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## APPENDIX H

# CHATTOOGA RIVER HWY 28 ANALYSIS

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### **PURPOSE**

Appendix H outlines the recreational/social effects of opening up all or part of the Chattooga Wild and Scenic River upstream of Highway 28 to whitewater boating (the physical and biological effects are addressed in Chapter 3). The need to consider this action was raised as an issue during the public involvement processes for both Amendment 14 of the Sumter National Forest Plan, and the Sumter Forest Plan Revision itself.

### **DESCRIPTION OF THREE (3) ALTERNATIVES THAT ADDRESS WHITEWATER BOATING USE ABOVE HIGHWAY 28**

#### **Alternatives B, D, F, and I – No Action**

No boating is allowed above Highway 28. This is the “status quo” alternative.

#### **Alternative E – Boating allowed between NC-1107 (Grimshawes) & Highway 28**

Under this alternative, the sections of river from NC-1107 (Grimshawes bridge) to Highway 28 bridge would be open to boating all year (self-regulating alternative).

There would be:

- No limits on the number of trips per day;
- Maximum group size of 12 craft, and a minimum group size of 2 craft per trip (from Bull Pen Bridge to Burrells Ford Bridge, within the Ellicott Rock Wilderness, a maximum group size of 12 craft and 12 people);
- Self-guided use only;
- Crafts are limited to inflatable kayaks and hardboats (canoes and kayaks);
- No new access points developed, but existing facilities would be maintained.

## Alternative A – Boating allowed between Burrell’s Ford Bridge & Highway 28

Under this alternative, the section of river from Burrell’s Ford bridge to Highway 28 bridge would be open for boating from December 1 through March 31, but only at levels at or above 2.5 feet (1400 cfs) at the Highway 76 gauge.

There would be:

- No limits on the number of trips per day;
- Maximum group size of 12 craft, and a minimum group size of 2 craft per trip;
- Self-guided use only;
- Crafts are limited to inflatable kayaks and hardboats (canoes and kayaks);
- No new access points developed, but existing facilities would be maintained.

### AFFECTED ENVIRONMENT - RECREATION

The headwaters of the Chattooga Wild and Scenic River are defined for the purposes of this analysis as the sections between Grimshawes Bridge in North Carolina and Highway 28 Bridge in South Carolina. These sections cover approximately 21 river miles in the states of Georgia, South Carolina and North Carolina. They are separated into three sections by four roads (see Table H-1 and Figure H-1 below).

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*Table H-1. Identification of Chattooga River Headwater Sections*

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Section	W&S River Classification	State	Length (miles)
Grimshawes Bridge on NC-1107 to Bull Pen Bridge ( <b>GS-BP</b> )	Wild, Scenic, & Recreational	NC	5
Bull Pen Bridge To Burrells Ford Bridge ( <b>BP-BF</b> )	Wild and Scenic	NC, SC, GA	5.7
Burrells Ford Bridge to Highway 28 Bridge ( <b>BF-28</b> )	Wild, Scenic, & Recreational	SC & GA	10

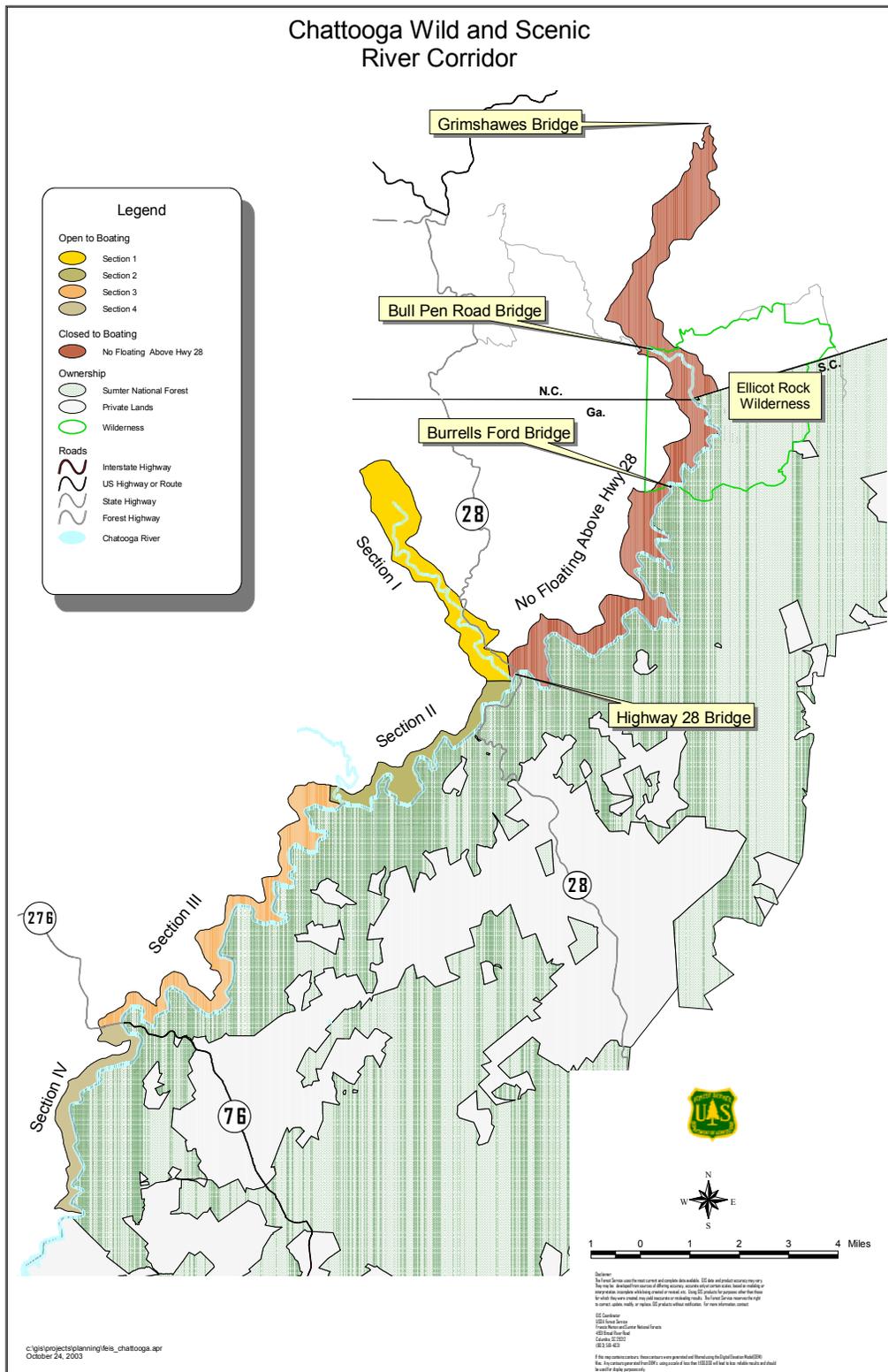


Figure H-1. The Headwaters of the Chattooga River

Congress designated 57 miles of the Chattooga River as a component of the National Wild and Scenic River system on May 10, 1974. The river was found to have many outstandingly remarkable values including geologic, biologic, scenic, recreation and historic. A Forest Service Technical Report (USDA Forest Service 1996) found that the Chattooga River still possessed all the outstandingly remarkable values that it had in 1971, and that Forest Service management of the river had not changed these values.

One of the primary reasons for nominating the Chattooga River for inclusion in the National Wild and Scenic River System was to protect and enhance its outstanding recreational value: a remote whitewater river environment where solitude, adventure and challenge could be experienced (Federal Register 1976, USDA Forest Service 1996). Restrictions in the Act limit the types of recreation use, especially in the 'wild' and 'scenic' sections. Compatible uses on the Chattooga include boating, hiking, hunting, fishing and camping.

## **Scenery**

The scenery of the Chattooga Wild and Scenic River was one of the outstandingly remarkable values that led to its inclusion in the National Wild and Scenic Rivers System in 1974. The visual characteristics are varied and tied to scenes associated with a naturally appearing river gorge that carved its way through the massive face of the Southeastern Blue Ridge Escarpment. Most of the Chattooga River upstream of Highway 28 crashes through the steepest, most pronounced portion of this gorge averaging an 84-foot drop per mile.

Scenery is a major determinant of the quality of the visitors' experience. Studies since designation have shown that visitors are pleased with the scenery on the river. In addition, the lack of man-made features adds to the enjoyment of the experience. One of the best ways to see much of the rugged and beautiful scenery of the Chattooga is from the river itself, either by foot or in a boat.

The Forest Service uses a system of classifying scenery and aesthetics of the forest. This system describes different degrees of acceptable alteration of the natural landscape based upon the importance of aesthetics. For example, in the 'wild' and 'scenic' sections of the river there is less development and relatively few signs of man. These sections are managed so that human activities are not evident to the casual observer. Most of the sections of the Chattooga above Highway 28 are designated as 'wild.'

In the 'recreational' sections of the river there are more signs of man's presence with roads paralleling the river and pastoral views. These sections are managed so that human activities remain visually subordinate to the characteristic landscape.

For a more in-depth discussion of the Scenery Management System, refer to the "Scenery" section in Chapter 3 of the Sumter Draft Environmental Impact Statement.

The section from **Grimshawes Bridge on NC 1107 to Bull Pen Bridge (GS-BP)** averages 25-30 feet in width in its upper reaches and drops on a steep gradient through whitewater cascades hemmed in by dense vegetation and high ridges. The largest free-falling waterfall on the river drops 25 vertical feet into a deep pool. The west bank rises almost 50 feet above the falls. In many places along this run sheer rock outcrops and cliffs tower 400-600 feet above the river. An especially noteworthy 2 ½ mile section known as Chattooga Cliffs involves a series of outcrops 2,800 to 3,300 feet in elevation. Exposed boulders and steep, slick, rock walled sides make it difficult to climb out of the riverbed. In another place the river enters a narrowly enclosed rock canyon where deep water flows slowly between sheer walls of solid rock rising 75 feet out of the water.

The section from **Bull Pen Bridge to Burrells Ford (BP-BF)** flows through the Ellicott Rock Wilderness for 5.2 miles. The scenery is similar to the **GS-BP** section with high ridges enclosing the river, enormous boulders, some over 50 feet high with trees growing on top, steep gradients through whitewater cascades all hemmed in by dense vegetation. Also in this section Scotsman Creek drops over a small waterfall and down a rock ledge into the river.

The section from **Burrells Ford to Highway 28 Bridge (BF-28)** flows around huge rocks and narrow sluices and drops over 25 foot Big Bend Falls and 21 small waterfalls and rapids in less than two miles. The Chattooga then enters Rock Gorge, the steepest part of the Chattooga River Gorge. High, forested ridges rise 200 feet above the river, and huge, house sized boulders constrict the river into a narrow channel with numerous falls and sluices. Below Lick Log Creek the gradient is much more gentle and the steep ridges on either side begin to widen down to Nicholson Fields.

## **Fishing Experience and Fisheries Management**

Trout fishing on the Chattooga River is a tradition for many local and regional anglers. The section of river upstream of Highway 28 is considered to be the best trout fishing waters in South Carolina. Trout Unlimited named this section one of the top 100 trout fishing streams in the nation.

For the majority of anglers on the Chattooga River, the setting where the activity takes place is at least as important as the fishing activity itself. The remote and spectacular natural settings, including forested ridges, rock outcrops, huge groves of white pine and hemlock, boulders, and rushing, clear waters, along with relatively low visitor use, combine with the angling to offer an experience which is greater than the sum of its parts. This setting also contributes to the formation of strong emotional ties between anglers and the river; feelings of ownership and attachment, a phenomenon commonly referred to as a “sense of place” (Bixler and Backlund 2002). Any change in culture or practice on the river could threaten this identity.

Historically, the Georgia and South Carolina Department of Natural Resources (GA & SC DNR) have managed the Chattooga as a trout fishery from Ellicott Rock (SC border

with NC) downstream to the Highway 76 Bridge. Backcountry anglers (for purposes of this analysis, those who fish more than one-quarter mile from an access point) experienced solitude and good trout fishing between Highways 28 and 76, except from June to early September when the water warmed and catch rates declined. Redeye bass fishing was excellent during this period and served to mitigate, in part, for some of the trout fishing trips lost annually due to warm weather. During these months there were some encounters between anglers and boaters (canoes and rafts), swimmers and tubers (at access points), contributing to a decrease in the experience of those enthusiasts for whom solitude is an integral part of their outdoor recreation experience.

The experience of solitude varies depending on the degree of naturalness (unmodified natural environment) in an area, the ease of access to that area, and the expected number of encounters with other individuals or groups in the area. In this analysis, the only factor that will vary the solitude experience of an enthusiast is the number of encounters with others. The other two variables (degree of naturalness and ease of access) remain constant.

Among trout fishermen, solitude appears to be most important to backcountry anglers. These anglers tend to fish  $\frac{1}{4}$  mile or more from access points and space themselves out along the river. These fishermen would be most affected by an increase in the number of encounters with other user groups, and in particular with boaters that might float into and through waters that are being fished, or that might require the angler to move within the river in order to allow boats to pass.

Angler access to the river and parking areas are limited and shared with other user groups such as campers and hikers. The majority of angling on the Chattooga occurs at or within close proximity to stocking access points (backcountry anglers seek a more remote experience away from these areas). In terms of angler numbers, the section from Burrells Ford to Highway 28 supports the highest use on the entire river, and within this section, the Burrells Ford area is the most popular (Rankin, pers. com.).

The Chattooga River above Highway 28 is managed today for a variety of angling experiences: the sections above Burrells Ford are managed for “wild trout” where catch and release is encouraged; the easily accessible Burrells Ford area is managed for “put and take;” the backcountry area between Burrells Ford and Reed Creek is managed “sub-adult put, grow and take;” Reed Creek to Highway 28 is managed “delayed harvest” catch and release November 1 through May 14; and the easily accessible section between Highway 28 and Long Bottom Ford is managed “put and take.” The Chattooga River now provides year-round fishing experiences for anglers seeking everything from backcountry and solitude to more accessible opportunities near roads where other people may be encountered.

## Whitewater Boating Experience

In 1976 the sections of the Chattooga Wild and Scenic River upstream from the Highway 28 Bridge were closed to boating (Federal Register 1976). In effect, paddling was zoned to the sections downstream of Highway 28, while trout angling and management was emphasized mostly upstream from the bridge.

The Chattooga above Highway 28 offers opportunities for a small sub-group (5-10%) of whitewater boaters sometimes referred to as “creekers.” “Creek” boating is a highly technical form of whitewater paddling that requires steep mountain rivers with high gradients. Generally, a part of the run will exceed 100 feet per mile (fpm) in gradient, with flow regimes typically between 100 to 500 cubic feet per second (cfs). In a typical “creeking” opportunity there are drops, vertical waterfalls, “tight and technical” water (small channel size, tight turns, short eddies), and at least one Class IV rapid.

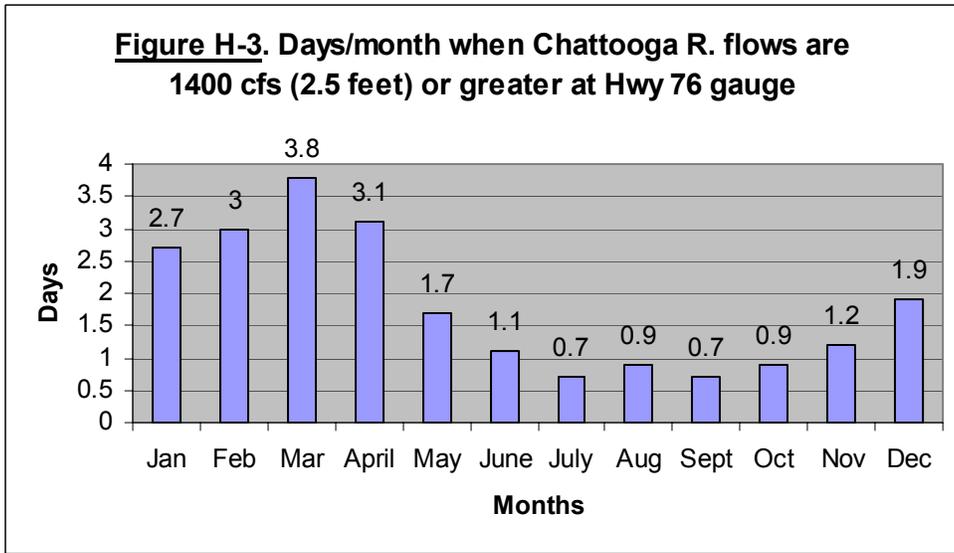
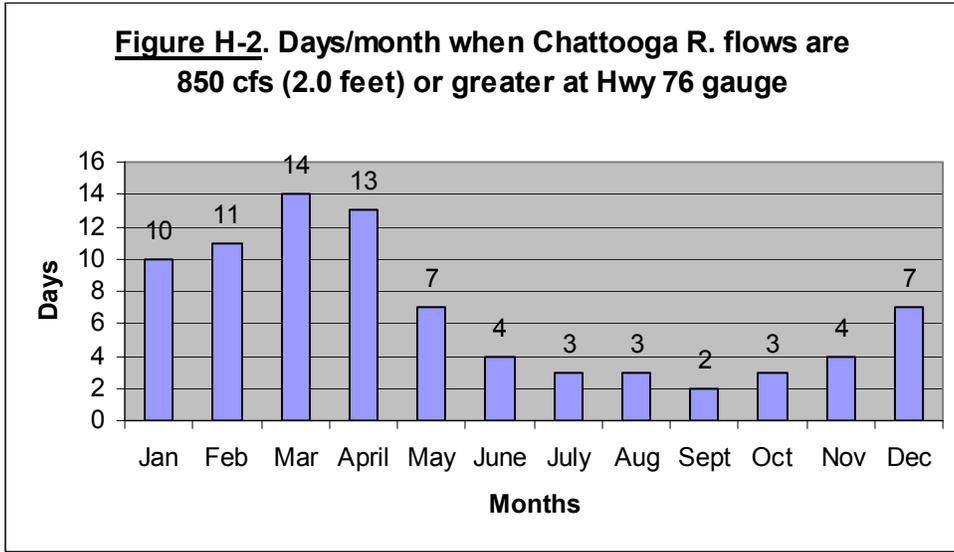
Because of their small size and low flow regimes, navigability of a “creek” is highly dependent on recent weather/moisture activity and is available for very short durations of time (creeks can rise, crest and start back down within a day or less). Many of the “creek” boaters using a particular area live within a relatively easy commute since use tends to be spontaneous and not planned in advance. Many of these boaters are well versed in the use of internet-based weather forecasting sites to better predict where a “creeking” opportunity might present itself (Kinney 1997).

“Creek” boaters usually travel in small groups of 2-6 boaters and are highly skilled in negotiating challenging whitewater. They tend to use the latest in high performance equipment specifically designed for “creeks,” and are generally trained and equipped in safety procedures and self-rescue techniques. Watercraft would likely include open canoes, decked canoes, kayaks, and high performance inflatable kayaks. This user group does not generally camp from their boat during a run because the weight of the camping gear would at best impair paddling performance (for that matter, they usually would not carry much at all with them due to performance concerns). On the Chattooga above Highway 28 boaters would be expected to access the river primarily by using existing river access points at Grimshawes, Bull Pen, and Burrells Ford. Another likely put-in site that would require a short portage is from the end of Big Bend Road accessing the **BF-28** section just above Big Bend Falls.

The Chattooga above Highway 28 is considered a “creek” boating opportunity primarily because all three sections have steep gradients, Class IV and V rapids, drops, waterfalls, and are navigable only during discreet high water events of relatively short duration. As “creeking” opportunities go, the section from Grimshawes to Bull Pen Bridge (**GS-BP**) would likely be the most difficult and would require the most water (2.5 feet or higher at the Highway 76 bridge). The section from Bull Pen Bridge to Burrells Ford (**BP-BF**) is considerably less difficult and less dangerous than nearby Overflow Creek, making it accessible to a less highly skilled boater. Finally, the section from Burrells Ford to Highway 28 (**BF-28**) falls somewhere in between the other two sections. It is longer than the other two and has a great deal of flat water to paddle below Rock Gorge. It also

requires lower water levels than the upper two. It is longer than Overflow and provides a more remote experience.

These sections would generally become floatable when water levels measure between 2.0 (850 cfs) and 2.5 feet (1400 cfs) at the Highway 76 gauge (except **GS-BP**). USGS average daily flow data for the past 62 years shows an average of 81 days per year when the Highway 76 gauge measures 2.0 feet or higher (Figure H-2). More than 50% of these days fall between December 1 and March 31 of an average year. At the 2.5 level or higher, the USGS data shows fewer boatable days available - an average of 22 per year (Figure H-3).



As is the case with anglers, there is much value added to the boating experience by the remote and natural setting of the Chattooga upstream from Highway 28 (refer to the Scenery and Fishing Experience sections above). Demand for these settings is increasing in the rapidly developing Southeast.

## **Wilderness**

The Ellicott Rock Wilderness was designated by Congress in 1975 and today has a total of 8,271 acres in Georgia, North Carolina and South Carolina. It is the only Wilderness lying in three states. Designation as a wilderness markedly increased visitation, most of which occurs within the river corridor. Opportunities to experience solitude in the river corridor are becoming more difficult because of this concentration of use. The Ellicott Rock Wilderness encompasses a 5.2 mile section of the Wild and Scenic Chattooga River between Bull Pen Bridge and Burrells Ford Bridge (**BP-BF**). Although the area is rugged and mountainous, trails accessing the Chattooga are relatively easy since they are primarily downhill to the river, but conversely, they are more strenuous coming out. Day hiking, backpacking and angling constitute the primary human use.

Trails within the Wilderness include the Chattooga Trail, which follows the river upstream from Burrells Ford for approximately 3.5 miles and terminates at a point about ¼ mile north of the Ellicott Rock survey marker within North Carolina. From that point the Ellicott Rock Trail travels 3.5 miles west away from the river to a trailhead on Bull Pen Road, and the Fork Mountain Trail travels 7.5 miles east to the Sloan Bridge Picnic Area on SC Highway 107.

Additionally, most of the primitive/undeveloped camping in Ellicott Rock occurs along the river. Rivers tend to be human attractors. People enjoy the sound of water, views, and the ease of access to the water itself.

For a broader discussion on Wilderness, refer to the “Wilderness and Roadless Areas” section in Chapter 3 of the Sumter Draft Environmental Impact Statement.

## **Other Dispersed Recreation Activities**

This section captures the remaining dispersed recreation activities occurring along the Chattooga River upstream of Highway 28 not covered in the earlier sections: hiking, backpacking, hunting, and primitive camping.

Trails where the above user groups may encounter and possibly be disturbed by the presence of boaters are found along the main stem of the Chattooga. Included among these is the Chattooga Trail, which follows the river upstream for approximately 16 miles from Highway 28 to a point about ¼ mile north of the Ellicott Rock survey marker in North Carolina (the Foothills Trail overlaps the Chattooga Trail for approximately 7 miles from Lick Log Creek north to a point near King Creek and the Burrells Ford Road). The Chattooga Trail is heavily used by hikers, backpackers and anglers, a majority, if not

all, of whom seek solitude during their visit to the river corridor. The other trail, entirely within North Carolina, follows the river from Bull Pen Bridge upstream for approximately 3 miles and then turns away from the river in a northwesterly direction.

Several undeveloped/primitive campsites are found all along the river near the trails. Also, the popular Burrells Ford Walk-in Campground is located approximately ½ mile south of Burrells Ford. The site is a little more developed than the traditional primitive sites along the river (includes toilets), but still requires a ½ mile walk to access the site. The facility has several campsites, some of which are located immediately adjacent the Chattooga.

The river is the primary attraction of the trails and sites in the corridor, where visitors look to commune with nature and the river, view the gorges and rapids, take a dip in the cool water, and experience solitude. Opportunities to experience the latter are becoming a rarity.

## **Safety**

The Chattooga River drops approximately 1,500 feet in elevation within the 20 miles from Grimshawes Bridge downstream to the Highway 28 Bridge. The river has an ever-changing bottom ranging from accumulations of sand and sediments to a rough and rocky bottom with a substantial distribution of large and irregularly shaped boulders within its banks. Downed trees may also be present, particularly in the narrower sections in the upper reaches. Removal of these trees would not be compatible with the Wilderness designation. Whereas the combination of these attributes with recreational use results in inherent risks to the user, some users consider it as part of the experience defined by the challenge, adventure and satisfaction from knowing that natural dangers have been successfully negotiated.

Since 1970 there have been thirty-nine fatalities on the Chattooga River. Thirty-one of these were directly or indirectly associated with floating. All but one of these floating fatalities were self-guided boaters, the other one being a guide on a commercially guided training trip. Ten fatalities are known to be associated with the use of rafts, nine with kayaks, four with canoes, two with inner tubes, and one with an inflatable kayak.

The Forest Service promotes safety on the river in a variety of ways including the requirement to use protective equipment in certain sections; by prohibiting some kinds of craft in some sections; by restricting paddling alone in some sections; by posting pertinent information on maps, brochures, websites, and signs.

## **Search and Rescue**

The states have delegated authorities for search, rescue and recovery activities on the Chattooga River to local Sheriff's departments. The Forest Service cooperates in search,

rescue and recovery efforts with local Sheriffs, Search and Rescue organizations, the South Carolina Department of Natural Resources (DNR), Outfitter/Guide Companies, and other entities under a Memorandum of Understanding that defines authorities, roles, responsibilities, and operating procedures.

According to Andrew Pickens Ranger District staff (Borgen, pers. com.), a range of five to ten search and rescue operations are conducted each year associated with boaters on the Chattooga River. Most deal with self-guided boaters, the majority of which are not very highly impactful (i.e. generally associated with people who do not return from a trip at the originally scheduled time). However, a small number of these operations can be and are generally associated with fatalities or accessing and transporting injured persons from remote areas. Since January of 1993, seven fatalities were associated with boating while four were associated with hiking or swimming.

## **ENVIRONMENTAL/SOCIAL CONSEQUENCES - RECREATION**

### **Scenery**

#### **Alternative B, D, F and I – No Action**

##### **Direct and Indirect**

All river users would continue to experience the river above Highway 28 in its natural, free-flowing state, without roads or development alongside it. The character of the river is ever-changing as natural processes occur, trees fall, rocks shift, and water levels fluctuate. As use of the corridor continues to grow, indirect effects including litter, trampling of understory vegetation, human waste, and burning of downed wood at isolated locations (e.g. primitive campsites) would be mitigated to protect the resources and the experiences. These effects would tend to be focused from Highway 28 upstream to the Ellicott Rock survey marker, an area of the river that is trailed and heavily used by hikers, backpackers and anglers.

##### **Cumulative**

Probable future actions include the reconstruction of the Highway 28 Bridge and the paving of Burrells Ford Road and associated parking near the Burrells Ford Bridge. There are no plans to increase parking capacity or access points in order to help limit future use in the area. These actions would cause a short-term, localized impact to scenery. Considering these activities, there are no current or foreseeable activities that would cause any cumulative effects to scenery.

## **Alternatives E and A**

### **Direct and Indirect**

A greater number of river users would experience the river above Highway 28 in its natural, free-flowing state, without roads or development alongside it. The character of the river is ever-changing as natural processes occur, trees fall, rocks shift, and water levels fluctuate. There may be additional visual impacts than in Alternatives B, D, F and I since there is a new user group in the mix. As use of the corridor grows, indirect effects including litter, trampling of understory vegetation, human waste, and burning of downed wood at isolated locations (e.g. primitive campsites, put-ins, take-outs, portages, and lunch stops) would be mitigated to protect the resources and the experiences. These effects would tend to be focused from Highway 28 upstream to the Ellicott Rock survey marker, an area of the river that is trailed and heavily used by hikers, backpackers, anglers, and now boaters.

### **Cumulative**

Probable future actions include the reconstruction of the Highway 28 Bridge and the paving of Burrells Ford Road and associated parking near the Burrells Ford Bridge. There are no plans to increase parking capacity or access points in order to help limit future use in the area. These actions would cause a short-term, localized impact to scenery. Considering these activities, there are no current or foreseeable activities that would cause any cumulative effects to scenery.

## **Fishing Experience and Fisheries Management**

### **Alternative B, D, F and I – No Action**

#### **Direct and Indirect**

There would be no changes in fisheries management or fishing experience under these alternatives. The zoning that has been in place for over 25 years will continue to mitigate potential conflicts between boaters and other dispersed recreation users. Boating would continue to be restricted in the 21 river miles upstream of the Highway 28 Bridge, but would still occur downstream to Tugaloo Lake. Anglers would continue to experience high quality fishing opportunities enhanced by the remote settings and solitude that are such an integral part of the Chattooga experience.

#### **Cumulative**

No cumulative effects to the fishing experience or fisheries management would be expected under these alternatives.

## **Alternative E**

Under this alternative, the river from NC Road 1107 (Grimshawes Bridge) downstream to the Highway 28 Bridge would be open to boating year-round at all water levels. The analysis assumes that most boating would be precluded naturally (self-regulating) in the section from Grimshawes Bridge to Bull Pen Bridge until water levels reach 2.5 feet (1400 cfs) or higher at the Highway 76 gauge. In the two lower sections (Bull Pen - Burrells Ford, and Burrells Ford - Highway 28) it is assumed that most boating would be precluded until water levels reach 2.0 feet (850 cfs) or higher at the Highway 76 gauge. However, not all boaters will conform to the water level assumptions in this analysis. Some may attempt to float the river at lower levels (this is particularly true below the Burrells Ford Bridge). Additionally, improved technology and equipment in the future may facilitate low water boating.

### **Direct and Indirect**

Relying upon historical weather data gathered from 1939 to 2001, the **Grimshawes Bridge to Bull Pen Bridge (GS-BP)** section is expected to have an average of 22 days per year available for boating (see Figure H-3 below). Of these, an average of 8 days occur between December and February. Of the 14 days remaining, about 6 (40% of 14) would most likely occur on weekends and holidays.

This section is expected to have the lowest boating use of all the three sections above Highway 28, in part because it is expected that there will be fewer available days for boating, on average, and in part because of its inherent technical difficulty and smaller size.

This section also appears to have the lowest angler use of the three sections. Although data from Georgia and South Carolina DNR angler surveys is not conclusive (Table H-2), it appears to suggest that fishing declines significantly at flows of 2.5 feet (1400 cfs) or higher as measured at the Highway 76 gauge. Therefore, the potential for undesired encounters between anglers and boaters is most likely lowest in the **GS-BP** section.

Table H-2. Results from the 1987 GA DNR Roving Angler Survey and the 1998-99 SC DNR Angler Survey (near stocking points)

Survey	Flows at Hwy 76 gauge (ccs)	Number of Survey days	Percent Survey days	Total Number of Anglers	Percent Anglers	Average Number of Anglers per Survey day
1987	<850	167	87%	303	87%	1.8
	850-1400	23	12%	44	13%	1.9
	>1400	3	2%	0	0%	0.0
	<b>TOTAL</b>	<b>193</b>		<b>347</b>		<b>1.8</b>
1998-99	<850	33	70%	469	67%	14.2
	850-1400	11	23%	217	31%	19.7
	>1400	3	6%	16	2%	5.3
	<b>TOTAL</b>	<b>47</b>		<b>702</b>		<b>14.9</b>

The GA DNR Study was conducted between Ellicott Rock and Big Bend Falls, and the SC DNR Study was conducted near stocking points within the **BF-28** section.

Table H-3. Average Annual (1939-2001) Days available for Boating by Alternative and River Section derived from USGS mean daily flow data at the Highway 76 gauge on the Chattooga River

Alternative	Stream Section	Boatable days available per year	Subset of Boatable days - Dec through March	Subset of Boatable days - April through Nov	Subset of Boatable days falling on weekends/holidays - April through Nov
B,D,F,I	GS-BP	0	0	0	0
	BP-BF	0	0	0	0
	BF-28	0	0	0	0
E	GS-BP	22	11	11	4
	BP-BF	81	42	39	16
	BF-28	81	42	39	16
A	GS-BP	0	0	0	0
	BP-BF	0	0	0	0
	BF-28	11	11	0	0

GS-BP = Grimshawes to Bull Pen Bridge; BP-BF = Bull Pen to Burrell's Ford Bridge; BF-28 = Burrells Ford to Highway 28

Correspondingly, when compared to the other two sections above Highway 28 (**BP-BF** and **BF-28**), the potential for undesired encounters between anglers and boaters at access points (Grimshawes and Bull Pen Bridge) is most likely lowest in this section.

The **Bull Pen Bridge to Burrells Ford (BP-BF)** section is expected to have an average of 81 days per year available for boating (see Figure H-2 above). Of those, an average of 22 occur at the 2.5 level or higher, leaving 59 days where the potential for undesired encounters between anglers and boaters would most likely be highest (since trout fishing is expected to decline significantly at the 2.5 foot level or higher at the Highway 76 gauge).

Of the 59 days remaining in an average year, most of the potential undesired encounters between anglers and boaters would be expected on the 39 days falling between March and November, and of these, the highest potential would be on the 16 days (40% of 39) attributed to weekends and holidays spread over the 9-month period.

This section is expected to have higher boating use than the **GS-BP** section, in part because there would likely be more days available for boating, and in part because the section is not deemed as technical.

Angler use in this section is also expected to be higher than the **GS-BP** section, especially near the Burrells Ford area. In the GA DNR survey, backcountry anglers used 57% of survey days falling between 2.0 and 2.5 feet at the Highway 76 gauge, while 100% of the SC DNR survey days conducted near stocking points at the same water levels were fished. Therefore, potential encounters between anglers and boaters is likely on the 59 days per year that would most likely be available for boating between 2.0 and 2.5 feet. This does not account for boaters who may attempt to float the river at lower levels, or for changes in equipment and technology that facilitate this action.

Correspondingly, potentially undesirable encounters between anglers and boaters at access points in this section will most likely be higher than in the **GS-BP** section. Most encounters would probably occur at Burrells Ford (particularly between 2.0 and 2.5 feet at the Highway 76 Bridge).

The **Burrells Ford to Highway 28 (BF-28)** section is also expected to have an average of 81 days per year available for boating (see Figure H-2 above). As in the **BP-BF** section, an average of 22 days will probably occur at the 2.5 level or higher, leaving 59 days where the potential for encounters between anglers and boaters would most likely be the highest.

Of the 59 days remaining in an average year, most of the potential for undesired encounters between anglers and boaters would be expected on the 39 days falling between March and November, and of these, the highest potential would be on the 16 days (40% of 39) attributed to weekends and holidays spread over the 9-month period.

This section is expected to have higher boating use than the **BP-BF** section because it is the lowest and widest of the three sections, and is likely to have more opportunities for boating below the 2.0-foot threshold.

Angler use is expected to be higher than in the **BP-BF** section also, especially in the Burrells Ford and Highway 28 areas. This is due to the intensive fisheries management

program in this section (see “Affected Environment” section). Therefore, the number of days per year when anglers might potentially encounter and be disturbed by boaters would be greater than in the **BP-BF** section. Again, this does not account for boaters who may attempt to float the river at lower levels, or for changes in equipment and technology that facilitate this action.

Although the GA and SC DNR survey data is not conclusive, the primary difference in angler use between the **BP-BF** and **BF-28** sections appears to be the anglers fishing near stocking areas. This group is heavily concentrated in the **BF-28** area.

Undesired encounters between anglers and boaters at access points are expected to be higher than in the **BP-BF** section. Most of this interaction would probably occur at Burrells Ford (particularly between 2.0 and 2.5 feet at the Highway 76 Bridge). Highway 28 Bridge would most likely be the next highest in terms of interactions, while Big Bend Road would be the least since it is not a stocking point and not as many anglers congregate there.

## Summary

As discussed above, encounters between anglers and boaters will occur under this alternative, many of which may be undesired by one or both users. Because a significant number of these encounters may be undesired, user conflicts are very likely to result. They may occur when boaters pass directly through areas being actively fished where a broken line, entanglement or other interference with the fishing activity takes place. Conflicts can also occur when an actual encounter (visual or auditory) brings about a loss of solitude. The **BP-BF** and **BF-28** sections appear to have the highest likelihood for conflict.

Similarly, conflicts might arise between anglers and boaters at access points from competition for limited parking, or when boaters congregate at the put-in or take-out and actually interfere with or otherwise disturb the fishing activity. Potential for these types of conflicts appear to be highest at Burrells Ford Bridge, followed by Highway 28.

Also, as mentioned earlier, not all boaters will conform to the water level assumptions in this analysis. Some may attempt to float the river at lower levels (this is particularly true below the Burrells Ford Bridge). Additionally, improved technology and equipment in the future may facilitate low water boating, and could thereby increase the number of undesired encounters and the potential for conflict.

From a solitude standpoint, backcountry anglers would most likely be the group whose experience would be most negatively affected from undesired encounters with boaters (Durniak and Keefer, pers. com). This is because most of these anglers prefer to commune with nature and experience their activity apart from other users, especially those users whose activities have the potential to disturb or conflict with their desired

experience. A group of boaters would almost certainly be an intrusion to their experience, particularly if the angler were wading. As the number of daily encounters increases, the greater the impact to the solitude experience – not to mention the potential for interfering with the fishing activity itself. These types of encounters would be expected to increase in the future through natural growth of both activities, and also as the greater boating public discovers this new opportunity on the nationally renowned Chattooga River. As a result of undesired encounters and the potential for conflict, it is very likely that displacement of some of the anglers may also ensue.

In a recent study of anglers who are members of the Rabun and Chattooga River Chapters of Trout Unlimited (Bixler and Backlund 2002), most respondents indicated that if the Chattooga were not able to meet their desired experience for whatever reason, they would likely select another river to secure that experience rather than selecting another activity. Fifty-one percent of the respondents indicated that they had between one and three substitutes, while thirteen percent indicated that they had no substitute for the Chattooga. The three most frequently listed rivers that were considered acceptable substitutes for the Chattooga are the Davidson, Nantahala, Tuckaseegee, and Chauga Rivers.

### **Cumulative**

Burrells Ford Road may be improved/paved in the near future. If so, indiscriminate parking near the river (on high use weekends) will be mitigated by road design features and designated parking spaces. This may cause parking to be even more of a premium, especially on those days when angling and boating activities have the highest potential to overlap.

### **Alternative A**

#### **Direct and Indirect**

Under this Alternative, boating would be allowed from Burrells Ford downstream to the Highway 28 Bridge from December 1 through March 31 at water levels measuring or exceeding 2.5 feet (1400 cfs) at the Highway 76 gauge.

According to USGS average daily flow data for the past 62 years, an average of 11.4 days are available for boaters at the 2.5 level or higher (see Figure H-3 above) between December 1 and March 31. Of these, about 5 days (40%) would be expected to fall on weekends or holidays. However, since enforcement of the 2.5 foot level is expected to be difficult, at best, it can be expected that some boating will occur on dates before 12/1 and/or after 3/31 and at levels less than 2.5 feet during the 12/1 through 3/31 time period. Despite this unlawful use, overall boating use under this alternative is expected to be less than is expected for the **BF-28** section under Alternative E (Table H-3). This is because, according to historical data, there would most likely be fewer available days for boating,

and because those days would most likely occur from December through March, during the colder months of the year.

Angler use at this time of year and at the specified water levels is also expected to be relatively low in comparison to other periods of time throughout the year. Although the angler survey data (GA DNR 1987, and 1998-99 SC DNR) is not conclusive, it appears to suggest that trout fishing in the **BF-28** section declines at flows of 2.5 feet or higher as measured at the Highway 76 gauge.

The 1998-99 SC DNR survey (targeting anglers fishing within ¼ mile of stocking points) reported 16 anglers on one of the three random survey days where flows were 2.5 feet or higher (the other two survey days reported zero). The SC DNR data appears to suggest that these anglers may be more responsive to stocking times than to actual water levels (at least at levels slightly over 1400 cfs and below).

Encounters between anglers and boaters will likely occur under this alternative. A significant number of these encounters may be undesired and could lead to conflicts, especially during the mid-February through March time period, as stated earlier. Undesired encounters could lead to conflicts. The highest potential for conflict would most likely be present at access points. Conflicts could arise here from competition for limited parking, or when boaters congregate at the put-in or take-out and actually interfere with or otherwise disturb the fishing activity. Potential for undesired encounters and possible conflicts appear to be highest at Burrells Ford Bridge, followed by Highway 28.

Also, as discussed earlier, not all boaters will comply with the stipulated time period and 2.5 foot threshold because of difficulties with enforcement and implementation. Noncompliance would increase the potential for encounters, thereby increasing the potential for disturbances and conflict.

In a recent study of anglers who are members of the Rabun and Chattooga River Chapters of Trout Unlimited (Bixler and Backlund 2002), most respondents indicated that if the Chattooga were not able to meet their desired experience for whatever reason, they would likely select another river to secure that experience rather than selecting another activity. Fifty-one percent of the respondents indicated that they had between one and three substitutes, while thirteen percent indicated that they had no substitute for the Chattooga. The three most frequently listed rivers that were considered acceptable substitutes for the Chattooga are the Davidson, Nantahala, Tuckaseegee, and Chauga Rivers. In summary, encounters between anglers and boaters (and consequently the potential for conflict) appear to be less than in the **BF-28** section under Alternative E.

### **Cumulative**

Burrells Ford Road may be improved/paved in the near future. If so, indiscriminate parking near the river (on high use weekends) will be mitigated by road design features

and designated parking spaces. This may cause parking to be even more of a premium, especially on those days when angling and boating activities have a higher potential to overlap (most likely when the “put and take” program starts sometime between mid-February and March, as stated earlier).

## **Whitewater Boating Experience**

### **Alternatives B, D, F, and I**

#### **Direct and Indirect**

Under these alternatives, boating would continue to be restricted in the 21 miles of river upstream of the Highway 28 Bridge, along the main stem of the Chattooga. Boating would still occur downstream to Tugaloo Lake, while “creek-boating” would still occur on other rivers and tributaries in the area. Some of these waters include the French Broad, Big Laurel, Thompson, Wilson Creek, Linville Gorge, Cullasaja, Horsepasture, Santeetlah, and multiple runs of the Pigeon in North Carolina; the Tallulah, Conesauga, and Mill Creek in Georgia, along with Big Creek, Holcombe, Overflow and Stekoa in the Chattooga watershed itself; and the Chauga, Brasstown, and Whitewater in South Carolina.

#### **Cumulative**

No cumulative impacts have been identified.

### **Alternative E**

#### **Direct and Indirect**

Under this alternative, the river from NC Road 1107 (Grimshawes Bridge) downstream to the Highway 28 Bridge would be open to boating year-round at all water levels. However, boating is assumed to be precluded naturally (self-regulating) in the section from Grimshawes Bridge to Bull Pen Bridge until water levels reach 2.5 feet (1400 cfs) or higher at the Highway 76 gauge. In the two lower sections (Bull Pen - Burrells Ford, and Burrells Ford - Highway 28) boating is assumed to be precluded naturally until water levels reach 2.0 feet (850 cfs) or higher at the Highway 76 gauge. However, not all boaters will conform their activities to the water level assumptions provided in this analysis.

The Grimshawes to Bull Pen Bridge section (**GS-BP**) will likely be less popular than the lower two sections because it is considered more difficult by most boaters and requires more water to navigate. Based on historical weather data, this section averages 22 days per year available for boating (Table H-3).

The Bull Pen Bridge to Burrells Ford section (**BP-BF**) arguably offers the most favorable combination of characteristics for a variety of boaters and will likely be the most popular of the three-headwater sections. This section is considered a “creeking” opportunity, but is considered less difficult and less dangerous than nearby Overflow Creek, making it accessible to less skilled boaters. Based on historical weather data, this section averages 81 days per year available for boating (Table H-3).

The Burrells Ford to Highway 28 section (**BF-28**) falls somewhere in between. It is longer and more remote than the upper two sections and Overflow Creek. It is considered more difficult than the **BP-BF** section due to Big Bend Falls and the Rock Gorge section, but less demanding than Overflow Creek. This section has the capacity to be used at lower water levels in comparison to the upper sections. Based on historical weather data, it has an average of 81 days available for boating per year (Table H-3).

Competition for parking may be an issue when angling and boating activities, as well as other non-boating activities have the potential to overlap.

### **Cumulative**

Burrells Ford Road may be improved/paved in the near future. If so, indiscriminate parking near the river (on high use weekends) will be mitigated by road design features and designated parking spaces. This may cause parking to be even more of a premium, especially on those days when angling, boating, and other activities have the potential to overlap.

### **Possible Mitigation Measures**

- Sign river access points appropriately to discourage less experienced boaters, especially at Burrells Ford Bridge access. Signs should not market the activity, but properly warn potential boaters. Website and brochure information should also be developed that warns about the dangers without encouraging use.
- Do not provide additional facilities that might otherwise encourage this use.

### **Alternative A**

#### **Direct and Indirect**

Under this Alternative, boating would be allowed from Burrells Ford downstream to the Highway 28 Bridge from December 1 through March 31 at water levels measuring or exceeding 2.5 feet (1400 cfs) at the Highway 76 gauge. According to USGS average daily flow data for the past 62 years, this translates into an average of 11.4 days per year

that would be available for “creekers” (Figure H-3 and Table H-3) December through March.

When compared to Alternative E, historical weather data indicates that, on average, there are fewer opportunities in terms of potential days available for boating. In addition, as compared to Alternative E, the diversity of settings in which to conduct the activity (both temporal and spatial) will be less.

Competition for limited parking at Burrells Ford is not expected to be a significant issue between December and March at the 2.5 water level or higher.

### **Cumulative**

Cumulative effects are not as pronounced as under Alternatives B, D, F, and I since some days will be made available for boating in the **BF-28** section.

### **Possible Mitigation Measures**

- Sign river access points appropriately to discourage less experienced boaters, especially at Burrells Ford Bridge access. Signs should not market the activity, but properly warn potential boaters. Website and brochure information should also be developed that warns about the dangers without encouraging use.
- Do not provide additional facilities that might otherwise encourage this use.

## **Wilderness**

### **Alternatives B, D, F, and I**

#### **Direct and Indirect**

There would be no changes in wilderness management or wilderness experience under these alternatives. Boating would continue to be restricted in the 21 miles of river upstream of the Highway 28 Bridge, but would still occur downstream to Tugaloo Lake. The primary attraction to the Ellicott Rock Wilderness is the Chattooga River itself. Most of the use in the wilderness is concentrated along the river corridor, where opportunities to experience solitude have become increasingly difficult.

Even though limited access and parking would continue to be a problem in meeting demand, these conditions would also serve to mitigate overuse impacts on natural resources, the quality of the remote experiences, and solitude.

## **Cumulative**

No cumulative effects to wilderness experience or wilderness management have been identified under these alternatives.

## **Alternative E**

### **Direct and Indirect**

Under this alternative, the section of river encompassed by the Ellicott Rock Wilderness (**BP-BF**) would be open to boating year-round at all water levels. However, most boating would not be expected to occur until water levels reach 2.0 feet (850 cfs) or higher at the Highway 76 gauge. This translates into an average of 81 days available for boating in an average year (Table H-3). Of those days, 35% would be expected to occur December through February when hiking and backpacking use in the Ellicott Rock Wilderness is low (refer to the “Fishing Experience and Fisheries Management” section above for a discussion of the impacts of boaters on backcountry anglers). Therefore, it is the average of 53 days available for boating between March and November (Figure H-2), and of those, the 21 or so expected to fall on weekends and holidays that appear to have the greatest potential to impact the solitude experience of wilderness users. These impacts could be significant since opportunities to experience solitude have become increasingly difficult in the corridor, even without the introduction of a new user group. This does not account for additional boaters who may attempt to float the river at lower levels, or for changes in equipment and technology that facilitate this action.

In the Ellicott Rock Wilderness, boater group size would be restricted to a maximum of 12 craft and 12 boaters.

As discussed above, boaters would not be expected to camp from their craft while using the river since the weight of the camping gear would at best impair paddling performance on the technical water. They would be expected to float from put-in to take-out and stay on the river or on the riverbanks during the entire trip. Therefore, vegetation loss, soil compaction and erosion impacts from boaters are not expected to be significant in the Ellicott Rock Wilderness.

## **Cumulative**

Burrells Ford Road may be improved/paved in the near future. If so, indiscriminate parking near the river (on high use weekends) will be mitigated by road design features and designated parking spaces. This may cause parking to be even more of a premium, especially on those days when hiking, backpacking, angling, boating, and other activities are likely to overlap (on an average of 39 days April through November, and especially on the 16 days expected to fall on weekends and holidays within that period).

## **Alternative A**

### **Direct and Indirect**

Under this Alternative, as in Alternatives B, D, F, and I, boating would not be allowed from Bull Pen Bridge downstream to Burrells Ford. There would be no changes in wilderness management or wilderness experience under these alternatives. Boating would continue to be restricted in the 5.7 miles of river between Bull Pen Bridge and Burrells Ford.

The primary attraction to the Ellicott Rock Wilderness would continue to be the Chattooga River itself. Most of the use in the wilderness is concentrated along the river corridor, where opportunities to experience solitude have become increasingly difficult.

Even though limited access and parking would continue to be a problem in meeting demand, these conditions would also serve to mitigate overuse impacts on natural resources, the quality of the remote experiences, and solitude.

### **Cumulative**

There should be no cumulative effects to wilderness experience or wilderness management under these alternatives.

## **Other Dispersed Recreation Activities**

### **Alternatives B, D, F, and I**

#### **Direct and Indirect**

There would be no changes in the experiences of hikers, backpackers, hunters and primitive campers under these alternatives. Boating would continue to be restricted in the 21 miles of river upstream of the Highway 28 Bridge, but would still occur downstream to Tugaloo Lake.

The primary attraction to the area is the Chattooga River itself. Most of the use is concentrated along the river, where opportunities to experience solitude have become increasingly difficult.

## **Cumulative**

There should be no cumulative effects to hikers, backpackers and primitive campers under these alternatives.

## **Alternative E**

### **Direct and Indirect**

Under this alternative, the river from NC Road 1107 (Grimshawes Bridge) downstream to the Highway 28 Bridge would be open to boating year-round at all water levels. However, most boating use is expected to be precluded naturally in the section from Grimshawes Bridge to Bull Pen Bridge (**GS-BP**) until water levels reach 2.5 feet (1400 cfs) or higher at the Highway 76 gauge. In the two lower sections (**BP-BF**, and **BF-28**) most boating would not be expected to occur until water levels reach 2.0 feet (850 cfs) or higher at the Highway 76 gauge. However, not all boaters will conform their activities to the water level assumptions in this analysis. Some may attempt to float the river at lower levels. Improved technology and equipment may also facilitate floating the river below the level assumptions in the future.

The **Grimshawes Bridge to Bull Pen Bridge (GS-BP)** section would have probably an average of 22 days per year available for boating (see Figure H-3 above). Of those, 35% would most likely fall between December and February when hiking, backpacking and primitive camping use is relatively low. Therefore, it is the average 14 days available for boating between March and November (Figure H-3), and of those, the 6 or so expected to fall on weekends and holidays that appear to have the greatest potential to impact the solitude experience of these user groups.

As discussed earlier, this section is expected to have the lowest boating use of all the three sections of the Chattooga above Highway 28. This is also expected to be the case for hiking, backpacking and primitive camping.

The **Bull Pen Bridge to Burrells Ford (BP-BF)** section would have an expected average of 81 days per year available for paddling (see Figure H-2 and Table H-3). Of those, 35% would be expected to occur December through February when hiking, backpacking and primitive camping use in the Ellicott Rock Wilderness is low. Therefore, it is the average 53 days available for boating between March and November (Figure H-2), and of those, the 21 or so expected to fall on weekends and holidays that have the greatest potential to impact the solitude experience of these user groups.

As mentioned in the Wilderness section above, these impacts could be significant since opportunities to experience solitude have become increasingly difficult in this part of the corridor, even without the introduction of a new user group. This does not account for boaters who may attempt to float the river at lower levels, or for changes in equipment and technology that facilitate this action.

As discussed earlier, higher boating use would be expected in this section, although boater group size would be restricted to a maximum of 12 craft and 12 boaters within the wilderness. Use is also expected to be higher for hiking, backpacking and primitive camping.

On average, the **Burrells Ford to Highway 28 (BF-28)** section would be expected to have the same number of days available for boating as the **BP-BF** section. However, actual boating use is expected to be higher because this section is lower on the river and wider, and is likely to have more opportunities for boating below the 2.0-foot threshold. Hiking and backpacking use are expected to be about the same as the **BP-BF** section, while primitive camping would likely be higher due to the popularity of the Burrells Ford Walk-in campground. Therefore, the addition of boating in this section would most likely result in a high likelihood of impacting the solitude experience of other dispersed recreation user groups. As mentioned earlier, these impacts could be significant since opportunities to experience solitude have become increasingly difficult along the river, even without the introduction of a new user group.

In all three sections boaters would not be expected to camp from their craft while using the river. This is because the weight of the camping gear would at best impair paddling performance on the technical water. They would in turn be expected to float from put-in to take-out and stay on the river or on the riverbanks during the entire trip. Competition for primitive campsites is expected to be minimal. The one exception would be the Burrells Ford Walk-in campground, especially when hiking, backpacking, and angling uses are likely to overlap with boating (on an average of 53 days March through November, and especially on the 21 days expected to fall on weekends and holidays within that period). Competition for parking at Burrells Ford would likely be an issue at these times also, and to a lesser extent, at Highway 28 and Big Bend Road.

### **Cumulative**

Burrells Ford Road may be improved/paved in the near future. If so, indiscriminate parking near the river (on high use weekends) will be mitigated by road design features and designated parking spaces. This may cause parking to be even more of a premium, especially on those days when hiking, backpacking, angling, boating, and other activities are likely to overlap (on an average of 39 days April through November, and especially on the 16 days expected to fall on weekends and holidays within that period).

### **Alternative A**

#### **Direct and Indirect**

Under this Alternative, boating would be allowed from Burrells Ford downstream to the Highway 28 Bridge from December 1 through March 31 at water levels measuring or

exceeding 2.5 feet (1400 cfs) at the Highway 76 gauge. According to USGS average daily flow data for the past 62 years, this translates into an average of 11.4 days per year that would be available for boaters (Figure H-3 and Table H-3) December through March. Of these, about 5 days (40%) would be expected to fall on weekends or holidays.

However, since enforcement of the 2.5 foot level is expected to be difficult, at best, it can be expected that some boating will occur on dates before 12/1 and/or after 3/31 and at levels less than 2.5 feet during the 12/1 through 3/31 time period. Despite this unlawful use, overall boating use under this alternative is expected to be less than is expected for the **BF-28** section under Alternative E (Table H-3). This is because, according to historical data, there would most likely be fewer available days for boating, and because those days would most likely occur from December through March, during the colder months of the year.

Competition for campsites at the Burrells Ford Walk-in campground, or for parking at Burrells Ford or Highway 28 would likely be an issue during this time period, particularly mid-February through March.

In summary, this section is expected to have less boating use than the **GS-BP** section under Alternative E (see Table H-3). Hiking, backpacking and primitive camping use is also expected to be low during this period, so the potential for undesired encounters and potential conflicts with boaters is expected to be less than in the **BF-28** section under Alternative E.

### **Cumulative**

Burrells Ford Road may be improved/paved in the near future. If so, indiscriminate parking near the river (especially on high use weekends) will be mitigated by road design features and designated parking spaces. This may cause parking to be even more of a premium on the 4 days, on average, available for boating in March (2 of which could fall on weekends or holidays), especially if these coincide with high use days for anglers.

## **Safety**

### **Alternatives B, D, F, and I**

#### **Direct, Indirect, and Cumulative**

Under these alternatives boating would continue to be restricted in the 21 miles of river upstream of the Highway 28 Bridge, but would still occur downstream to Tugalo Lake. There would be no changes expected in safety factors (direct, indirect or cumulative) on the river upstream of Highway 28 outside of what has been considered historical influences and trends.

## **Alternative E**

### **Direct, Indirect, and Cumulative**

Under this alternative, the Chattooga River from NC Road 1107 (Grimshawes Bridge) downstream to the Highway 28 Bridge would be open for boating year-round at all water levels. However, according to USGS average daily flow data for the past 62 years, section **GS-BP** would have an average of 22 days available for boating per year, while sections **BP-BF** and **BF-28** would each have an average of 81 days available (see Figures H-2, H-3 and Table H-3).

With an increase in the number of days available for boating under this alternative it is reasonable to assume that accidents, injuries and fatalities associated with boating would increase. There may also be accidents, injuries and fatalities associated with search and rescue personnel dispatched to boating incidents.

Lack of professionally guided trips may also contribute towards incidents that would otherwise be preventable. These situations could be mitigated if less experienced boaters had the option of securing professional services rather than venturing out on their own.

There are no current or foreseeable activities that would cause any cumulative effects to safety factor on the Chattooga Wild and Scenic River above Highway 28.

## **Alternative A**

### **Direct, Indirect, and Cumulative**

Under this alternative, boating would be allowed from Burrells Ford downstream to the Highway 28 Bridge from December 1 through March 31 at water levels measuring or exceeding 2.5 feet (1400 cfs) at the Highway 76 gauge. According to USGS average daily flow data for the past 62 years, this translates into an average of 11.4 days per year available to boaters December through March (Figure H-3 and Table H-3).

With an increase in the number of days available for boating under this alternative, it is reasonable to assume that accidents, injuries and fatalities associated with boating would also increase. There may also be accidents, injuries and fatalities associated with search and rescue personnel dispatched to boating incidents. However, since the days available for boating are fewer than in Alternative E, impacts to safety under this alternative are expected to be relatively less. Additionally, since boating is only available during the colder months (December through March), this would tend to inhibit boating by the less experienced and prepared boater.

Lack of professionally guided trips may contribute towards incidents that would otherwise be preventable. These situations could be mitigated if inexperienced boaters had the option of securing professional services rather than venturing out on their own.

There are no current of foreseeable activities that would cause any cumulative effects to safety factors on the Chattooga Wild and Scenic River above Highway 28.

## **Search and Rescue**

### **Alternative B, D, F and I**

#### **Direct, Indirect, and Cumulative**

Under these alternatives boating would continue to be restricted in the 21 miles of river upstream of the Highway 28 Bridge, but would still occur downstream to Tugaloo Lake. There would be no changes expected in search and rescue operations (direct, indirect or cumulative) on the river upstream of Highway 28 outside of what has been considered historical influences and trends.

### **Alternative E**

#### **Direct and Indirect**

Under this alternative, the Chattooga River from NC 1107 (Grimshawes Bridge) downstream to the Highway 28 Bridge would be open to boating year-round at all water levels. However, according to USGS average daily flow data for the past 62 years, section **GS-BP** would have an average of 22 days available for boating per year, while sections **BP-BF** and **BF-28** would each have an average of 81 days available (see Figures H-2, H-3 and Table H-3). This does not account for boaters who may attempt to float the river at lower levels, or for changes in equipment and technology that facilitate this action.

According to Andrew Pickens Ranger District staff (Borgen, pers. com.), a range of five to ten search and rescue operations per year are associated with boaters on the lower Chattooga. The majority of these operations deal with self-guided boaters. Since self-guided boater use has averaged around 25,000 per year, it would be reasonable to assume, all things equal, that the number of search and rescue operations would be comparably less above Highway 28 (because of the fewer number of days, on average, that may potentially be available for boating).

As a comparison, the section of Overflow Creek (a tributary of the West Fork of the Chattooga in Georgia) from USFS Road 86B to Overflow Creek Bridge (approximately 6 miles) is similar to sections of the Chattooga upstream from Highway 28, although considered by some to be a much more technical and difficult watercourse to navigate. It possesses several Class V rapids, very steep gradients, and the access into and out of the gorge is very difficult. However, Tallulah Ranger District Staff do not recall any reported search and rescue operations involving boaters on Overflow Creek in the last 14 years. On the other hand, the Chattooga main stem may be more of an attraction to less

experienced boaters as compared to Overflow Creek simply because of its name and renowned reputation.

Another possible proxy is the section of the Tallulah Gorge (fed by dam releases) opened to boaters in 1997 and managed by the Tallulah Gorge State Park in Georgia. This is also considered a “creeking” opportunity with difficult access in and out of the gorge. According to State Park staff, no known search and rescue efforts have been undertaken since the river opened to boaters.

When search and rescue operations do occur, a majority of them are not very highly impactful (Borgen, pers. com.) and are generally associated with people who do not return from a trip at a previously scheduled time. However, a small number of these operations do involve accessing and transporting injured persons and/or fatalities from remote areas. If and when these rescue operations are required above Highway 28, pockets of inaccessible ground in those sections could make the operation very difficult and costly (e.g. Chattooga Cliffs in the **GS-BP** section and the Rock Gorge in the **BF-28** section). There is also inherent risk to the search and rescue workers, and at times there are environmental impacts from the operations themselves (e.g. use of ATV’s and other specialized equipment to extract fatalities or the injured, opening up closed roads, warming fires, wilderness impacts, etc.).

### **Cumulative**

There are no current or foreseeable activities that would cause any cumulative effects to search and rescue operations on the Chattooga Wild and Scenic River above Highway 28.

### **Possible Mitigation Measures**

- Sign river access points appropriately to discourage less experienced boaters, especially at Burrells Ford Bridge access. Signs should not market the activity, but properly warn potential boaters. Website and brochure information should also be developed that warns about the dangers without encouraging use.
- Do not provide additional facilities that might otherwise encourage this use.

## **Alternative A**

### **Direct and Indirect**

Under this alternative, boating would be allowed from Burrells Ford downstream to the Highway 28 Bridge from December 1 through March 31 at water levels measuring or exceeding 2.5 feet (1400 cfs) at the Highway 76 gauge. According to USGS average daily flow data for the past 62 years, this translates into an average of 11.4 days per year available for boating (Figure H-3 and Table H-3). However, as was mentioned earlier,

since enforcement of the 2.5-foot level is expected to be difficult, there would likely be additional unlawful boating use during this period.

It may be reasonable to assume, that the potential number of search and rescue operations could be less (above Highway 28) under Alternative A than under Alternative E because there are, on average, fewer days available for boating.

Additionally, restricting boating to the colder months (December through March) and higher water levels may discourage the less skilled and prepared boaters. This could further reduce the potential need for search and rescue operations.

In summary, Alternative A would likely require fewer search and rescue operations than Alternative E.

### **Cumulative**

There are no current or foreseeable activities that would cause any cumulative effects to search and rescue operations on the Chattooga Wild and Scenic River above Highway 28.

### **Possible Mitigation Measures**

- Sign river access points appropriately to discourage less experienced boaters, especially at Burrells Ford Bridge access. Signs should not market the activity, but properly warn potential boaters. Website and brochure information should also be developed that warns about the dangers without encouraging use.
- Do not provide additional facilities that might otherwise encourage this use.