247-256.

Charng, H. W., Piliavin, J. A., & Callero, P. L. (1988). Role identity and reasoned action in the prediction of repeated behavior. *Social Psychology Quarterly*, *51*(4), 303-317.

Deutscher, I. (1966). Words and deeds: Social science and social policy. *Social Problems*, *13*, 235-254.

Eagly, A., & Chaiken, S. (1993). *The psychology of attitudes*. New York: Harcourt Brace Jovanovich.

Fazio, R. H. (1989). On the power and functionality of attitudes: the role of attitude accessibility. In A. Pratkanis, S. Breckler, & A. Greenwad (Eds.), *Attitude structure and function* (pp. 153-179). Hillsdale, NJ: Lawrence Erlbaum.

Feldman, R. M. (1990). Settlement-identity: psychological bonds with home places in a mobile society. *Environment & Behavior*, *22*(2), 183-229.

Fishbein, M. (1967). A behavior theory approach to the relations between beliefs about an object and the attitude towards that object. In M. Fishbein (Ed.), *Readings in attitude theory and measurement*. New York: John Wiley.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.

Fried, M. (1982). Residential attachment: Sources of residential and community satisfaction. *Journal of Social Issues*, *38*, 107-120.

Fried, M. (1984). The structure and significance of community satisfaction. *Population and Environment*, *7*, 61-85.

Greider, T., & Garkovich, L. (1994). Landscapes: The social construction of nature and the environment. *Rural Sociology*, *59*(1), 1-24.

Grube, J. A., & Piliavin, J. A. (2001) . Role identity, organizational experiences, and volunteer performance. *Personality and Social Psychology Bulletin*, *26*, 1108-1119.

Guest, A. M., & Lee, B. A. (1983). Sentiment and evaluation as ecological variables. *Sociological Perspectives*, *26*, 159-184.

Heberlein, T. A. (1988). Dimensions of pheasant hunting quality. In D. G. Hallett, W. R. Edwards, & G. V. Burger (Eds.), *Pheasants: Symptom of wildlife problems on agricultural lands* (pp. 215-226). Bloomington, IN: North Central Section of the Wildlife Society.

Herting, J. R., & Guest, A. M. (1983). Components of satisfaction with local areas in the metropolis. *Sociological Quarterly*, *26*, 99-115.

Hewitt, J. P. (1991). *Self and society: A symbolic interactionist social psychology* (5th ed.). Boston: Allyn & Bacon.

Hidalgo & Hernandez. (2001). Place attachment: Conceptual and empirical questions. *Journal of Environmental Psychology*, *21*, 273-281.

Hummon, D. (1990). *Commonplaces: Community ideology and identity in American culture*. Albany, NY: SUNY Press.

Hummon, D. (1992). Community attachment: Local sentiment and sense of place. In *Place attachment* (pp. 253-278). New York: Plenum.

Jorgensen, B. S., & Stedman, R. C. (2001). Sense of place as an attitude: Lakeshore owners attitudes towards their properties. *Journal of Environmental Psychology*, *21*, 233-248.

Kaltenborn, B. P. (1998). Effects of sense of place on responses to environmental impacts. *Applied Geography*, *18*(2), 169-189.

Katz, D., & Stotland, E. (1959). A preliminary statement to a theory of attitude structure and change. In S. Kock (Ed.), *Psychology: A study of a science* (Vol. 3). New York: McGraw-Hill.

Kothandapani, V. (1971). Validation of feeling, belief, and intention to act as three components of attitude and their contribution to prediction of contraceptive behavior. *Journal of Personality & Social Psychology*, *19*, 321-333.

Kruger, L. E. (1996). *Understanding place as a cultural system: Implications of theory and method*. Doctoral dissertation, University of Washington (Forest Resources).

Kuhn, M. H. (1964). Major trends in symbolic interaction theory in the past twenty-five years. *Sociological Quarterly*, *5*, 61-84.

Ladewig, H., & McCann, G. C. (1980). Community satisfaction: Theory and measurement. *Rural Sociology*, *45*(1), 110-131.

Lalli, M. (1992). Urban-related identity: theory, measurement, and empirical findings. *Journal of Environmental Psychology*, *12*, 285-303.

LaPiere, R. T. (1934). Attitudes versus actions. *Social Forces*, *13*, 230-237.

Low, S. M., & Altman, I. (1992). Place attachment: A conceptual inquiry. In I. Altman & S. M. Low (Eds.), *Place attachment* (pp. 1-12). New York: Plenum.

Lynch, K. (1960). *The image of the city*. Cambridge, MA: MIT Press.

Meinig, D. W. (1979). Symbolic landscapes: Models of American community. In D. Meinig (Ed.), *The interpretation of ordinary landscapes* (pp. 164-192). New York: Oxford University Press.

Mesch, G. S., & Manor, O. (1998). Social ties, environmental perception, and local attachment. *Environment and Behavior*, *30*(4), 504-519.

Moore, R. L., & Graefe, A. R. (1994). Attachments to recreation settings: The case of rail-trail users. *Leisure Sciences*, *16*, 17-31.

Osgood, C. C., Suci, G. J., & Tannenbaum, P. H. (1957). *The measurement of meaning*. Urbana, IL: University of Illinois Press.

Ostrom, T. M. (1969). The relationship between the affective, behavioral, and cognitive components of attitude. *Journal of Experimental Social Psychology*, *5*, 12-30.

Proshansky, H. M., Fabian, A. K., & Kaminoff, R. (1983). Place-identity: Physical world socialization of the self. *Journal of Environmental Psychology*, *3*, 57-83.
Relph, E. (1976). *Place and placelessness*. London: Pion Limited.
Relph, E. (1997). Sense of place. In S. Hanson (Ed.), *Ten geographic ideas that changed the world*. New Brunswick, NJ: Rutgers University Press.
Rokeach, M. (1970). *Beliefs, attitudes, and values: A theory of organization and change*. San Francisco: Josey-Bass.
Ryden, K. C. (1993). *Mapping the invisible landscape: Folklore, writing, and the sense of place*. Iowa City: University of Iowa Press.
Sack, R. D. (1997). *Place, modernity, and the consumer's world: A relational framework for geographical analysis*. Baltimore: Johns Hopkins University Press.
Serpe, R. T. (1987). Stability and change in self: A structural symbolic interactionist explanation. *Social Psychology Quarterly*, *50*(1), 44-55.
Shamai, S. (1991). Sense of place: An empirical measurement. *Geoforum*, *22*, 347-358.
St. John, C., Austin, D. M., & Baba, Y. (1986). The question of community attachment revisited. *Sociological Spectrum*, *6*, 411-431.
Stokols, D., & Shumaker, S. (1981). People in places: A transactional view of settings. In J. Harvey (Ed.), *Cognition, Social Behavior, and the Environment* (pp. 441-488). Hillsdale, NJ: Lawrence Erlbaum.
Stryker, S. (1980). *Symbolic interactionism: A social structural version*. Redwood City, CA: Benjamin-Cummings.
Stryker, S., & Statham, A. (1985). Symbolic interactionism and role theory. In G. Lindzey & E. Aronson (Eds.), *Handbook of social psychology* (3rd ed., pp. 311-378). New York: Random House.
Theodori, G. (in press). Levels of analysis and conceptual clarification in community attachment and satisfaction research: Connections to community development. *Journal of the Community Development Society.*
Town of Arbor Vitae. (1996). *Northwoods character: Design review standards for commercial, multifamily and industrial development*. Madison: University of Wisconsin Extension.
Town of Eagle River. (1996). *Eagle Town River area vision 2020 survey report*. Madison: University of Wisconsin Extension.
Town of Phelps Comprehensive Master Planning Advisory Committee. (1998). *Town of Phelps community planning survey report*. Madison: University of Wisconsin Extension.
Tuan, Y. F. (1975). Place: An experiential perspective. *Geographical Review*, *65*, 151-165.
Tuan, Y. F. (1977). *Space and place: The perspective of experience*. Minneapolis: University of Minnesota Press.
Tuan, Y .F. (1980). Rootedness versus sense of place. *Landscape*, *24*, 3-8.
Turner, R. H. (1978). The role and the person. *American Journal of Sociology*, *84*, 1-23.
Vilas County Office of Planning and Zoning. (1996). *Annual report*. Unpublished manuscript.
Wicker, A. W. (1969). Attitudes versus actions: The relationship of verbal and overt behavioral responses to attitude objects. *Journal of Social Issues*, *25*(4), 41-78.
Williams, D. R., Patterson, M. E., Roggenbuck, J. W., & Watson, A. E. (1992). Beyond the commodity metaphor: Examining emotional and symbolic attachment to place. *Leisure Sciences*, *14*, 29-46.
Wisconsin Department of Natural Resources. (1991). *Wisconsin lakes* (WIDNR Publ-FM-800 91). Madison, WI: Author.
Wisconsin Department of Natural Resources. (1996). *Shoreline protection study: A report to the Wisconsin state legislature* (PUBL-RS). Madison, WI: Author.