RECREATIONAL USE IN THE HEADWATERS OF THE CHATTOOGA RIVER

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Abstract.—For over 30 years, Sumter National Forest (SNF), principal managing agency for the Wild and Scenic Chattooga River, has prohibited whitewater boating on the uppermost 20 miles of the river. In an attempt to gain access, boater advocacy group American Whitewater filed an appeal against the most recent Land and Resource Management Plan. On the basis of this appeal, SNF was directed to conduct a visitor use capacity study in the upper sections of the river and involve all interested parties in the process. To this end, SNF has hosted three meetings during which the study process was outlined, stakeholders identified, and potential Limits of Acceptable Change indicators discussed. The visitor use capacity analysis is currently underway and expected to continue through 2008. This paper reviews historical and current river management documents and, utilizing a secondary data source, examines levels of experience, involvement, and place attachment between two major stakeholders, Trout Unlimited members and whitewater boaters. An overview of the current process to reanalyze recreation use in the headwaters is synthesized, two major stakeholders embroiled in the controversy are examined, and considerations for future research suggested.

1.0 INTRODUCTION AND PURPOSE

Located in the mountainous corner of northeast Georgia, western South Carolina, and southwestern North Carolina, the Chattooga River and surrounding areas are a popular destination for outdoor recreationalists of the southeastern U.S. Management of the river corridor is shared between the Sumter National Forest (SNF) in SC, Nantahala National Forest in NC, and Chattahoochee-Oconee National Forests in GA, with the SNF as lead agency for river management. A ban on floating the uppermost 20 miles river (north of the Highway 28 Bridge) has been in place since 1976. While empirical data are lacking, anecdotal evidence suggests the ban was implemented to limit conflict between anglers and an increasing number of river floaters. Individuals familiar with the river attribute the rise in boating popularity to the 1972 blockbuster movie *Deliverance,* filmed in large part within the river corridor (Lane 2004). In an attempt to gain access for boaters, American Whitewater (AW), a whitewater boating advocacy group, filed an appeal against the most recent land and management plan. On the basis of this appeal, SNF was directed to conduct a visitor use capacity study on the upper sections of the river and involve all interested parties in the process. This visitor use capacity analysis is currently underway and is expected to continue through 2008.

It is our intention for this research to serve several distinct purposes. The first purpose is to synthesize the history of Chattooga River management by reviewing relevant management documents and literature to fully understand management direction and ascertain possible reasons for the boating ban. Secondly, this research aims to provide an overview of two major stakeholders involved in the current controversy. Our attendance of U.S. Forest Service (USFS) National Environmental Policy Act (NEPA) meetings showed the primary opposition to floating above the Highway 28 Bridge stems from local Trout Unlimited (TU) members. Therefore, we sought to compare and contrast experience, intensity, and place bonding between whitewater boaters who utilize the Chattooga River and TU members from two local chapters. Finally, this research identifies future research needs regarding management of this valuable resource.

1.1 Data and Limitations

In 2001, Backlund (2002) conducted a study of two major stakeholders who utilize the Chattooga River; TU Members from two local chapters (Chattooga River in western SC and Rabun in northeastern GA) and whitewater boaters. Survey respondents were identified either by mailing list or the mandatory river registration (anglers and floaters, respectively) (Backlund 2002, Hammitt et al. 2004b). Floaters were then selected

utilizing a stratified sampling method drawn from 3,311 river permits completed by floaters in 2000 (Bixler & Backlund 2002). A seven page questionnaire was mailed to respondents using a 4-stage modified Dillman (2000) procedure (Hammitt et al. 2004a). Both groups were sent a cover letter, postage-paid envelope, and survey instrument with minor wording changes to reflect differences between activities (Backlund 2002). After follow-ups and reminder postcards, an adjusted response rate of 71 percent for TU members and 53 percent for whitewater boaters was obtained. A usable sample of 427 individuals resulted, of which 189 were trout fishermen (Bixler & Backlund 2002).

While these data have been used in several other publications (see Backlund 2002; Bixler & Backlund 2002; Hammitt et al. 2004a, 2004b), this study conducted a unique analysis of data by making comparisons between these two stakeholders regarding levels of activity involvement, intensity, place bonds, and demographic variables. However, limitations of the data need to be recognized. First, the empirical data was gathered using two different sampling methods, a stratified random sample (floaters) and a purposive sampling frame (TU). Secondly, this data was site specific to the Chattooga River and therefore generalizations cannot be made to other rivers.

2.0 LITERATURE REVIEW

2.1 Overview of the Resource

Originating from small springs and rivulets near Highlands, North Carolina, the Chattooga River cascades down Whiteside Mountain and through the Ellicott Rock Wilderness Area, where it becomes the upstate boundary between Georgia and South Carolina. Here the river slows as it meanders through quiet pools and shallow riffles. Near the end of its journey, the river again descends quickly as it travels through the famous *Five-Falls* before finally spilling into the confines of Tugaloo Reservoir. The watershed encompasses 281 square miles of southern Appalachian forest and drops approximately 4,000 feet over its length.

The Chattooga area is heavily visited; some 11 million people visit annually and an estimated 25 million reside within 150 miles of the river, including the population centers of Atlanta, Asheville, Charlotte, and Chattanooga. Officially designated a Wild and Scenic River (WSR) in 1974, the Chattooga is one of the few remaining free flowing rivers in the southeastern U.S. It provides opportunities for whitewater boating and harbors some of the preeminent trout fishing in the region. Land-based recreational opportunities include sightseeing, backpacking, day hiking, horse packing, and the chance to observe a tremendous variety of flora and fauna, including many federally listed species. Historically, the land was a Cherokee stronghold throughout the 1700s and 1800s and has several known archeological sites located along its banks.

2.2 River Management

In 1971, the WSR Study Report on the Chattooga River was published by the USFS, in which all portions of the river were recommended for inclusion as a WSR. Reasons included a variety of recreational opportunities, of which fishing and boating were both noted. Three years later, the river received official WSR Status which stipulated the USFS to manage the river "in such manner as to protect and enhance the values which caused it to be included" ("Wild and Scenic Rivers Act", 1974). As noted earlier, a portion of the river also flows through the Ellicott Rock Wilderness Area, which further regulates river management. As stated in the 1964 Wilderness Act (WA) (Section 4[b]), "wilderness areas shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use" ("Wilderness Act," 1964).

Five years after inclusion as a WSR, the SNF Land and Resource Management Plan (LRMP) was published and a ban on boating above the Highway 28 Bridge was instituted. The justification for the ban included the adverse effect that the increasing number of boaters had on the fishing experience (Chattooga Wild and Scenic Development Plan 1976). Since the original LRMP, SNF has drafted several revisions and each reinforced the ban. During the mid-1990s and early in 2002, AW lobbied the SNF to gain access to the upper river, but each attempt was met with limited or no response.

In January 2004, a Revised LRMP (RLRMP) was published by the SNF which continued the ban on

floating the upper river. Shortly thereafter, AW filed an appeal to the Washington Office (WO) of the USFS on the basis that "denying boaters access to the headwaters is inconsistent with applicable law and policy" and "the stated justification[s] for the boating ban are not based on adequate information" (Forshey et al. 2004, p. ii). In April 2005, the WO reversed the Regional Forester's continuation of the ban on boating above Highway 28 (Manning 2005). The WO justified the reversal on the grounds that the Regional Forester did not "provide an adequate basis for continuing the ban on boating above Highway 28." As part of this decision, a visitor use capacity analysis was ordered to be conducted to determine how the RLRMP should be adjusted or amended to reflect the findings of the forthcoming analysis.

2.3 Visitor Use Capacity Analysis

The Visitor Use Capacity Analysis is ongoing in the form of the Limits of Acceptable Change (LAC) process. The LAC process is a participatory framework designed to examine potential human impacts in natural areas and the subsequent development of management policies that protect the unique character of the natural resource. This framework relies heavily upon interested citizen participation for effective implementation (McCool 1996). In launching the LAC process for the Chattooga River, the USFS has held three public meetings (October, November, and December 2005). During these meetings, the process was introduced, stakeholders acknowledged, recreational and resource opportunities, values, and desired conditions identified, and potential indicators and data collection procedures discussed with interested parties. At the time this paper was submitted, the USFS was deciding upon appropriate methodologies to employ and are considering user trials, expert panels, literature reviews, focus groups, and user surveys.

3.0 METHODS

A literature review was conducted which included a review of past and present river management documents, an exploration of the visitor use capacity analysis and LAC process, and identification of potential future management directions. Our attendance at public meetings showed two major stakeholders, TU and whitewater boaters, as well as several other less visible groups. Empirical data from a secondary source (see Backlund 2002) were reviewed and synthesized; specifically, variables related to experience, involvement, and place bonding were used to compare and contrast the two known major stakeholders embroiled in the current controversy. Data were analyzed using a mixture of cross-tabulations, mean scores, and t-tests. Most importantly, this analysis identified current informational inadequacies and future research needs regarding recreational management of the upper Chattooga River.

4.0 RESULTS

4.1 Respondent Characteristics

The study population was found to be predominantly male; females represented 2.6% of anglers and 13.9% of whitewater boaters. Respondents were well educated, greater than 90% having attended college or graduate school. Not surprisingly, income levels were equally high as 60% indicated they earned greater than $60,000 annually. Finally, results suggest that distance to the Chattooga River is not a deterrent to participation; data indicated anglers traveled on average 54 miles and whitewater boaters well over 100 miles to reach the Chattooga (Table 1).

4.2 Experience

This study examined the variables experience, involvement, and place attachment for TU members and whitewater boaters utilizing the Chattooga River. Experience is operationalized as the number of years one is involved in an activity and intensity as the number of times the activity was participated in during the past year. The theory of specialization, typically measured through years or frequency of participation in an activity, provides a way of examining differences between anglers and boaters utilizing the Chattooga River (Manning 1999). Manning further describes specialization as not a single construct, but rather one that incorporates a number of factors that contribute to the level of specialization one may exhibit. Bixler and Backlund (2002) suggest that trout fishing and whitewater boating both require specialized equipment and that participants are often intensely involved with their chosen activity.

Respondents were asked a series of open-ended questions regarding previous experience (Table 2). The majority of

Table 1.—Profile of Survey Respondents

	TU Members		Whitewater Boaters	
	Frequency	Percent	Frequency	Percent
Gender				
Male	184	97.4	205	86.1
Female	5	2.6	33	13.9
Age				
< 25	10	5.3	28	6.6
25-34	16	8.5	84	19.7
35-44	27	14.3	95	22.2
45-54	37	19.6	98	23
55-64	50	26.5	72	16.9
> 65	49	25.9	50	11.7
Education				
High school or less	20	10.8	19	8.0
College	84	45.2	144	60.5
Graduate school	82	44.1	75	31.5
Income Category				
< 20,000	7	4.3	30	13.0
20,000 - 39,999	22	13.7	34	14.8
40,000 - 59,999	27	16.8	35	15.2
60,000 - 79,999	31	19.3	40	17.4
80,000 - 99,999	19	11.8	36	15.7
100,000 - 119,999	21	13.0	22	9.6
120,000 - 139,999	9	5.6	7	3
> 140,000	25	15.5	26	11.3
Miles from Chattooga River				
< 25 miles	59	31.6	29	12.6
26 - 50 miles	87	46.5	48	20.8
51 - 75 miles	17	9.1	22	9.5
76 - 100 miles	11	5.9	38	16.5
101 - 150 miles	6	3.2	42	18.2
> 151 miles	7	3.7	52	22.5

TU respondents (51%) have been trout fishing for 31 years while nearly half of whitewater boaters surveyed (47%) have floated rivers 10 years of less. However, when mean number of years utilizing the Chattooga River is examined, data indicated that TU respondents have been utilizing the Chattooga River on average four years longer than their whitewater boating counterparts. While not statistically significant, data indicates that boaters frequent the Chattooga River more often, both lifetime and annually, than their angler counterparts.

4.3 Involvement

McIntyre and Pigram (1992) characterized involvement as a function of three components: attraction, self-expression, and centrality. Attraction refers to not only the pleasure that can be gained from an activity but also the importance of the activity to the individual. Self-expression refers to the desired image one wishes to portray while in their leisure activity. Lastly, the centrality dimension explains the degree to which activity served to shape one;s life and the extent to which an individual organizes his/her life around the activity.

Using a Likert-type scale (1 = strongly disagree to 5 = strongly agree), respondents were asked 12 questions designed to explore and measure involvement in their chosen activity. Responses were then combined into one of three subscale categories (attraction, self-expression,

Table 2.—Previous Experience on the Chattooga or Other Rivers

	TU Members		Whitewater Boaters				
	N	Mean	N	Mean	t	df	p
Years Fishing or Whitewater Boating *	188	31.5	238	13.0	13.61	424	<.001
Years Fishing or Whitewater Boating the Chattooga River *	188	14.7	237	10.5	4.24	423	<.001
Years Fishing or Whitewater Boating Other Rivers *	188	17.5	231	10.8	6.1	417	<.001
Times Participating on Chattooga River (lifetime)	161	142.5	229	145.5	-0.08	388	0.93
Times Participating on Chattooga River (last year)	185	9.8	237	13.8	-1.77	420	0.07
Times Participating on Other Rivers (last year)	181	20.8	233	23.2	-0.46	412	0.64

*p<.05

Table 3.—Involvement

	TU Members		Whitewater Boaters				
	N	Mean	N	Mean	t	df	p
Attraction *	184	4.39	235	4.60	-4.07	417	<.001
Self-Expression	185	3.68	234	3.79	-1.58	417	0.115
Centrality *	189	2.96	238	3.41	-4.94	425	<.001

*p<.05

or centrality) to produce a grand mean for the subscale. As illustrated in Table 3, whitewater boating respondents have higher grand mean scores for each of the three subscales with significant differences existing within the attraction and centrality subscales. Results suggest that whitewater boaters attribute higher levels of pleasure and importance to their activity, as indicated by attraction scores, than TU members and that the activity plays a more central role within their lives.

4.4 Place Attachment

The Chattooga River Corridor is one of the most scenic places in the southern Appalachians. In order to ascertain overall levels of connectedness to the Chattooga River, survey respondents were first asked to rate, via a 7-point Likert-type scale (1 = weak to 7 = strong), "how strong you would characterize your feelings of attachment to the Chattooga River." Mean scores for boating respondents was 6.05 as compared to TU respondents overall mean score of 4.95. Independent t-test analysis showed this difference in overall connectedness to the river to be significant ($t = -8.84$; $df = 420$; $p<.05$).

Hammitt and Cole's (1998) taxonomy of emotional place bonding in a recreational setting provides a theoretical model of place attachment. They propose that emotional place bonding begins with familiarity resulting from increasing levels of bonding intensity and bonding character. As place bonding increases, one progresses sequentially through the stages of the taxonomy: from familiarity to belonging to identity to dependence and finally to rootedness. Each serves a specific role in the place bonding experience. Familiarity can result in repeated visits as well as noticeable impacts. Place belongingness includes a sense of affiliation with the place as well as involving the affective and emotional connections one creates to a place (Milligan 1998). Place identity and place dependence refer to the importance of a place to a person's self-identity and the degree to which the resource is relied upon to perform a particular activity (Bixler & Backlund 2002). At the top of the taxonomy, rootedness incorporates feelings of being at home and being stable within the place.

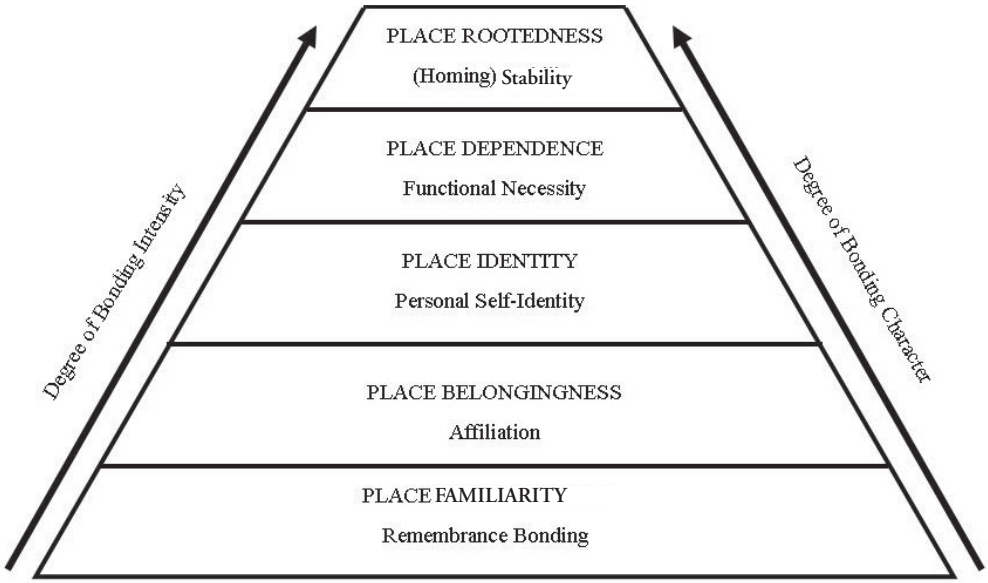

Figure 1.—Here (Taxonomy of Recreation Place Bonding (Hammitt & Cole 1998)).

Utilizing Hammitt and Cole's Taxonomy of Recreation Place Bonding (Figure 2), respondents were asked a series of questions designed to explore emotional bonds to the river and its corridor (1998). As discussed by Bixler and Backlund (2002), these questions were designed to follow the abovementioned model. Similar to the measures of involvement previously discussed, respondents answered questions on a Likert-type scale (1 = strongly disagree to 5 = strongly agree) regarding their level of bonding to the river. Grand means were then calculated for each of the five subscales of the model and are reported in Table 4. Independent t-test analyses showed significant differences to exist between the two groups at all five levels of the taxonomy. Results are shown in Table 4.

5.0 DISCUSSION AND IMPLICATIONS FOR FUTURE RESEARCH

Under direct order from the WO of the USFS, the process to reanalyze recreational use in the headwaters of the Chattooga River is ongoing and will continue through 2008. This research served several distinct purposes. The first purpose was to explore and explain the history of the boating ban and river management, including relevant management documents. Secondly, this research aimed to provide an overview of the two major stakeholders involved in the current controversy and explore variables including levels of experience, intensity, and place attachment. Finally, this research served to identify future research considerations regarding

Table 4.—Place Bonds

	TU Members		Whitewater Boaters				
	N	Mean	N	Mean	t	df	p
Place Familiarity *	187	3.48	235	4.29	-9.70	420	<.001
Place Belongingness *	188	3.53	238	4.16	-9.38	424	<.001
Place Identity *	188	3.51	237	4.16	-8.99	423	<.001
Place Dependence *	189	2.55	235	3.53	-12.66	422	<.001
Place Rootedness *	189	2.06	237	2.50	-6.29	424	<.001

*p<.05

management of this valuable resource. This effort includes highlighting past research inadequacies so that the USFS is better equipped to guide management of this river in the future.

Through analysis of a secondary data source we were able to illuminate differences regarding experience, intensity, and place bonds between two Chattooga River stakeholders: whitewater boaters and TU members. Of interesting note is that while TU members have been using this mountainous stream longer than their whitewater boating counterparts, they reported significantly lower scores in two of the three involvement measures (Table 3) and in all place attachment categories (see Table 4). Data indicate boaters utilize the Chattooga River more frequently than their angling counterparts both annually and over the lifetime. We hypothesize that the stronger place bonds may be a result of the discrepancy between frequencies of use between the groups. In addition fishermen could fish other streams while the Chattooga is the only Wild and Scenic whitewater river in the Southeast for intermediate boaters. Therefore this resource is not replaceable.

Of other interesting note is that the average age of whitewater boating respondents was 40 years old. The magnitude of this finding may not be apparent to those not familiar with the Chattooga River and its headwaters and we wish to identify it as a forewarning for future research. The headwaters section that is currently being reexamined is steep, narrow, and difficult to navigate. Rapids within this section range in difficulty from Class I to VI on the International Scale of Whitewater Difficulty. This section of river requires expert whitewater skills and is more similar to other steep mountainous streams such as the Narrows of the Green River near Hendersonville, North Carolina, and Overflow Creek in northeastern Georgia, than it is to the lower sections of the Chattooga from where the sample was drawn (Sections II, III, and IV). From the researcher's own experience paddling these and other such "creeks" in western Carolina and northeastern Georgia, the 'average' age of the expert boater is considerably less than the 40 indicated by our data. In addition the lower river (largely class II – III), with the exception of Section IV, is relatively easy to navigate and attracts primarily intermediate boaters. Therefore, future research endeavors should aim to secure study samples that more accurately reflect the correct user group.

Evidence suggests past studies, including the data utilized within this paper, have excluded several major recreational stakeholders including non-TU anglers, expert boaters who do not paddle the lower Chattooga, campers, hikers, local communities, and general recreationists. Future analyses should make every attempt to identify all stakeholders, not just those who are most visible or vocal within the community.

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