PLACE MEANINGS AND CRITICAL ISSUES IN GRAND TETON NATIONAL PARK

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Abstract.—This paper seeks to contribute to a better understanding of the potential to use place attachment and meanings as a natural resource management tool. A mail-back survey was distributed to Grand Teton National Park (GTNP) visitors to collect opinions regarding "critical issues," as well as perceived meanings of special places in the park. The central research questions were: 1) Do visitors who are affected negatively or positively by the critical issues differ in regard to whether they reported a special place in GTNP?; and 2) Among visitors reporting a special place in GTNP, do the reasons for their attachments (meanings) differ between the positive, negative, and neutral impact groups? Results indicated that GTNP is a place that holds a multitude of meanings for visitors. In addition, visitors who reported a special place in GTNP were more likely to indicate an impact due to the critical issues than visitors who did not report a special place. Finally, with regard to critical issue impact, few significant differences were noted between impact groups.

1.0 INTRODUCTION

Throughout most of the last century, natural resource management was focused predominately on commodity-driven relationships between people and natural resources that were grounded in economic and utilitarian principles. In the last 20 years, the emergence of ecosystem management as a management philosophy has included a shift away from this notion, and broadened public land manager's consideration of the diverse values placed on natural resources. Increasingly, these managers have been called on to integrate broader values and meanings of landscapes into their management objectives and plans (Brandenburg & Carroll, 1995; Greene, 1996; Mitchell, Force, Carroll, & McLaughlin, 1993; Williams & Stewart, 1998). During the last decade, a number of studies have sought to promote the incorporation of the meanings of places into land management decisions (Eisenhauer, Krannich, & Blahna, 2000; Kaltenborn, 1998; Warzecha & Lime, 2001).

The growing importance of understanding the deeper intangible values and meanings of places and the need to consider them in natural resource management planning were the impetuses for this study. This paper expands on previous research (Eisenhauer et al., 2000; Kaltenborn, 1998; Mitchell et. al., 1993; Warzecha & Lime, 2001) by assessing visitors' meanings of special places in a premier national park and the ramifications for issues considered to be critical by park managers.

2.0 PLACE ATTACHMENT & PLACE MEANINGS – A BRIEF THEORETICAL OVERVIEW

Many different conceptions of the bond between people and places have been hypothesized and studied. The most widespread terms include place attachment (Low & Altman, 1992; Williams, Patterson, Roggenbuck, & Watson, 1992) and sense of place (SOP) (Cantrill, 1998; Hay, 1998; Shamai, 1991; Steele, 1981; Williams & Stewart, 1998). Place attachment is widely used to describe a person's emotional, cognitive, symbolic, or spiritual response to a particular physical surrounding or environment. Experts agree that the concept of place attachment is complex and dynamic, involving numerous intertwined constructs that evade simple definitions and explanations (Brown & Perkins, 1992; Giuliani

& Feldman, 1993; Low & Altman, 1992). Converging trends have led many researchers and writers to conclude that a place is both a personal and a social phenomenon, whereby a place is imbued with meaning by people at both individual and collective levels (Greider & Garkovich, 1994; Low & Altman, 1993; Relph, 1976). Williams (1995) has advocated not only this concept of socially constructed places but also its application to managing land at an ecosystem level.

One issue only recently addressed has been that few studies have separated a place's significance to an individual from how attached the individual is to the place and its meanings. As Stedman (2002) noted, place attachment (a measure of strength) is different than the place meanings (the what and why) to which one is attached. While a person's place attachment is in part based on the meanings attributed to a place, Stedman argued that the constructs should be separated. His study focused on place meanings and did not measure the strength of place attachment.

2.1 Place attachment, recreation, and land management

Several empirical studies in the last decade have found evidence to support the inclusion of place attachment when assessing different types of environmental impacts (Kaltenborn, 1998; Patterson & Williams, 1991; Vorkinn & Riese, 2001). There are several potential practical applications of assessing place meanings. Understanding the meanings that people have attached to the setting can help planners decide what they need to do to protect or preserve those meanings, if suitable. Newer tools, such as Geographical Information Systems (GIS), potentially could be used to create place attachment maps, and even for planning that could be based on a variety of dimensions, including place meanings (see, for example, Brown, Reed & Harris, 2002). In addition, researchers have noted that place attachment can be used in the public involvement process to identify either individuals or stakeholder groups whose participation should be invited or encouraged (Brandenburg and Carroll, 1995; Moore & Graefe, 1994).

The present research focused on a number of activities occurring within Grand Teton National Park (GTNP) that pre-date the park's existence and that may conflict with the National Park Service (NPS) mandate. In light of ongoing concerns about these activities and their possible ecological and social impacts, GTNP management had identified them as "critical issues" that need ongoing and active management. These issues include: 1) the Jackson Hole Airport, the only commercial airport in a national park in the contiguous United States and the busiest airport in Wyoming; 2) the Jackson Lake Dam, which regulates the water level of Jackson Lake (which is a natural, not human-made, lake) for primarily agricultural purposes and some flood control; 3) grazing of cattle and horses; 4) inholdings in the park (private land owned within the park); and 5) hunting [annual elk hunting is allowed within the park boundaries in the fall and early winter to reduce the number of elk to levels that federal and state wildlife managers believe the habitat can support]. While a number of national parks also have these types of activities or developments within them (and these generally pre-date the existence of the park), GTNP is perhaps unique in the extent to which these types of activities occur within its boundaries.

2.2 Study purpose

This paper expands on previous research by assessing visitors' meanings of special places in GTNP in relation to these critical issues. The central research questions addressed here are: RQ1) Do visitors who are affected negatively or positively by the critical issues differ in regard to the whether or not they reported a special place in GTNP?; RQ2) Among visitors reporting a special place in GTNP, do the reasons for their attachments (meanings) differ between the positive, negative and neutral impact groups?

3.0 METHODS
3.1 Study area

GTNP, located in northwestern Wyoming, was the site for this study. The Teton Range was first established as a national park in 1929, and after much political compromise over a number of years, a large portion

of the Jackson Hole (JH) valley was added in 1950 to form the present-day park, which is about 400,000 acres. GTNP is one of the most recognized mountain areas in the world, offering incredible mountaineering, hiking, rafting, skiing and other outdoor pursuits. GTNP receives over 3 million visitors a year, the majority during the summer. The town of Jackson, WY, has a year-round population of about 8,000 people (as of 2000), is located about 15 miles from the heart of the park, and is heavily dependent upon tourism revenues. In addition, more than 95 percent of the immediate area is public land, protected to various degrees not only in GTNP, but also in national forests, wilderness areas, and the National Elk Refuge.

3.2 Data collection

The primary data collection instrument for the study was a questionnaire, in which both closed (quantitative) and open-ended (more qualitative) questions were used to address the research questions. A stratified random sampling approach (by date, time of day, and entrance gate) was used to distribute the questionnaire to one adult in private vehicles entering GTNP from July through October 2000. To increase the response rate, follow-up procedures were used based on Dillman's Total Design Method (Salant & Dillman, 1994). Six hundred and forty-nine questionnaires were distributed during the sampling period. Of these, 493 were completed and returned by visitors, for a 76 percent response rate.

Questions assessing visitor awareness of the critical management issues and visitor attitudes towards the impacts of the issues were included in the questionnaire. The awareness question was asked in the following manner: "Before this visit to Grand Teton National Park, were you aware that the following facilities or activities occurred within the park?" For each issue, visitors had a choice of two responses, "was aware it occurred/existed", or "was not aware it occurred/existed." Visitors were also asked, "To what extent did the following facilities or activities add to or take away from your experience in Grand Teton National Park?" All the previous activities were listed, and visitors were asked to rate

each one on a 7-point interval scale (–3 "made a lot worse" to +3 "made a lot better"). These responses were used to segment visitors into three groups: 1) negatively impacted; 2) neutral/not impacted; and 3) positively impacted. These three impact groups were identified for each of the five issues. An overall mean impact score was then calculated from the five individual impact scores to yield an overall level of perceived impact for all of the issues. The survey also collected information on respondents' special places in GTNP in an open-ended format. Visitors were asked to list up to three important places in the park, describe the reasons why those places were important, and estimate how much time they had spent at each place.

4.0 ANALYSIS

Analysis of the survey data took two forms, both quantitative and qualitative. As noted, awareness of the critical issues was measured using a nominal (yes/no) scale. The level of the impacts was analyzed by creating a nominal variable based on categorization of respondents into three groups based on their perceptions of the impacts as being negative, neutral or positive.

Place meaning questions were first analyzed qualitatively. First, the GTNP places that were listed were categorized into 86 distinct places, based on the name of the place or the type of place. Respondents could list multiple reasons for the importance of places, resulting in a total of 1299 reasons cited. Reasons for a place's importance were first coded in NVivo (QSR*NUDIST Vivo 1.0, 1999), a qualitative data analysis software program. To establish codes, an inductive approach was applied to develop categories of codes based on respondents' meanings (Miles & Huberman, 1994). These categories were refined as analysis progressed. After initial coding, 36 separate categories of place meanings were identified. A reliability analysis was then conducted and after further refinement and collapsing of these categories, coding based on 17 separate categories was finalized (see Smaldone, Harris, Sanyal & Lind, 2005 for complete code list and definitions). These codes were next transferred to SPSS for further analysis.

All respondents who had mentioned a type of place categorized by place code were identified (for instance, "environmental setting or characteristics"), and then these cases were compared with those who had not identified this place code. Thus each place code was measured on a nominal level referring to the presence or absence of a code for each respondent. Certain meanings were double (or even triple) coded, as it was sometimes impossible to exclude overlapping meanings based on some of the respondents' answers. Responses that were double coded were placed in both coding categories during analyses. T-tests, cross-tabulations, and Chi-square statistics were used to analyze statistical relationships between the time (length of association) variables and the place meaning codes; all results reported here were statistically significant, $p<.05$.

5.0 RESULTS

5.1 Awareness and impacts

Over half (59 percent) of the visitors said there were specific places in GTNP that were special to them. Visitors described a variety of place meanings, and the most common meanings included: 1) the physical setting (73 percent reported this meaning); 2) outdoor recreation activities (53 percent); 3) emotional connections (30 percent); 4) wildlife viewing (30 percent); 5) escape (27 percent); 6) social ties (24 percent); 7) special moments (16 percent); and 8) the undeveloped nature of the park (10 percent). Many respondents reported multiple meanings for a single place.

Many visitors were unaware of the facilities or activities that have been deemed "critical issues" by GTNP management. Although close to three-quarters (74 percent) of the visitors were aware that the airport was in GTNP, and about two-thirds (65 percent) knew grazing occurred, only about half knew about elk hunting (51 percent) and private inholdings (52 percent). Furthermore, only 31 percent knew that the water level of Jackson Lake is controlled for agricultural purposes. In terms of perceived impacts of these issues, the large majority of visitors indicated that these issues "neither detracted from nor added to"

their experience in GTNP (the airport—67 percent; Jackson Lake dam—74 percent; elk hunting—76 percent; grazing—72 percent; inholdings—81 percent).

5.2 Special places and impacts (RQ1)

As for respondents' awareness of issues deemed critical by GTNP management, those reporting a special place were more likely to be aware of all the critical issues (Table 1). Statistically significant results were found for all Chi-Square analyses—results indicated that visitors who were aware of the issue were twice as likely to report a special place as those who were unaware.

Chi-Square analyses found statistically significant differences among respondents who reported having a special place and those who did not concerning perceived impacts (positive, neutral, or negative) related to the following issues: the airport ($\chi^2=8.105$, $p<.017$, Cramer's V=.152); hunting ($\chi^2=7.633$, $p<.022$, Cramer's V=.178); and grazing ($\chi^2=15.874$, $p<.001$, Cramer's V=.225) (see Table 2). A statistically significant difference also was found in the case of the overall mean impact score ($\chi^2=10.535$, $p<.003$, Cramer's V=.269). For all significant results, those reporting a special place were more likely to indicate a negative impact; and for the case of grazing as well as the overall impact, those reporting a special place were more likely to indicate either a negative or a positive impact. There was no significant association found between reporting a special place and impacts of the dam or inholdings.

5.3 Place Meanings & Impacts (RQ2)

The most commonly reported place meanings for the three impact groups are compared in Table 3. In this analysis, only the overall impact score was used (a similar pattern of findings also emerged when analyzing the individual impact scores, although some differences were noted). In addition, visitors who were aware of four out of the five critical issues were included in the following analyses; the issue relating to awareness of the dam was not included, because of its low awareness level compared to the other issues

Table 1.—Visitor awareness of critical issues and special places

Activity/Issue	Awareness	Had a special place	Did not have a special place	Totals	
Jackson Hole airport	Was aware	250 (70%)	105 (30%)	355 (100%)	χ^2 = 26.141*,
	Was not aware	55 (45%)	68 (55%)	123 (100%)	Cramer's V=.234*
Water level of Jackson Lake dam is controlled for agriculture	Was aware	127 (85%)	22 (15%)	149 (100%)	χ^2 = 41.667*,
	Was not aware	184 (55%)	152 (45%)	336 (100%)	Cramer's V=.293*
Elk hunting in the fall	Was aware	173 (71%)	72 (29%)	245 (100%)	χ^2 = 10.55*,
	Was not aware	133 (56%)	103 (44%)	236 (100%)	Cramer's V=.148*
Cattle & horse grazing	Was aware	219 (69%)	97 (31%)	316 (100%)	χ^2 = 11.613*,
	Was not aware	89 (54%)	77 (46%)	166 (100%)	Cramer's V=.155*
Private Inholdings	Was aware	186 (73%)	68 (27%)	254 (100%)	χ^2 = 19.557*,
	Was not aware	124 (54%)	106 (46%)	230 (100%)	Cramer's V=.201*

*Significance level, $p<.001$

Table 2.—Impact of critical issues and special places

Activity/Issue	Impact group	Had a special place	Did not have a special place	Totals for Impact groups	
Jackson Hole airport	Negative	46 (87%)	7 (13%)	53 (100%)	χ^2 = 8.107*,
	Neutral	147 (68%)	70 (32%)	217 (100%)	$p<.017$,
	Positive	54 (67%)	27 (33%)	81 (100%)	Cramer's V=.293*
Water level of Jackson Lake dam is controlled for agriculture	Negative	12 (86%)	2 (14%)	14 (100%)	χ^2 = .253,
	Neutral	72 (84%)	14 (16%)	86 (100%)	$p<.881$
	Positive	40 (87%)	6 (13%)	46 (100%)	
Elk hunting in the fall	Negative	34 (90%)	4 (10%)	38 (100%)	χ^2 = 7.633*,
	Neutral	118 (67%)	58 (33%)	176 (100%)	$p<.022$,
	Positive	19 (70%)	8 (30%)	27 (100%)	Cramer's V=.178*
Cattle & horse grazing	Negative	37 (93%)	3 (7%)	40 (100%)	χ^2 = 15.874*,
	Neutral	136 (63%)	80 (37%)	216 (100%)	$p<.001$
	Positive	44 (77%)	13 (23%)	57 (100%)	Cramer's V=.225*
Private inholdings	Negative	33 (83%)	7 (17%)	40 (100%)	χ^2 = 3.950,
	Neutral	131 (70%)	57 (30%)	188 (100%)	$p<.139$
	Positive	19 (83%)	4 (17%)	23 (100%)	
Overall impact	Negative	39 (93%)	3 (7%)	42 (100%)	χ^2 = 10.535*,
	Neutral	35 (67%)	17 (33%)	52 (100%)	$p<.005$,
	Positive	44 (85%)	8 (15%)	52 (100%)	Cramer's V=.269*

*Significance level at least $p<.05$

Table 3.—Most commonly used place meaning codes (for all places)

Place meaning code	Percentage of all visitors using meaning (N=312)	Percentage of visitors in negative impact group using the meaning (N=45)	Percentage of visitors in positive impact group using the meaning (N=55)	Percentage of visitors in neutral impact group using the meaning (N=57)
Physical setting	73%	60%	55%	46%
Outdoor recreation	53%	53%	49%	33%
Emotional connections	53%	38%	24%	18%
Wildlife viewing	30%	33%	18%	14%
Getting away*	27%	36%	20%	16%
Social aspects	24%	29%	27%	19%
Solitude**	12%	24%	7%	2%

* Approached significance among impact groups, χ^2=5.971, p<.051, Cramer's V=.195
** Statistically significant among impact groups, χ^2=14.933, p<.001, Cramer's V=.308

(this low level was thought to be due to the wording of the question, and therefore was not deemed reliable). Comparisons between the impact groups and the place meanings using cross-tabulations found a statistically significant difference for only one place code, "solitude" (χ^2=14.933, p<.001, Cramer's V=.308; 24 percent of negative group, 7 percent of positive group, 2 percent of neutral group). The place meaning of "getting away" was almost statistically significant as well (χ^2=5.971, p<.051, Cramer's V=.195; 36 percent of negative group, 20 percent of positive group, 16 percent of neutral group). ("Getting away" and "solitude" were combined with other emotionally based or psychologically oriented meanings to create the overall emotional connections category.)

The emotional connection meaning also approached significance when comparing the impact groups. Further analysis revealed that when only the most important place in GTNP for each visitor was examined, a statistically significant result was found— the negative impact group was more likely to have reported emotional connections as a reason for the importance of that special place (χ^2=7.264, p<.026, Cramer's V=.214). In this case, the negative group (27 percent used this meaning) was almost twice as likely to give that as a reason for importance of place as the positive group (16 percent), and four times more likely to report this meaning than the neutral group (7 percent).

6.0 DISCUSSION

Findings revealed that GTNP has numerous specific places that visitors noted as special, and these places have a variety of meanings associated with them. In fact, many visitors reported that a single place can have multiple meanings, confirming the complexity of places (Low & Altman, 1992). In general, commonly reported meanings for places in GTNP were the physical setting, outdoor recreation activities, emotional connections, wildlife viewing, social ties, and the undeveloped nature of the park. GTNP is a popular national park, known for its unspoiled mountain scenery, diverse recreation opportunities, and wonderful wildlife viewing. This study also found that emotional and social meanings were important to visitors' connections to the park. These are precisely the meanings that can be overshadowed by more easily recognized and measured scenic or recreation opportunities that managers often address when assessing place meanings (Brandenburg & Carroll, 1995).

A large number of visitors were not even aware that issues considered critical by GTNP managers existed or occurred within GTNP boundaries. The extent to which this ignorance was at least partly responsible for the finding that the majority of visitors were relatively unaffected by these issues is unknown. This finding suggests that information regarding critical issues for areas that include special places be more widely

disseminated and made available. However, it could well be that the issues deemed "critical" by GTNP management are not deemed equally important or "critical" to park visitors, and further research could help shed light on this situation.

Nonetheless, a variety of factors are likely to be important influences on visitor awareness of the critical issues, as well as the impact of those issues, including the season in which a person visits and changing environmental conditions. For example, the impact of the amount of local snowfall on the condition of Jackson Lake can later impact a visitor's experience (i.e., less water forces marinas to close, etc.). In a low snowfall year, visitors are more likely to see effects of the dam on the lake and be aware of those effects. Due to these variable factors, the results reflected in this study may not be generalizable to other seasons or years. Ongoing evaluation of these critical issues is needed, and it should be done during the time most likely to yield informative and useful data—that is, at the particular time an issue is occurring (such as during hunting season for hunting, etc).

Visitors who reported a special place in GTNP were more aware of the critical issues identified by GTNP managers. This greater knowledge about the park is undoubtedly due at least in part to the fact that those who reported a special place also had a longer length of association with the park (Smaldone et al., 2005). Those reporting a special place were also more likely to be impacted, either negatively or positively, by the critical issues in the park than those not reporting a special place. Therefore, this evidence supports other researchers' claims that place attachment can be an important variable to consider when identifying people to include in a park's public involvement process, as visitors with high place attachment could be more sensitive to changes (Bricker & Kerstetter, 2000; Mitchell et al., 1993; Moore & Graefe, 1994; Patterson & Williams, 1991; Schreyer & Knopf, 1984). Measures of place attachment could also help predict reactions to environmental impacts (Kaltenborn, 1998; Vorkinn & Riese, 2001). Therefore, inclusion of place

attachment assessments when evaluating the public's attitudes about environmental impacts at specific locations could help land managers better assess and understand the public's reactions to management objectives and goals (Vorkinn & Riese, 2001).

Another finding of the present research concerned particular kinds of place meanings. The group negatively affected by critical issues for GTNP was almost twice as likely as the positively affected group to report that emotional meanings were important for their connections to a special place (and about four times more likely than the neutral group). The negatively affected group also reported more meaning associated with "solitude" and "getting away" than the other groups. Thus, even though both positively and negatively affected groups were more likely to have a special place in the park than the neutral group, the meanings of those places differed for the two affected groups. Managers seeking to grasp the full range of place meanings need to understand all types of impacted groups and the different place meanings they deem important. However, further replication is needed in a variety of settings, as well as with a variety of respondents, to further assess the types of place meanings and to make their use more applicable to local conditions based upon specific land manager's objectives.

7.0 CONCLUSIONS

This study suggests that places that are widely regarded for scenic or recreational reasons, such as GTNP, in fact hold a great diversity of meanings for visitors. As others have noted, once the place meanings of a particular landscape are known, managers are better equipped to make informed judgments about their activities affecting it (Williams & Stewart, 1998; Galliano & Loeffler, 1995). Planners can more easily decide what they need to do to protect or preserve those meanings, as required. Management zones might then be created, for example, which take into account not only ecologically suitable uses, but also the emotional, social, cultural or even symbolic meanings of places (Brown, Reed & Harris, 2002).

A variety of studies in the last decade have found evidence to support the inclusion of place attachment when assessing different types of environmental impacts (Kaltenborn, 1998; Patterson & Williams, 1991; Vorkinn & Riese, 2001; Warzecha & Lime, 2001). Results of the present study affirm that place meanings could allow for the incorporation and consideration of a more holistic understanding of places in land management decisions (Williams & Patterson, 1994).

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