EXPLORING THE EFFECT OF EXPERIENCE USE HISTORY AND PLACE BONDING ON RESOURCE SUBSTITUTION

Christopher J. Wynveen
Texas A&M University
2261 TAMU
College Station, TX 77843-2261
email: wynveen@tamu.edu

Gerard T. Kyle
Texas A&M University

William E. Hammitt
Clemson University

James D. Absher
U.S Forest Service

Abstract.—Although place bonding has been a prominent aspect of human dimensions research for over 25 years, there remains a need to understand the construct's behavioral implications. One area that has received attention is the relationship between experience-use history (EUH), place bonding, and resource substitution. To further examine the relationships among these constructs, we hypothesized that EUH and place bonding would be significantly related to campers' willingness to substitute their camping location for another local campground. The three campgrounds in the study from which we drew our sample were managed to reflect different points along the recreation opportunity spectrum (ROS); from primitive, semi-primitive/nonmotorized, to rustic. We also examined the effect of "setting type" on the hypothesized relationships. The results of the regression analysis indicated that EUH and place bonding are significant predictors of a campers' willingness to substitute and that setting type influences these relationships.

1.0 INTRODUCTION

Place bonding has been a prominent aspect of research on the human dimensions of natural resources for more than 25 years. Much of the resulting literature has focused on conceptualizing and defining the place bonding/attachment construct (Giuliani & Feldman, 2003; Hammitt et al., 2006; Hay, 1998; Jorgensen & Stedman, 2001). Also, researchers have examined the antecedents of place bonding by examining outdoor recreation constructs, such as experience use history (Bricker & Kerstetter, 2000; Moore & Graefe, 1994; Williams et al., 1992). However, much remains to be understood about the effect of place bonding on selected outdoor recreation behaviors.

The purpose of this study was to further explore the relationship between experience use history, place bonding, and resource substitution among individuals who were camping at three southern Appalachian campgrounds. As shown in Figure 1, we hypothesized that experience-use history (EUH) and place bonding would be significantly related to campers' willingness to substitute their camping location for another local campground. Specifically, the greater the EUH and the higher the degree of bonding a camper felt toward their campground, the less likely they would be willingly to substitute another campground for their own. Since each campground was hypothetically managed at different points along the recreation

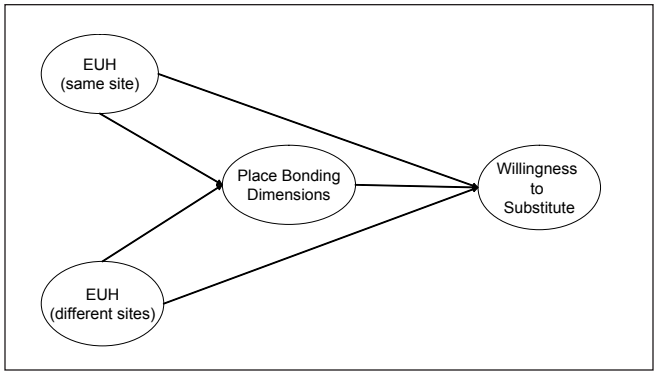

Figure 1.—Hypothesized model.

opportunity spectrum (ROS; rustic, semi-primitive/ nonmotorized, and primitive), each site had unique attributes. Consequently, we also examined the effect of "setting type" on the hypothesized relationships.

2.0 RELATED RESEARCH

2.1 Place Bonding

How do people identify themselves? Where do they choose to work, study, and play? How does the environment affect these choices? One of the ways that researchers have attempted to examine these questions is by exploring the relationships people have with place. These works have most often fallen under the rubric of "sense of place," "place attachment," "place bonding" and so forth. It the context of our own work, we have utilized the label "place bonding" which refers to "the person-place bond that evolves from specifiable conditions of place and characteristics of people" (Shumaker & Taylor, 1983, p. 221). Regardless of its label or definition, much remains to be learned of the behavioral implications stemming from an individual becoming bonded to a place. Specifically, a key question of concern, in the context of our own investigation, is how one's bond to a place impacts their recreational behaviors, such as willingness to substitute one recreation setting for another. Hammitt and colleagues have hypothesized that place bonding is comprised of five dimensions: 1) place identity; 2) place dependence; 3) place familiarity; 4) place belonging; and 5) place rootedness (Hammitt & Cole, 1998; Hammitt et al., 2004; Hammitt et al., 2006). The authors posited that as bonding intensity increase, certain types of attachment to a place also develop.

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 in the taxonomy is *place belongingness*, or attachment to a place through social bonding. This bonding causes individuals to feel that they have connected and hold 'membership' with an environment (Mesch & Manor, 1998). Another dimension is *place identity*. It involves using the bonded place in creating and expressing an individual's self identity. In fact, Proshansky et al. (1983, p. 59) consider place identity a substructure of the self-identity. The fourth dimension in Hammitt and colleagues' taxonomy is *place dependence*, which 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 & Shumaker, 1981). The final dimension is *place rootedness*. Hummon (1992) defines this as every day 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. This taxonomy helps to more clearly understand the different dimensions of place bonding.

2.2 Place Bonding and Experience Use History

Some have hypothesized that place bonding occurs through the attitudes one develops while interpreting the symbolic meanings one attributes to a place (Jorgensen & Stedman, 2001; Williams et al., 1992; Williams, 2002). Attitude strength varies from mild to extreme (Mannell & Kleiber, 1997). Attitudes are strongest when they are based on direct experience with the attitude object (Fazio & Williams, 1986). Since places, as objects, are one of the most stable concepts in human environments, it follows that people will encounter repeated experiences in particular places. Furthermore, attitudes have a cognitive component and an affective component (Kraus, 1995). Hence, attitudes developed through repeated experiences lead to a sense of bonding to the place where the experiences occur. Thus, the more experiences one has with a particular place, the more likely it is that they will become bonded to that place. To understand how the quantity of past experience affected various recreational and natural resource concepts, Hammitt & McDonald (1983) and Schreyer et al. (1984) developed the construct labeled 'experience use history' (EUH). EUH is a measure of past experience and has been measured using indicators of total visits, total years of use, frequency of use, etc. (Hammitt & McDonald, 1983; Schreyer et al., 1984). Recently, Hammitt et al. (2004) determined

that EUH was correlated with place attachment. However, they did not specify the nature of this relationship.

2.3 Resource Substitution

Similar to the relationship between experience use history and place bonding, many researchers have suggested a correlation between place bonding and resource substitution (Hammitt et al., 2004; Mesch & Manor, 1998; Stokols & Shumaker, 1981; Williams et al., 1992) Substitution for recreation resources occurs when similar recreational motivations, needs, and benefits can be achieved at another location with a similar resource experience (Brunson & Shelby, 1993; Hendee & Burge, 1974; Iso-Ahola, 1986). Substitution can occur for a variety of reasons, such as displacement from a preferred resource area or boredom with a particular setting. Willingness to substitute differs among different types of recreationists. For example, Korpela et al. (2001) found that highly experienced individuals who had a strong bond with the resource were unwilling to substitute if the need arose. Likewise, willingness to substitute has been associated with a lower place bonding intensity (Hammit et al., 2004; Williams et al., 1992). However, the directionality of the relationship between place bonding and resource substitution has yet to be empirically tested.

3.0 METHODS

3.1 Study Area, Population, and Response Rate

The data used for this analysis were collected during the summer and fall of 2003 from visitors to Sumter National Forest in South Carolina. The instrument was designed to be completed by the respondent onsite, however some respondents were permitted to take the survey with them and return via mail in a postage paid envelope provided by the researcher. A convenience sample of overnight campers at Cherry Hill, Burrells Ford, and Ellicot Rock campgrounds elicited 424 returned surveys, thus achieving an 84 percent response rate (The authors would like to acknowledge the work of Drew and Jenny Cavin in the data collection). Each campground was managed to be consistent with different points along the recreation opportunity spectrum; Cherry Hill is a rustic campground, Burrell's Ford is managed as a semi-primitive/nonmotorized area, and Ellicot Rock is a primitive campground in a wilderness area.

3.2 Survey Instrument

The items used in this analysis consisted of four EUH items (Hammitt & McDonald, 1983; Schreyer et al., 1984) which asked respondents to indicate number of years camping at the particular campground where they were contacted, frequency of camping at that campground in the past year, number of years of camping at other campgrounds, and frequency of camping at other locations in the past year. Place bonding was measured using a five-point agreement scale (1=strongly disagree; 3=neutral; 5=strongly agree) for 26 place bonding items (Hammitt et al., 2004). Finally, respondents indicated their willingness to substitute by responding to two items based on a five-point scale (1=not at all willing; 3=neutral; and 5=very willing).

4.0 ANALYSIS AND RESULTS

Respondents' ages ranged between 18 and 79, with a mean age of 39 years. Most had indicated that they were Caucasian (n=398, 94 percent) and over two-thirds were male (n=301, 71 percent). Only 15 percent (n=64) of the sample had not attended any college. Respondents' household incomes were well dispersed with about half earning over $60,000 a year. They indicated that they had been camping the current site for a mean of 6.5 years (SD=8.88) and at other sites for 9.5 years (SD=10.95). They also reported that their frequency of camping at the present site was 1.4 times during the previous year (SD=2.63) and their frequency at other campgrounds was 2.4 times during the same time period (SD=4.23). Finally, there were no significant differences between any of the EUH items among the three campgrounds.

The results of the confirmatory factor analysis (CFA) of the place bonding items are reported in Table 1. Although the five dimensional model was tested, the CFA indicated that a four dimensional model was a

better fit due to low factor loading and cross loading between the belongingness and identity dimension items. Hence, the items that were hypothesized to represent the identity and belongingness dimensions were combined to form a dimensioned labeled "affect." The reliability coefficients and the factor loadings indicate that this dimensional model of place bonding (affect, dependence, familiarity and rootedness) is a good fit for these data. Using the four dimensions of place bonding, an analysis of variance (ANOVA) was conducted to test for differences in place bonding between each of the three sites (Table 2). The data indicated that mean place bonding scores for the dependence ($F=6.45$; $p<.01$), familiarity ($F=4.23$; $p\leq.01$) and rootedness ($F=7.95$; $p<.01$) dimensions were significantly lower for Ellicot Rock, compared to Cherry Hill and Burrell's Ford. There were no differences between sites for the affect dimension. Also, an ANOVA was conducted to identify any differences between the sites for the respondents' willingness to substitute another site for their present one; there were no significant differences.

Table 1.—Factor Loadings, Reliabilities and standard errors of the place bonding scale

Dimension Items	α	ƛ	SE
Dependence	0.92		
____ is the best place for camping		0.69	0.04
No other place can compare to ____ for camping		0.79	0.04
I wouldn't substitute any other area for camping		0.86	0.04
Camping at ____ is more important to me than camping elsewhere		0.93	0.04
I get more pleasure at camping at ____ than elsewhere		0.87	0.05
Familiarity	0.82		
I know ____ like the back of my hand		0.84	0.05
I have many memories of camping at ____		0.81	0.06
I could draw a rough map of ____		0.71	0.06
Rootedness	0.89		
I rarely ever camp any place other than ____		0.81	0.05
____ is the only place I desire to camp		0.94	0.04
I consider only ____ when I go camping		0.89	0.04
If I could not camp at ____ I would not camp anymore		0.66	0.05
Affect	0.95		
I feel connected to ____		0.90	0.05
When I am at ____ I feel a part of it		0.79	0.05
____ is very special to me		0.78	0.04
I am very attached to ____		0.84	0.05
I identify strongly with ____		0.87	0.04
I feel like ____ is part of me		0.88	0.05
____ means a great deal to me		0.85	0.05

Table 2.—Differences in place bonding at each of the campgrounds

	Cherry Hill		Burrell's Ford		Ellicot Rock			
Dimension	Mean	SD	Mean	SD	Mean	SD	F	p
Dependence	2.94	0.98	2.85	0.88	2.55*	0.73	6.45	<.01
Familiarity	3.23	1.07	3.05	1.08	2.86*	1.02	4.23	0.02
Rootedness	2.40	1.03	2.30	0.95	1.95*	0.73	7.95	<.01
Affect	3.26	0.98	3.32	0.91	3.21	0.95	0.41	0.67

One-way ANOVA; df=400-405
*Post-hoc analysis revealed that only Ellicot Rock was different from the other sites for the dimensions indicated
Means based on a 5-point agreement scale: 1=strongly disagree; 3=Neutral; 5=strongly agree

The last step in this analysis was to use linear regression to test the relationship between EUH, place bonding, and willingness to substitute. Figure 2 illustrates the results of the analyses for the pooled sample of all respondents. This overall model (χ^2 = 34.43; RMSEA = .09; NFI = .98; CFI = .98), reveals that EUH with the site at which the respondent was camping was positively predictive ($p<.05$) of all four place bonding dimensions: affect (β=.52; R^2=.27); dependence (β=.40; R^2=.16); familiarity (β=.61; R^2=.38); and rootedness (β=.33; R^2=.12). However, EUH at the other campsites was only related to the rootedness dimension (β=-.11; R^2=.12), and the relationship was negative. Willingness to substitute was negatively predicted by the respondent's EUH with the site at which they were camping and the familiarity dimension of place bonding (β=-.13 and β=-.21, respectively; R^2=.09). In general, for the overall model, as EUH at the present site increased, place bonding increased and willingness to substitute decreased.

Figures 3, 4 and 5 exhibit the relationship between EUH, place bonding, and willingness to substitute for each of the three campsites individually. As indicated, the general relationship between the constructs was the same for the developed campground, Cherry Hill (χ^2 = 20.65; RMSEA = .09; NFI = .98; CFI = .99) as it was for the overall model, except EUH was negatively related to familiarity (β=-.09) instead of rootedness. However, for the respondent's camping at the semi-primitive site, Burrell's Ford (χ^2 = 24.62; RMSEA = .11; NFI = .94; CFI = .96), their EUH at other campgrounds again became a significant predictor of rootedness (β=.-.18). Also, the Burrell's Ford model indicates that EUH with Burrell's Ford

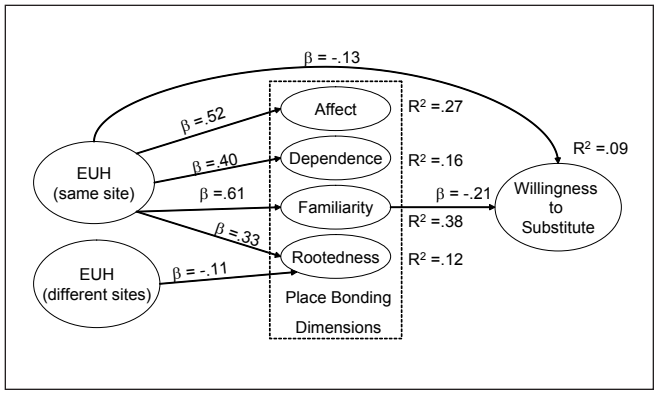

Figure 2.—Overall manifest regression model for the relationship between EUH, place bonding, and substitution. Chi-square = 34.43; RMSEA = .09; NFI = .98; CFI = .98.

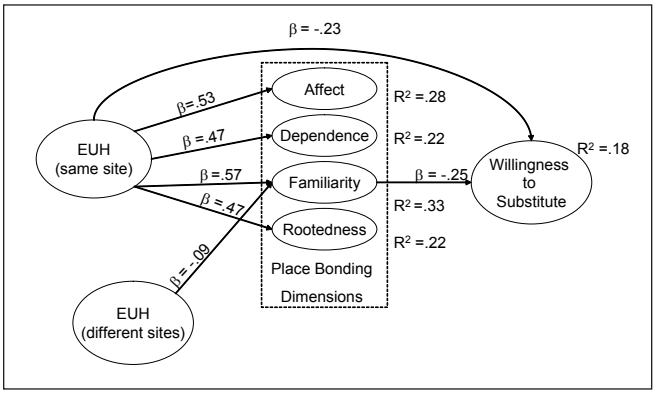

Figure 3.—Manifest regression model for the Cherry Hill (developed) setting. Chi-square = 20.65; RMSEA = .09; NFI = .98; CFI = .99.

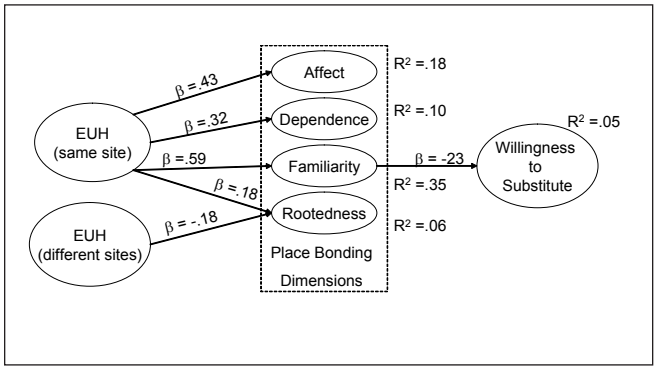

Figure 4.—Manifest regression model for the Burrell's Ford (semi-primitive) setting. Chi-square = 24.62; RMSEA = .11; NFI = .94; CFI = .96.

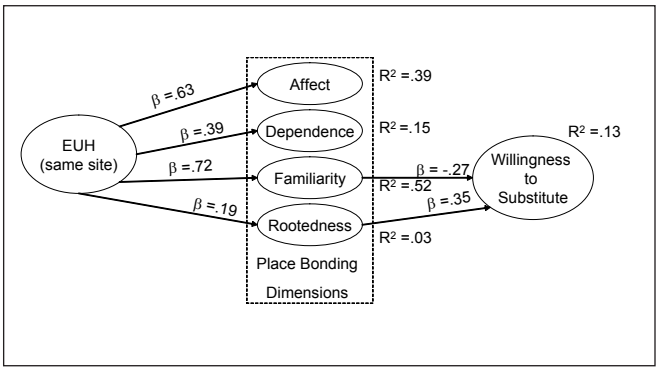

Figure 5.—Manifest regression model for the Ellicot Rock (wilderness) setting. Chi-square = 24.33; RMSEA = .11; NFI = .94; CFI = .95.

was not related to willingness to substitute. The only predictor of substitution was the place bonding dimension of familiarity (β=-.23; R^2=.05). Finally, for wilderness campers at Ellicott Rock (χ^2 = 24.33; RMSEA = .11; NFI = .94; CFI = .95), EUH with the other campgrounds did not predict place bonding or willingness to substitute. EUH with Ellicott Rock was positively related to each of the four place bonding dimensions, but not willingness to substitute. Willingness to substitute was predicted by the place bonding dimensions of familiarity and rootedness (β=-.27 and β=-.35, respectively; R^2=.13). It is interesting to note that familiarity was negatively related to substitution as hypothesized, but rootedness was not. In this model, rootedness was shown to be positively related to willingness to substitute. Clearly, these data indicate that the relationship between EUH, place bonding, and willingness to substitute differs between the overall model and each campground setting as well as between each of the three settings.

5.0 DISCUSSION

The purpose of this study was to continue the work started by Hammitt et al. (2004) and others by further exploring the relationship between experience use history, place bonding, and resource substitution. This analysis went beyond previous studies, which identified that a relationship between the constructs existed, by suggesting the directionality of the relationships and identifying the nature of the interplay between EUH, place bonding, and resource substitution. We also examined how the setting type, reflected in each of the campsites, may affect these relationships.

The results indicated that the structure of the relationships between EUH, place bonding, and resource substitution differ from setting type to setting type. Since the data indicated there were no differences in EUH or willingness to substitute between each of the three setting types (campgrounds), we suggest that the effect of setting type on the relationship is due to how the type of setting impacts respondents' place bonding. This became evident when it was shown that Ellicott Rock had significantly different means from the other two campgrounds on three of the place bonding items (Table 2). Furthermore, the Ellicott Rock model was the most structurally different from the other campground models and the overall model. Further research is needed to determine whether the cause of these difference is related to the setting itself, individual characteristics of people who camp at these sites, or activity differences among these campers.

Although the models for each of the campgrounds were different, it is important to examine the similarities in order to see the general relationship between the constructs. Respondents' EUH with the campground that they were camping at was generally a good predictor of each of the dimensions of place bonding. This result, along with the result that same site EUH was a predictor of willingness to substitute for two of the three settings, but not the third, suggests that respondents' experience with a setting influences the strength of their bonding with place. At the same time, past experience with a setting also limits their willingness to abandon one place for another. Further research should be conducted to more clearly identify the casual relationship between EUH and place bonding.

Another similarity between the models was that familiarity was a significant negative predictor of willingness to substitute. This suggests that as a visitor develops a cognitive bond through memories and past experiences they are less likely to substitute an alternate campground. Moreover, since the dependence and affect dimensions were not related to substitution, we can conclude that, for the campers in this study, the emotional component and the evaluation of the functionality of the setting attributes are not considered when one chooses to substitute one campsite for another. This supports the notion that EUH is an antecedent to place bonding, at least as place bonding relates to resource substitution.

A somewhat surprising result in this analysis was that, in the Ellicott Rock model, the rootedness dimension was positively related to willingness to substitute. The idea that the more rooted one is to a place the

more likely they are to substitute runs contrary to our hypothesis. Our speculation on the basis of this finding is that people who frequent wilderness areas are often a more adventurous type of visitor. Thus, as their experience with a specific site increases and they, in turn, become more rooted to a campground, they also become bored with the area. And, since these wilderness campers are more adventurous, they may seek out new experiences in an unfamiliar place to appease their boredom. Clearly, research incorporating optimal arousal theory (Berlyne, 1971) is needed to ascertain the truth of these suggestions.

5.1 Implications

Since the models for each of the individual campgrounds varied from the overall model, future research should consider examining these constructs not as an aggregate pooled sample of all recreationists but as subgroups based on the settings where respondents are recreating. Furthermore, if setting type plays a role in this relationship, then future research should also try to identify other ways to segment recreationists to identify other factors influential to the relationship.

These results also demonstrate a need to identify other variables and constructs that are influential in a recreationist's decision to substitute one site for another. Although all of the models were significant, the variance explained never exceeded 18 percent. This indicates that there may be elements missing from our hypothesized model. Future research should consider adding other constructs to this model. For example, discussion with colleagues leads us to suggest that social relationship variables (e.g. relationship to others in respondents camping party, strengths of relationships with other individuals in the party, etc.) and/or motivational items should be considered in future models of the relationship between EUH, place bonding, and resource substitution.

5.2 Limitations

As with all research, these findings have limitations. First, the means for each of the place bonding dimensions are relatively low. This indicates that the respondents in this study were not very attached to any of the campgrounds. Hence, results may be different for a sample of campers who are highly attached or vary greatly in their attachment to the study sites.

Second, we had concerns about the management of each of the sites and the location along the ROS spectrum given the impacts we witnessed on the ground (e.g., extensive clearing of underbrush, informal campsites, campfires, etc.). Consequently the sites were proximately close both in terms of their geographic location and their positions along the ROS continuum. This lack of setting variation may have manifested itself in the similarity of visitor type that we observed in these data.

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