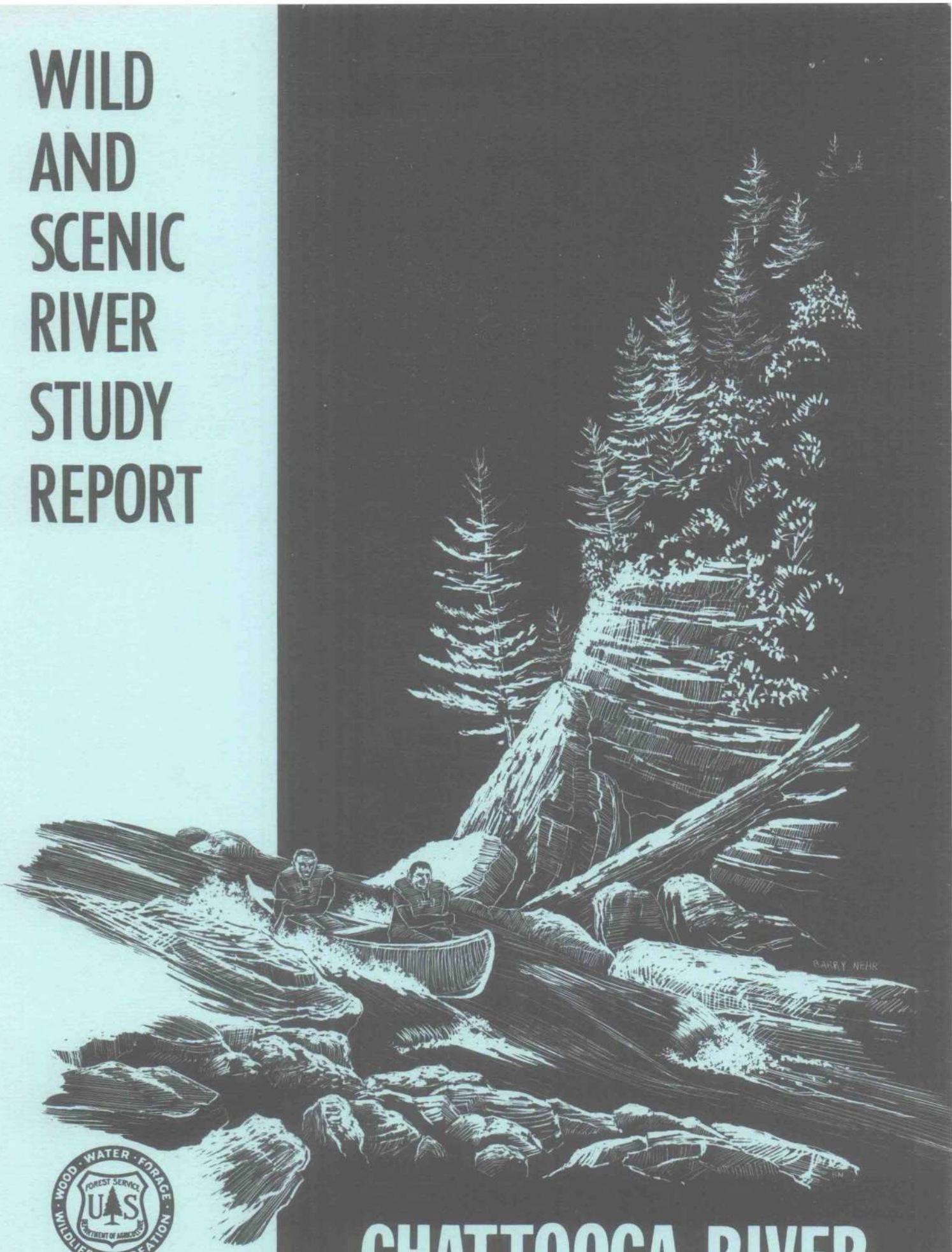
WILD AND SCENIC RIVER STUDY REPORT



CHATTOOGA RIVER

U. S. DEPT. OF AGRICULTURE
FOREST SERVICE
SOUTHERN REGION

Wild & Scenic River Study Report

CHATTOOGA RIVER

CHATTAHOOCHEE National Forest

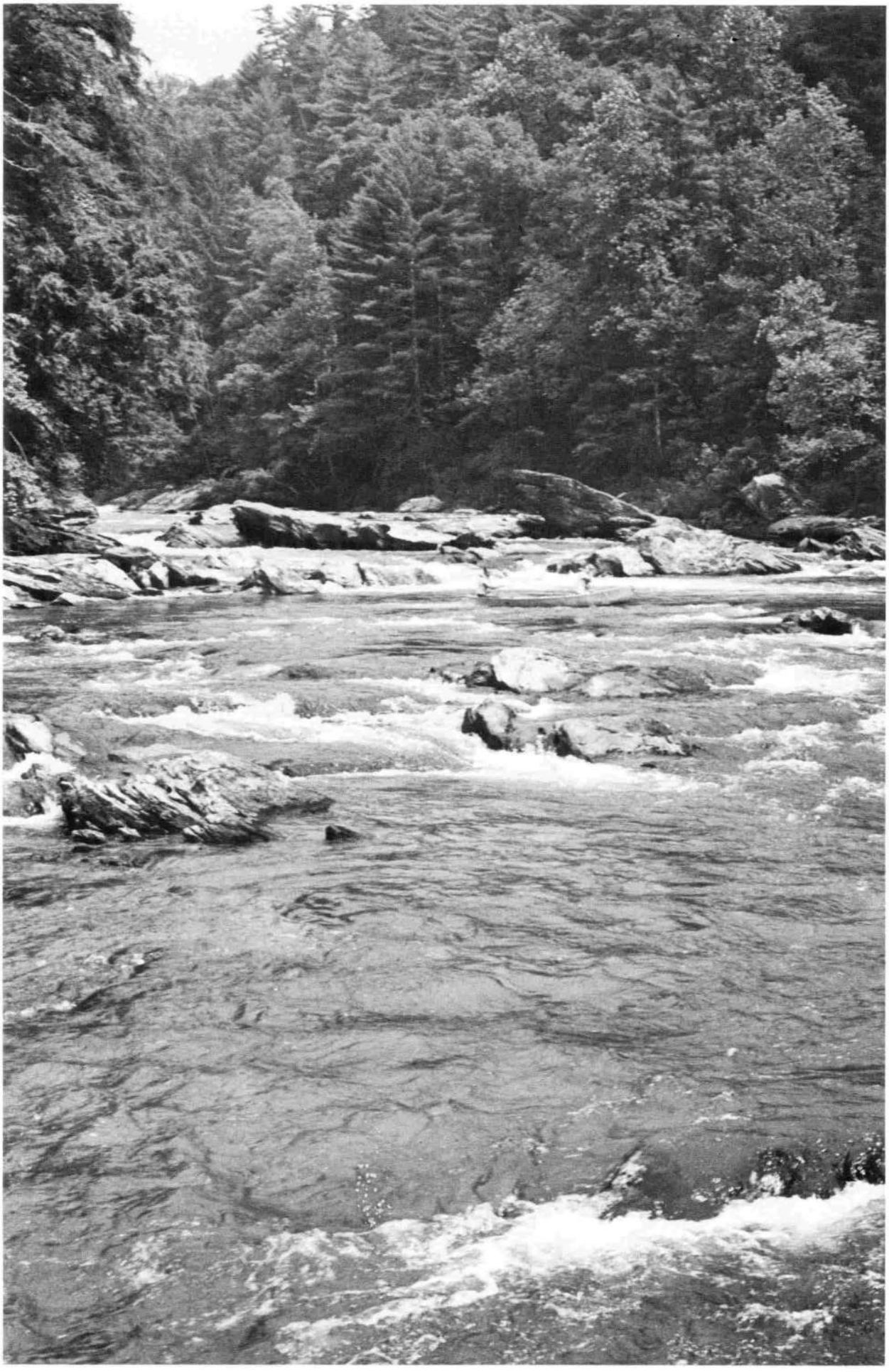
NANTAHALA National Forest

SUMTER National Forest

June 15, 1971

U.S. Department of Agriculture

Forest Service Southern Region



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I. INTRODUCTION

The Wild and Scenic Rivers Act provides for certain rivers to be studied for possible inclusion in the National Wild and Scenic Rivers System. The Chattooga River that flows in North Carolina, Georgia and South Carolina is one of 27 rivers designated for study by the Act.

The study began in 1969 with the assignment of a Forest Service field team to collect and analyze data on the river and its environment.

A Task Force was appointed to review the work of the field team and drafts of the study report. The Task Force consisted of representatives of Governor NcNair of South Carolina, Governor Scott of North Carolina, and Governor Maddox of Georgia; Forest Supervisors of Chattahoochee, Sumter and Nantahala National Forests; and the Bureau of Outdoor Recreation. The assistance of the Resources Advisory Board, the Federal Power Commission, the U. S. Geological Survey, and the U. S. Army Corps of Engineers is acknowledged. Other federal and state agencies, private individuals and conservation groups contributed greatly to the study effort.

Two public meetings provided an opportunity for many interested citizens to express their opinions concerning the future of the Chattooga River.

II. OBJECTIVE

The objective of the study is to determine if the Chattooga River meets the requirements for inclusion in the National Wild and Scenic River System. Major guidelines used in evaluating the river are:

--the river is in a "free-flowing" condition, without impoundment or diversion.

--the river is long enough to provide a "meaningful experience", generally 25 miles or longer.

--the river contains "sufficient volume" of water to allow full enjoyment of water-related recreation activities.

--the river and its environment be "outstandingly remarkable"

--the river be "generally inaccessible", except by trail, with "essentially primitive" shorelines.

--the waters of the river be "unpolluted", safe for human contact and capable of supporting aquatic life.

The Wild and Scenic Rivers Act specifies that the river proposal and report show--

1. The area included within the proposal;

2. The characteristics which make the river a worthy addition to the system;

3. The current status of landownership and use;

4. The reasonably foreseeable potential uses of land and water which would be enhanced, foreclosed, or curtailed if the area were included in the national system;

5. The Federal agency proposed to administer the area;

6. The extent to which administration, including costs, would be shared by state and local agencies; and

7. The estimated cost to the United States of acquiring necessary lands and interests in lands and of administering the area as a component of the system.

III THE RIVER

The Chattooga River rises on the crest of the Blue Ridge in the mountains of North Carolina between the massive eastern flank of Whitesides Mountain and the resort village of Cashiers. It flows southward through primitive mountain country for 10 miles in North Carolina, and then continues for 40 miles as the state boundary between Georgia and South Carolina. The West fork of the Chattooga River flows for 7 miles in Georgia before entering the main river. It drops through the mountainous Blue Ridge province toward the hilly Piedmont, and ends in the quiet, still waters of Tugaloo Reservoir.

Elevations range from over 4800 feet along the northern watershed boundary to less than 900 feet at the lower end of the river. In a total distance of 50 miles the waters of the Chattooga River descend 2469 feet from an elevation of 3360 feet near Cashiers, North Carolina, to 891 feet at Tugaloo Reservoir--an average descent of 49.3 feet per mile. The Chattooga drains an area of 278 square miles.

This is one of the longest and largest free-flowing mountain streams in the Southeast remaining in a relatively undeveloped condition. The river with its immediate environment possesses outstanding scenic, recreational, geological, biological, historical, and related values and assets. For most of its length it is hemmed in by forest; without fields, farms, homes or other signs of civilization. It is one of the few mountain rivers in the four-state area of North Carolina, South Carolina, Georgia and Tennessee without substantial commercial, agricultural or residential development along its shores. Although located near the great population concentrations of the Eastern United States, a visitor to this river is instantly transported into the midst of an unspoiled whitewater river environment. The Chattooga is accessible by auto at only five places, and these roadpoints break the river into approximately equal sections.

The beauty of the rapids and scenery of the Chattooga drainage is unsurpassed in the Southeastern United States. The river begins as a sparkling mountain rivulet cascading down the lush green, heavily forested sides of the Blue Ridge and continues between high ridges through the deeply entrenched Chattooga River Gorge. The first 5 1/2 miles of the Chattooga include several waterfalls and some of the most spectacular long range vistas on the whole river. The river here is small and fast, dropping through densely forested slopes, with an occasional glimpse of farms and summer homes.

The next 16 miles are through generally inaccessible country. The river follows a narrow, tortuous route over numerous rapids, cascading around boulders and through self-cut rock flumes and intermittent quiet, deep pools. Most of this section is narrowly contained in a deep, fast descending gorge between high ridges. In the whole 16 miles, only two narrow Forest Service roads break out of dense forest to span the river.

The river drops out of the Chattooga Gorge and for the next six miles flows quietly by fields, farms and homes. The West Fork joins the River here, and these two streams provide easy canoeing water through an area of pastoral development.

The next 22 miles are the most isolated and rugged on the river. This spectacular reach includes many beautiful rapids and broad stretches winding around islands, and narrow swift sections running over cascades and ledges. It affords the canoeist an unending variety of whitewater rapids, and a rare three-day run. One dirt road at Earls Ford and another dirt road at Woodall Shoals lead to the river. Six and one-half miles above Tugaloo Reservoir, U. S. Highway 76 crosses the river at approximately right angles, giving the only prominent evidence of man's presence on the river.

The West Fork, joins the Chattooga near State Highway 28. The upper 3.3 miles of the West Fork is without access, including trails. The lower four miles is a smooth, slow stretch of water flowing through an area of pastoral development and paralleling roads.

A more detailed description of the river sections can be found in Chapter IX-B.

IV GENERAL INFORMATION

A. Study Reach

The Wild and Scenic River Act directs that the entire Chattooga River be studied for potential addition to the Wild and Scenic Rivers System. As directed, the entire river was studied from river mile 00 (confluence of Tallulah and Chattooga Rivers) in Lake Tugaloo, to river mile 54 in North Carolina where the river becomes a trickle. In addition to the main stream, all seven miles of the West Fork plus the lower reaches of Overflow, Holcomb and Big Creeks at the head of the West Fork were studied. The East Fork of the river in South Carolina, and Warwoman and Stekoa Creeks in Georgia were investigated but were found not to meet established criteria.

The study of adjoining lands was most intensive within a corridor one-fourth to one-half mile wide. Landownership and development information was gathered for one mile on each side of the streams studied. Extensive water quality and other information was studied over the rest of the Chattooga Watershed. The study includes a general review of the economy, accessibility, population trends, and recreation opportunities of the counties and region around the Chattooga River.

The U.S. Geological Survey shows the official name of the river to be the Chattooga River, a tributary of the Savannah River. One difference in name usage was found in the study. The East Fork in South Carolina is sometimes referred to as the South Fork and, in this reference, the Chattooga River is then referred to as the North Fork. In this report, all streams are referred to by their official USGS names.

B. Zone of Influence

Although the Chattooga River flows in only four counties--Jackson and Macon in North Carolina, Rabun in Georgia and Oconee in South Carolina, its significance has an immediate relation to a larger tri-State region. No one area can be designated as the exact zone of influence around the river. National Wild and Scenic River status will attract canoeists, whitewater enthusiasts, and wild river recreationists from all over the Southeast and the Nation to the Chattooga River. Use of the river will have an immediate effect on the economy and recreation use and demand patterns over an area much wider than just the four counties through which the river flows.

An appropriate regional zone of influence which affects the study reach and which could be affected by various uses of the study reach is the 27-county area delineated by the three affected States as the Southern Highlands.

This is an area of the Southern Appalachians which is becoming increasingly popular as a destination vacation region. It contains a high number of vacation attractions. The Chattooga River is a central feature of this region. The Southern Highlands region is comprised of the following counties:

Georgia	Rabun, Towns, Union, Fannin, Gilmer, Pickens Habersham, White, Lumpkin, Dawson, Stephens
South Carolina	Oconee, Pickens, Anderson, Greenville
North Carolina	Cherokee, Clay, Macon, Jackson, Transylvania, Henderson, Polk, Graham, Swain, Haywood, Buncombe, Rutherford

The natural resources of this region are being developed for outdoor recreation at an accelerating rate by public agencies and private interests. Appropriate planning agencies of the three states, in cooperation with Federal and other interests, have established a Southern Highlands Council to study the region and recommend priorities for an overall program of environmental conservation and resource development. A program of work leading to a plan of coordinated development is in progress.

The population growth of this region from 1960-1970 was 7.0% which compares to 11.9% for the Southeastern United States and 9.2% for the 3 state area. The Southeastern United States had the largest population increase in the nation. Growth in vacationing population, both seasonal residential and transient visitors, has in the same period increased at a substantially greater rate, more reflective of the national growth rates.

Growth of population throughout the 27 county region has varied considerably from county to county, with some counties experiencing a loss of population.

Between 1960 and 1970 the largest rate of increase occurred in Pickens County, South Carolina, with a 24.1% increase. Graham County, North Carolina experienced a 12.4% loss of population during the same period.

The population of the region is projected to increase at a slightly slower rate than either the rate for the three States or for the Nation.

Southern Highlands Regional Populations

(1,000's)

	1950*	1960*	1970*	1980	1990	2000
Total	783	847	906	1,059	1,228	1,420
Georgia	103	104	108	130	150	174
North Carolina	342	348	361	435	506	586
South Carolina	337	394	437	494	572	660

*Source: U. S. Department of Commerce, Bureau of the Census.

The region, with the exception of several larger cities, is dependent on farming and forestry, with limited manufacturing industry. Of a total population of about 850,000 in 1963, the annual average manufacturing employment was 124,000. Seventy-seven percent of this was attributed to six counties, which had more than 67% of the region's population. Even though these counties are larger in area than the regional average, they account for barely one-third of the total land area.

The extent of land in farms in the area is gradually declining. Of the 10.7 thousand square miles of land within the region, an estimated 5.0 thousand, or about 40%, were in farms in 1954. By 1964 this figure had dropped to 3.2 thousand, or about 30%. Decline in farm acreage parallels the decline or slow growth rate of population when viewed on a county basis. A parallel can also be seen between relative decline of aggregate county income and declines in population and farm acreage. 1/

The mountain ranges that have slowed the past development of the Highlands Region are now recognized as nationally significant attractions. Protection of the outstanding features of the region can provide a stable base for the expanding recreation and tourist industries of these counties.

C. Accessibility

A well designed system of interstate highways provides excellent access from all parts of the Eastern United States to the vicinity of the Chattooga River. Interstate Highway 85 connecting Atlanta, Georgia with Greenville, South Carolina, Charlotte, North Carolina, and points to the northeast crosses Hartwell Reservoir 25 miles south of the river. Interstate Highway 26 from the coast of South Carolina joins I-85 just east of Greenville carrying traffic towards Asheville, North Carolina and points to

1/ From county and city data book - 1962 and 1967 editions, U. S. Department of Commerce, Bureau of Census.

the northwest. U. S. Highway 76 crosses the Chattooga, U.S. Highway 64 passes over the northern watershed boundary, and U.S. 441-23 passes to the west of the river.

Rail transportation is available in the small towns on the southern edge of the study area, and commercial airline facilities serve the metropolitan centers listed above.

The river itself is immediately accessible now by two paved highways, U. S. 76 and Georgia-South Carolina 28, which cross it. It may also be reached by three graded Forest Service roads which cross it, and several 4-wheel drive roads which lead to the river. Several foot trails also lead to the river and for short distances parallel it. The West Fork is crossed by one paved county road and a graded Forest Service road. Direct access to the river and West Fork is well distributed except for the extreme ends. The upper end of both the Chattooga and West Fork may be reached only by walking some distance and the lower end by walking steep mountainsides or crossing over two miles of Lake Tugaloo.

D. Climate 2/

Topography divides the river basin into two climate belts or thermal zones. In the northern part, the climate is affected by the higher elevations--winters are cold and summers are mild. Based on a 63 year record, the average temperature is 39° F for January and 70° F for July. Rainfall, which averages almost 80 inches annually, is well distributed throughout the year.

The climate of the southern part of the river is the humid continental type. Summers are relatively hot and winters cool. Rainfall averages around 59 inches at Long Creek and dry periods are common.

In summer, climatic conditions in the mild and pleasantly cool Chattooga River area differ sharply from the adjacent hot and humid Piedmont. The study area provides the closest climatic relief for the increasingly dense industrial populations of the Piedmont. Midsummer afternoon temperatures average less than 85° F. Crisp cool nights average about 60° F, but are seldom too cold for light camping equipment.

Weather conditions are suitable from May to September for extended float trips, even when frequent upsets and dunkings occur. Pleasant daytime temperatures and cool nights make this five month season enjoyable for float trips, extended hikes, fishing and overnight camping along the river. Light rainshowers occur frequently throughout the summer months.

2/ Source of climate data: U. S. Department of Commerce Weather Bureau at Clemson University, Clemson, S. C.

Daytime temperatures from March through April and from October through November are usually suitable for fishing, hiking and hunting, but cold water temperatures and cold nights limit floating activities and overnight camping during these months.

December, January and February are generally too cold for activities other than limited hiking and hunting since air temperatures frequently fall below freezing.

V DESCRIPTION OF THE RIVER

A. Ownership of River Bed - Jurisdiction of River Surface

The Attorney General of North Carolina states the opinion that since the Chattooga River in North Carolina is very shallow with constant ripples showing every few feet, the State Supreme Court would probably find that it is not navigable in fact, and therefore not navigable in law. In North Carolina, the riparian owners own the streambed of unnavigable streams to the center of the stream. The private landowner can sell, lease or otherwise dispose of the minerals underlying the streambed, provided he does not cause sedimentation or pollution of the stream. There is now no mineral activity within the proposed boundary of the river in North Carolina.

Where the river is the boundary between Georgia and South Carolina with no islands in the river, the location of the line between the two states is on the water midway between the main banks of the river when the river is at ordinary stage. Where there are islands, the state line is midway between the island bank and the South Carolina shore when the water is at ordinary stage. Any islands in the Chattooga River are reserved completely to Georgia.

The South Carolina Constitution declares the Chattooga River to be navigable in fact and law, and as a boundary river the state has title to the riverbed and water from the mean high water mark to the middle of the river. The South Carolina State Budget and Control Board requires a permit for any construction or excavation below the mean high water mark. The State would also have the right to issue mineral or gravel permits.

In Georgia, navigability and therefore ownership, have not been legally established for the Chattooga River. If the river is non-navigable, land ownership extends to the center of the main current. If it is determined to be navigable, ownership of the bed lies in the State; and adjacent land ownership extends only to the low-water mark in the bed of the River. Application of navigability tests by the study team seems to indicate navigability and therefore State ownership of the riverbed. In the case of State owned lands, mineral permits would be issued by the Georgia Mineral Leasing Commission. Agencies having regulatory power over the use of waterways in Georgia are the Water Quality Control Board and the Game and Fish Commission.

Regular peace officers and the enforcement divisions of the three State Wildlife Commissions have police power on the surface of the Chattooga River.

B. Water Rights

North Carolina operates under the riparian rights doctrine. Although the riparian owner owns the streambed to the center of the stream, the State owns the water, which may be shared in a reasonable manner by the various riparian owners, subject of course, to interpretation by the courts.

The South Carolina Constitution declares, "The State of South Carolina holds the beds and waters of the rivers, streams, and lakes of the State in trust for and subject to the public purposes and rights of navigation, commerce, fishing, bathing, recreation, or enjoyment, other public and useful purposes, and such other rights as are incident to public waters at common law, free from obstructions and interference by private persons."

In Georgia law, ownership of water is dependent upon navigability and since navigability of the Chattooga River has not been established at law, no single statement as to water rights can be made. If the river is navigable, as appears to the study team, water rights rest with the State. If it is non-navigable, however, the owner is "entitled to the same exclusive possession thereof as he has of any other part of his land" (Georgia Code Sec. 2210 (1863); Georgia Code Sec. 85-1305 (1933); Georgia Code Ann. Sec. 85-1305 (1955 Rev.)).

There are no interstate agreements concerning the use of the waters of the Chattooga. No municipal water supplies are taken directly from the river, but private developments take water from tributary creeks to supply their domestic needs. No industrial use is made of the waters within the proposed river boundary.

The present exercise of water rights on the river and tributaries has no measurable effect on the river's rate of flow. There are no Forest Service proposals to modify river flows or use water from the river for domestic needs.

C. Water Quality, Quantity and Flow

Water Quality information on the Chattooga River came from:

--water quality criteria for National Wild and Scenic Rivers agreed upon by the Departments of Agriculture and Interior.

--water quality studies by the U. S. Geologic Survey, the Environmental Protection Agency (formerly the Federal Water Pollution Control Authority), and the States of North Carolina, South Carolina and Georgia prior to May, 1969.

--A water quality study by Dr. Gordon Howard, Clemson University, February, 1969.

--an intensive water quality study initiated by the U.S. Forest Service in 1969, in cooperation with the States of Georgia, North Carolina and South Carolina.

--a biological investigation of the Georgia tributaries of the Chattooga River and the river proper by the Georgia Water Quality Control Board and submitted for the record of the March 17, 1970, Clayton meeting.

Federal/State water quality standards have been established on all interstate portions of the river. These standards are adequate to protect the aesthetics of the area and health of the users.

The current standards are:

--Recommended Wild and Scenic River Standards

Stream Classification	Fecal Coliform (MPN/100 ml.)
Wild	Log mean of 200 and shall not exceed 400 in over 10% of samples in any 30 day period. (Except as these might be exceeded by natural background conditions.)

--South Carolina Standards

Stream Classification	Fecal Coliform (MPN/100 ml.)
Class A or better	Not to exceed a geometric mean of 200 nor shall more than 10% of the total samples exceed 400 in any 30 day period.

--Georgia Standards

Stream Classification	Fecal Coliform (MPN/100 ml.)
Recreation	Not to exceed a mean of 1000 based on at least 4 samples taken over a 30 day period, and not to exceed 4000 in more than 5% of the samples taken in any 90 day period.

--North Carolina	Standards
Stream Classification	
Trout Waters, Class C	Fecal Coliform (MPN/100 ml.) Log mean of 1000 based upon at least 5 consecutive samples in a 30 day period, and not to exceed 2000 in more than 20% of the samples examined. (Not applicable during and immediately following periods of rainfall.)

Clemson Water Quality Study

Dr. Gordon Howard's February, 1969 study of the Chattooga was the first extensive water quality study done on the river. Since human waste seemed to be the major possible source of pollution in the Chattooga, this study was concerned with measuring fecal coliform counts at 20 stations along the river and its major tributaries in South Carolina and Georgia. Two samples were taken at each site.

Dr. Howard's study indicated that the West Fork and the river proper down to State Highway 28 were free of human waste pollutants. The river from State Highway 28 to U. S. Highway 76 recorded a small level of pollutants (MPN-20/100 ml.), but well within the limits for primary contact waters. Below U. S. Highway 76, fecal coliform counts increased measurably (MPN 230-280/100 ml.), to above primary contact standards. The study indicated that Stekoa Creek might be a possible source of pollution into the main river, and suggested that further sampling would be desirable.

Forest Service - State Water Quality Study

During 1969 the Forest Service and state water quality agencies organized a water quality sampling program of the Chattooga and its tributaries. The Georgia Water Quality Control Board, South Carolina Pollution Control Authority and North Carolina Department of Water and Air Resources assisted in this program.

A series of 13 sampling points was set up on the river; eight on the river proper below major tributaries and five on suspect tributaries. Figure V-I shows the location of monitoring stations. Monthly samples were taken from May, 1969, to January, 1970. Based on this sampling, a revised monitoring plan was developed in February, 1970. Under this plan stations 2, 3, 4, 5, 7, 9 and 10 will continue to be sampled monthly, April through October each year, to assure continued water quality surveillance on the river.

A Biological Investigation of Streams of the Chattooga River Basin (Savannah)

An Aquatic Biology study was conducted by the Georgia Water Quality Control Board and U.S. Forest Service in October 1969.

Conclusions of the investigation are:

"The Chattooga River and its tributaries possessed a highly diverse macroinvertebrate fauna in terms of species. Many intolerant species were present. The faunae of the river stations and the reach investigated on Warwoman Creek were characteristic of unaltered streams. Water quality at these stations was healthy.

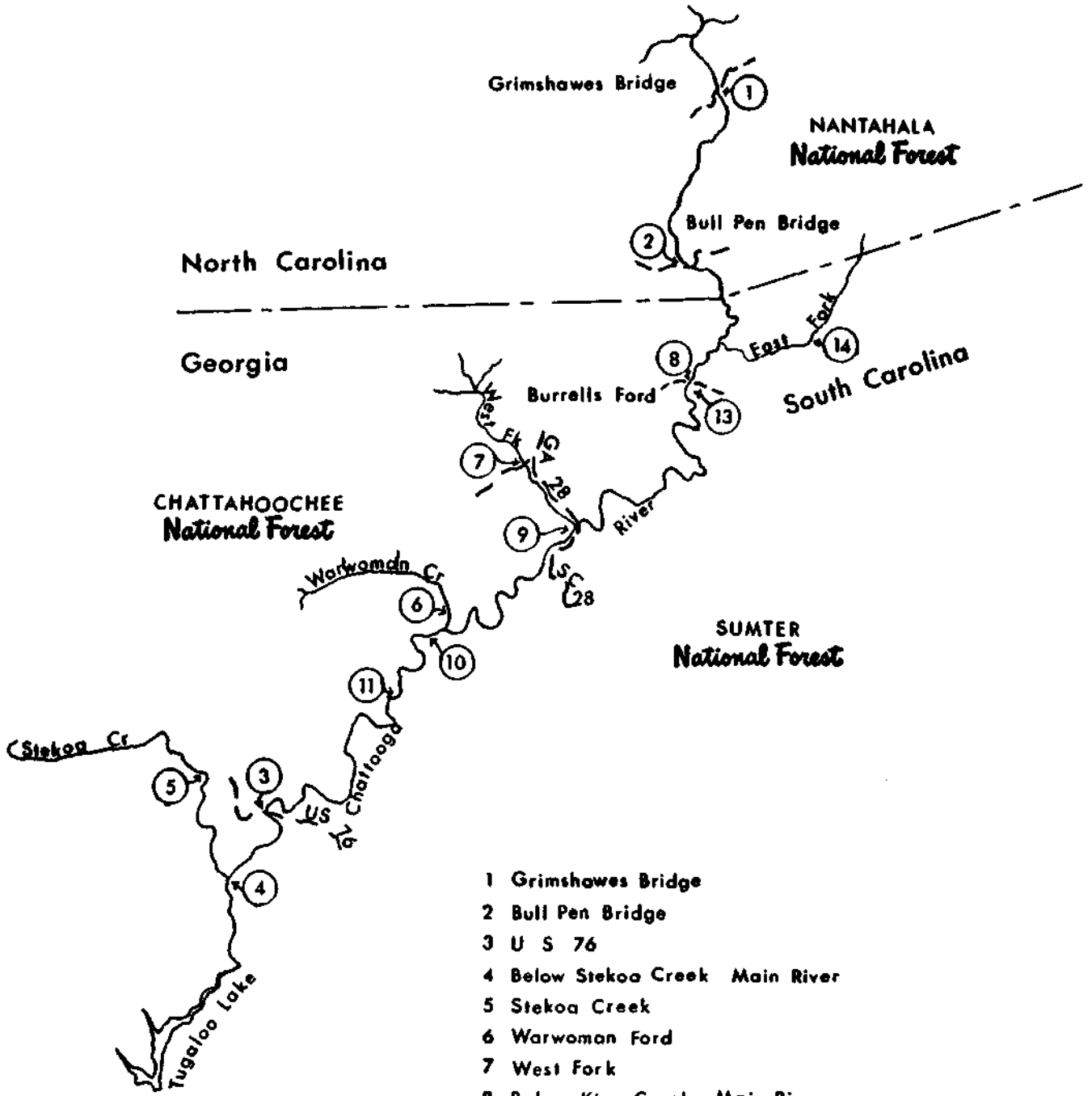
"While a very diverse macroinvertebrate fauna was present at the Stekoa Creek Station, a great increase in the number of hydrophsychid caddisfly larvae was indicative of greater plankton productivity, a reflection of high nutrient concentrations. A slight reduction in the number of intolerant species was observed in the collection from this stream. Water quality was assessed as healthy-enriched. Advanced recovery was evident in this reach more than four miles upstream from the confluence of this stream and the river.

"Steoka Creek does not affect the macroinvertebrate community of the Chattooga River adversely. The composition and relative abundance of components of the benthic community were similar to that of the communities observed in reaches upstream of the confluence with Stekoa Creek. It is highly unlikely that, after installation of the waste treatment facility at Clayton, wastes from that city can be detected in the river, either chemically or biologically.

"Generally, the Chattooga River at all stations was a natural stream in its chemistry and biology."

Figure V-1

Water Quality Monitoring Stations Chattooga River



1 Grimshawes Bridge
2 Bull Pen Bridge
3 U S 76
4 Below Stekoa Creek Main River
5 Stekoa Creek
6 Warwoman Ford
7 West Fork
8 Below King Creek Main River
9 Below West Fork Main River
10 Below Warwoman Creek Main River
11 Below Whetstone Creek Main River
13 King Creek below Recreation Area
14 East Fork

Rates of Flow

The 65 year record maintained by the U. S. Weather Bureau at Clayton, Georgia shows an average yearly minimum rainfall of 4.22 inches in October and a maximum average yearly rainfall of 7.18 inches in March. The annual rainfall ranges from 53 to 80 inches, with average runoff ranging from 27 to 37 inches.

Flow data is based on average daily flows from 1940 through 1968 and shows flow less than 300 cfs about 25% of the time. Three hundred cfs is equivalent to a stage of 1.26 feet at the USGS stream gage on U. S. 76. About 50% of the time the flow is 450 cfs or greater. Four hundred fifty cfs is equivalent to 1.60 feet at the USGS gage. The mean daily flow for the period 1940-1968 is 621 cfs with a standard deviation of 156 cfs. The lowest average daily flow on record was 88 cfs in October 1954 and the highest flow was 29,000 cfs recorded in August, 1940.

Floods are of short duration, with sharp rising and falling limbs of the hydrograph. Highly turbid water accompanied by floating debris is characteristic of flood waters. Most of the maximum floods occur during periods of low recreation use.

Riverbed and Flow Characteristics

The riverbed characteristics are caused by many influencing factors such as geology, flow regime, land use in the watershed, gradients, etc. Sands and gneissic gravels are characteristic of slow moving and slack water portions. Sections with slightly higher velocities have mostly gneissic gravels and cobbles. Shoals, rapids and falls are predominately angular gneissic boulders and bedrock.

The channels are mostly stable because of the resistant nature of the bedrock. Channel degradation and aggregation are in local portions only. Channel side slopes are generally sandy with considerable coarse fragments (gravels, cobbles and stones) in alluvial areas. Trees, shrubs and vines protect these alluvial side slopes. The stream in many places has incised itself into bedrock. In these places, the channel side slopes are bedrock and are therefore stable.

D. Fisheries

Trout fishing on the Chattooga ranges from excellent in upper areas to extremely marginal in lowermost reaches. Offsetting the poor trout fishing in lower sections of the Chattooga is an increasingly good Redeye bass fishery.

Trout fishing in downstream tributaries in contrast to the mainstream trout fishery is very good. In general, tributary fishing in upstream areas is good to excellent. Stream productivity is best discussed by dividing the river and West Fork into 5 sections.

Headwaters to Bullpen Bridge - (7.7 miles)

The Chattooga River and its tributaries above this point are excellent trout waters, comparing favorably with the better streams in all three states. Brown trout are dominant, although rainbow are common in this section. Brook trout are present in most of the tributaries. No stocking is done above the Bullpen Bridge.

Bullpen Bridge to Highway 28 - (16.6 miles)

This section of stream is providing fair to good fishing for wild rainbow and brown trout, with brown trout the predominant species. Best fishing for wild fish is in the upper reaches.

No work has been done to determine whether existing populations of trout in the main stream are recruited from wild stock in the river and tributaries or whether they are sustained by the stocking program. North Carolina stocks only 2,500 fish per year at Bullpen Bridge. South Carolina in 1969 stocked 19,330 catchable-size trout and 35,000 fingerling brown trout in the section of stream between Burrells Ford and an access point two miles below the Highway 28 Bridge. Georgia in 1969 stocked 50,000 fingerling brown in this same section. Several of the tributaries between these points contain fair to good populations of wild fish, primarily brown trout, so it is logical to assume that these streams are also providing recruitment to the mainstream fishery and for that reason are extremely important.

This section of stream is of special interest from a wild river fishery standpoint since it is the only one providing high quality wild trout fishing that is large enough to float - canoeing is not feasible, but rubber rafts are suitable for this section.

Highway 28 Bridge to Highway 76 Bridge - (19.1 miles)

The Chattooga River in most of this section is considered marginal for trout, due to high water temperatures. However, large rainbow and brown trout are, occasionally taken in this stretch of stream. The upper portion of the section provides the best fishing, due primarily to a stocking program by the South Carolina Wildlife Resources Department. This section also contains some of the flatter, shallower, stretches of water suitable for wading fisherman. Although Redeye bass are common throughout the section, it should be classed as trout water.

Highway 76 to Tugaloo Lake - (7.8 miles)

This section of the mainstream is the only portion not suitable for classification as a trout stream. It is primarily a Redeye bass-redbreast sunfish stream, although, according to local fisherman, occasional trout are taken here. Stream temperature is definitely too high for trout but good for bass.

West Fork of Chattooga River - (7.3 miles)

The West Fork is a large stream furnishing fairly good fishing for rainbow and brown trout in its lower reaches. The wild trout fishery there is supplemented by a stocking program of approximately 3,000 catchable-size trout per year. The section of West Fork above Overflow Bridge to Three Forks provides better fishing for wild trout than the area below the bridge. This area is inaccessible and is not included in stocking programs.

The three tributaries joining at Three Forks include Holcomb Creek, Overflow Creek and Big Creek. All three are basically good streams providing excellent fishing for brown and rainbow throughout most of their length, and for brook trout in some of the upper tributaries.

Holcomb Creek, lying entirely in Georgia, is in relatively good condition, receiving only minor siltation from a gravel system road. It contains an excellent population of wild brook and rainbow above the upper falls, and brown and rainbow below the falls. Approximately 2,000 fish are stocked annually on the Billingsley Creek Section of Holcomb Creek.

Overflow Creek, originating in Blue Valley, North Carolina, is in excellent condition until it reaches the Georgia line where recent road construction just below the State line has created a serious siltation problem. The population of both brown and rainbow trout in this section was excellent prior to construction. Effects of the project on the trout population have not been evaluated. Only the headwaters in North Carolina are stocked with hatchery fish.

Big Creek also originates in North Carolina and then flows into Georgia. This stream carries a fairly heavy load of sand and fine sediment throughout much of its length but still provides a fairly good fishery for wild brown trout. Rainbow trout are present in much smaller numbers.

Present Fishing Regulations

South Carolina has a year-long season on tributaries and the main stream with a creel limit of 10 fish and no restriction on lures.

Georgia also has a year-long season on the mainstream and the West Fork upstream to Three Forks, and a season running from early April to early October on most tributary streams. Tributaries in the Warwoman Management Area are open only two days a week from May to Labor Day. Creel limit on all streams is eight per day with no restriction on lures.

In North Carolina the general trout season runs from the first Saturday in April through Labor Day with a seven fish creel limit and only single hook baits or lures allowed. They also provide a special fall season for the months of September and October during which time the creel limit is one rainbow or brown trout 16 inches or better, or one brook 12 inches or better, with bait restricted to single hook artificial lures only.

The South Carolina and Georgia Game and Fish Commissions recognize and accept either of the two State licenses for mainstream fishermen.

Present Fish Stocking Policy

At present, catchable size trout are being stocked in some sections of the Chattooga in all three States. These stockings of catchables are supplemented in South Carolina and Georgia with plantings of sub-adult or fingerling fish.

The Georgia Game and Fish Commission has stocked smallmouth bass in the lower reaches in the past; however, there have been no confirmed reports of survival from these plantings.

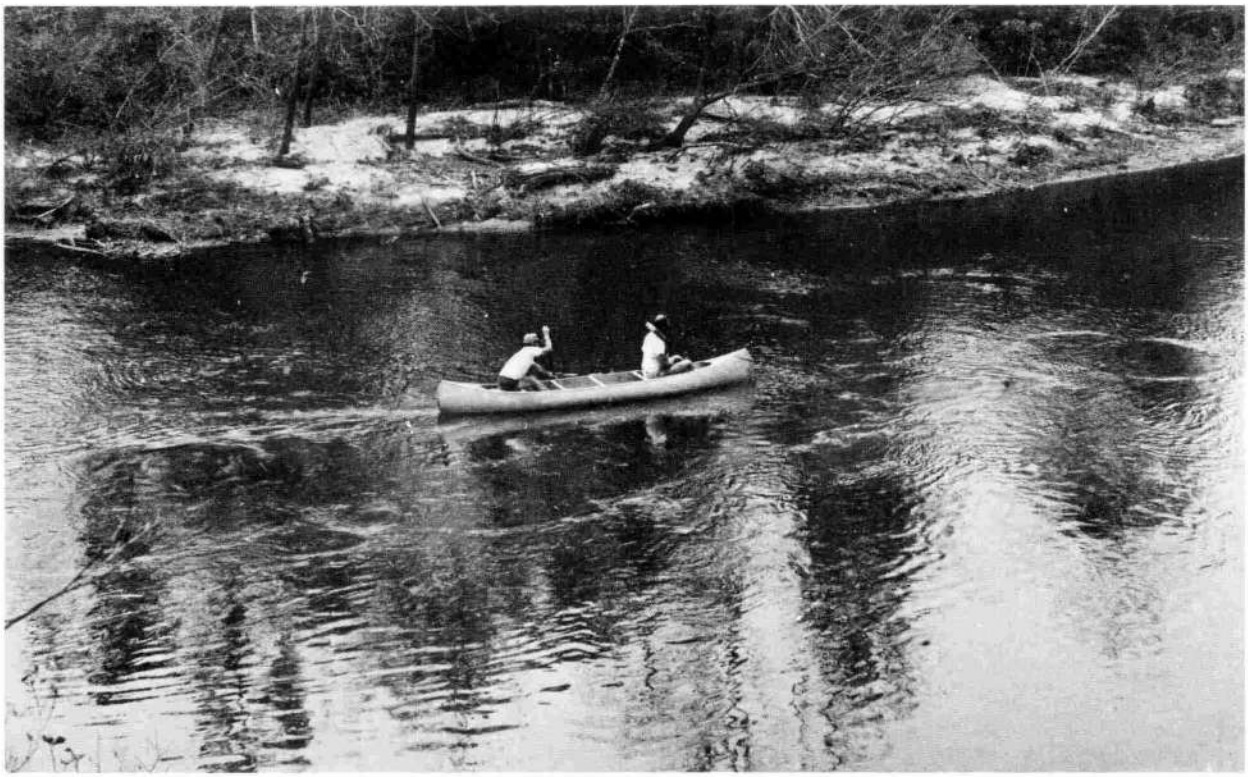
E. Recreation Opportunities

Although fishing accounts for most recreation use, there are other attractions to the river.

The canoeist and floater are showing up in increasing numbers to experience the challenge of the river. Sections of the river are ideal for floating in canoes and rubber rafts. Motorized boat use is impractical because of shallow water and rocks.

The only camping facilities along the river are provided at a campground near Burrells Ford in South Carolina. River runners on extended float trips can enjoy camping under primitive conditions at sites along the river.

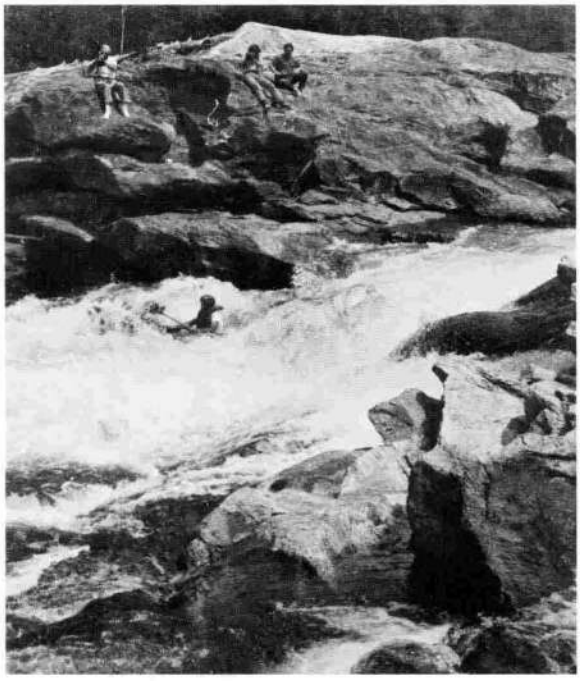
Hiking provides another way of seeing the river. There is only one developed trail extending the four miles from Burrells Ford to Ellicotts Rock. However, most of the shoreline is accessible to those hikers willing to test themselves against the rugged country.



The number of canoeists using the river is increasing.

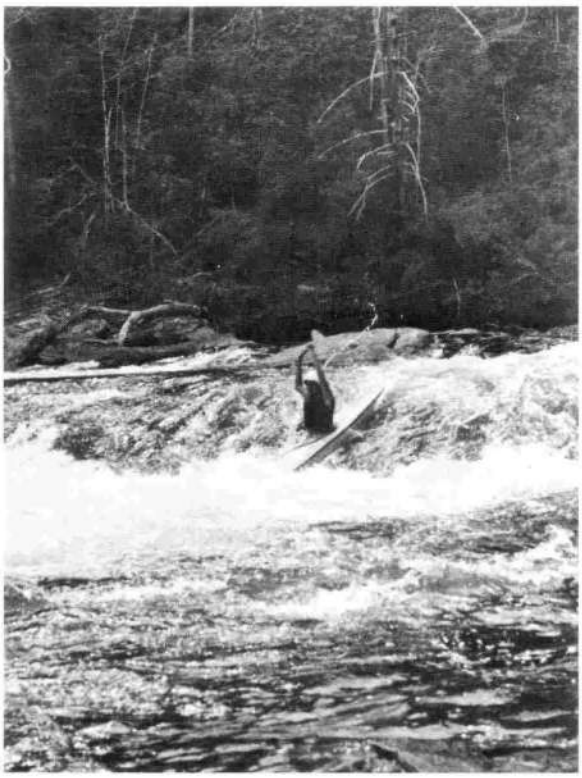
More trails are needed along the river.

Rafting Bull Sluice.

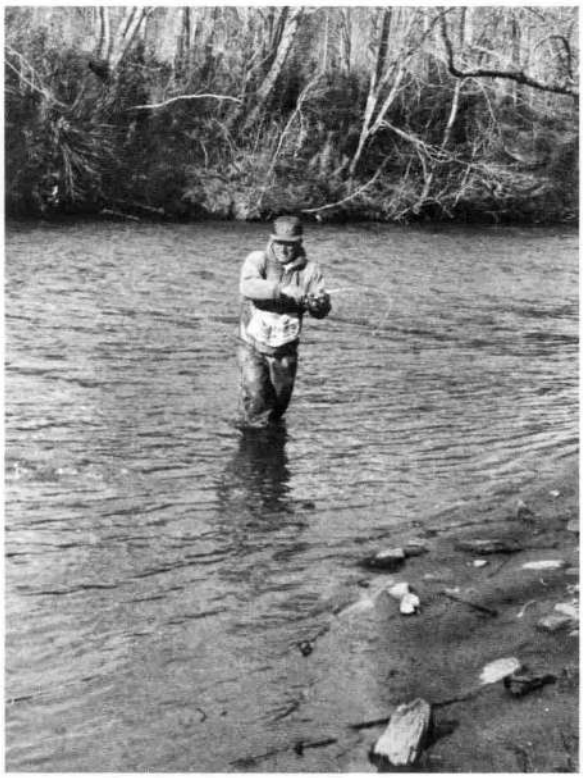


Most camping is done at undeveloped sites along the river.

The whitewater is the challenge for many people using the river.



A successful trout fisherman near Highway 28 bridge.



The casual sightseer is offered only brief glimpses of the river at bridge crossings and access points. To see and enjoy much of the river requires considerable time and effort from the recreationist, whether he be fisherman, canoeist, hiker or camper.

Other major recreation attractions are located within 50 miles of the Chattooga River--

--The Highland-Cashiers resort area of North Carolina is an exclusive and popular vacation area of the Southeast.
--National Forests in Georgia, South Carolina, Tennessee and North Carolina offer many forms of recreation.
--The Great Smokies National Park is the most heavily visited National Park in America with over 6 million visitors annually.
--21 major lakes and reservoirs including Hiwassee, Nantahala, Fontana, Tugaloo, Hartwell, Appalachia and Sidney Lanier offer extensive recreational opportunities.

Many smaller state and private recreation developments contribute to making the area surrounding the Chattooga River a complete vacation land.

F. Proposed Water Developments

Several water development projects have been proposed for the Chattooga River in the past. None of the proposals has reached the detailed planning stage.

There is a broad proposal that the Corps of Engineers connect the Savannah River and Tennessee River Basins with a barge canal. This proposal has not been studied to determine possible routes or feasibility of the overall project. It is not likely that the Chattooga would be considered in any detailed study.

Georgia Power Company

Although they have made no detailed study or proposal, the Georgia Power Company has had an interest in hydroelectric development of the Chattooga River since they acquired lands along the river. Recent contacts with officials of the Company indicate that, at the present time, they do not have plans to make a detailed investigation of the Chattooga River for power development. In Highlands, North Carolina, on December 5, 1969, at the Chattooga River Public Listening Session, an official of the Georgia Power Company stated, "In the opinion of Georgia Power Company, the development of these projects is presently marginal from the economic viewpoint." This was referring to the 366,000 kilowatt capability proposed in the U. S. Study Commission's Southeast River Basin Report, Senate Document #51, 88th Congress. A complete statement, from the record of that public listening session is found in Appendix A of this report.

Four studies have been published concerning development of the Chattooga River.

Corps of Engineers Studies

Two studies were made by the U.S. Army Corps of Engineers and were published as House Document #657, 78th Congress in June, 1944. The 1944 study identified four dam sites on the Chattooga River for eventual construction as a part of the development of the Savannah River Basin. These studies are now considered out-of-date, and the Corps is making a new study to update them.

In Clayton, Georgia on March 17, 1970, at the second Chattooga River Public Listening Session, the Corps of Engineers submitted a statement in response to the Forest Service's "Proposal for a Wild and Scenic River." This statement supported the proposal to preserve the Chattooga River as a wild and scenic river. A complete statement, from the record of the public meeting is in Appendix B of this report.

Southeast River Basins Study

This study was made in 1963 by the U.S. Study Commission, and published as Senate Document #51, 88th Congress. Portions of this report pertaining to the Chattooga River have been summarized for this study by the Resources Advisory Board, Southeastern River Basin Staff, in a memorandum dated November 14, 1969. (Appendix C).

No alternative hydroelectric developments were proposed on other rivers to replace the generating capacity of the Chattooga River. The Resources Advisory Board summary, however, indicates that one alternative for meeting the electric power need would be to expand and improve the design for projects in the Study Commission report.

Water Resources in Appalachia Study

At the direction of Section 206 of the Appalachian Regional Development Act of 1965 (PL 89-4), the Appalachian Water Resources Survey was made. It was published in April 1970, as "Water Resources in Appalachia." The Office of Appalachian Studies of the Corps of Engineers prepared and supervised the report.

In brief, the Appalachian Water Resources Survey is a comprehensive survey of the developmental potential of the water and related resources of Appalachia. Its treatment of the Chattooga River is as follows:

"Portions of rivers, such as the Susquehanna in New York and Pennsylvania; Allegheny and Clarion in Pennsylvania; Shenandoah in West Virginia; Potomac in West Virginia and Virginia; Big South Fork Cumberland River in Kentucky and Tennessee; Red River in Kentucky; and Chattooga in Georgia, North Carolina and South Carolina have outstanding scenic qualities if retained in their free-flowing state."

Accordingly, the recommended Appalachian Water Development Plan includes these projects: a complete study of Chattooga River for Wild and Scenic River classification and the development of recreation opportunities in Sumter National Forest (outside Chattooga River Watershed).

Federal Power Commission Study

The Federal Power Commission preliminary analysis gives two alternatives for power development on the Chattooga River. Each proposes three impoundments on the river. (Table 1). The first alternative proposal would flood 7,250 acres and would have an installed generating capacity of 1,780,000 kilowatts. The second alternative proposal would flood 9,450 acres with an installed generating capacity of 1,800,000 kilowatts. The Cashiers project in both proposals would be a pumped storage installation with the forebay on Little Whitewater Creek, a tribuary of the Whitewater River in the Keowee River Basin. This installation could operate separately from the other two. In either proposal, the Rogues Ford-Opossum Creek or Sand Bottom-Opossum Creek operations are inter-dependent, both being pumped storage installations.

Either of the Federal Power Commission's proposals would leave the Chattooga River unfit for National Wild and Scenic River purposes. According to the Federal Power Commission analysis, either proposal "would still leave an 18 to 20 mile stretch of the river that could be considered for other purposes." The other purposes would not include Wild and Scenic status since the river would not be free-flowing because of the Cashiers Reservoir. None of the 18 to 20 mile stretch would have sufficient water for canoeing.

The Federal Power Commission requested special consideration for the Cashiers project in view of expected future demands for peaking power. The project could be operated so that "releases from the impoundment could be regulated so that they would be nearly equal to the inflows." It would inundate about two miles of river under a 450 acre impoundment, interrupting the free-flowing characteristics of this stretch

TABLE 1
CHATTOOGA RIVER BASIN
Potential Hydroelectric Power Projects

PROJECT NAME	DAM			RESERVOIR				POWER INSTALLATION		
	River	River Mile	Drainage Area Sq Mi	Maximum Power Pool Elev Ft msl	Area Acres	Maximum Critical Drawdown Ft	Power Storage Capacity Ac Ft	Gross Power Head Ft	Installed Capacity Kw	Average Annual Generation Mwh
CASHIERS	Chattooga	46.9 2/	12.4	2880	450	45 3/	16.5M	640	550M 4/	482M
ROGUES FORD	Chattooga	11.3	193.0	1600	5800	25	140M	360	1 MM 5/	876M
SAND BOTTOM alternative for Rogues Ford	Chattooga	17.7	178.0	1640	5800	20	150M	280	1MM 6/	876M
OPOSSUM CREEK with Rogues Ford	Chattooga	4.9	258.0	1240	1000	40	40 M	348	230M 7/	202M
with Sand Bottom	Chattooga	4.9	258.0	1360	3200	10	40 M	468	300 M 8/	263M

Footnotes:

1/ Based on 10% annual load factor.

2/ Forebay will be located on Little Whitewater Creek tributary to Whitewater River.

3/ Afterbay drawdown = 45ft, Forebay drawdown = 60ft, Maximum power pool at elevation 3520 ft.

4/ 550M kw installation based on 15hrs continuous generation if reduced to 8hrs could be increased to about 1MM kw.

5/ 1MM kw installation based on 8 hrs continuous generation.

6/ 1MM kw installation based on 8 hrs continuous generation ultimate could be as much as 2MM kw.

7/ 115M kw pumped storage based on 8hrs continuous generation and 115M kw conventional installation.

8/ 150M kw pumped storage based on 8 hrs continuous generation and 150M kw conventional installation.

of the river. It would cut off a two mile free-flowing segment above the afterbay which would not have the necessary length for classification as an individual river section. Unless releases from this impoundment were regulated exactly with outflows, interruption in the flow of water from this impoundment could drastically affect the free-flowing characteristics of the rest of the river.

Only the benefits of hydroelectric power were considered in the Federal Power Commission's preliminary analysis of these proposals. The analysis points out that considerable opportunity for recreation, water-cooling and other purposes would be provided by the development.

The Federal Power Commission proposed no alternative hydroelectric developments on other rivers to replace the generating capacity of the Chattooga River.

Soil Conservation Service Proposals

The Soil Conservation Service indicates there are no existing or proposed SCS water development projects within the Chattooga River Watershed. The Conservation Needs Inventory for Watershed, prepared by SCS in 1960-62, listed several potential flood control or drainage projects in Georgia and South Carolina in the Chattooga Watershed. Since then, these inventoried projects have been field checked by SCS Watershed Investigation Parties and have all been declared not feasible for development.

VI DESCRIPTION OF ADJOINING LANDS

A. Land Ownership and Status

The Chattooga River lies within the boundaries of three National Forests. Over 47% of the lands directly along the river are National Forest lands.

Georgia Power Company is the other major landowner along the river, owning 37% of the lands within the proposed corridor. Georgia Power Company lands appear as narrow strips about one mile wide directly along the river through land otherwise almost completely National Forest. This ownership pattern indicates that power interests owned these lands prior to National Forest acquisition programs in this area.

Sixteen percent of the lands within the proposed river corridor are in other private ownership. The majority of these private lands occur above Chattooga Cliffs in North Carolina where the river leaves the National Forest. In this area 18 landowners own 1670 acres within the proposed river boundary representing 75% of the individual private lands on the river.

The remaining 645 acres of other private lands within the boundary are scattered along the river in South Carolina and Georgia. In Georgia, five private landowners own 302 acres on the Chattooga River and 202 acres on the West Fork. These tracts are at Earls Ford, opposite Fall Creek on the main river, and around Highway 28 and its junction with Warwoman Road and Overflow Road on the West Fork. On the South Carolina side of the river there is 141 acres of private lands. Forty acres of this is in two ownerships, at Licklog Creek and Whetstone Creek. Eighty acres is in another tract near the boundary. The last 21 acres of private land is located at Highway 28 on the main river and is divided into 23 individual ownerships averaging less than one acre each.

ACREAGE WITHIN PROPOSED RIVER CORRIDOR

	Main River			West Fork	
	N C	S C	GA	GA	TOTAL
National Forest	1004	2559	2500	1075	7138
Georgia Power	0	1883	3654	153	5690
Other Private	1670	141	302	202	2315
Total	2674	4583	6456	1430	15,143

Of the 15,143 acres total within the proposed boundary, 18% is in North Carolina, 30% is in South Carolina, 42% is along the Chattooga River in Georgia and 10% is along the West Fork in Georgia.

Except for private lands along the major roads and upper headwaters, the lands away from the riparian strip along the river are mostly National Forest lands.

There are no mineral rights outstanding on federal lands within the proposed corridor. The only recent mining activity has been some sand removal near the U. S. 76 bridge and Woodall Shoals. This is not a large operation and occurs under permit to individuals.

B. Physiography and Geology

The massive face of the Southeastern Blue Ridge Escarpment is divided by a number of beautiful gorges representing millions of years of carving by waterborne sands and millions of years of high rainfall. The Chattooga, flowing for a major portion of its length through one of these gorges, is less developed than any of the other rivers of the Escarpment region. The topographic character of this area is a rather abrupt, deeply dissected escarpment forming the boundary between the complex mountains of the Blue Ridge Province and the hilly Piedmont Province. The physiographic nature of the dissection is that of a series of alternating ridges and gorges with southeastern and southern aspect in an area of a long continuous regime of high rainfall.

Mountains of the Southern Blue Ridge Province are classed as "subdued". Technically, this designates a stage in the cycle of weathering when height and steepness are so far lost that a mantle of decayed rock is general. Crags, bare cliffs and talus slopes are rare. Occasional precipitous slopes of bare rock are located in recently deepened gorges. Summits are commonly rounded and higher slopes are less steep than valley sides. Forests cover the highest mountains except for a few locations where monolithic formations of exposed granite occur. Most slopes range from 20 to 80% and the drainage pattern is dendritic in nature.

The Chattooga River is entrenched by steep, rocky, forested slopes that plunge into deep, narrow gorges. The river flows through the steepest, most pronounced portion of the Chattooga Gorge in its first 20 miles, averaging over 84 feet drop per mile. The next 33 miles to Tugaloo Reservoir is through wider, more gentle mountains with an average drop of only 22 feet per mile. Except for a wide valley at Highway 28, the Chattooga flows between high ridges for almost all of its length. The steep slopes just above the river walls are mostly forested slopes, rather than abrupt rock faces. In many places rock outcrops and cliffs are exposed 400-600 feet above the river. A series of outstanding monolithic treeless domes and slopes of exposed resistant granite occur at the upper headwaters of the river.

The major portion of the rock through which the Chattooga River flows was formed from highly metamorphosed sediments and igneous intrusions. Deposition of the original sediments occurred during the late Precambrian or early Paleozoic period and was followed by folding, metamorphism, and intrusion. These later events corresponded in time with the close of the Ordovician period. These events gave rise to the metamorphic mica gneiss and schist and the igneous granite dominant in the area.

C. Soils

Folding of the Southern Appalachians during the Precambrain and Paleozoic periods created a landscape characterized by changing slope gradients. These differences in slopes caused variations in the erosional forces similar to those which exist today. Within given climatic regimens, similar geological parent materials produced the characteristic soil patterns.

Soils along the Chattooga River above the mouth of Reed Creek are characteristically shallow, rocky and very steep with no potential for recreational development on the steeper side-slopes. Severe slope gradients, stone, and bedrock outcrops in some locations would require blasting for foot trail construction. Occasionally along this portion of the river, flood waters have deposited alluvial materials on narrow flood plains. These alluvial deposits are usually rather level and less than 200 feet wide. They are well suited for many recreational activities but are not recommended for high unit cost investments since they can be expected to flood again in the future. Due to the sandy nature of these soils and their close proximity to the stream, septic tank drain fields are not recommended because of the danger of pollution. Certain areas along the toe of the slopes, often near smaller tributaries, are characterized by deep colluvial deposits well suited for small camp sites. These areas seldom exceed ten acres in size but development may be prohibitive because of the steepness of the slopes.

Below Reed Creek downstream to Adline Branch the flood plain is wider and as a result a different soil pattern developed on these terraces. Immediately adjacent to the river there is usually a thick deposit of sandy soils caused by the initial deposition by flood waters. As the flood waters receded the natural levee formed by these deposits trapped flood waters and allowed silt to settle out. The deposition of silt produced fertile, moderately well-drained soils. These areas are suitable for development within the limitations imposed by the relatively high water table and occasional flooding hazard. Also occurring in the flood plains are generally small areas of poorly drained soils which are ideally suited for natural areas because of their unique flora.

Above the flood plain and extending southward from Reed Creek to Tugaloo Lake, the soils are very steep and shallow with disintegrated rock extending to great depths. Relatively level ridges occur about 500 feet above the river. The broader ridges have moderately deep clay soils generally suited for most types of developments. Along the major tributaries, such as Licklog and Dicks Creeks, there are large areas of colluvial soils occupying gently sloping, undulating topography. The more level areas above the stream terraces are usually suitable for development with primary considerations being erosion control and percolation characteristics. Acquisition of these level lands for recreation areas could result in savings by reducing high initial investments and the tremendous cost of up-keep associated with developments on steep, shallow soils.

In general, soils along the Chattooga River have the ability to take in and provide temporary storage for a large quantity of water, thus assuring a sustained flow in the rivers and streams. Due to steep slopes and medium depths to bedrock, rapid return flow and some overland flow can be expected during periods of intense rainfall.

D. Vegetation

The Southern Appalachian Region around the Chattooga River is known for its rich variety of plant life, including natural vegetation typical of both southern and more northern regions. The Southeastern Escarpment of the Blue Ridge forms the physiographic boundary between the Blue Ridge and Eastern Piedmont Provinces. In this area the Oak-Chestnut Forest region of the mountains gives way to the Oak-Pine Forest region of the Piedmont. Wide differences in elevation and high rainfall combine to create a unique environment, supporting plants of wide geographical variations and environmental requirements.

Although most of the Chattooga is in a completely forested condition, few virgin timber stands remain along the river. The overstory trees along the Chattooga are for the most part second growth. Many tree species such as white pine, are successional species and their presence along the Chattooga is the direct result of past types and degrees of disturbance in the area.

Dumond 1/, in a recent study of the upper 25 miles of the Chattooga, characterizes the nature of the Chattooga vegetation as a continuum, in which forest elements merge, shift and can only rarely be recognized as constituting distinctive types. He attributes this in part to past disturbance by man and partially to the ecotonal nature of the entire escarpment vegetation. Dumond's unpublished study is the most recent authoritative survey of the vegetation of the Chattooga River.

Several rare plant species occur along the Chattooga. Mountain camellia is found in abundance along Dicks Creek. The rare Shortia plant is found along Reed Creek and just above Burrells Ford. These areas, described first by pioneer bontanist William Bartram, are still rich in botanical rarities including many species of wild orchids, fern, ground pine, lilies, trilliums and violets.

Forest Service classifications of the vegetation along the Chattooga River are based on the timber in the overstory. Most of the timber stands are of a mixed composition - that is, pine-hardwood type - although there are stands of pure pine or hardwood. Commercially important conifers are hemlock, shortleaf, pitch, Virginia and white pines. Commercial hardwood species are white, black, scarlet, northern red and chestnut oaks; yellow poplar; basswood; hickory and red maple. Other infrequently occurring species are black cherry, walnut, cucumber, ash and gums. Not commercially important, but most significant from an aesthetic viewpoint, are dogwood, sourwood, mountain laurel, rhododendron and other small flowering plants. Most stands are not fully stocked with desirable stems and are uneven-aged in character.

1/ Dumond, David Morse, "Floristic and Vegetational Survey of the Chattooga River Gorge" (Unpublished Master's thesis, North Carolina State University, 1969).

Of the approximately 15,143 acres within the river boundary, 7,138 are in National Forest status. Ellicott's Rock Scenic Area has 713 acres within the proposed river zone. This acreage is classified as commercial productive reserved and is permanently reserved from timber harvest. The remaining 6,425 National Forest acres are typed as follows:

Type	Acres
Shortleaf pine-oak	1,990
White pine-oak	1,870
Shortleaf pine	1,194
WO-RO-hickory	732
White pine	228
Chestnut Oak	175
Pitch pine-oak	100
Hemlock-hardwood	100
Scarlet oak	36
Total	6,425

Approximately 59% or 3,792 acres of National Forest commercial forest land is immature sawtimber and 28% or 1,782 acres is classed as mature sawtimber, based on a 100 year rotation. The remaining acres are mostly sparse or low quality sawtimber. The 6,425 acres of National Forest commercial forest land contain about 26.3 million board feet of sawtimber and 21.3 thousand cords of pulpwood.

E. Wildlife

The wildlife species of the area are varied and serve different interests. Game animals provide hunting, and these, plus the non-game animals, are also available for scientific study. The Highlands Biological Station at Highlands, N. C. considers the Chattooga River area a rich study area and one of the last remaining primitive river environments in the Southeast.

The many species of birds provide ample opportunity for nature photography and bird watching.

Hunting conditions are fairly similar throughout the Chattooga drainage. The terrain immediately adjacent to the river is generally rugged and steep. Rocky bluffs and dense rhododendron or mountain laurel "slicks" are common along the river. Such terrain is somewhat unproductive in terms of animal numbers produced but offers a challenging type of big game hunting.

Only two areas in the proposed zone are especially suitable for small game management. These include the flat bottomlands in the vicinity of Highway 28 Bridge and the old fields on the extreme headwaters near Cashiers.

Game Species

Deer

Deer are scarce in all sections of the Chattooga River, however the herd is increasing in all three states, with fastest build-up in the Holcomb Creek area (Georgia) and in Blue Valley (North Carolina) which is a deer restoration area.

Habitat in most of the zone is not ideal for deer since an essentially unbroken overstory canopy predominates. Herds should build up to a huntable level and provide the major hunting resource in the area.

Bear

Bears are scarce throughout this drainage. Those occasionally encountered are usually transient and do not stay in one place for any length of time. Populations may increase in the future, but such an increase will be slight and the amount of hunting offered will likely be negligible. The primary reason is the lack of isolated terrain necessary for good bear range. North Carolina biologists feel that a contiguous block of land at least 35,000 - 50,000 acres in size is needed to provide huntable bear populations. National Forest land in the Chattooga drainage is not consolidated to this extent.

Turkey

Turkeys are present in huntable numbers in several sections of the drainage in all three states, but no areas contain them in sufficient numbers to provide top notch hunting. Best hunting for turkey, at present, is in Georgia and South Carolina.

Populations are slowly increasing and should continue to increase as protection improves and habitat improvements are added.

Habitat is only fair for turkey in most areas of the Chattooga due to a lack of openings in the forest canopy and the prevalence of dense rhododendron and mountain laurel understory. The major factor in the turkey's favor in the proposed wild river zone would be the lack of access and corresponding lack of disturbance during nesting seasons.

Grouse

Grouse are found in all sections of the Chattooga and are providing hunting ranging from fair to excellent. Habitat in the

proposed zone is only fair in most areas due to a lack of openings in the forest canopy. The dense understory that is a serious limiting factor for turkey, provides good cover for grouse.

Best hunting is found on the upper tributaries in North Carolina. The old cultivated fields (now grown up) along the upper extremities of the mainstream, above Grimshawes Bridge are probably the top grouse habitat in the proposed boundary.

Squirrel

Good squirrel hunting is available in scattered oak-hickory stands throughout the drainage. Best hunting is in such stands lying adjacent to cultivated cornfields where food is always available.

Modified timber cutting that lengthens rotation or in any way increases the average age and size of hardwood stands should improve squirrel hunting.

Rabbit and Quail

Rabbit and quail hunting is incidental due to a lack of farmland cultivation. The only worthwhile hunting for these two game animals is in the bottomlands near Highway 28 Bridge in Georgia and South Carolina.

Raccoon

Raccoon hunting is popular in all three States and is good near farmlands adjacent to the Chattooga. Although populations are somewhat lower in the wilder areas, hunting is fair there and will still be popular with the Chattooga under wild and scenic river management.

Waterfowl

Waterfowl found on the Chattooga are migratory birds and, occasionally are present in huntable numbers.

Other Animals

Beaver, muskrat, mink, fox, bobcat and opossum are all present along the Chattooga River drainage in numbers high enough that local people occasionally trap or hunt them for sport or fur.

The beaver population seems to be expanding in this drainage and has created minor problems with their dams on a few small tributaries. It is unlikely that they will be a major problem in the Chattooga drainage because of the steep terrain which allows only very small impounded areas.

Uncommon Species

Several species of small mammals reach the southern limit of their natural range in the Chattooga River. Animals like the masked shrew and woodland jumping mouse are more commonly found at higher latitudes.

Some species of salamanders, a small lizard-type, are found only in the general area of the Chattooga River and its tributaries.

Poisonous Insects and Reptiles

Potentially dangerous insects and snakes normally encountered in this area include the following:

Timber Rattlesnake

Copperhead

Yellow Jackets

Hornets

Honeybees

Stinging Caterpillars (various species)

These insects and snakes are encountered only occasionally and are considered a natural part of the environment. They usually bite or sting only when threatened and seldom or never build up in numbers to dangerous proportions. They occur throughtout the Southern Appalachians and most hikers and outdoor recreationists can recognize and avoid them. They are accepted and respected as dangerous members of the natural ecosystem. No measures should be considered to control them.

F. Present Land Uses

The most intensive land use along the river occurs on the small tracts of private land. A number of summer homes are present in areas near the headwaters in North Carolina and downriver near State Highway 28 in South Carolina. Some of these dwellings detract from the aesthetic qualities of the river landscape.

A few old farmlands with their abandoned fields and pastures, now being reforested with small trees, create welcome openings in the forested shoreline. Major bridge structures occur at U.S. Highway 76, State Highway 28, Burrells Ford and Grimshawes. Two single-wire power lines cross the river above Grimshawes Bridge. The Forest Service campground at Burrells Ford accounts for most camping use along the river.

Numerous undeveloped fisherman trails or paths can be found near the major access points, especially at bridges. Old logging roads are now used by jeeps for access to the river in many otherwise inaccessible spots along the river.

Some logging has occured on both National Forest and Georgia Power Company lands in the proposed river corridor. These operations caused some temporary loss of aesthetic values that have been recovered quickly because of the nature of the hardwood forest in this area to grow back at a fast rate.

A detailed analysis of land uses and their potential effects are given in Chapter X-B, Administration - Management.

G. The Nature of the View From the River

The Chattooga is deeply entrenched between high ridges for most of its length. Steep forested slopes on either side of the river give a sensation of seclusion to anyone on the river. The dense forest along the banks of the river usually prevents a view of the high sloping ridges on either side, except on the canyon sections where sheer rock cliffs rise vertically from the river. The river constantly curves and meanders and there are good views of the surrounding ridges from these bends.

The seasons of the year affect the color, texture and character of the vegetation. During spring and summer the river is blanketed with varying shades of green. In autumn, the vegetation changes into a patchwork of red, yellow and orange, mixed with the dark green of the yellow pines and rhododendron and the softer bluish-green of the white pines. In winter the dense cloak of leaves is stripped away and the steep hillsides can be seen on either side of the river. The pines, rhododendron and mountain laurel then provide patches of green color against the grey-brown hillsides and exposed rock formations.

The river itself provides a constantly changing scene. It follows a varying route over thundering falls and cascades, down raging rapids, around enormous boulders and twisting rock-choked channels, and through narrow cliff-enclosed, deep pools. Rock formations divide, narrow, and concentrate the course of the water. Seldom is a straight section of the river longer than 1/2 mile. The twisting and turning adds interest to the river by creating suspense and anticipation of what is ahead.

On the slower stretches, sounds other than that of the water can be heard and attention is drawn away from the river course. Smooth water reflects images of plants along the bank as well as clouds, sky and ridges. Slow water allows the surroundings to be seen and enjoyed, provides relaxation after the last rapids, and gives time to prepare for the next rapids. Near Highway 28, two long sections of slow, smooth water occur on the River and West Fork.

Most of the waters of the Chattooga are continually broken up with ripples, rapids and whitewater. The sound of water rushing over rocks drowns out all other sound on the faster sections of the river. Many of the steeper cascades and falls can be heard for a long distance before they are seen.

There are two types of fast water--over rapids and over shoals. Rapids create an elevation drop over a long distance, sometimes being forced by rock outcrops into a twisting channel, constantly changing direction, sometimes widening with fast shallow water flowing over rocks. "Shoals" is a local term and are vertical drops in elevation sometimes created by rock ledges and sometimes by large boulders blocking and channeling the river. Large boils below the shoals create turbulent water, often dangerous for canoeists and floaters.

The lower four miles of the West Fork and six miles of the main river from Nicholson Fields to Turnhole differ markedly from the rest of the river. Here the river leaves the steep ridge-enclosed portions of whitewater and enters slow, smooth-flowing sections of water through narrow and then widening valleys. Much of the area along these gently sloping sections is in fields or pastures. Vegetation along the forested portions of these sections is less dense, and one can see into the forest on either side for distances varying from 15-50 feet. The less dense vegetation of these valley sections lessens the feeling of seclusion. While arching over the water in many places, the thinner growth allows easier access to the land.

Looking at the adjacent land along these valley sections reveals many examples of man's influence--farms, pastures, cabins, roads and cars. In many areas, cleared land extends down to the riverbanks. These sections have little of the wild nature of the rest of the river.

H. History and Points of Interest

The Chattooga River flows through an area rich in settler and Indian history and outstanding scenic features. The cultural history of the Chattooga River area extends back beyond the first white settlements in this region. Prior to 1700 this

was the land of the Cherokee Indian. Today the area is still rich in Cherokee history, legends and artifacts. A number of main Indian trails and several Indian settlements were located on or near the Chattooga.

Chattooga Old Town - This was a large settlement of Indians predating the Cherokees. It was destroyed before 1600 by the Cherokees, and was located near the present site of Highway 28 Bridge. This site is now open fields and completely within the proposed area.

Kanuga - Translation "Blackberry Patch." In 1761 John Stuart, Commissioner of Indian Affairs, drew a map of the locations of all the Cherokee Villages in North Carolina, South Carolina and Tennessee. He located 43 villages ranging in size from 20 to 130 braves. The closest of these to Chattooga River was Kanuga, located on Indian Camp Creek. This village was later destroyed by Col. Williamson about 1776. The Cherokees had allied with the British in the Revolutionary War, and Col. Williamson's expedition destroyed the Indians' ability to harass the colonies. The surviving villagers from Kanuga moved into Western North Carolina around Hayesville and founded another village by the same name. The site of this village is outside the Chattooga River corridor but has interpretative possibilities that could provide a complementary feature tied into the Chattooga River.

Indian Trails - At least three Indian trails crossed the Chattooga River.

1. The Kusa Nunnahi--translation "Creek Trading Trail," was a major trading trail between the Creek Nation and the middle Cherokees. This trail parallels the present location of Highway 107 to about two miles from the South Carolina line. It continues around the southside of Ellicott Mountain and down Indian Camp Creek to the East Fork of the Chattooga, crossing the river about one-half mile below the mouth of the East Fork and continuing down the river a short way before it turns west leaving the river.

2. Another Indian Trail crossed at Chattooga Old Town near the present location of Highway 28 Bridge.

3. The third Indian Trail crossed near Earls Ford connecting the large Indian towns of Keowee, 20 miles east of the river, and Stekoa, 10 miles west of the river.

The routes of these old Indian trails can still be traced and are an interesting part of the history of the area.

The Southern Appalachian Region immediately around the Chattooga River was not visited by white men until the early 1700's. The earliest records of settlers visiting this mountainous area are hunter maps of 1730 and 1751.

William Bartram, an early American botanist, crossed the "main branch of the Tugilo" within a few days after May 19, 1775, collecting plant specimens of the Southeastern United States. The "Tugilo" was the Chattooga, and Bartram evidently crossed it near the mouth of Warwoman Creek, travelling a portion of the main Indian trail between the Indian villages of Keowee and Stekoa.

Andre Michaux, pioneer botanist, travelled and collected in the area about 1787 and discovered the rare Shortia plant (Oconee-Bells).

Ellicott's Rock - King George II issued the Georgia Crown Charter in 1732 and set the northern boundary at the 35th degree of North Latitude. Neither Georgia nor North Carolina could agree where the 35th parallel was located. The disputed strip became known as the "Orphan Strip", a refuge for outlaws and other characters avoiding the law of both states. In 1811, Georgia's Governor Mitchell contracted Andrew Ellicott, a surveyor from Pennsylvania, to survey the boundary between North Carolina and Georgia and establish a monument. This was done and in 1813, South Carolina and North Carolina appointed commissioners to establish the line between these two states. They could not find Ellicott's Rock and located another, scribing it with the letters "LAT 35, AD 1813." This rock can be seen today as can the true Ellicott's Rock, which is only a few feet away on the same side of the river. A 3584 acre National Forest Scenic Area was established around Ellicott's Rock in 1966 to protect this historic site and scenic area.

Early Settlement - The earliest known settlement by a white man in the Chattooga River Gorge was near Monroe house where the remains of an old chimney can still be seen. About 50 acres of land was cleared here in 1830. Several other early settler houses were later scattered around Burrells Ford and the present location of Highway 28 Bridge. Streams in these areas still retain some of the old family names.

Black Diamond Railroad, also called the Blue Ridge Railroad, was started in 1853 to connect Charleston, South Carolina, with Cincinnati by way of North Carolina and Tennessee. Construction started in South Carolina and stopped in North Georgia just outside Mountain City. Construction was halted during the Civil War and never continued. The old roadbed is still visible where it crossed the Chattooga and large blocks of granite can be seen that were cut out to form the roadbed. Chisel marks are still visible on the rocks.

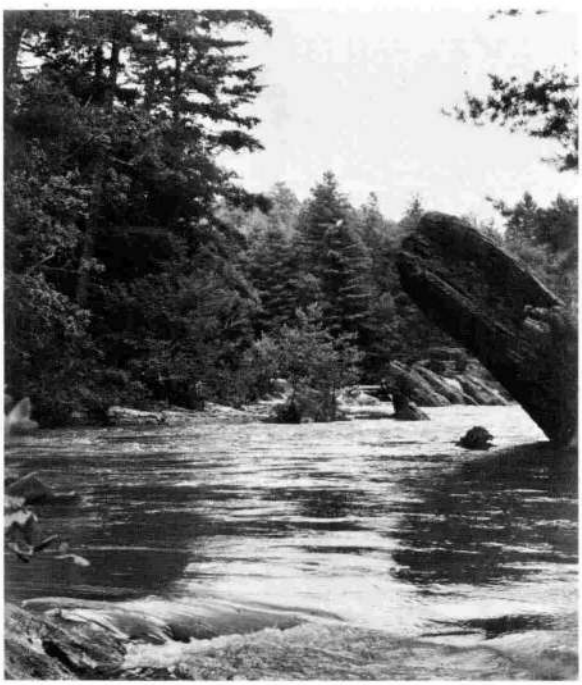
Splash Dams - In the early 1900's the river was used to transport logs to sawmills downriver. The water was not deep enough to transport a winter's harvest of logs, so log splash dams were constructed to hold the logs and dam up the river. In the spring the dams were blown and the logs would go racing downriver to the mills. Remains of these old dams are still visible on the West Fork.

Thrifts Ferry - The remains of an old wooden ferry can still be seen 2.8 miles above U. S. 76 Bridge. It was used in the 1950's to help log the Georgia side of the river.

Old Buncombe Trail - This was a drover's trail from Asheville to Atlanta, used until about 1912. Herds of hogs, turkeys, and some cattle were slowly grazed down to the railhead at Atlanta. The trail more or less follows the old Creek Trading Trail, except that it crosses the river at Burrells Ford instead of farther upstream.

Later History - The Chattooga River area has remained undeveloped since the early days. Today, permanent residences are found only near Grimshawes and Highway 28 Bridges. Many fields in these two areas are now reverting to forest. Almost all traces of early logging within the proposed corridor have disappeared. Only the abundance of white pine, a successional species, indicates that the slopes of the Chattooga River were once logged.

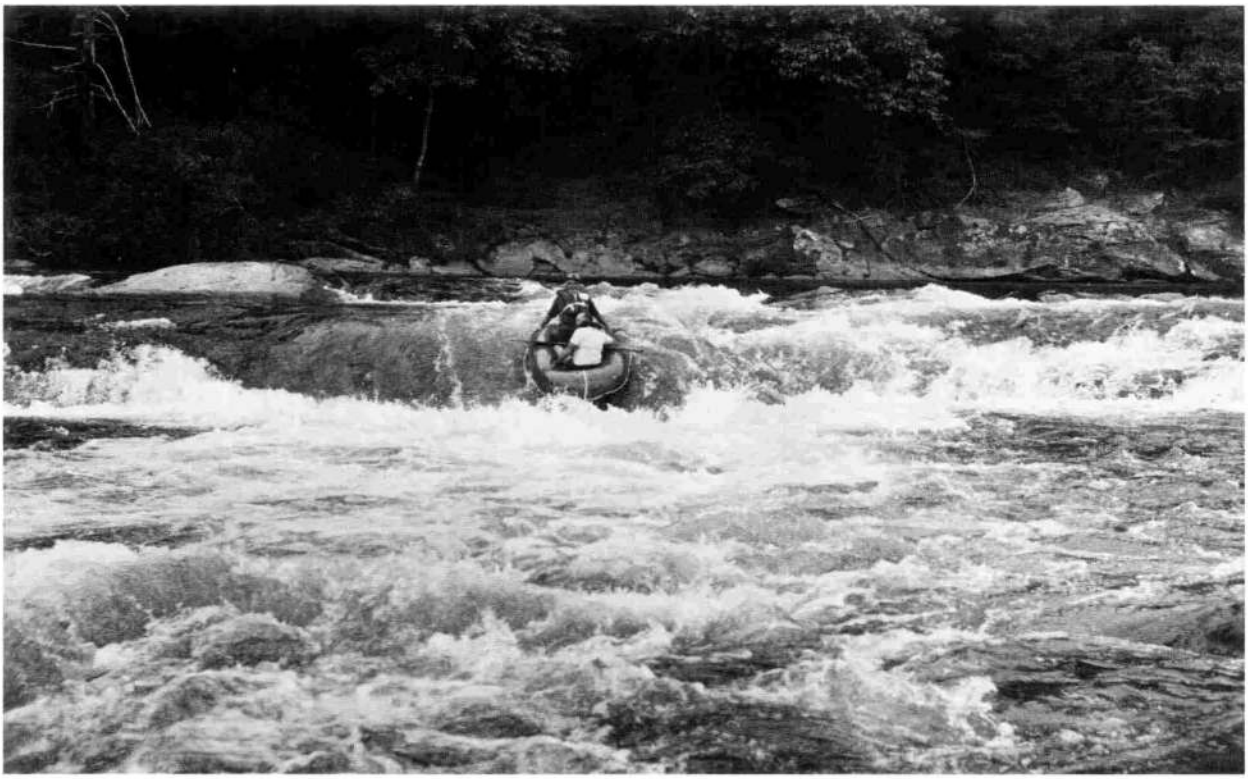
Whitesides Mountain - A monolithic formation with sheer rock walls rising 2000 feet above the surrounding valley floor near the headwaters of the river in North Carolina.

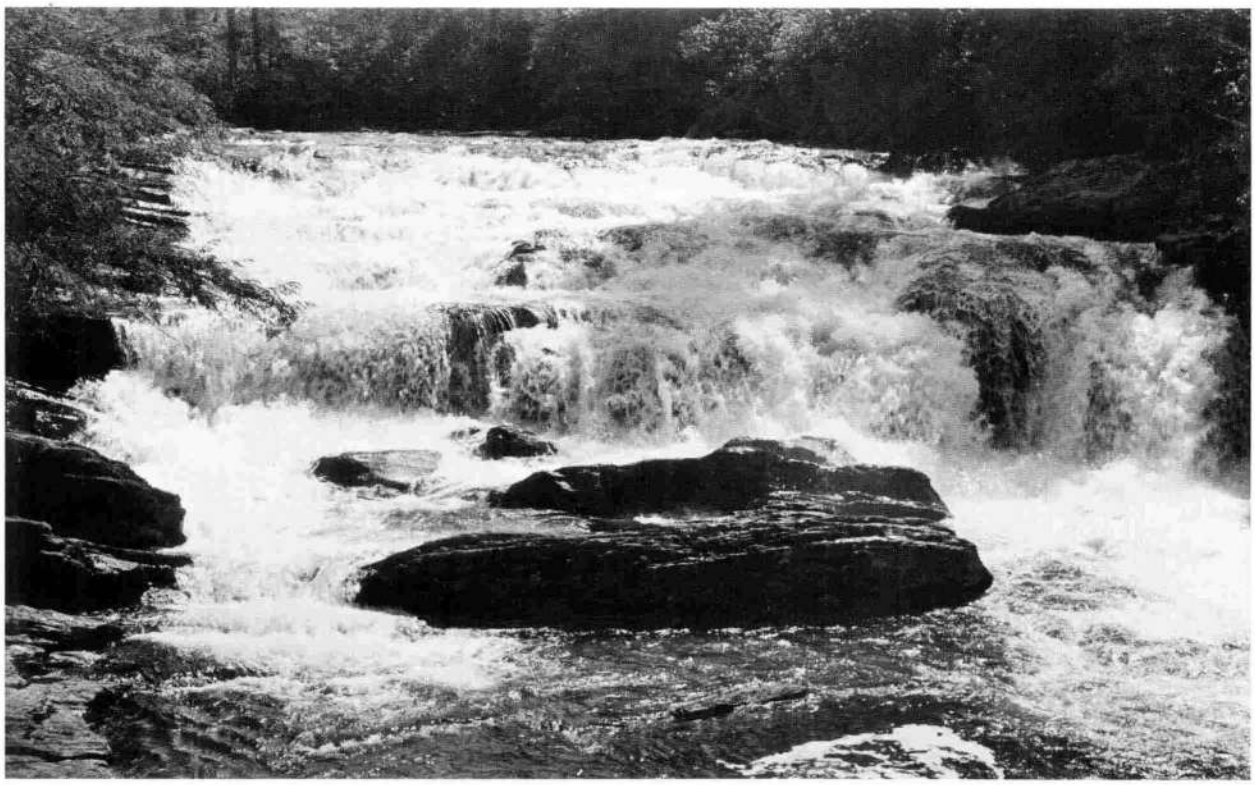


Rock Garden.

Dicks Creek Falls.

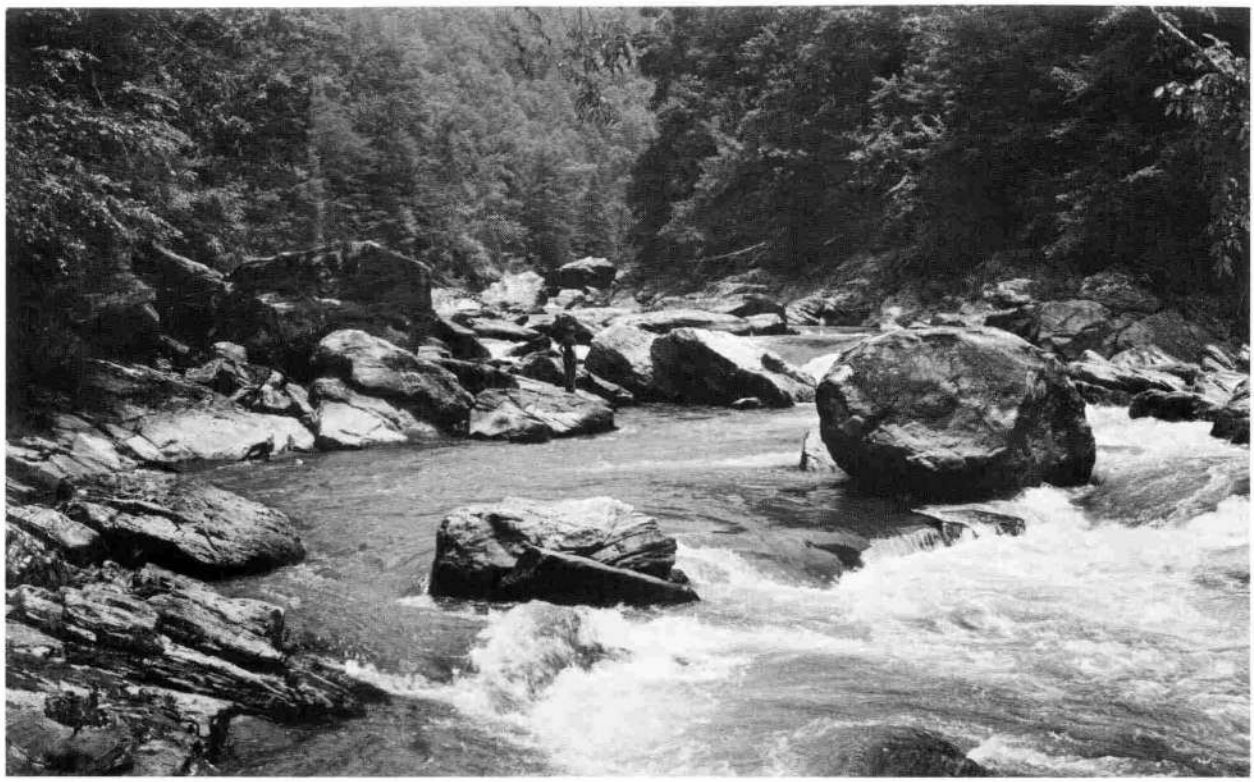
Woodall Shoals.





Big Bend Falls.

Above Sockum Dog Hole.



Silverslipper and Ribbon Falls - Two small but spectacular waterfalls, cascading 150 feet and 75 feet respectively, down steep mountainsides on the extreme headwaters of the Chattooga River.

Corkscrew Falls - The largest free-falling falls on the River, dropping 25 feet vertically into a deep pool.

Chattooga Cliffs - A series of prominent smoothfaced granite outcrops exposed 400-600 feet above the river, continuing at intervals between 2,800 and 3,300 feet elevation from Bearpen Mountain to Polly Mountain.

Big Bend Falls - A series of cascades and two small falls dropping almost vertically for 12-20 feet over a rugged stretch of white water.

Rock Gorge - The steepest portion of the Chattooga River Gorge. High forested ridges rise 200 feet above the river, and huge boulders constrict the river into a narrow, mile-long channel over a continuous succession of rapids, cascades and white water sluices.

Big Shoals - The river divides here around a large low boulder and down a five foot ledge through boiling white-water.

Rock Garden - A series of spectacular rock formations. The geologic strata has been tipped 45° from horizontal, with softer layers eroded away. This has left large slabs of rock sticking up to 25 feet out of the river at a sharp angle.

Dicks Creek Falls - The most classically beautiful falls along the river, dropping 50-feet over a steep ledge into the River.

The Narrows - Here the surging waters of the river are squeezed between rock walls into a deep, narrow, fast moving channel less than six feet wide.

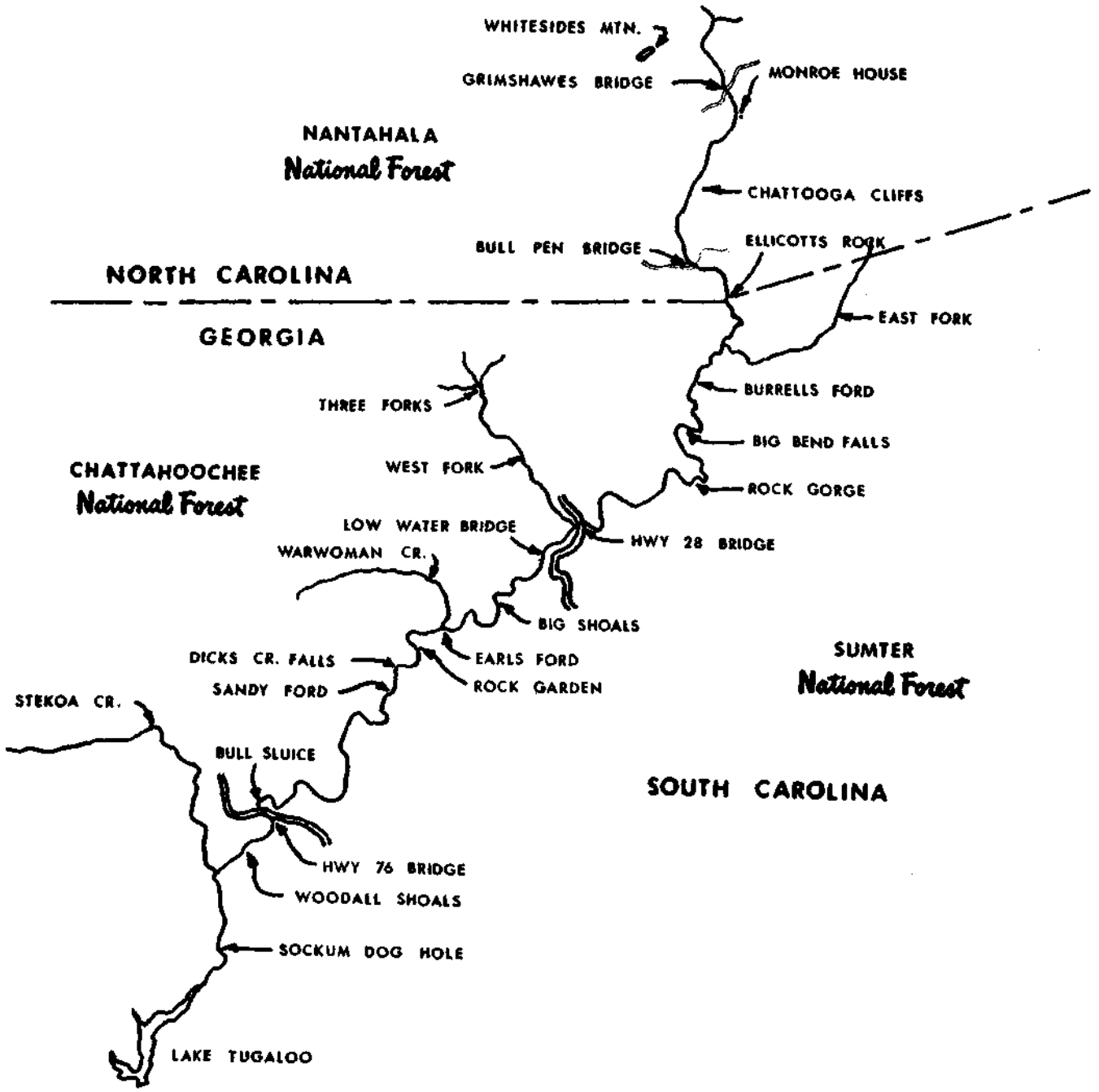
Bull Sluice - a 10-foot high falls dropping over a large rock formation in the river.

Woodall Shoals - A large rock shoals above an eight foot cascading falls and a twisting turbulent rapid.

Raven Rock Cliffs - Steep rock cliffs on the South Carolina side rising 200 feet above the river, partially overhanging it.

Sockum Dog Hole - A shoals directly above a large boil followed by long treacherous rapids. Not far below this, the river empties into Lake Tugaloo.

Points of Interest



VII PRIMARY CONSIDERATIONS

A. Socio-Economic

1. Recreation

As a component of the National Wild and Scenic Rivers System, the Chattooga River will attract visitors from the entire United States to the river and surrounding area. This will have a direct affect on the local economy because of the need to furnish goods and services for an estimated 139,000 visitor-days of recreation use. The broader effect should be that the Chattooga will serve as a drawing card to the general area and will focus attention on the many other outstanding features in the Georgia-North Carolina-South Carolina mountain area. This can have an effect on the local economy much greater than the river alone.

On the river itself the greatest increase in recreation use will occur in hiking, floating--including canoeing and rafting--and primitive camping. Though canoeists come from many miles to enjoy the whitewater found on the Chattooga, those who have come in the past have learned about it primarily from word of mouth. Including it in the National System will increase the number of canoeists who know about the Chattooga and its canoeing challenge. This will attract many more than have come in the past. Hiking, because of a lack of trails, is still a minor activity along the river. Proposed trails will provide more hiking opportunity for those who would like to see the Chattooga River. Primitive camping in connection with hiking and canoeing will increase. Including the Chattooga River in the National System is not expected to have a great effect on the hunting and fishing use of the area. These uses are expected to increase in direct proportion to the hunting and fishing use of the surrounding area.

Of the two principal alternatives for use of the Chattooga, from the recreation standpoint, Wild and Scenic River status is considered to be more desirable than development with dams. In the entire Southeastern United States, only four rivers were designated in the National Wild and Scenic Rivers Act for study for possible inclusion in the system. The study rivers are the Suwannee in Flordia and Georgia, a slow-moving coastal plains river; the Obed in central Tennessee, flowing through hill country, and the Buffalo River in Tennessee, also flowing through hill country. The Chattooga River is the only one proposed in the Wild and Scenic Rivers Act that flows through the Southern Appalachians and has true whitewater canoeing opportunities.

Additional river impoundments will increase an already plentiful recreation resource.

There are 21 major lakes within a few hours driving time of the Chattooga River. Four more lakes would only add to this already large supply of one recreation resource. Other new lakes are planned and with the construction of each new lake, there is one less free-flowing river or part thereof, for future generations to enjoy. In short, the future outlook is for more lakes and fewer free-flowing rivers.

Including the Chattooga in the National Wild and Scenic River System would provide an estimated 81,600 visitor-days 1/, of canoeing and hiking each year and a total of 139,200 visitor-days of recreation use. Planned recreation improvements, including trails, portages, campsites and launching sites, would cost an estimated $600,000. The fifth year of operation administrative cost, including cleanup and management of the river, is estimated to be $145,000. Major benefits other than recreation would be the preservation of the Chattooga as a free-flowing stream for coming generations along with the preservation of rare plant communities.

Development of the Chattooga River with four dams as proposed in the Southeast Basins Report would cost an estimated $136,900,000*. The cost of recreation improvements around these four lakes would be $1,400,000*. These investments would provide an additional 3,738 acres of boating waters not now available on the Chattooga River. They would also provide an estimated 260,000 user days of recreation on the lakes with an additional 1,770 user days attributed to fish and wildlife. Annual administrative costs for this development would be $873,000* for powerplant operation and $71,000* for recreation administration for a total of $944,000*. In addition to public recreation opportunity, the development of these lakes would create private recreation residence opportunity around the shoreline to an estimated 200 additional recreation residences with an estimated cost of $2 million. These expenditures would no doubt have a large impact on the local economy. The flooding of 3700 acres of existing fish and wildlife habitat would be a definite loss to the area. Mitigation as now practiced cannot replace this ecosystem. In addition to the recreational benefits, power development would generate electric power estimated at $9,228,000* per year.

*1960 Dollars

2. Agriculture-Commercial-Industrial-Municipal

Water from the Chattooga is not used for irrigation or other agricultural purposes, and the old farmlands included within the proposed river corridor are growing up in young forest or will be maintained in pastoral use. Including the Chattooga River in the National Wild and Scenic Rivers System will have little effect on existing or future agriculture along the river.

1/ A visitor-day consists of 12 visitor hours.

Of the 15,143 acres within the river corridor the Forest Service administers 7,138 and 8,005 acres are privately owned. Ellicott's Rock Scenic Area has 713 acres within the river boundary that is permanently reserved from timber harvest. This leaves 6,425 acres of Forest Service commercial forest land. Of the 8,005 acres in private ownership 7,649 are classed as forested. The following are estimates of the volumes and values at present market prices for all the timber within the proposed river boundary.

Acres in Proposed River Corridor

	N.F. less Scenic Area	Ellicott's Rock Scenic Area (N.F.)	Private	Total
Georgia	3,478	97	4,311	7,886
South Carolina	2,068	491	2,024	4,583
North Carolina	879	125	1,670	2,674
	6,425	713	8,005	15,143

National Forest Land (minus Scenic Area)

Sawtimber

	Acres		Vol./Acre in MBF*		Total Vol.		Value/MBF*		Total Value
Georgia	3293	x	5.5	=	18.1 MMBF	@	$45	=	$814,500
South Carolina	1577	x	3.0	=	4.7 "	@	40	=	188,000
North Carolina	879	x	2.3	=	2.0 "	@	35	=	70,000
					24.8 "				$1,072,500

Pulpwood

	Acres		Cords/Acre		Total Vol.		Value/Cord		Total Value
Georgia	3293	x	3.3	=	10.9 M Cds.	@	$.62	=	$ 6,758
South Carolina	1577	x	4.0	=	6.3 "	@	.75	=	4,725
North Carolina	879	x	3.3	=	2.9 "	@	.58	=	1,682
					20.1 "				$ 13,165

*MBF = Thousand Board Feet

Private Lands

Sawtimber

	Acres		Vol./Acre In MBF*		Total Vol.		Value/MBF*		Total Value
Georgia	3751	x	2.0	=	7.5	@	$30	=	$225,000
South Carolina	2283	x	1.9	=	4.3	@	25	=	107,500
North Carolina	1615	x	1.5	=	2.4	@	25	=	60,000
	7649				14.2				392,500

Pulpwood

	Acres		Cords/Acre		Total Vol.		Value/Cord		Total Value
Georgia	3751	x	5.0	=	18.8M Cds	@	$.62	=	$ 11,656
South Carolina	2283	x	5.0	=	11.4 "	@	.75	=	8,550
North Carolina	1615	x	5.0	=	8.1 "	@	.58	=	4,698
					38.3 "				$ 24,904

*MBF = Thousand Board Feet

Combining both National Forest and private land, but excluding Ellicott's Rock Scenic Area, gives a total commercial forest land acreage of 13,398 acres with present timber value of $1,503,069.

Although timber harvest has occured in the vicinity, the proposed corridor is of minor importance in commercial timber production. The steep slopes near the river limit timber harvest under present logging techniques. If timber harvesting is restricted in the corridor the affect on the forest products industry will be slight, if any. Any potential loss of timber to the industry, even under future logging technology, can best be replaced by more productive and accessible timberlands.

Existing and future needs for hydro-power are discussed in Chapter V-F of this report. Except for potential reservoirs, there are no commercial, industrial, or municipal uses of the river that would be foregone if it becomes a Wild and Scenic River. There are no commercial fishery uses of the river.

The resort village of Cashiers on the extreme upper headwaters is the largest established community near the river and the rugged terrain and landownership pattern along the river may preclude future municipal development. Private lands along the Chattooga can be expected to become heavily developed in

private summer homes in the future, rather than in industrial or commercial development, if the river is not included in the National Wild and Scenic Rivers System. Only the lands directly along the two paved highways--Highway 28 and U. S. 76--are vulnerable to commercial or industrial development, and there are no known plans for immediate development of these lands.

Except for U. S. Highway 76, major travel routes in the Chattooga River vicinity are all north-south between the mountains and Piedmont and do not cross the river. The east-west roads and highways crossing the Chattooga are used mostly by local residents. The three State Highway Commissions have no plans to construct interstates or additional highways or expand existing highways across the Chattooga.

Utility needs for this area are generally in place, and little need is seen for expansion. Wild and Scenic River status and scenic easements will limit future development within the river boundary.

According to the reports of the Corps of Engineers, Resources Advisory Board, and Federal Power Commission there are no flood control benefits to be foregone if the Chattooga is included in the National Wild and Scenic Rivers System. The Chattooga flows almost entirely through forested, undeveloped country and potential reservoir sites on the Chattooga would offer no flood control advantages. The waters of the Chattooga flow directly into Tugaloo Reservoir and then into Hartwell Reservoir. These two hydro-power reservoirs provide sufficient flood protection for the lands along the Savannah River.

3. The People and Their Way of Life

The steeply mountainous lands through which the Chattooga River flows have severely limited development and have had a profound effect on the people and economy of the area. Except for the resort village of Cashiers on the extreme upper headwaters and a small area of summer homes at Highway 28, all development and population is located many miles away from the river in narrow fertile valleys between the main mountain ranges and cross ranges and in the lower elevation Piedmont. The mountains have isolated the river from past development and prevented concentrations of population from locating near the river.

The lands directly along the river were not settled even in early settler and Cherokee Indian times. The Cherokees used these lands only as hunting grounds. Major Cherokee villages were 20 miles east and 10 miles west of the river.

The quest for gold in the 1700's brought many of the first white settlers into the area. One early gold mine was located on Ammons Branch about two miles from the Chattooga. It yielded only a small pocket of gold and was quickly exhausted. Gold mining declined in a short period of time; and the settlers that remained turned to agriculture, locating villages and farms away from the river in the valleys between the main mountain ranges. Most of these farms were small, with many located on steep hillsides. Poor practices and eroding lands gradually reduced most of these mountain farms to little more than bare subsistence farming.

In the late 1800's and early 1900's, the large sawmill companies began buying up the wild mountain lands throughout most of the Appalachians. The "cut-out and get-out" era that followed saw boom times with jobs, roads, railroads and progress, followed closely by economic depression as the sawmills moved on. Most of the Chattooga Drainage was completely cut over with no provision for reforestation. Uncontrolled fires and erosion caused loss of the protective forest-humus cover on many watersheds in the area, and destructive floods plagued many of the communities in the Appalachians. The 1911 Weeks Law authorized the Forest Service to buy lands throughout the United States for watershed protection, and much of the mountain lands for miles around the Chattooga became part of the three National forests. Through reforestation programs and fire protection by the Forest Service, these lands have been restored to a forested, productive condition.

Major transportation routes and settlement continued to follow the valleys to the west, north and east, beyond the river. As farming slowly declined in the four counties around the Chattooga, poultry production emerged in the 1930's as a profitable enterprise, and small chicken farms increased through the 1940's. This profitable industry attracted large feed companies, and disastrous price wars became widespread. The small farmer was unable to compete, and the large feed manufacturers became dominant by the 1960's. Development continued to bypass the steep mountainous lands along the Chattooga.

As farming slowly declined, large numbers of people left these rural counties, attracted by jobs and wages in urban areas. An increasing number of textile and small manufacturing plants settled in these counties and helped offset this migration from the rural counties to the cities.

The people of these counties are predominantly native-born descendants of farmers, craftsmen and small merchants. A high percentage of the people are unskilled. Minimum wage requirements and high costs of production forced many industries in these counties to substitute machines for men and to change skill requirements. Much of the farm and unskilled labor from these areas has found it difficult to obtain employment. An increasing labor pool of unskilled and semi-skilled workers has resulted.

Economic and population data for the four counties around the river are nearly meaningless when applied directly to the drainage area of the Chattooga. The river flows in near isolation through some of the most rugged country in the Southern Appalachians. The physiographic, social and economic isolation of the Chattooga River is a strong factor favoring establishment of a wild and scenic river here.

As farm employment has dropped and manufacturing employment has increased and changed its skill requirements, tourist-oriented businesses in these counties have experienced a remarkable accelerated growth. The same mountain ranges and cross ranges that have isolated these counties and restricted development in the past, are now recognized as major tourist attractions, attracting vacationers from all over the Southeast.

Current Economic and Population Situation

Macon and Jackson Counties in North Carolina and Rabun County in Georgia are included in the Appalachian depressed area region. Oconee County in South Carolina, while not experiencing boom conditions, is not included.

The average population of these four counties increased 3.4% in the 10 years between 1960 and 1970.

U. S. CENSUS OF POPULATION*

	Land Area in Sq. Mi.	Total Pop. 1970	Total Pop. 1960	Population Loss or Gain
Jackson, N. C.	495	20,486	17,780	+2706
Macon, N. C.	517	14,873	14,935	- 62
Rabun, Ga.	369	7,656	7,456	+ 200
Oconee, S. C.	670	40,088	40,204	- 116

*Source: U.S. Department of Commerce, Bureau of the Census 1970.

Oconee and Macon Counties in South Carolina and North Carolina respectively, had a population loss of 178 persons during the 1960 decade. Jackson County, N.C. was the only county of the four that had an appreciable increase in population.

The population character of Rabun County, Georgia, and Macon and Jackson Counties in North Carolina is experiencing some change. Some immigration is occurring to these counties from Florida, southern South Carolina, and southern Georgia, as well as from the midwest and northeast. This immigration is made up primarily of retired persons and technical and administrative personnel employed by the increasing industrial development in the Little Tennessee Valley in Macon and Rabun Counties. The beginning of industrial development in southern Oconee County, South Carolina, is having a similar influence on the population there.

Macon and Jackson Counties, North Carolina

The counties around the Chattooga all have widely varying economic and population characteristics. The portions of Macon and Jackson Counties around the river in North Carolina includes the Highlands Cashiers area. This area has been famous as a destination vacation area for many years--as early as 1800, exclusive summer homes and vacation inns were located here. Highlands, North Carolina--highest incorporated town east of the Rockies--and Cashiers, North Carolina, are known throughout the Southeast for their cool summer climate, waterfalls, clear mountain streams, lakes and spectacular mountain scenery. Over 300,000 tourists visit the area during the peak vacation period from June 1 through Labor Day and an additional 15,000 summer home people visit and live in the Highlands area during this period.

Private vacation developments include golf courses; a ski course; expensive resorts and vacation inns featuring private lakes; trails and riding stables; gift shops, and a concentration of high priced summer homes approaching suburban residential proportions. The few additional commercial developments within the area are entirely of a service type and include several grocery stores, drugstores, gas stations and restaurants. During late fall, winter and early spring, most of the resorts and several of the commercial developments are closed, and summer homes are vacated until warmer weather. The population of the Highlands area drops to 600 in the winter months.

Visitors to this area come to relax and enjoy the cool summer climate and spectacular scenery away from the pressures of urban living. Most resorts here are of the comfortable country-inn type featuring excellent food and plenty of room for relaxation in a rustic atmosphere. Although relaxation is probably the most popular recreation activity here, other outdoor activities such as golfing, hiking and horseback riding are also popular. Most vacationers to this area are well-educated and many are extremely interested in studying and observing the flora, fauna and geologic history of the area. One of the most popular Forest Service activities in the area in recent years has been a weekly lecture by

the District Ranger at the local Museum of Natural History, followed by a guided auto tour through National Forest lands. Many visitors to the area visit National Forest observation sites and swimming and picnicking areas. Forest Service campgrounds provide facilities for the more adventuresome, as well as families of more modest means.

Private resort and summer home development within this area has been of appropriate design and construction. This is one of the few vacation areas that has not suffered from a blight of gaudy drive-ins, wild west shows, caged bears, snake gardens and other enterprises of this type.

Establishment of a wild and scenic river will generally be welcomed by the private sector in this area.

Rabun County Georgia

Although not yet as popular and exclusive as the higher elevation Highlands-Cashiers area to the north, Rabun County, Georgia has been noted for many years as a vacation area that serves a large number of pass-through travelers, summer cottage residents, and visitors to the county's many summer inns and hotels. Rabun County's economy is based partly on farming and new industry, but tourism is fast developing as one of its major industries.

The county seat is Clayton, located seven miles west of the River on heavily travelled U. S. Highway 441. Ninety-two percent of Rabun County is forested, and the majority of development is centered along a broad valley separated from the Chattooga by steep mountains.

U. S. 441 is a major travel route between the northern U. S. and Florida. Several modern motels and service stations catering to the pass-through traveller, have located in the Clayton area along U. S. 441.

There are several summer hotels still in operation which serve a substantial vacation-recreation travel trade. These are similar to the quiet country inns in the Highlands-Cashiers area and are noted for their excellent food and comfortably rustic atmosphere.

The new Kingswood Country Club near Clayton represents a new trend in economic development for Rabun County. This development features a golf course, club house, restaurant and motel accommodations in a well-designed, exclusive atmosphere.

"Agriculture plays a small role in the economy of Rabun County. In 1964 there were 316 farms which averaged 95.5 acres each. The value of farm products sold was $833,486. The principal agricultural products are poultry, livestock, corn, grain and garden vegetables. In the manufacturing sector of the county's economy, wood and wood products, shirts, steel furniture, aircraft parts, carpets, and stone products are produced. There are 75 travel-serving establishments in the county.

Development potential for the county lies in expansion of its accommodations to attract more destination travellers and provide additional services and facilities to detain the pass-through traveller on U. S. 441." 2/

Inclusion of the Chattooga River within the National Wild and Scenic Rivers System would provide a major attraction assisting Rabun County's expanding travel industry.

Oconee County, South Carolina

Oconee County differs from the counties of North Carolina and Georgia that surround the river. Only a small area of mountains encloses the Chattooga River in South Carolina and this is almost entirely in National Forest. Most population and development is located beyond this fringe of mountains in the Piedmont Province. Oconee County has no major tourist or vacation industry, but construction of the Keowee-Toxaway Reservoir and inclusion of the Chattooga in the National Wild and Scenic Rivers System will create a demand for supporting travel-serving development.

Present industrial developments in this county are mostly small, neat fabricating and assembly plants located primarily along U. S. 123 in the vicinity of Westminster, Seneca and Clemson. The central part of Oconee County is a broad plateau of economic development. Good land use practices, primarily pasture for livestock, have generally replaced row crop farming in the area.

In 1970, Oconee County had a total population of 40,088 within a land area of 670 square miles averaging 60 people per square mile. This is twice the population density of the counties of North Carolina and Georgia around the river. This is due to more suitable development acreage within the Piedmont part of the county and a large increase in urban population within the county. Urban population increased 28% and rural population decreased 2% between 1960-1970.

2/ Buchanan, W. Wray, "The Vacation/Recreation Travel Industry in Rabun County", University of Georgia.

Increasing emphasis on attracting industry into the State has been a primary factor increasing the urban population of this county. South Carolina's past economy was based on agriculture. As the profitability of farming declined and people migrated from their farms, South Carolina responded by offering substantial incentives for businesses to locate plant facilities in the State. The result has been a shift from an agrarian to an industrial economy, from a rural to an urban population. New businesses have brought many of their own people with them into South Carolina, and many more original residents have remained in the State because of job opportunities.

The people of South Carolina have a median age of 23.4 years, the third lowest in the Nation; the National average is 29.5 years. The low median age is a result of the low marriage age, large out-migration in older age brackets, and the recent influx of young families arriving to fill the State's growing industrial employment needs. Median family size in South Carolina was 4.11 persons in 1960, down from 4.19 in 1950. Per capita income increased 60% between 1955 and 1965 as a direct result of the rapid industrialization of the State. Median incomes of non-farm laborers increased 33% between 1950-1960 while farm laborer income suffered a 2% drop. This trend will continue to induce increasing numbers of people to leave their farms and take jobs in industry. Results of this transition will be increased urbanization and suburbanization, higher personal incomes and increased leisure time. These will lead to a high increase in demand for outdoor recreation opportunities.

4. State Coordination

There are no existing interstate compacts concerning the Chattooga River. The South Carolina and Georgia Game and Fish Commissions recognize and accept either of the two State fishing licenses on the main river, since they share it as a common State boundary. All three State Game and Fish Commissions are studying the need for similar fishing seasons, bag limits, bait requirements, and complementary trout stocking and fish management programs for the Chattooga.

Since the river is shared by all three States there is a need for similar water quality classification standards and a coordinated pollution prevention program. The State water quality organizations share with the Environmental Protection Agency the joint responsibility for setting and enforcing water quality standards and for monitoring the water quality of interstate rivers. All of these organizations have cooperated with the Forest Service in determining if there are existing pollution problems on the river and in studying the adequacy of the present Federal/State standards. The

three State organizations have responsible water quality and pollution control programs, but their continued cooperation is needed to assure that the Chattooga can remain suitable for all wild, scenic and recreation river uses in the future. While joint Federal/State standards approved for each of the three States for the Chattooga meet the wild and scenic rivers criteria some differences exist, particularly temperature and coliform bacteria criteria. The Environmental Protection Agency is currently reviewing these standards with the States so that these differences can be resolved.

Georgia has the largest watershed area draining into the Chattooga including tributaries from populated areas. The Georgia Water Quality Control Board has worked closely with the City of Clayton, Georgia to clear up the pollution problem on the Stekoa Creek.

B. Other Viewpoints

Support for including the Chattooga River in the National Wild and Scenic Rivers System has been almost unanimous. Two public meetings were held as part of the Chattooga River Study. In December, 1969, the "Public Listening Session" was held in Highlands, North Carolina, to gather factual input information about the river area and opinions on management as a wild and scenic river. When sufficient information had been assembled and analyzed, a "Proposal" was prepared and reaction to it sought at a "Public Meeting" at Clayton, Georgia in March, 1970. In each case, the record was held open for 30 days for additional statements after which a complete record was assembled and analyzed. The record, including oral statements and written statements received by mail, contains over 1,000 statements from over 1,500 people, organizations and government agencies. Only three individuals and one private hunt club opposed including the river.

Support for the proposal came from 12 governmental agencies, 50 private organizations, 15 petititions (over 500 signatures), and over 900 individuals. Several responses indicated disagreement with parts of the Proposal. As a result of the additional information submitted for the record, and heavy public opinion, some of the recommendations of the Proposal were changed for the final report.

VIII ANALYSIS OF ALTERNATIVES

The study identified three alternatives for future use of the Chattooga River.

1. Maintain the status quo - let uncoordinated development and use continue as it has in the past.

2. Develop the river for hydroelectric power.

3. Include the river in the National Wild and Scenic River System.

A. The Status Quo

Future development of the river and adjacent lands without coordinated planning would probably result in:

1. Maximum development of private lands for summer homes.

2. More public camping facilities constructed by the Forest Service.

3. Further encroachment on the river shoreline by jeep roads.

4. Increased use of river shorelines by fishermen and boat campers resulting in litter accumulation and site deterioration.

5. An increase in sources of potential river pollution.

6. A continuation of logging practices on National Forest and Georgia Power Company lands.

B. Hydroelectric Development of the River

There have been four proposals for hydroelectric development of the river.

	Agency	Report	Date	Dams Proposed
1.	Corps of Engineers (COE)	House Document 64 74th Congress	1/1935	5
2.	Corps of Engineers (COE)	House Document 657 78th Congress	6/1944	4

3.	U.S. Study Commission Southeast River Basins (SERB)	Senate Document 51 88th Congress	9/1963	4
4.	Federal Power Commission	Hydroelectric Power	12/1969	3

Analysis of these four proposals for Chattooga River hydroelectric development indicates that three of the four are incompatible with Wild and Scenic River status. Only the FPC proposal considered partial development. The other proposals were for dam site systems, since each reservoir and power plant depends on water release from other reservoirs for its efficiency.

Basically the four proposals involve six dam sites:

Report	Dam Site	Location (River Mile)
FPC	1. Cashiers	46.9
COE - '35	2. Warwoman	21.2
COE - '44	Warwoman	20.3
SERB	Warwoman	20.4
COE - '35	3. Sandbottom	18.2
COE - '44	Sandbottom	17.5
SERB	Sandbottom	17.7
FPC	Sandbottom	17.7
COE - '35	4. Rogues Ford	11.1
COE - '44	Rogues Ford	11.1
SERB	Rogues Ford	11.0
FPC	Rogues Ford	11.3
COE - '35	5. Long Creek	7.3
COE - '35	6. Camp Creek	4.9
COE - '44	Camp Creek	4.9
SERB	Camp Creek	4.9
FPC	Oppossum Creek	4.9

A series of dams on the Chattooga River would so seriously segment, reduce the length, and regulate flows of remaining reaches as to eliminate river character. The upper non-floatable reaches (Sec. I and II) cannot stand alone:

Free-Flowing Reaches (Miles)

Report	Between Reservoir Reaches	West Fork	Sec. I & II
COE - '35	0.6	3.3	19.7
COE - '44	0.6 to 3.5	-	21.4
SERB	0.6 to 2.9	0.0	20.4
FPC	0.6	3.3	14.4 1/

1/ Section II below the Cashiers project.

The one variation to the system's proposals was presented by the Federal Power Commission. Its Cashiers proposal could operate as an independent pure pumped storage facility. The 330 acre forebay would be on Little Whitewater Creek, a tributary of Whitewater River, Keowee River Basin. The afterbay would be a 450 acre impoundment on Chattooga River at river mile 46.9.

This installation would eliminate from Wild and Scenic River consideration the upper seven miles of the study river. Ecological change caused by transfer of water between drainages hasn't been explored. Installed capacity would be 550,000 kilowatts. With this reservoir, part of the Southeast (Region III) would have 4% of additional peaking capacity needed by 1990, and the Nation could have part of a river undammed but with regulated flow. Without the reservoir, an entire river can be retained for the Nation in free-flowing condition.

As a part of the Chattooga River Study, the Resources Advisory Board, Southeast River Basins Staff, Atlanta, Georgia, summarized the U.S. Study Commission's Southeast River Basins Report and commented on its proposed hydroelectric developments (Memorandum dated November 14, 1969, in Appendix C). Both the Southeast River Basins Staff memorandum and the Federal Power Commission proposals give information on the electric power needs for the Southeast. According to the Resources Advisory Board Report:

> "The per capita use of electricity in the SERB area in 1959, amounted to about 3,000 kilowatt hours, which was below the average for the southeastern region, which in turn, was below the national average.
>
> "Energy requirements in the SERB area in 1959 totaled about 15 billion kilowatt hours with a demand of about 2.9 million kilowatts. Hydroelectric plants generated about 3 billion kilowatt hours that year and had a peak capacity of nearly 900 thousand kilowatts.

> "By 1975, electrical energy requirements in the SERB area are projected to 49 billion kilowatt hours with a demand of about 9.1 million kilowatts. By 2000, total electrical requirements in the SERB area are expected to reach at least 119 billion kilowatt hours with a demand for about 22 million kilowatts of capacity. Per capita use is expected to be at least 11,700 kilowatt hours annually."

In their reports both the Resources Advisory Board and the Federal Power Commission indicate that the Chattooga River could help meet the power generation demands for the Southeast by the year 2000. In its conclusions on the Savannah Basin, the U. S. Study Commission on page 5-2 of its report indicates "(7) Hydroelectric Power Development included in the 12 reservoir projects of the plan would meet only a portion of the estimated needs to the year 2000 for electric capacity and energy. The remaining needs can be supplied by thermal plants in the basin or in nearby areas. Some of the future capacity requirements probably can be met by pump storage which is made possible by the fact that the larger reservoirs in the plan would join one another."

The FPC report concludes that: "Nearly two million kilowatts of installed capacity including both conventional hydroelectric and pumped-storage installations in the Chattooga River basin, appear feasible for single purpose development. This latter capacity would help meet the need for future peaking capacity but it represents only a minor part of the total Region III needs by 1990." (Underlining added.)

No attempt is made to minimize the need to develop more electrical power generating capacity in the Southeast. Not in question is the projected demand for 9.1 million kilowatts capacity by 1975 or for 22 million kilowatts capacity by 2000. Most of the energy requirements of the Southeast River Basins area in the 1960's were met from steam-electric generating sources. Now pumped storage generation is emerging to an increasing extent as a means for meeting peak loads of relatively short duration. Power for peak loads cannot be provided by steam electric plants.

Engineering know-how for electric power generation has increased rapidly over the past few years, as indicated by an analysis of the proposals made for development of the Chattooga River.

Though the river itself has not changed since 1935, the potential for power generation by the river has increased through the different development proposals.

Proposal	No. of Dams	Installed Capacity (Kilowatts)
COE - '35	5	75,300
SERB - '63	4	366,000
FPC - '69	3	3,000,000

If increased engineering know-how can increase the potential of this river, it can probably increase the potential of other rivers. One example of this is the Duke Power Company's Keowee-Toxaway power complex. The U. S. Study Commission, which considered only hydroelectric potential, estimated that the Jocassee and Newry-Old Pickens projects would have an installed capacity of 300,000 kilowatts and an average annual generation of 170.9 million kilowatt hours. Within the area covered by those two projects, Duke Power Company has, and will expand, facilities including pump storage and steam stations to provide 10,480,000 kilowatts.

Resources Advisory Board, SERB advises that:

> "Part of the additional capacity required to meet the increasing electric load may be in nuclear-fueled plants. Advances in the use of fuel cells, thermal-electric, solar and other types of devices to convert heat to electric energy have been made. With further experimentation, development, and improvement some type of direct conversion unit may become competitive with the present steam-electric central station plant for base load operations. Nuclear-fueled plants have recently become more competitive with conventional steam-electric plants.
>
> "Developments in the application of aircraft-type jet engines as prime movers of electric generators indicate that they have a potential for peaking purposes. The initial cost per kilowatt is considerably less than conventional thermal plants, thus reducing fixed charges. The plants can be fully-automated reducing operator costs offsetting to some degree the high costs of fuel. These installations have further advantages of site, location, cooling water requirements, and load availability. One major disadvantage is the problem of noise suppression."

Georgia Power Company has four hydroelectric power plants on Tallulah River and two on Tugaloo River with a combined installed capacity of 166,420 kilowatts. This same installed capacity was reported for these six plants in the Corps of Engineers Report of 1935. These plants were built some years before that. As electric power generating capacity, especially from hydroelectric plants, becomes more critical in the future, modernizing of these six plants could possibly provide not only the additional generating capacity now estimated for the Chattooga but much more.

This type of expansion of design for other projects could probably offset the unavailable generating capacity of the Chattooga River.

In theory, the generating capacity of the Chattooga River cannot be replaced in any way by the year 2000. If the Chattooga must be developed for hydroelectric power by that date, the question then arises--where will the additional power for the year 2001 come from? Concerned public and private power entities are concerned about that now, in view of the doubling of use of electricity in the Southeast every eight to ten years. That is why they are reluctant to forego the option of reserving sites for peaking purposes.

This Study finds that the Chattooga River can supply a minor part of the electric generating capacity needed for the future. It can also play an important role in supplying intrinsic Wild and Scenic River benefits to the people of the United States.

C. Wild and Scenic River System

Designating the Chattooga River a part of the National Wild and Scenic River System would preserve--

--a free-flowing river in a natural condition. It is one of the few remaining rivers like this in the southeastern United States.

--a river with sufficient volume and flow to allow full enjoyment of river-related recreation activities. These activities like fishing, whitewater canoeing and hiking and camping along the river will enchance the recreation opportunities for many people in an area where river-oriented recreation is scarce.

--a river with unpolluted waters safe for human contact and capable of supporting many forms of aquatic life. A rare river ecosystem, free of pollution like the Chattooga will provide a source for scientific study.

--a river environment that is relatively undeveloped by man and possesses outstanding scenic, geologic and historic values.

--a river capable of supplying many intangible values. These values are difficult to assess but certainly exist for the canoeist as he meets the challenge of the river, the scientist as he studies the natural phenomena of the river, and the nature photographer filming the beauty of the river.

Designating the Chattooga River a Wild and Scenic River also means some material values will be lost--

--the potential for hydroelectric development will have to be found elsewhere - other rivers or through improved technology.

--any losses to the forest products industry because of restrictions on timber harvest can be replaced by increases in volumes harvested on more productive lands. These losses are minor as little harvesting has been done in recent years in the proposed 1/2 mile-wide corridor.

--no impoundments on the river means no additional reservoir-oriented recreation opportunities in a general area that includes 21 major reservoirs including Lake Sidney Lanier with over 11,000,000 recreation visits last year.

--land acquisition and easement efforts may have an adverse affect on some landowners. The "willing seller" approach should minimize this.

The proposal to include the Chattooga River as a unit of the National Wild and Scenic River System has almost unanimous support. Many private citizens, organizations, state and federal agencies have indicated their support. The Georgia and North Carolina state legislatures have passed resolutions supporting the proposal.

D. Conclusions

Leaving the Chattooga River to develop on an unplanned basis will result in overdevelopment, deterioration of the water and environment and perhaps eventual loss of the river character.

Hydroelectric development under three of the four proposals discussed would render the river ineligible for inclusion in the National Wild and Scenic River System. The other proposal would regulate river flow. Improved engineering technology can probably replace the potential of the Chattooga River for hydroelectric development.

Measuring the Chattooga River against criteria for wild and scenic rivers has revealed its unique qualities. The conclusion of this study is that the Chattooga River possesses values that qualify it for inclusion in the National Wild and Scenic Rivers System.

IX. RECOMMENDATIONS

A. Boundary of Area

It is recommended that the Chattooga River from Tugaloo Lake 49.6 miles upstream to a point near Cashiers, North Carolina and 7.3 miles of the West Fork of the Chattooga River be designated as a unit of the National Wild and Scenic River System.

The river corridor varies with topography to include all land between the ridges on either side of the river. The high ridges on either side make a logical and easily recognized boundary and act as a barrier to outside influences. Where ridges are less pronounced on the extreme upper headwaters and around Highway 28, the boundary includes sufficient "seen area" to protect the view as seen from the river.

On the narrow portions of the main river and the West Fork, dense tree-height vegetation along the riverbanks obscures the ridgetops on either side, except in the curves immediately ahead and behind. Even though much of the land between these ridges is not visible from the river's surface, these lands are considered a part of the river environment. They average less than one-fourth mile wide on either side of the river and include needed acreage for trails along the river. They are also needed to protect the river from noise, runoff, and other adverse influences that would directly affect the river if the lands between these ridges were developed or put to other uses.

The ridges on either side of the Chattooga make an effective barrier to noise, development and other non-compatible uses. The lands beyond these ridges are not considered a part of the river environment. Mountaintops can be seen beyond the proposed boundary in only a few cases. These few areas will not be included within the boundary, but are far enough away to be managed as management units within the multiple use plan with modified timber harvest practices to protect scenic views as seen from the river.

The recommended river corridor is shown on a map in the following section.

Recommended Corridor

Chattooga River - to include 49.6 miles of the Chattooga River from 0.8 mile below Cashiers Lake (river mile 53.9) to Tugaloo Reservoir (river mile 4.3); a distance of 9.8 miles in North Carolina and 39.8 miles between Georgia and South Carolina. The boundary includes sufficient acreage to protect the river from all detrimental influences, averaging not more than 320 acres per mile.

West Fork Chattooga River - to include 7.3 miles of the West Fork in Georgia from its junction with the Chattooga River (Chattooga River mile 29.4; West Fork river mile 0.0) upstream to river mile 7.3 on Overflow Creek.

B. Recommended Classification By Sections

The Chattooga River can be divided into six distinctive sections under the "Guidelines for Evaluating Wild, Scenic and Recreational River Areas Proposed for Inclusion in the National Wild and Scenic Rivers System under Section 2, Public Law 90-542," agreed upon by the Departments of Agriculture and Interior. The West Fork is divided into two sections under these guidelines.

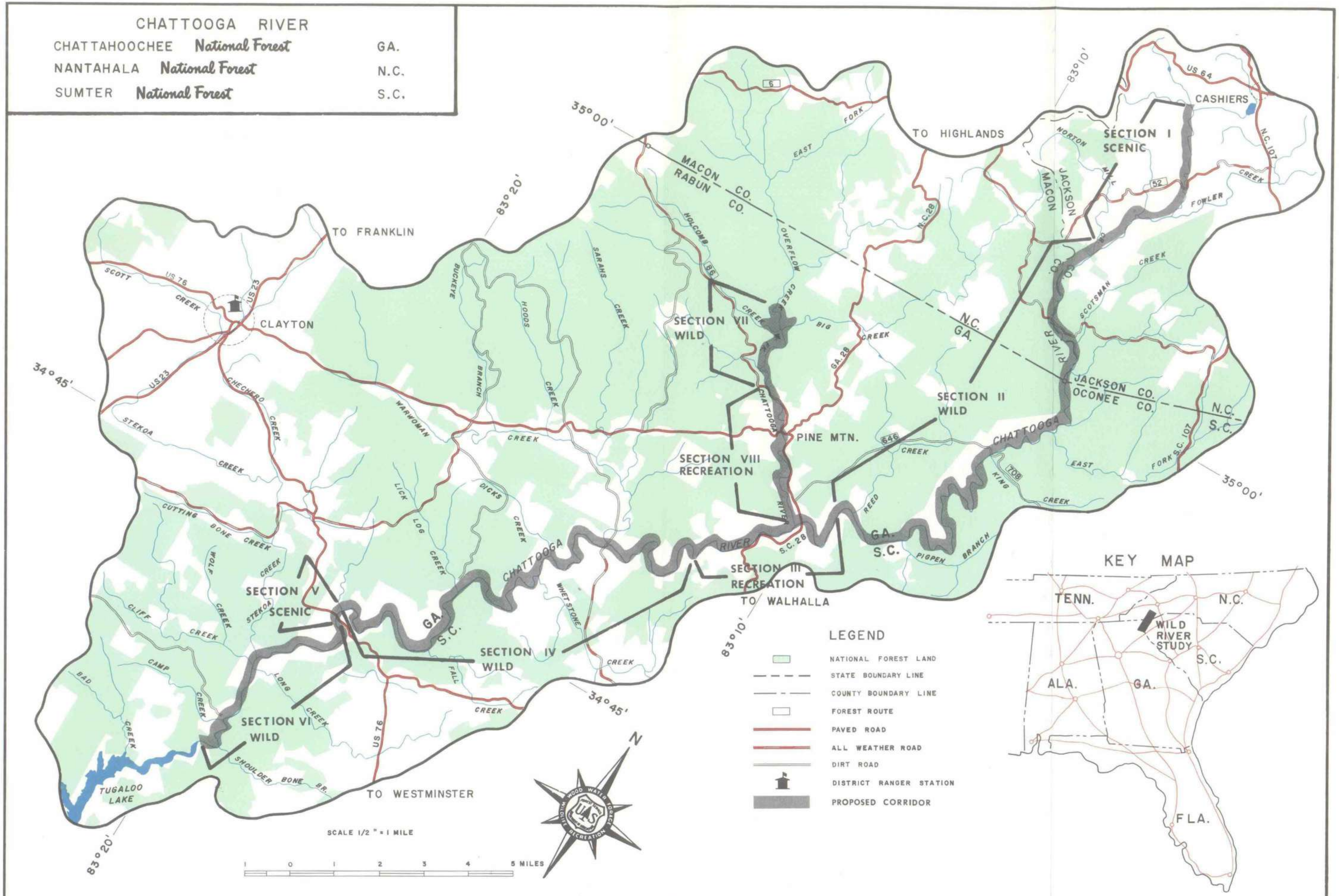
Section I - Scenic River Class

This section includes 5.5 miles of the headwaters of the Chattooga from 0.8 mile below Cashiers Lake to 0.2 mile above Norton Mill Creek.

Above this section, the Chattooga is only a small stream a few feet wide trickling off the Blue Ridge crest. It is too small to be considered a river and should not be included in the proposed corridor.

Section I, including Silver Slipper Falls and the Chattooga Cliffs, has the most scenic long range views and cascades on the river. Silver Slipper Falls drops steeply down the mountainside for over 150 feet, partially framing a view of nearby 2000 feet Whitesides Mountain with its sheer granite sides.

At the foot of the falls, the river plunges into dense forest for one-third mile, then turns eastward on a gentle slope through a young forest growing in abandoned fields. Past this, the river drops sharply for 75 feet through the narrow v-shaped


CHATTOOGA RIVER
CHATTAHOOCHEE National Forest GA.
NANTAHALA National Forest N.C.
SUMTER National Forest S.C.
SECTION I
SCENIC
SECTION II
WILD
SECTION III
RECREATION
SECTION IV
WILD
SECTION V
SCENIC
SECTION VI
WILD
SECTION VII
WILD
SECTION VIII
RECREATION
CASHIERS
TO HIGHLANDS
TO FRANKLIN
CLAYTON
PINE MTN.
TO WALHALLA
TO WESTMINSTER
TUGALOO LAKE
MACON CO.
RABUN CO.
JACKSON CO.
OCONEE CO.
N.C.
GA.
S.C.
CHATTOOGA RIVER
35°00'
34°45'
83°10'
83°20'
US 64
US 76
US 23
N.C. 107
N.C. 28
GA. 28
S.C. 28
S.C. 107
KEY MAP
TENN.
N.C.
WILD RIVER STUDY
S.C.
ALA.
GA.
FLA.
LEGEND
NATIONAL FOREST LAND
STATE BOUNDARY LINE
COUNTY BOUNDARY LINE
FOREST ROUTE
PAVED ROAD
ALL WEATHER ROAD
DIRT ROAD
DISTRICT RANGER STATION
PROPOSED CORRIDOR
SCALE 1/2" = 1 MILE
1 0 1 2 3 4 5 MILES
N

rock walls of Ribbon Falls. A number of interesting swirl holes, several feet in diameter and four to ten feet deep have been cut vertically down the solid rock sides of this cascade. The river continues along a rapidly descending course through dense forest and over a continuous succession of rapids, cascades, and small waterfalls.

About one-half mile above Grimshawes Bridge, the river enters a valley with forested old fields and large open pastures. A barn and several summer homes are visible from the river. Grimshawes Bridge crossing is accessible by a country road. The section below the bridge can be floated by rubber raft and provides exciting trips over small rapids and cascades with frequent portages around difficult cascades and narrow sluices.

A woods road runs down to the river at Fowler Creek where evidence of past logging can be seen and a foot trail parallels the stream down to Greens Creek. Just above Greens Creek, the river crashes over a massive precipice and down 25 foot high Corkscrew Falls, the only major free-falling waterfall on the River. The west bank rises almost 50 feet above the falls, and the gradient of the riverbed becomes more moderate below the falls.

Further down river an old meadow and a log house can be observed on the north side. This is Monroe House, and its construction is of unusual pioneer architecture. The remains of an old chimney near this house marks the site of the earliest known settlement by white men in the Chattooga Gorge.

Section I of the Chattooga provides some of the most dramatic scenery found on the river. The stream is small and its banks are broken by occasional old fields and evidence of past land uses. Although a large part is undisturbed, the area of rural development, with farmhouses, summer homes and several old bridges scattered through the section make it suitable for Scenic River classification.

Section II - Wild River Class

This section covers a distance of 15.9 miles beginning 0.2 mile above Norton Mill Creek and ending at the Nicholson Fields. Of this section, 4.3 miles are in North Carolina and 11.6 miles lie between Georgia and South Carolina.

This entire section is in a near natural condition. It includes some beautiful but hazardous whitewater. Enormous boulders, some over 50 feet high with trees on top, rise from the riverbed. This part of the river can be floated only in rubber rafts, and many dangerous portions must be portaged.

In the entire 15.9 miles, only two narrow bridges cross the river. These are Bull Pen Bridge and Burrells Ford Bridge. The stream averages 25 - 30 feet in width at the beginning of this section and drops on a generally steep gradient through whitewater cascades hemmed in by dense vegetation and high ridges. In many places, sheer rock outcrops and cliffs tower 400-600 feet above the river. The Chattooga Cliffs, a series of these outcrops 2800-3300 feet in elevation, continue for 2 1/2 miles down the river. Along the faster dropping portions, exposed boulders and steep slick rock walled sides make it difficult to climb out of the river bed to portage around dangerous cascades or other obstacles. In another place the river enters a narrowly enclosed rock canyon. Here the noise of the river is hushed and deep water flows slowly between sheer walls of solid rock rising 75 feet out of the water.

Rafting or some method of floating is the best way to see this rugged portion of the river. Many of the pools and canyon-enclosed sections are 10-20 feet deep and impossible to wade by hikers or fishermen. The sheer rock cliffs and dense vegetation on the steep ridge sides make hiking extremely difficult. Two-thirds of a day is required to raft the first 2 1/2 miles of this section and probably a hard, full day to hike it.

Bull Pen Bridge crosses the river in a narrow bend and is visible for only a couple of hundred feet up and down the river. This is a high steel bridge about 75 feet long which breaks out of dense woods to span the river above a small cascade. Bullpen Road is a Forest Service dirt road through National Forest lands. There are no houses or private lands within several miles of the river here.

The river turns sharply east at Bull Pen Bridge through a smooth flowing portion and then over a series of rapids, cascades and sluices broken up by long stretches of easy water. Here Scotsman Creek drops over a small waterfall and down a rock ledge into the river. High ridges continue to enclose the river, and at Ellicott's Rock the river leaves North Carolina to become the boundary between Georgia and South Carolina.

The East Fork joins the river below Ellicott's Rock. This is a small tributary, only 12 feet wide at its junction with the river. The lower five miles of the East Fork are relatively primitive, with a number of cascades and low waterfalls. This lower portion of the East Fork is in Ellicott's Rock Scenic Area. Directly above are the Walhalla Fish Hatchery and a recreation area straddling the stream. For the next two miles

the East Fork parallels Highway 107 within one-third mile, and at the North Carolina line it flows directly along the highway through cultivated land, abandoned fields and unattractive private developed land. The East Fork is not recommended for inclusion within the Wild and Scenic River boundary.

For the next 1 1/2 miles the river drops over 16 cascades and rapids separated by almost evenly spaced stretches of smooth water. At Burrells Ford a concrete Forest Service bridge crosses the river. A partially developed camping area is located near here on the South Carolina side of the river.

The eight mile section from Burrells Ford to Nicholson Fields is one of the most difficult portions of the river. This stretch includes exciting but treacherous whitewater. It flows around huge rocks and through narrow slucies and drops over 21 small waterfalls and rapids in less than two miles. Here the Chattooga enters Rock Gorge, the steepest part of the Chattooga River Gorge. Huge, house-size boulders constrict the river into a narrow channel with numerous falls and sluices. Below Licklog Creek the gradient is much easier and the steep ridges on either side begin to widen down to Nicholson Fields. This section is recommended for Wild River classification.

Section III - Recreation River Class

Section III includes 6.1 miles of the river beginning at Nicholson Fields and ending at Turnhole. This section of river is entirely different from the gorge-enclosed section above it. The river above has crashed over 20 miles from its extreme headwaters down through the mountains averaging an 84 foot drop per mile. Here, the river abruptly changes into a smooth stream, flowing easily through progressively gentle slopes and an area of fields, farms and homes. This is the slowest flowing section on the entire river, dropping an average of only 12 feet per mile. It is shallow and easy for the inexperienced canoeist.

It begins at Nicholson Fields--a narrow and then widening series of fields--once farmed and now growing in planted pines. The river flows fairly fast but easily, with smooth water and occasional ripples. It continues through a narrow valley with many areas of flat land and fields adjacent to the river. Although the riverbank is lined with trees, evidence of farming is sensed from the river. This portion of the river is pleasantly pastoral with long views reaching to steep mountains in the background.

About one-half mile above Highway 28, the river enters a wide valley and for the next three miles flows slowly through an area of heavy development. Except for the short pastoral stretch near Grimshawes Bridge in North Carolina, this is the only section on the main river with farms, homes and a paralleling main highway in view from the river. There are two cabins immediately adjacent to, or within sight of, the river above State Highway 28 Bridge.

The open fields on each side of Highway 28 were once the site of Chattooga Old Town, a large Indian settlement destroyed by the Cherokees before 1600. Much of the land on both sides of the river here is cultivated. State Highway 28 crosses the Chattooga and then parallels it within 100-1000 feet for 1.8 miles on the South Carolina side. There are 22 houses and two mobile homes visible from the river. Below the bridge, most of these houses are crowded between the river and paralleling highway. A number of them are in a rundown condition, detracting from the aesthetic quality of this section of the river.

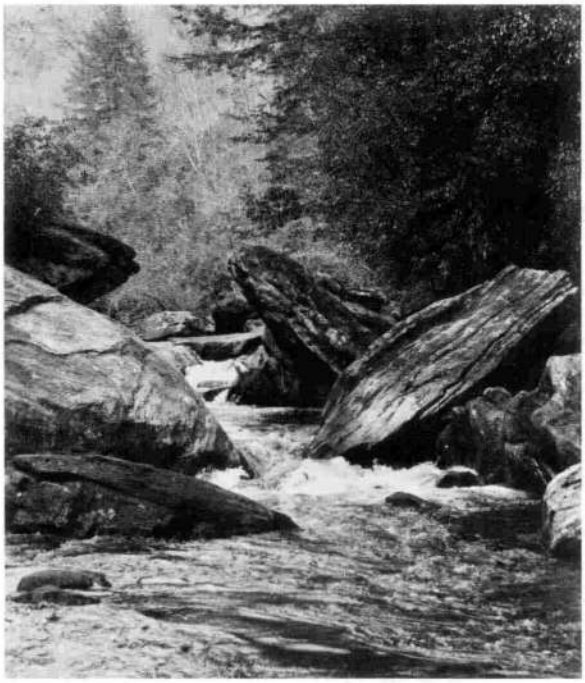
The West Fork of the Chattooga River joins the Chattooga just below Highway 28 Bridge, adding greatly to the volume of water. This is the largest tributary of the Chattooga. The river runs slowly here, with no sound of rapids. Vehicular traffic from the paralleling highway above creates a sound intrusion. Two miles below the bridge, Highway 28 leaves the river. Another hundred yards downriver a wooden, low-water bridge crosses the stream, with the last of the houses along the half-mile stretch below.

This 6.1 mile section of river is recommended for Recreation River classification.

Section IV - Wild River Class

This section covers 15.0 miles of the river from Turnhole to Bull Sluice.

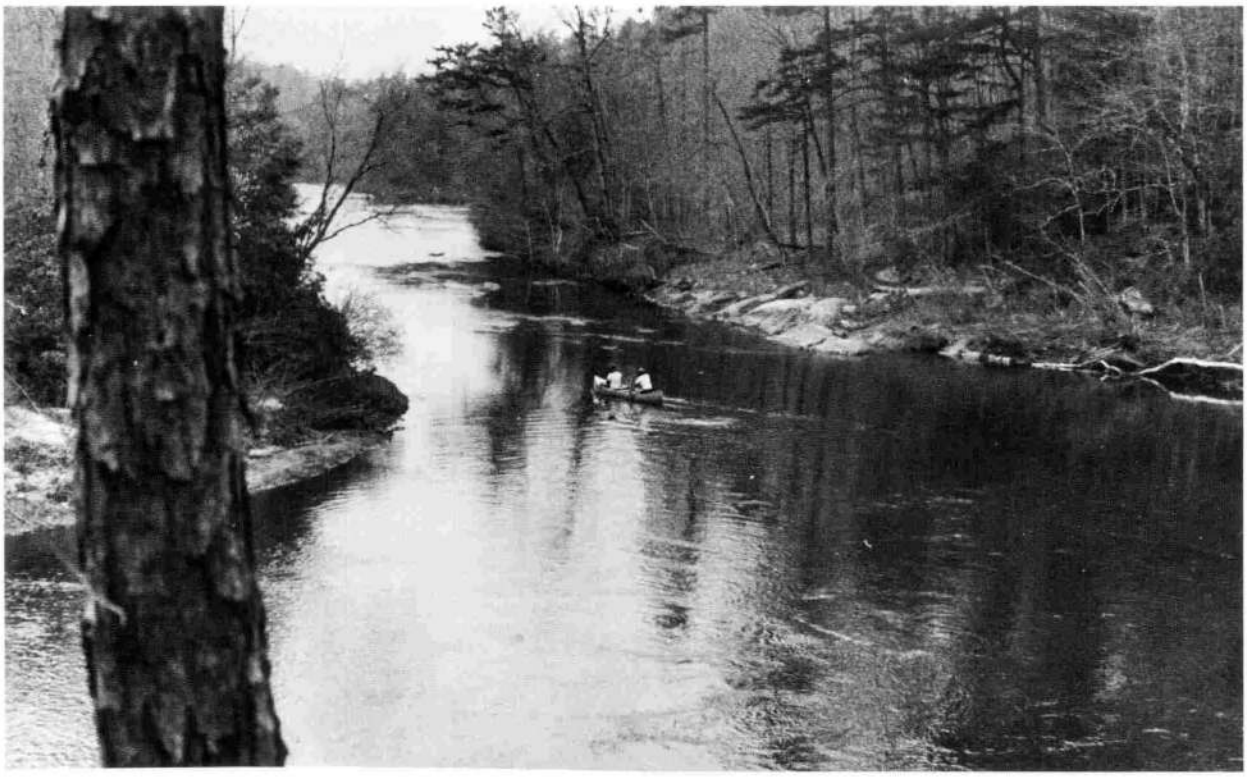
The river is 75 feet wide at the beginning of this section, flowing slowly between heavily wooded slopes. Just below Turnhole, it divides around a large island and drops over two easy rapids for a short smooth run to Big Shoals. Here it divides around a large boulder and drops down a five foot ledge through boiling whitewater. The next three miles are over easy rapids, around several islands and through a series of shallow rapids to Earls Ford where an old road comes to the river. An old Indian trail between the Cherokee villages of

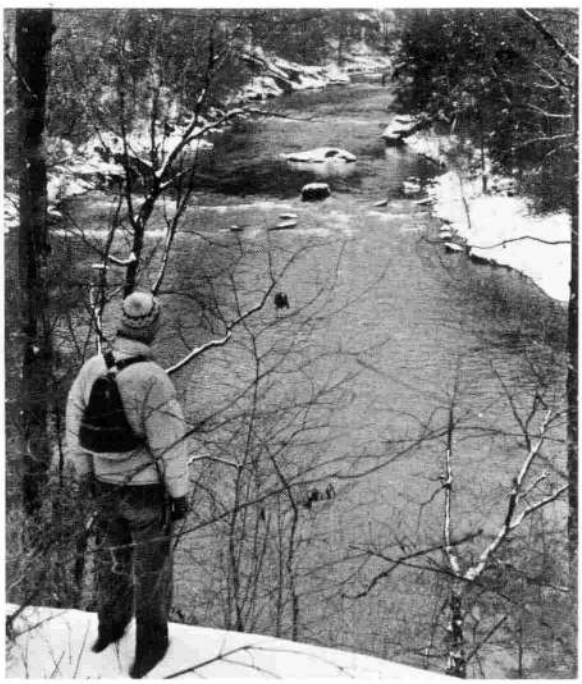


Section II, Wild Class, above Bull Pen Bridge in North Carolina.

Wildflowers are abundant along all sections of the river.

The calm waters of Section III, Recreation Class, attract many canoeists.





A winter hiker along Section IV, Wild Class.

An area of concentrated recreation use is near U.S. 76 bridge in Section V, Scenic Class.

Section VIII, with paralleling road, offers good access to the West Fork.

Stekoa and Keowee once crossed the river near here. Warwoman Creek joins the river at this point, increasing the volume of water significantly. Below this point the degree of canoeing difficulty increases. The next 12 miles to Bull Sluice has been called the most beautiful stretch of whitewater in the Southeast--unexcelled for both scenery and canoeing water.

Leaving Earls Ford, steep ridges close in on the river as it drops over rapids, around boulders and down ledges. Six easy rapids in the next mile lead to the Rock Garden, where several rock slabs jut from the river and shoreline at a 45° angle, creating unusual rock formations.

The river continues over several difficult rapids and a stretch of turbulent water to Dicks Creek. Here Dicks Creek Falls cascades 50 feet down into the river. This is probably the most beautiful waterfall along the entire river. Travelers in canoes and rafts must portage around a 10 foot high falls in the main stream directly at the base of Dicks Creek Falls.

Below Dicks Creek, the river flows past a series of round-topped rocks and by two large islands to Sandy Ford. It then falls over some easy rapids and enters the Narrows. This is a long and difficult rapids where the stream narrows to a six foot width, pouring over several ledges in quick succession. Two hundred yards farther along, a steep ledge must be portaged. After a turbulent flume and several moderate rapids, the river enters a fairly calm one mile stretch.

For the next three miles to Bull Sluice, the river moves steadily over moderate shoals and rapids with several abrupt chutes. Bull Sluice, 300 yards above the U. S. High 76 Bridge, is an impassable 10 foot high falls that must be portaged.

This rugged and remote section of the river is recommended for Wild River classification.

Section V - Scenic River Class

This section is 1.0 mile of the river from just below Bull Sluice to 3/4 mile below U. S. Highway 76 Bridge. The remains of an old bridge, some evidence of sandmining, and a dirt access road to the water are located immediately adjacent to the highway bridge. Because of easy access this area attracts many visitors, especially fishermen, and is recommended for Scenic classification.

Section VI - Wild River Class

This section covers the remaining 7.1 miles to Tugaloo Reservoir. Downstream from U. S. 76 Bridge, the river flows through undisturbed country with deeply forested ridges rising easily on either side. The river is over 200 feet wide here and flows smoothly with considerable volume around a succession of rocks and boulders protruding from the water and banks. Within the first mile, the river drops over nine steep rapids.

For the next mile to Woodall Shoals, the river has only two difficult rapids. At Woodall Shoals, the Chattooga twists sharply to the right around gigantic shoals and drops over an eight foot cascading falls and down twisting, turbulent rapids. The river narrows abruptly below Woodall Shoals and begins its final challenging run to Tugaloo Reservoir. This is the most difficult stretch of boiling whitewater on the Chattooga River, crashing between narrow canyon walls over a succession of steeply dropping ledges, rapids and shoals. In the first mile to Stekoa Creek, the river rushes over two dangerous cascades, a constant series of smaller, turbulent rapids, and through a narrow 1/2 mile long canyon enclosed by rock walls several hundred feet high.

No other stretch of the Chattooga can compare with the last 3.7 miles of the river with its 48 major rapids and cascades. It is rated by canoe experts as one of the most difficult stretches of whitewater in America, attempted only by the most expert or foolhardy canoeists and floaters. The river runs among huge boulders and through sheer rock-walled canyons. The wildness of the land and sheerness of the ridges and canyon walls make it nearly impossible to get out of the river once a floating party is launched. It flows through an impressive gorge with cliffs on the east side rising over 400 feet above the water level. Several tributaries enter by waterfalls, such as 60 foot high Long Creek Falls. Not far from the gorge the river is stilled in the quiet waters of Tugaloo Reservoir. This section is recommended for Wild River classification.

Section VII - Wild River Class

This section includes a portion of the West Fork of the Chattooga and reaches from 1.3 miles above Three Forks on Overflow Creek to 0.1 mile above Overflow Bridge a distance of 3.3 miles.

The West Fork above Overflow Bridge is wild and inaccessible. Because of the extremely rough terrain and lack of access, at least one-half day is necessary to view this segment. The use of floating equipment is impractical. Three creeks join at Three Forks, about two miles above Overflow Bridge, to form the West Fork.

Holcomb Creek, the westernmost of the three, is a small, narrow, fast-flowing mountain stream. About one-half mile above Three Forks, it drops over a small waterfall and crashes down a narrow gorge, creating continuous whitewater. Cliffs rise vertically over 100 feet above the water on one side. Evidence of the great force of the water is seen in the numerous rock formations and round swirl holes cut into solid rock with auger-like precision. This stream has the appearance of a darkly shaded cataract hidden by cool, dense vegetation.

Overflow Creek is the middle stream of the Three Forks. It is a larger, wider and more smoothly flowing stream than either of the other two. Overflow averages 20 feet in width and is a rather open, sunlit stream that could be easily walked by fishermen. The stream includes a beautiful 25 foot waterfall that is one of the most spectacular single features of the West Fork.

Big Creek is similar in size to Holcomb Creek and drops swiftly in a series of waterfalls and fast flowing pools. For 100 yards above Three Forks, it flows in washboard fashion over a series of ledges tilted at about 30 degrees. The steep rocky sides of the stream and the dense vegetation along its shoreline make it difficult to climb out of the stream bed.

Holcomb and Big Creeks join Overflow Creek almost directly opposite each other at Three Forks. At the junction a number of prominent large rocks jut into the river and cliffs rise almost vertically from the river. The two mile section from Three Forks to Overflow Bridge can barely be floated by rubber raft. Lack of accessibility makes floating this section impractical. The river runs from 30-60 feet in width and contains water of every description, from easy stretches to rapids and narrow turbulent shoals. This part of the West Fork and the three creeks forming it are excellent trout streams. The West Fork above Overflow Bridge, including the last one-half mile of Holcomb and Big Creeks and the lower 1.3 miles of Overflow Creek, is recommended for Wild River classification.

Section VIII - Recreation River Class

This section covers a distance of 4.0 miles, reaching from 0.1 mile above Overflow Bridge to the junction with the Chattooga River.

The West Fork below Overflow Bridge changes abruptly into a different kind of river. Its character changes from whitewater in primitive surroundings to a slow-moving gentle stream--suitable for the canoeing novice--in an area of moderate development. Overflow and Warwoman Bridges, several fishing cabins, and evidence of logging to the water's edge occur in the first 2.6 mile segment. Overflow Road parallels the stream closely. From Warwoman Bridge to the Chattooga, the river banks show heavy use and considerable erosion. Noise from traffic on the roads creates a distracting influence. The river banks are high, almost vertical, and generally block the view of surrounding fields and farm buildings from the water level. Several abandoned developments are in the lower reaches, including rusty sandmining equipment, steel tanks, an old splash dam and the remains of a low-water bridge.

Highway 28 closely parallels the river much of the way between Warwoman Road and the Chattooga. The eroded riverbanks throughout this segment have contributed a number of sand and silt deposits along the stream course.

The lower four mile section of the West Fork, from Overflow Bridge to the Chattooga is recommended for Recreation River classification.

X. ACTION PLANS

A. Land Acquisition and Easements

The area of the proposed National Wild and Scenic River includes a total of 15,143 acres of land. Of this total, National Forest ownership comprises 47.5%, or 7,138 acres. The remaining area involves 46 ownerships, with Georgia Power Company the largest landowner with 5,690 acres.

The private lands within the proposed corridor can be divided into four priority classes for acquisition, or scenic easements. These classes are based on public use and access needs, protective needs, river classes, and analysis of compatible and incompatible uses within the river corridor.

These land acquisition classes are:

FEE ACQUISITION NEEDED

1. Lands Needed to Correct Incompatible Uses

These are lands within the proposed river boundary which directly conflict with wild, scenic, or recreation river classification and definitely should be acquired by fee acquisition. The incompatible uses on these lands could not reasonably be expected to clear up without fee acquisition. This category includes 171 private acres and 242 Georgia Power acres in Georgia and South Carolina. These are lands with unsightly developments along Highway 28, and with incompatible hunter camps, access roads, jeep trails, etc. at Earls Ford, Burrells Ford, Sandy Ford and Bynum Creek. Any lands under this category should receive priority for acquisition. These lands make up only 5% of the total private lands within the river boundary.

2. Lands Needed for Development

These are not as critical as are those under the first category, but are lands needed for development, or to prevent and minimize future foreseeable problems. These are divided into two primary classes:

a. Lands needed for recreation development and access, or lands adjacent to main highway access points which might conceivably receive incompatible developments because of adjacent roads or other close developments. Included in this category are 853 acres of Georgia Power lands in Georgia and South Carolina and 250 acres of

other private lands around Grimshawes Bridge, Highway 28 and Highway 76.

b. Lands in Wild River class. All lands in the Wild River class should be acquired by the Forest Service because these are the most valuable within the river system and must be maintained in a primitive condition. The cost of scenic easements would be almost as much as fee acquisition for these lands. Included in this category are 3723 acres of Georgia Power lands and 441 acres of private lands in the two proposed Wild River sections.

SCENIC EASEMENTS ACCEPTABLE

3. Fee Acquisition Desirable, but Scenic and Use Easements Acceptable

These are lands where fee acquisition would be desirable, but if not available for purchase, scenic and use easements could be used to meet management objectives. This would include most of the lands in Scenic and Recreation River classes except problem areas, main highway access points, needed development lands and significant outstanding features. Included in this category are 215 acres of Georgia Power lands and 1418 acres of other private lands. This category includes 60% of the other private lands within the river boundary. The majority of private landowners may retain title to their lands and continue present compatible uses if they so desire. Protection and public use of the river can be accomplished through scenic and use easements.

4. Scenic and Use Easements Desirable

These are lands definitely needed under scenic and use easement. They are lands on which private landowners can help achieve desired management objectives for the river by maintaining needed pastoral scenes, meadows, vistas or farms which compliment the scene along the river. This category includes 35 acres of other private lands above Grimshawes Bridge in North Carolina.

The proposed river corridor width is based on establishing a protective boundary at the top of the main ridges on either side of the river. It does not coincide with property ownership lines. Thus, in most cases the boundary splits most private ownerships along the river. Many individual private landowners will be reluctant to sell only a part of their property along the river and may well prefer to sell all of their tracts or none. When landowners so desire, and it is in the interest

of the Forest Service, the remaining portions of these tracts should be purchased under other National Forest acquisition authorities. Georgia Power Company lands average over a mile in width in many places along the river. Except for a few places, Georgia Power lands tie directly in with National Forest lands on a common boundary. Georgia Power Company's main interest along the Chattooga is potential reservoir sites. Acquisition of the Georgia Power lands outside the boundary would be in the interest of the Forest Service, as this would allow consolidation of National Forest lands along the boundary of the river.

Zoning would not be desirable in providing complete protection for the lands within the proposed corridor. At present, there is no zoning anywhere along the Chattooga River. South Carolina has given its counties zoning authority subject to legislative approval, but in Georgia and North Carolina the counties have no zoning authority. Zoning as a protective vehicle has been weak historically, and zoning action is continually subject to re-hearing and possible changes. Fee acquisition or scenic easements are much preferred as the means to protect the river.

B. Administration - Management

Most lands within the proposed corridor are administered by the U.S. Forest Service. This agency, because of its existing organizational facilities, including manpower and equipment located near the river, and its knowledge acquired through conducting the study, is well suited to continue management of the Chattooga as a wild and scenic river. It is recommended that the U. S. Department of Agriculture, Forest Service administer the Chattooga River if designated a unit of the National Wild and Scenic River System.

A detailed river management plan will be developed. This plan will recognize all of the resource and aesthetic values of the Chattooga River environment. Emphasis will be on protecting and preserving these values while allowing controlled use by present and future generations of Americans.

The Forest Service should continue to work closely with other federal and state agencies in wild river management. Of special need will be state assistance from the Game and Fish Commissions and water quality organizations.

Recreation

Restrictions in the Act limit types of recreation use, especially in the Wild and Scenic sections. Compatible uses on the Chattooga River are floating (including rafting, canoeing and kayaking) hiking (including sightseeing, nature study and photography), hunting, fishing and primitive camping. These uses are provided for in the development plan.

Major management objectives on the Chattooga River will be to maintain the river in the condition that made it worthy of inclusion in the National Wild and Scenic Rivers System and to provide a safe and satisfying recreation experience consistent with this status, without damage to the resource. Major problems identified in reaching these objectives are the safety of recreation users, waste disposal, concentration of use and general overuse.

Safety problems associated with river travel and the related activities of hunting, fishing, photography and nature study, and camping in a remote area are primarily related to personal injuries. If an injury is sustained, getting help or getting to help is extremely difficult. This places the burden of safety on the individual. Physical conditioning and an awareness of the intrinsic dangers that exist are the best possible safety precautions. To minimize these dangers the Forest Service will caution users about them. It will inform these users about whom to contact in case of emergency, and how they may be reached. A voluntary check-in and check-out arrangement will be necessary as the use increases. Details will be presented in Safety and Search and Rescue Plans.

Waste disposal will be a major consideration, especially in the wild sections where the language of the Act refers to waters unpolluted. This includes both solid waste and human waste disposal. In an area as large as that within the proposed corridor, when people are introduced solid waste disposal becomes a problem.

Access points, primitive campsites and areas where spectacular water features are located will tend to concentrate people. The impact on these areas, if not controlled, will result in depletion of available firewood, water pollution, insensitive disposal of garbage and waste, and a general deterioration of the environment. Recreation use will be regulated on the basis of carrying capacity of the land and water rather than on demand.

At the present time, the Chattooga River is not overused. Saturation levels based on "the experience" have been determined. Close observation and records of recreation use within the river will be maintained. This information will be correlated with the benchmarks discussed in Section X-C of this report. When recreation use on any section of the river approaches the saturation point, as determined through evaluating the experience, or deterioration of the environment begins to show as checked against the benchmarks, saturation levels will be revised and regulation of use will be enforced within the saturation level. Rationale for determining saturation level can be found in Appendix F.

State agencies will cooperate in certain phases of administration of the river. In each State, the Game and Fish regulations of that State will be enforced by employees of the State Game and Fish Commission. Water quality and pollution abatement provisions will be enforced by State officials.

Yearly cost estimates for administration, operation and maintenance for the first five years of operation are shown in Appendix G.

Timber

Though the production of timber products will be restricted within the proposed corridor, timber management in its broad sense will be practiced. Beautiful timber stands are becoming more and more important in the overall outdoor recreation picture.

The perpetuation of these timber stands cannot be left to chance but must be produced through proper management, which includes protection from wildfire and insect and disease attacks.

The role and objective of timber management will be the protection and production of healthy vigorous stands of trees of all ages and species common to the area, managed and utilized only to enhance recreation and other resources. The objective will be the same on all segments regardless of whether classified as Wild, Scenic or Recreation.

Timber will be managed for recreation, watershed protection, aesthetic and wildlife values, rather than for commercial production. Some cutting may be designed for scenic improvement or specific wildlife habitat improvement.

Wildlife - Fisheries

In general, wildlife habitat management activities on a large scale will not be attempted. The narrow corridor limits habitat management opportunity.

State Game and Fish organizations have made recommendations for the Chattooga as a "Wild River" fishery.

North Carolina Game and Fish Commission

1. Only single hook lures or baits allowed.

2. No minimum size limit on any species of trout.

3. Seven fish creel limit.

4. Regular fishing season from the first Saturday in April through Labor Day.

5. Special season for trophy fish, from Labor Day through October 31, in which creel limit for brown and rainbow trout is reduced to one fish per day with a minimum size of 16 inches, or one brook trout per day with a minimum size of 12 inches. During this extended season no bait or lures shall be used other than an artificial lure having one single hook.

6. Stocking will be carried out with yearling or fingerling trout as needed and in proportion to the availability of such fish in relation to our other public waters.

Georgia Game and Fish Commission

1. No restriction on lures.

2. No size limit.

3. Eight fish creel limit.

4. Year round season on the mainstream and the portion of the West Fork from Three Forks downstream.

5. Seasons on tributaries in the zone open from April 1 through October 15.

6. Fish stocking limited to use of subadults. No stocking in section proposed for "wild" status above Highway 28 Bridge.

South Carolina Wildlife Resources Department

1. No restriction on lures.

2. No size limit.

3. Ten fish creel limit.

4. Year round season on mainstream and tributaries.

5. Provide stocking access at one point below Highway 28. Continue to utilize the existing access points now available along Highway 28 and at Burrells Ford.

6. Stock all sizes of fish.

Regulations between States should be as near alike as is possible. The following proposal applying to all three States would be desirable for management of the Chattooga as a "Wild River" fishery.

1. Only artifical lures (single or treble hook) allowed in the sections above the Burrells Ford Bridge on the mainstream and above Overflow Bridge on the West Fork. Live bait and artificial lures allowed below these bridges.

2. No size limit on trout.

3. Seven fish creel limit on trout.

4. Year round season on mainstreams and tributaries.

5. Stocking of subadults or fingerlings only (no catchable-sized fish) allowed in wild and scenic zones.

6. Stocking of any size fish allowable in recreation zones.

7. Vehicular stocking access provided only into recreation zones. (If Burrells Ford Bridge and Bull Pen Bridge are left open to vehicular traffic, these could also be used as stocking points for subadult fish.)

8. No restriction on night fishing.

All States are in agreement that the Redeye bass fishery in the lower reaches should be protected and enhanced and that further stocking of smallmouth bass should be discontinued there.

Water

At the present time, management of the Chattooga River area produces high quality water above Stekoa Creek. The production of high quality water will continue under Wild and Scenic River management.

The only major problem needing attention is sewage discharge from the City of Clayton, Georgia, into Stekoa Creek which flows directly into the Chattooga River. The city is aware of this problem and is correcting it.

Because of habitation on the tributaries of the Chattooga River in North Carolina and Georgia, additional pollution is possible. A sanitation survey is being made to locate possible sources of pollution and to determine the action needed to minimize their effect. State water quality agencies are interested in maintaining the quality of water in the river. No insurmountable problems are anticipated.

Minerals

The extraction of minerals through surface disturbance is not compatible with Wild and Scenic River status for the Chattooga River. The only mining activity existing within the proposed boundary is sand mining. Since other sources for sand already exist, this activity will be terminated and no future prospecting or mining involving surface disturbance will be permitted. Since natural action of the river will obliterate any evidence of the previous sand mining, no corrective action will be necessary. Prohibiting mining activity will have no adverse affect on local economy.

Land Uses

All existing land uses in the Chattooga corridor are discussed by river sections with emphasis on how they affect the recreation environment, modifications needed, methods to achieve such modifications, and resource and activity use foregone because of such modification.

Section I - Chattooga River mile 53.9 to 48.4

Section I on the upper headwaters of the river flows entirely through private lands. These lands are mostly owned for summer home and resort or estate purposes. Most landowners here would object to Forest Service acquisition of their lands within the proposed river boundary, but many will agree to scenic easements. Although acquisition is desirable for complete control, it is not extremely important from a watershed-protection standpoint. These upper watersheds are probably in a condition as good as any in the Savannah River Drainage. Waters here flow through estates and lands maintained primarily for "scenery". Little farming or logging is done; and soil disturbance, erosion and stream siltation is kept to a minimum. These lands will generally continue to be maintained in good watershed condition. Scenic and use easements can assure protection of the river and allow public use of it, while private landowners keep title to their lands and continue present uses within the boundary.

Some construction of summer homes, roads and driveways, and occasional small impoundments will occur on private lands within the watershed outside the proposed boundary. These are not expected to create erosion, pollution or diversion problems affecting the main river. The North Carolina Department of Water and Air Resources will enforce state stream quality standards to protect these tributaries and the main river.

Section I meets the criteria for Scenic River classification and except for the following uses and dvelopments, is in a forested state--

--a summer home within one-fourth mile of Silver Slipper Falls within the boundary. This summer home is completely out of sight from the river and is compatible with Scenic River classification. Scenic easements can be used here to control any future development which might be incompatible.

--two powerlines crossing the river above Grimshawes. These are single strand lines crossing at right angles and are hard to see. The rights-of-way are about 30 feet wide and can be seen only when directly adjacent to them. These detract little from the qualities of the river and are compatible with Scenic River classification. They do impose a brief reminder of modern civilization, and efforts should be made to have them located underground to further improve this section.

--approximately one-half mile of eroding riverbank along a section of old fields which are now growing up in young trees above Grimshawes. Natural reestablishment of forest cover along the banks should stabilize and control sloughing of the banks. Some special planting of native trees and grasses may be needed to hasten control of erosion.

--some past logging and evidence of old fields growing up into woods in scattered places along the extreme upper headwaters down to Chattooga Cliffs. These scattered spots detract only slightly from the overall primitive qualities of this first section of the river. All are growing naturally to forest. Scenic easements on these lands should allow this process to continue.

--remains of an old, fallen-down house and an old barn within one-third mile of the river between Silver Slipper and Ribbon Falls. These are out of sight from the river and have an interesting early American architecture completely compatible with Scenic River classification.

--a log summer home located below Timber Ridge just within the boundary. This structure is not visible from the river and is compatible with Scenic River classification. Scenic easement should limit further development here.

--paralleling pastures for one-fourth mile on the west side of the river one-half mile above Grimshawes Bridge. A two-story white frame farm house, two barns, a shed, a brick caretaker's residence, and a summer cabin are visible from the river. Four additional cabins and a garage-apartment are located

in this complex out of sight from the river. This pastoral scene, its uses, and an outstanding view of Whitesides Mountain are definitely compatible with Scenic River classification and a scenic easement is needed to preserve the scene. Some stipulations should be included to limit further development and possibly screen several homes with vegetation.

--Grimshawes Bridge is a wooden structure crossing the river through a wooded, closed landscape. It is the only access road crossing the first 5 1/2 mile section of river and is compatible with proposed Scenic River classification.

--a rustic, darkly painted log summer home on the west bank of the river just below Grimshawes Bridge. It is well sited, blends in well with screening vegetation and detracts little or none from this part of the river--particularly with Grimshawes Bridge crossing just above it. It is compatible with Scenic classification.

--scattered trails exist up and down this section. Many are fisherman trails used by local landowners and private hunting and fishing clubs. These trails are compatible with all river classes and additional ones are needed to provide hiking access. Most existing trails need substantial reinforcement and some relocation to withstand any appreciable visitor impact.

--Monroe House - an old rustic house on the east bank of the river two miles below Grimshawes Bridge. This interesting pioneer structure blends in well with the river and is compatible with Scenic River classification. Efforts should be made to acquire this historical structure so that it can be restored and maintained.

--old timber bridges - one just past Greens Creek, and one above Chattooga Cliffs providing access to Monroe House. Both are built of two log stringers covered with plank decking. The log bridge past Greens Creek is rotting and appears abandoned and unused. The bridge below Monroe House is located on a steep jeep road which is used infrequently by the owners of this land. These old bridges are compatible with Scenic River classification, but, if possible, should be removed to improve the quality of these sections.

Removal of abandoned log bridges, restoration of eroding banks, etc., will have no effect on resource and activity use of the private lands along this section of the river. Scenic easements are the only part of the protection-improvement needs for this section that will have an immediate and long range effect on present and future uses of these private lands. Scenic easements are needed to assure that the headwaters of the river continue in a relatively undeveloped condition and provide for public use of this portion of the river. The landowners along this section have no important existing uses which would be foreclosed by scenic easements; the few pastures, houses, and summer homes in this section are compatible with Scenic River classification. The majority of these landowners will agree with the provisions of scenic and use easements; some will agree and some will object to limitations on further development within the river boundary; and many can be expected to object to public uses of their lands within the boundary.

The protection provisions of scenic easements will agree with most private land management objectives along the river. Many of the landowners would be concerned about possible non-compatible development on adjacent private lands; the protection provisions of scenic easements for the boundary of the river will act as a form of "zoning", assuring these landowners that adjoining private lands will be maintained in a primitive condition compatible with their own lands. This should also help protect land values in this area.

Landowners may object to limitations on their own future development of their lands within the boundary. Although most would be in agreement with maintaining the river in a primitive condition, some will want to build additional cabins and summer homes or expand existing developments.

The provisions of use easements will probably receive the most opposition from the private landowners. Most of these landowners are summer home folk, some quite wealthy, who own these lands for their exclusive use as summer mountain retreats. Many have stocked this part of the river with trout at their personal expense and are quite proud of the excellent fishing they have produced. Most will naturally oppose the public "trespassing" on their lands, or fishing or floating the Chattooga across their lands. The few with homes, pastures or summer homes within the boundary of the river will certainly not tolerate recreation users encroaching on their private properties, trampling through their yards and invading their personal privacy. Several of these landowners have no intention of ever selling or giving up their lands, even for a much higher-than-average market value. They certainly would not look with favor on a forced condemnation program on

the Chattooga, even of scenic easements. Many of the landowners will cooperate with the Forest Service in working out a responsible program of protective scenic easements. The Forest Service must do everything possible to work out a system of public access for this portion of the river that will cause the least amount of disruption to these private landowners' uses and privacy.

The following factors should be considered in obtaining the right of public access through use easements for this section of the river--

--If this river is included in the National Wild and Scenic Rivers System, all portions of it should be open so all persons are free to enjoy it.

--As a minimum, the public should be able to fish, float, or hike along the river through these private lands.

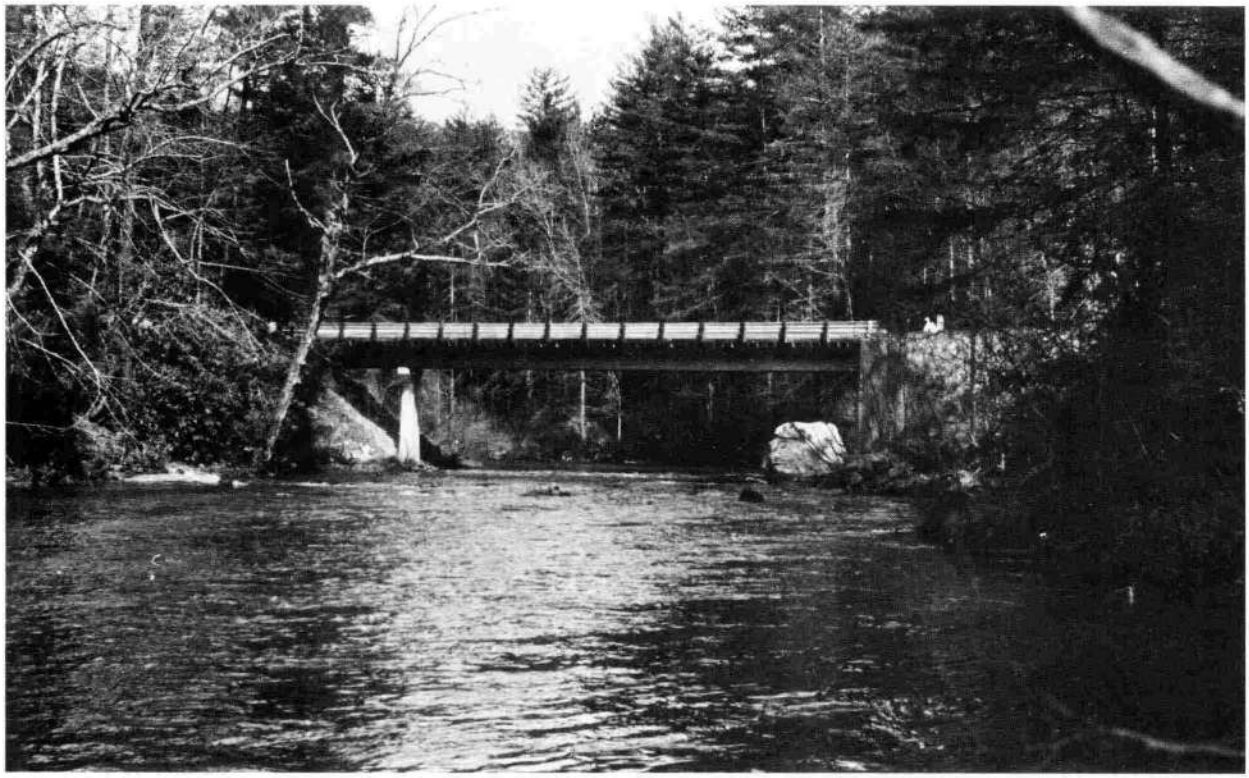
--In order to protect the privacy of private landowners along the developed portions of this section, the public should be restricted to the river or to developed trails across these lands. This should be strictly enforced by the Forest Service, and if necessary, some means of physical restraint should be used to correct any problem areas.

--Use easement rates must adequately recognize situations in which public access causes a loss of privacy to the private landowner, and provide for adequate compensation for the values of exclusive solitude and privacy which are lost.

--Immediate public use of these lands is not of first importance, and should not be insisted upon if it hinders the more important program of obtaining protective scenic easements to assure that the river is protected and maintained in a primitive condition. Use easements might allow for deferment of actual public use of these lands for a period up to 10 years, if necessary, to help gain easements, cooperation and goodwill from the private landowners along the river.

--The public should be allowed access to the private lands within the river boundary only after an adequate reinforced system of trails is completed through these sections and only when the Forest Service can provide reasonable cleanup, policing, and administration of these lands.

--Trails and other provisions for public use of the river should be located to minimize conflicts with the existing private uses.



Burrells Ford Bridge.

Bull Pen Bridge.

Russell Farm can be seen from the river near Highway 28 bridge.

A summer home on Georgia Power Company land along the West Fork.

Abandoned mining equipment on the West Fork.

House trailer along river in Section III.

Section II - Chattooga River mile 48.4 to 32.5

Section II of the river is in a near-natural state, with only two roads crossing in 15.9 miles. These are Bull Pen and Burrells Ford Roads, two dirt Forest Service roads which cross the river in a section proposed for Wild classification. The portions of the river above, between and below these two roads are so rough and inaccessible that they take one or two days to hike or raft. These roads cross through dense woods and detract little from the characteristics of this section. Because they could cause excessive concentrations of use resulting in site deterioration, both of these bridges will be removed and the approaches restored. Access will be by trail from the corridor boundary. In both cases, there will be little effect on the local transportation system by removing the bridges.

Except for 115 acres of private ownership at the very beginning of this section and 20 acres at the end, all other lands within the boundary of this section are National Forest or Georgia Power lands. Private tracts within this section are undeveloped and probably can be purchased at fair market value. All lands within this section are proposed for fee acquisition by the Forest Service. There are no important private uses or developments to be foregone if these lands are acquired by the Forest Service.

Ellicott's Rock Scenic Area was established around Ellicott's Rock in 1966 by the Regional Forester under Regulation U-3 of the Secretary of Agriculture. This 3,584 acre area was "set apart and reserved for public recreation and closed to all other occupancy and use." Seven hundred and thirteen acres of the proposed river boundary fall within Ellicott's Rock Scenic Area. Management objectives for both areas are similar and no changes are needed in existing or proposed administration and management to make these two areas compatible.

Utilization of the timber on both private and National Forest lands is the only present use in this section which would be appreciably affected by Wild River status.

Burrells Ford Campground, a partially completed Forest Service camping area, is located below Burrells Ford Bridge. This campground will be reduced to a development scale 1 (foot access) camping area compatible with Wild River classification.

The present access road into this area will be restored to natural condition. Parking areas at Burrells Ford will be located outside the proposed corridor. This camping area is a new, partially completed area and restriction of use to walk-in campers will not change long-established use patterns.

The lands immediately around Burrells Ford on the Georgia side are owned by Georgia Power Company and should definitely be acquired by the Forest Service for control of access and prevention of unrestricted use on this critically important Wild River section.

There are approximately five miles of old jeep roads which should be closed in this section. Most are grown over and disappearing; some can be travelled and show evidence of continued use. They are used only by hunters, fishermen and infrequently by the Wildlife Officers to stock the river with catchable size trout. Closing these roads will have minor effects on existing uses within this section.

Section III - Chattooga River mile 32.5 to 26.4

Section III of the river is entirely different from all other sections. This 6.1 mile stretch is developed with fields, houses and a paralleling highway along a major portion of its length. It meets Recreation River criteria.

Most of the land along this section is in Georgia Power Company ownership. About half of these Georgia Power lands are old fields or meadows growing up in planted pines. These fields and pastures provide a pleasant pastoral variety to this section of the river and are compatible with Recreation River status.

A number of unattractive buildings are along this portion of the river. Most of these detract from the overall pastoral quality and should be removed. There are a total of 42 buildings and two house trailers in this section. Two of the buildings are in Georgia and the trailers and other buildings are in South Carolina. Nineteen cabins and one trailer are located on 21 acres divided into 24 individual lots in South Carolina. Seventeen of the structures are on Georgia Power Company land leased to private individuals, or are abandoned structures. The remaining structures are on lands that are under option to the Forest Service.

On the Georgia side of the river along the three mile stretch at Highway 28 there are no visible buildings. One old wooden farm dwelling painted white with a tin roof is on the Georgia Power tract immediately adjacent to Highway 28. This building and several outbuildings detract from the view along the river.

Highway 28 is one of the two major, paved highways crossing the river. This highway crosses at Russell Bridge in a stretch of large old fields and pastures, and then parallels within 100 - 150 feet of the river for 1.8 miles on the South Carolina side. The river flows very slowly and smoothly through this section with no sound of cascading whitewater, and the sound of traffic from the highway creates a sound intrusion. This paralleling highway is compatible with Recreation River classification. Once the buildings are removed between the highway and river, these lands should be allowed to revert to a natural state. Natural vegetative screening between the highway and river will help improve the quality of this section and act as a sound barrier.

Two miles below Highway 28 Bridge, a dirt access road drops down to a wooden low-water bridge. This access point, heavily used by experienced canoeists and floaters to bypass the slow flowing easy stretch of water above the bridge, is needed. It will help disperse the large numbers of canoeists who might otherwise start at Highway 28 Bridge. It also serves as a termination point for novice canoeists who want only a short ride over easy water. The dirt access road and low-water bridge are compatible with Recreation River classification and should be reinforced as necessary to withstand use by floaters. If parking facilities are provided here, they should be located out of sight of the river.

About 3 1/2 miles of jeep roads are located in this section. These should be stabilized and brought up to a useable standard for access. They can provide access for fishermen, canoeists, Wildlife Officers and administrative personnel and help take pressure off the more fragile Wild River sections above and below this section.

Section IV - Chattooga River mile 26.4 to 10.5

Section IV of the river meets Wild River criteria. Three tracts of private land are within this section; the rest is Georgia Power or National Forest lands. Private lands within this section are undeveloped and probably can be purchased from willing private landowners at fair market value. All lands within this section are proposed for fee acquisition by the Forest Service. No measurable private uses or developments except for Georgia Power Company lands, will be foregone if these lands are acquired by the Forest Service.

The traces of two old roads should be obliterated from this section to further improve its quality. The lands around these roads should be acquired by the Forest Service so they can be restored. The first of these is Earls Ford, the

site of an early road and natural ford across the river at river mile 22.3. Evidence of this road should be obliterated to the boundary on both sides of the river, and a trail built to the river. Access by trail is definitely needed here for canoeists. This is a termination point for less experienced canoeists and a popular beginning point for expert canoeists.

Sandy Ford is also the site of an early road and natural ford across the river. This old road should also be obliterated back to the proposed boundary and a trail constructed to the river on both sides. The stretch of the river above this point to Earls Ford is moderately difficult for canoeists, and an exit trail is needed here for those canoeists who may be "canoeless" by the time they reach this point.

Many of the sandbars and lands directly along the river through this section show evidence of primitive camping, including past campfires, littering and some general deterioration. A system of reinforced campspots located on the more inaccessible portions of the river is needed to provide for over-night camping, prevent sanitation problems and "wearing out" of the lands directly on the river.

Section V Chattooga River Mile 10.5 to 9.5

The Georgia Power lands around U. S. 76 Bridge should be acquired by the Forest Service so use can be controlled and parking facilities located outside the boundary. Several detracting influences need to be removed from around U. S. 76 Bridge to improve the quality of this section. These include the remains of an old steel bridge, evidence of sandmining, and a short dirt road which drops from the highway down to the river's edge and parallels the river for one-fourth mile. Heavy equipment will be required to remove this bridge. All traces of sandmining, the only mineral activity occurring within the proposed river boundary, will disappear with the first high water. Mineral rights to these lands are owned by the Georgia Power Company, and limited sand removal is done with their permission. Since there is sand of comparable quality in the general area there will be no measurable effect on the local economy by discontinuing this activity on the Chattooga.

U. S. 76 is a paved two-lane highway crossing the river. This highway does not parallel the river but crosses in a wooded section. Its effects are limited to the immediate area. Traffic on U. S. 76 is mainly local between Clayton, Georgia, and Westminster, South Carolina, averaging 700 vehicles a day.

A summer home in Section I. Rustic design is compatible with scenic classification.

Eroding river banks along the West Fork.

Section III, near Highway 28, showing access roads, old fields and buildings along the river.

Section VI - Chattooga River Mile 9.5 to 4.3

An old jeep road comes down to the river's edge at Woodall Shoals. This access point is needed for canoeists. The river below Woodall Shoals is exceedingly difficult and dangerous for floaters, and most will take their craft out at this point. The old jeep road here should be removed back to the proposed boundary of the river, and a trail brought down to the river.

Section VII - West Fork river mile 7.3 to 4.0

Section VII is on the upper headwaters of the West Fork. This section includes 3.3 miles of the West Fork flowing entirely through National Forest lands. This section qualifies for Wild River classification and there are no private uses which will be affected by inclusion of this section in Wild River class.

Section VIII - West Fork river mile 4.0 to 0.0

Section VIII is located on the lower end of the West Fork and is largely developed with summer homes, fields, farms, and paralleling road and highway along a major portion of its length. This section meets Recreation River criteria.

Overflow Bridge marks the upper limit of the section. It is a Forest Service concrete bridge on a dirt road crossing the West Fork at river mile 3.9. This access point is needed for canoeists who want to float this easy section and for hikers who will use it as a jump-off point into the inaccessible section above it. The road also provides important access into adjacent National Forest lands.

Below Overflow Bridge the dirt road parallels the river for 1.3 miles to paved Warwoman Highway. In most places the dirt road is within 1000 feet of the river and often visible above the river. Growth of natural vegetation along the road will eventually screen it from view. In one instance a culvert under the road protrudes almost into the river. This culvert should be screened so that it is not visible from the river.

Three summer homes are located on Georgia Power lands between Overflow Road and the river. These were built by private individuals on land leased from the Georgia Power Company, and all are well maintained and compatible with Recreation River class. These lands should be acquired from the Georgia Power Company to prevent further development along this part of the river and existing summer home owners given life tenure with the provision that the cabins be maintained in a manner compatible with Recreation River class.

At Warwoman Road the West Fork enters an area of paralleling fields, pastures and occasional stretches of forest. These add variety to the river and provide greater visual interest. At the start of the fields at Warwoman Road, the river banks are badly eroded and continue to show heavy erosion down to the West Forks junction with the main river. This erosion is probably due to overgrazing and lack of sufficient cover along these roads. These lands should be acquired and measures taken to stop the erosion. The owners will probably be willing to sell for fair market value. The fields and pastures along this section of the river should be maintained as open land by fertilizing and planting to hay. Permits could be issued to keep the fields cut and fertilized. This will stabilize these lands with a good cover and stop erosion.

One old farmhouse is within the boundary along this section and detracts from the overall well-maintained pastoral qualities of this part of the river.

Warwoman Highway crosses the West Fork and joins Highway 28 which parallels within one-fourth mile of the main river. This is a two-lane paved highway providing good access between Clayton, Georgia, and Walhalla, South Carolina. It now receives an average daily traffic of 300 vehicles per day.

This section is potentially one of the worst problem areas on the whole river. Paralleling Overflow Road, Warwoman Road and Highway 28 along its entire length could attract undesirable and incompatible development. All lands along this section of the river should be acquired by the Forest Service to protect its quality and to protect the view along the river and along this major access corridor to the river. With the exception of the three summer homes and old farmhouse the rest of this section is in forest, fields, or pasture which can be acquired for a reasonable market value with no appreciable adverse effects on present uses or landowners. Now is the time to acquire these lands while they are still largely undeveloped.

Some old junk mining equipment and old steel tanks have been abandoned on the lower portion of this section. These should be removed to improve the quality of this section.

The remains of an old splash dam are located on this section. This structure has some historical significance, is compatible with Recreation River classification, and should be left.

Georgia Power Lands

The Georgia Power Company owns 38% of the lands within the proposed river boundary--3807 acres in Georgia, and 1883 acres in South Carolina. Except for a small stretch of old fields planted in pines near Highway 28 on the main river, and items already discussed, Georgia Power lands are in a completely forested condition.

The main interest of Georgia Power Company in owning lands along the Chattooga River is for potential reservoir sites. Although reservoirs are not planned for the Chattooga in the foreseeable future, there are several potential reservoir sites which would inundate practically the entire river in Georgia and South Carolina if constructed. Construction of a reservoir on any section of the Chattooga would immediately destroy that section's free-flowing, undisturbed characteristics.

The Georgia Power Company is the largest landowner the Forest Service will deal with and has assured their cooperation at public meetings and in correspondence. If this river is included within the National Wild and Scenic Rivers System, much of the credit for its outstanding primitive qualities can go the the Georgia Power Company for its sound management and protection of these extensive lands along the river in the past.

Georgia Power has some secondary uses of the lands within the river boundary. Timber stands along the river have been harvested regularly on a selective basis. Land appraisals should take into account the value of the timber. Inclusion of those lands and management of these timber stands for aesthetic and recreation purposes will cause no appreciable loss of timber to the local economy. Georgia Power lands acquired by the Forest Service outside the river boundary would continue to be managed for commercial timber production as well as other multiple uses.

Several Georgia Power tracts should be acquired by the Forest Service if this river is included as a Wild, Scenic and Recreation River. These are lands along access routes at Highway 28, Burrells Ford, Earls Ford, Sandy Ford and Highway 76. Many of these have detracting uses, such as worn out primitive camps, jeep trails, etc., which should be removed to improve the quality of the river. Several of these are needed for recreation purposes: for trails, location of information facilities, and for parking and access control along the river.

Fire Control

Most recreation use on the river occurs during the period of May through September when the forest fire hazard is low. The frequent summer rainfall and lush green vegetation combine to minimize fire danger during this period. The highest risk of forest fires occurs in early spring and fall when vegetation has dried. Fire occurence in the corridor is small.

Some changes in fire control organization and tactics may be needed. For example, more use of airplane patrols along the narrow corridor would aid early detection of forest fires. Use of heavy equipment may need modifying to protect aesthetic values.

C. The Benchmark System

A benchmark system must be established within the proposed corridor to measure and note change in the river's outstanding qualities.

Some change is inevitable. The Chattooga River and its surrounding lands are a dynamic moving, living, changing environment. The Chattooga is not a static resource that can be fenced, "encased in glass" and preserved exactly as it is now for all future generations. Inclusion of this river in the National Wild and Scenic Rivers System can prevent over development of the river, but it cannot halt the ageless geologic and ecological processes that have resulted in the formation of this beautiful river and surrounding forest environment.

Least noticeable are the geologic processes occurring over thousands of years that have resulted in the formation and weathering down of this part of the Appalachian Mountains. These geologic processes will continue in future years, slowly changing even the eternal rock of the mountains surrounding the river. More noticeable are the erosive changes wrought by the waters of the Chattooga as it continues to cut its steep way down through the Blue Ridge escarpment.

The forest vegetation that covers the steep hillsides is a living, growing, dying, ever-changing resource. The abundance of tree and shrub species and variety of composition are the result of ageless vegetative changes as well as man's recent treatment of the environment. The towering white pine, hemlock, and many other tree species within the river boundary are successional species introduced naturally after the "cut-out-and-get-out" logging era of the late 1800's and early 1900's. These species will die out and disappear through natural succession as these forests evolve toward a climax oak-hickory and beech-birch-maple forest. Some of these successional changes may be undesirable, and future management programs may be needed to retain desirable vegetative species that now exist within the river boundary.

Vegetation within the river boundary is susceptible to forest fire, disease, insect attack, soil compaction, overuse, and abuse by man. The fish and wildlife within the river boundary move about and change constantly in numbers with changes in their environment. The waters of the Chattooga change with rainfall or drought, immediately responsive to changes in the watershed, both inside and outside the river boundary. The waters flowing

within the river boundary reflect the condition of the entire watershed.

To protect and perpetuate the unique qualities of the Chattooga River a benchmark system is needed to inventory the river's resources and evaluate their condition and trend. A benchmark system notes and measures change, and undesirable change is separated from inevitable change so that management programs can be structured to perpetuate the qualities that make this river outstanding.

The complete mechanics of a benchmark system must be worked out after the Chattooga is included in the National Wild and Scenic Rivers System. Such a system must be designed to focus on the outstanding values and more sensitive elements of the river and environment, measure the existing situation, and provide for periodic remeasurement to keep track of resource condition and trend.

Some of the outstanding river qualities that such a system will measure and monitor are--

--the river is free-flowing, and its environment is essentially primitive and undeveloped. National status and a protective boundary can essentially assure that these desirable conditions will continue within the boundary. A benchmark system should note improvement in the primitive qualities of the river as the few undesirable influences are eliminated and also note changes resulting from construction of trails, primitive campspots and other facilities.

--the river is unpolluted. This condition is definitely not assured; already a pollution problem is being cleared up on a tributary of the river. Water quality monitoring must be continued on the river and its tributaries to frequently measure all changes in this very critical factor.

--the lands along the river are in an essentially forested, natural state. This condition is readily apparent and measureable.

--forests along the river include a variety of tree, shrub, and lesser plant species of all sizes, shapes, and age classes, creating an aesthetically pleasing, natural forested scene. They include both rare and common plants. Present vegetation composition and condition must be inventoried and evaluated. Some methods that might be used are infrared aerial photography to measure species composition in the overstory canopy, line transects on a plot or strip basis to measure all species in the understory and size and rates of growth, and camera points to record the nature of the general scenery. The location and abundance of rare plant species should be totally measured and recorded. The factors responsible for the existence of the present size, shape and

composition of vegetation must be studied and clearly understood. Trends toward a climax-forest type of vegetation through ecological succession must be identified and the most desirable ecological condition determined, so management programs can be tailored to continue desirable successional plant species or allow natural evolution of climax-type forest vegetation.

Vegetation composition and condition must also be inventoried periodically to measure the effects of human use on the river environment. Is the vegetation healthy, normal, or showing signs of stress and loss of vigor? Check plots are needed in remote spots throughout the river boundary as well as in spots susceptible to heavy visitor impact, so natural changes can be separated from man-caused changes and management programs implemented to protect, improve and restore man-damaged ecological conditions. A system for measuring effects of human use on the river environment must be closely tied to an accurate system of use measurement, so damaging levels of use can be identified and optimum levels of use determined.

--the river offers exceptional values of solitude, adventure and awareness, serenity and challenge. Administratively controlled saturation levels, based on limiting numbers of people to maintain a primitive level of experience, will probably be the most severe limiting factors affecting use of this river. A benchmark system should measure these experience level values throughout the river boundary. Analysis of these findings can show the need for design changes in trails or other facilities to disperse visitors and eliminate concentrations, and can suggest needed changes in optimum use levels to maintain a primitive experience within the river boundary. Initial optimum levels have been determined for the river; the effects of these arbitrary controls must be tested and measured on the ground throughout the river boundary.

--a benchmark system must also measure and record changes in fish, wildlife, and other living creatures within the river boundary. It should measure changes in the profile of the Chattooga as it continues to cut its steep course to Tugaloo Reservoir. In effect, it should give an accurate record of all ecological and geologic changes occurring within the river boundary, both natural and man-caused.

All technical assistance available will be used in establishing the system. State and Federal Water Agencies can help with water bench-marks. Forest Service Experiment Stations and many others can help with ecological benchmarks.

D. Development - Facilities and Access

The main attraction of the Chattooga River is its recreation opportunity--the chance to visit a whitewater river and experience solitude, adventure, and challenge. Protecting and maintaining the aesthetic values of the river must remain of paramount importance. Development within the boundary of the Chattooga River must not detract from, or destroy, the natural beauty that makes this river different from other rivers.

Requirements for protection and maintenance of the unique qualities of the Chattooga are the most critically important influences affecting development within the river boundary and surrounding lands. Recreation facilities should provide for optimum public use consistent with maintaining the rare qualities of the river. Outside the corridor, areas must be carefully planned and located to minimize or prevent crowding and overuse of the Chattooga. Trails will be an important means of enabling people to see and enjoy this river. They must be carefully located and designed to disperse visitors to the river and minimize crowding and overuse effects on the environment. Trail systems should also include portages for canoeists and floaters around dangerous obstacles on the river.

Existing roads across the Chattooga should provide sufficient vehicular access to the river. Five roads now cross the Chattooga and two roads cross the West Fork. Parking areas should be located outside the river boundary to help protect the Wild and Scenic sections, while providing a place to leave vehicles.

Small information stations at each major access point can give detailed canoeability and hiking information for the sections of river above and below each road point. Current information on weather and fire prevention can be given visitors along with information needed to enjoy the river.

Reinforced campspots accessible only by trail or river can be located at strategic points. These would include drinking water and vault toilets for visitor comfort and help prevent sanitation and littering problems that come with uncontrolled camping use.

As a nationally significant attraction, the Chattooga will create a demand for large, developed camping areas to accommodate the large numbers of people who come to see this river. These must be located outside the river boundary and far enough from the river to prevent concentrations of people and overuse. Unit or recreation composite plans for the National Forest lands around the river boundary will be primarily concerned with distributing, regulating or limiting recreation uses to prevent loss or depreciation of resources.

The proposed Recreation River sections are needed to help protect and provide a continuity to the overall Chattooga River system. Recreation developments should be located in these sections only if they can complement or reduce pressure on the more primitive sections of the river.

The need for a main information center on the Chattooga should be fully explored. Such a center could provide needed detailed information about the entire river and interpretive information for those who cannot be accommodated on the river. It could also serve as a main control point if portions of the river become saturated and visitor limitations have to be imposed.

Present recreation development along the river itself is quite limited. The only public recreation development within the proposed boundary is the U. S. Forest Service campground at Burrells Ford. Private recreation residences occur in a few places. Within 18 miles of the river, there are recreation facilities such as picnicking, camping, and cabins to accommodate in excess of 1500 persons at one time. Appendix H gives the breakdown of the location and facilities available at these areas.

No additional general area access is needed for the Chattooga River. The only additional motor access planned is an extension of the Blue Ridge National Parkway which will pass within a few miles of the head of the river in North Carolina, outside the corridor.

In general, specific access already exceeds need. Only two additional roads totaling 1.4 miles are needed to make presently inaccessible areas available to the public. Neither of these roads will be constructed within the proposed boundary of the river. Generally, the plan provides for closure and revegetation of existing little-used jeep roads. A total of thirty miles of jeep roads will need to be closed and revegetated. The general plan of accessibility for the river will be by trail. Six new trails totalling 2 1/2 miles, generally on the location of old jeep trails, will be constructed from planned parking lots outside the river boundary to the river itself.

Recreation development along the Chattooga River will be kept simple. Access will be primarily by trail, except at existing highway and Forest Service road crossings. Fourteen parking lots are proposed--13 of these will be outside the proposed boundary and only the one at Overflow Bridge will be inside. To protect the river banks and the recreation users, 14 portages have been proposed around areas where canoeing is difficult or impossible.

Eleven launching sites planned for floating equipment will be kept simple and in general will have little development. Their location is along sandbars which will maintain themselves with the periodic high waters.

Ten primitive campsites are proposed along the river. These campsites will be at development scale 1, consisting primarily of reinforced areas to protect the river environment from undue wear. The sites will have minimum sanitary facilities and potable water where possible. A summary of the Recreation Development Plan will be found in Appendix I.

A system of hiking trails is necessary for full enjoyment of the river, especially in Wild and Scenic sections. A total of 54 miles of trails is proposed for the Chattooga River. These trails will, for the most part, replace existing jeep roads and poorly located foot trails. The summary of the trails and the first five years planned construction is in Appendix J.

Outside the proposed corridor, but within 12 miles of the river, additional campgrounds are proposed to handle 2400 people at one time. The only camping to be encouraged within the corridor will be overnight camping necessary while hiking or canoeing. Indiscriminate camping along the river will be discouraged. A summary of the supporting campgrounds near the river is in Appendix K.

Appendix G gives the summary of the recreation development schedule for the first five years, including expected cost.

E. Information and Education

The Chattooga River area is rich in settler and Indian history and outstanding scenic features. A real opportunity exists to interpret these outstanding features--to orient the visitor to the river's attractions, inform him of the recreation opportunities available within the river boundary, and enhance his overall experience in visiting the river.

Interpretation can do more than answer basic questions of what visitors come to see and do. It can open new vistas of knowledge and instill in the visitor a sense of appreciation for values or concepts of which he is unaware, or in which he had little or no previous interest. However, this can be done only after the basic questions are answered, and only then by relating these new concepts to what the visitor originally came to see.

Many visitors will have to canoe, hike and camp to get this association. Others will be satisfied by just driving across the river at the access points or by viewing exhibits and interpretive displays at various information points. Motion pictures and television programs can be an effective means of reaching this segment of the public.

A well planned interpretive program is needed for those who cannot be accommodated on the river. It should incite an inspiring feeling of stepping back in history two or three hundred years--a part of the same feeling that one would get if he canoed or hiked down the river. The program would provide an experience for those who for any reason are unable to participate first hand.

Purposes of an interpretive program for the Chattooga River could be--

--to stress to all visitors the need for personal safety and the proper care of the river's unique environment.

--to inspire visitors with the unique primitive qualities of the river.

--to give the public a general idea of the purpose of a Wild and Scenic River and how it is managed and protected.

--to inform the public of the recreational opportunities available on the river.

--to point out the unusually scenic features along the river.

--to explain the geology and ecology of the area.

--to tell the story of the human history along with the legends.

Basic information needs include--

--a detailed description of the various sections of the river and the recreation attractions and opportunities to be found in each.

--maps of access roads and trail system within the river boundary, showing primitive campspots, relative difficulty of trails, estimated travel time and features along the way.

--maps showing rapids, cascades, falls and portages with canoe class ratings for each reach of the river. These should also show primitive campspots, estimated travel time and features along the way.

--current river height information related to canoeability of the river.

--regulations and responsibilities of both the administering Agency and the public concerning the Wild and Scenic River.

--safety considerations for all visitors to the river.

--all access roads and major trails beginning points to the river identified on the ground.

APPENDIXES

Note: Other Appendix Material on file in the office of:

Forest Supervisor
Chattahoochee-Oconee National Forests
P. O. Box 1437
Gainesville, Georgia 30501

APPENDIX A

STATEMENT OF GEORGIA POWER COMPANY TO THE PUBLIC HEARING REGARDING THE STUDY OF THE CHATTOOGA RIVER IN THE NATIONAL WILD AND SCENIC RIVER SYSTEM

HIGHLANDS, NORTH CAROLINA

DECEMBER 5, 1969

My name is Charles R. Minors. I am Assistant to the President of Georgia Power Company and a member of a policy group of our Company specifically charged with planning the orderly development of land and water resources under our control so as to provide the optimum use by the public consistent with the power supply responsibilities of the Company.

Georgia Power Company is aware, of course, of local interest as well as that of groups such as the Georgia Conservancy in the future of the Chattooga River. During the pendancy and since the enactment of the Scenic and Wild Rivers Act, in which the Chattooga is included for study, we have several times advised interested parties that the Company would be cooperative with regard to plans which might be developed in the study. We here restate that intention. Additionally, we have discontinued timber harvest in the area.

Georgia Power Company's Chattooga ownership of land in the area amounts to a total of about 10,000 acres, in South Carolina and Georgia, and includes a large part of the land which would be necessary to establish a wild or scenic river under the present terms of the Act.

These lands were originally acquired for possible use for water impoundments in the development of the hydro-electric potential of the Chattooga River. From time to time, the Company has reviewed the feasibility of such development. Generally our reviews have followed the development pattern described in the report of the U. S. Study Commission, Southeast River Basins (Senate Document No. 51, 88th Congress.) Portions of that report pertaining to the

Chattooga have been summarized by the Resources Advisory Board Southeastern River Basins staff in a memorandum dated November 14, 1969.

The method of development outlined in the report would provide four dams (Camp Creek, Rogues Ford, Sand Bottom and Warwoman), utilizing approximately 750 feet of river head, and flooding a total of about 3,700 acres.

The total capability proposed is 366,000 kilowatts. In the opinion of Georgia Power Company, the development of these projects is presently marginal from the economic viewpoint. That this is the present case is emphasized because of several factors. Hydro-electric projects now under construction and those for which Federal Power Commission licenses are pending will bring on line substantial peaking capability during the 1970's. Other proposed Federal projects, authorized by Congress but as yet not scheduled or funded, might be accorded higher priority than Chattooga development. A feasibility analysis of the Chattooga projects in the context of costs which might prevail and the energy requirements of the area at some future indeterminate date would be highly conjectural.

The staff memorandum of November 14, 1969 suggests that an alternative to the previously studied projects on the Chattooga might be a plan for more comprehensive development embracing pumped storage as well as conventional hydro-electric installations and the siting of fuel-steam plants. Georgia Power Company has not made such a study and can offer no comment on this point at this time.

Georgia Power Company concurs in the suggestions of the staff memorandum that consideration of the several possible uses of the Chattooga resources be placed on a coincident time basis and that the matter be considered from the viewpoint of the overall most beneficial development of the Savannah River Basin.

APPENDIX B

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 889
SAVANNAH, GEORGIA 31402

REPLY REFER TO

17 March 1970

Statement of Colonel John S. Egbert
District Engineer, US Army Engineer District
Savannah, Georgia

This statement relates to the proposal to include the entire Chattooga River in the National Wild & Scenic Rivers System.

The Chattooga River is a tributary in the Savannah River Basin System. The comprehensive water resources plan of development prepared by the Corps of Engineers and approved by Congress in the Flood Control Act of December, 1944 identified four sites on the Chattooga River for eventual construction as a part of the development of the Savannah Basin. These four sites are located at Camp Creek, mile 4.9, Rogues Ford, mile 11.0, Sand Bottom, mile 17.7 and Warwoman, mile 20.4. All would provide hydro-electric power and recreational benefits.

The Savannah District is presently engaged in a comprehensive review of the water resources of the Savannah River Basin to update the 1944 approved plan as required, to reflect present water resources needs and priorities. In connection with this study, and of specific relevance to the present proposal, we are placing greater emphasis on a more comprehensive planning approach including technological, sociological and environmental studies.

Our studies to date indicate that the environmental implications of this proposal are positive, since the Chattooga in its present state contributes a great deal to the scenic and aesthetic value of the region, generally posesses high water quality and would preserve under the conditions of the proposal one of the longest and free flowing rivers in the Southeast in its relative primitive and undeveloped state, and thus preserve a unique national environmental resource. Therefore, I support the proposal to preserve the Chattooga River as a "wild and scenic river." Management and development as set forth in the proposal would contribute to the overall water resources development and preserve the positive environmental impact of the Chattooga River on the entire Savannah Basin.

JOHN S. EGBERT
Colonel, Corps of Engineers
District Engineer

APPENDIX C

November 14, 1969

PROPOSED CHATTOOGA RESERVOIR PROJECTS
AND ELECTRIC POWER POTENTIAL

Prepared by Resources Advisory Board,
Southeast River Basins Staff

Background—Pursuant to Public Law 85-850, the U. S. Study Commission, Southeast River Basins prepared and submitted to the President and the Congress in September 1963 a Report On A Plan For Development Of The Land and Water Resources Of The Southeast River Basins, Senate Document No. 51, 88th Congress. The Study Commission was deactivated in December 1963.

Possibilities of hydroelectric power within the eight river basins in the Southeast River Basins area (map attached) was one of the functions considered in preparing the Study Commission comprehensive plan of development. The Chattooga River, a tributary of the Savannah Basin was included in the geographical area for which the plan was developed.

Role of the Resources Advisory Board—Pursuant to a proposal contained in the Study Commission Main Report (pp. 4-68, 69) the Resources Advisory Board, Southeast River Basins was established in 1964—"to encourage continued coordination among the Federal and State Governments in the field of land and water resources; to review programs and projects needed in the near and distant future; and to encourage the proper development of programs and facilities to obtain the desired results,"—within the Southeast River Basins area.

At a meeting of representatives of the Georgia Power Company, U. S. Forest Service, Bureau of Outdoor Recreation, Corps of Engineers, Federal Power Commission, and the Resources Advisory Board on October 24, 1969, in Atlanta, it was agreed that the Resources Advisory Board staff would prepare a resume of the U.S. Study Commission, Southeast River Basins proposal for the Chattooga Project. Copies of the resume would be distributed by the Board no later than November 18, 1969, to the private power company and Federal agencies identified above for their comment.

The resume has been prepared by the Resources Advisory Board staff substantially in consonance with the Study Commission plan for the Chattooga Project; also pursuant with a letter dated October 7, 1969, from Mr. Roy K. Wood, Regional Director, Bureau of Outdoor Recreation, and an outline entitled, "Chattooga Hydro-Electric Potential," distributed by the Bureau of Outdoor Recreation to the representatives at the indicated meeting on October 24; and in accordance with a letter dated October 28, 1969, from H. Van Dyke, Assistant Regional Director, Bureau of Outdoor Recreation, to Horace Morgan.

The resume follows:

Proposed Chattooga River Reservoir Projects

The Study Commission proposes construction of four dam and reservoir projects—Warwoman, Sand Bottom, Rogues Ford, and Camp Creek—on the

Chattooga River to help meet electric power needs and as a part of development of the basin. The power generated would be for meeting peak loads. Operation of the four potential projects would involve integration and coordination of the water supply, power, and related purposes since all units involve releasing of water from one reservoir down to another. Accordingly, they have been analyzed as one project, (maps attached).

FEASIBLE HYDROELECTRIC POWERPLANTS—CHATTOOGA PROJECT

	Reservoir				Drainage area (sq. mi.)	Gross power head (ft.)
	Normal pool elevation* (ft.)	Area (acre)	Draw-down (ft.)	Capacity (acre-ft.)		
Warwoman	1,640	3,110	35	147,500	163	182
Sand Bottom	1,458	115	1	5,040	178	141
Rogues Ford	1,317	253	25	11,300	193	246
Camp Creek	1,071	260	20	15,000	258	180
		3,738**		178,840		749

*Operating elevation, feet, mean sea level
**Area flooded

Location—The proposed four units in the Chattooga Projects would be located on the lower Chattooga River in Oconee County, South Carolina, and Rabun County, Georgia.

Figure 4.26 diagrammatically indicates the location of the Chattooga Development.

The uppermost unit—Warwoman would be constructed first to provide streamflow regulation for the downstream power sites at Sand Bottom, Rogues Ford, and Camp Creek.

Sand Bottom unit would be located below Warwoman site. The powerplant would be located about a mile below the dam at the headwaters of the Rogues Ford reservoir site. Water from Sand Bottom reservoir would be diverted through a 1,600 foot long pressure tunnel which would cut through a bend in the Chattooga River.

Rogues Ford unit would be located 6.4 miles below the Sand Bottom unit, just north of U. S. Highway No. 76. By increasing the height of Camp Creek reservoir from an operating level of 1,021 feet to 1,071 feet, a loss of 50' in power head in Rogues Ford would occur, but it would be gained downstream in Camp Creek site. This would induce a total saving in construction costs, thereby improving the entire system.

Camp Creek unit would be 6.2 miles below the Rogues Ford site and about 5 miles northeast of Tallulah Falls, Georgia.

The Camp Creek powerplant would discharge into existing Tugaloo Reservoir at elevation 892 feet, while providing a gross power head of 180 feet. Part of this gross head would be obtained by utilizing a tunnel and penstock to gain the head in the river between Camp Creek and Tugaloo Reservoir. Thus, this plant would complete the continuous chain of four integrated units from Warwoman downward to Sand Bottom, Rogues Ford, Camp Creek; then into the existing Tugaloo and Yonah developments of the Georgia Power Company; and thence into Hartwell Reservoir.

PRINCIPLE BENEFITS OF EACH PROPOSED UNIT IN THE CHATTOOGA PROJECT

Hydroelectric Power Potentials

Unit	Installed capacity (kw.)	Output average annual generation (million kw.-hr.)
Warwoman	80,000	50.3
Sand Bottom	66,000	42.8
Rogues Ford	120,000	77.5
Camp Creek	100,000	75.0
	366,000	245.6

Annual equivalent primary tangible benefits for the four Chattooga power units would be $9,228,000

Recreation benefits--Recreation facilities such as access roads, boat docks, trails, camping and parking areas, water supply, sanitary facilities, and related works would be provided.

Unit	Recreation increase (user-day)*	Fish and wildlife increase (user-day)*
Warwoman	100,000	100
Sand Bottom	45,000	-660
Rogues Ford	60,000	-970
Camp Creek	55,000	3,300
	260,000	1,770

*User days annually by the year 2000.

Annual equivalent primary tangible benefits for recreation would be $369,000; for fish and wildlife minus $21,000.

Warwoman and Camp Creek Projects would provide power, recreation, and fish and wildlife usage. Sand Bottom and Rogues Ford Projects might adversely affect some types of fish and wildlife developments in the area because of the change from open stream to reservoir conditions. The reservoirs themselves, together with associated improved access, generally create fishing values greater than those of the stream reaches they replace. Facilities for access to fishermen and others would be provided. Eighteen water access areas would be located as follows: Warwoman--6, Sand Bottom--5, Rogues Ford--2, and Camp Creek--5. The water access areas would provide a wide distribution of facilities, at low cost, to make the reservoirs available to visitors from all over the region. They would be located at suitable sites for sportsmen and other and where construction work and land acquisition could be held to a minimum.

A main objective of the access sites would be to provide convenient points to reach the reservoirs for fish and wildlife management, reservoir gaging, sampling, and measurements, and other purposes outside the fields of recreation and fishing.

Ten recreation areas totaling 260 acres would be located as follows: Warwoman--2, Sand Bottom--2, Rogues Ford--2, and Camp Creek--4.

The total annual equivalent primary tangible benefits for power, recreation, fish and wildlife would be $9,576,000.

Other Benefits--The four units in the Chattooga Project would provide benefits of primary and secondary nature attributable primarily to recreation and hydropower. Basinwide coordinated multiple-use operation of the four potential Chattooga River units with other units in the Savannah Basin with the relatively large storage regulation would decrease drawdowns and increase stability of operations and would greatly enhance power, recreation, fish and wildlife, navigation, and other uses beyond monetary values credited in the Study Commission plan.

Construction activities would provide a temporary impetus to the local economy. A substantial part of the construction costs would be spent locally for wages, services, and materials. Following completion of the project, home construction in the immediate vicinity of the reservoir should further benefit the construction trades and local economy.

Business, present and potential, would benefit from the increased recreational activity in the area. There would be increased sales of gasoline, food, lodging, beverages, and recreational supplies and equipment.

The hydropower development and regulated water would enhance the industrial development potential of the area and also facilitate the economic growth in general.

There would be an increase in land values in the vicinity of the reservoirs as a result of increased utility of the area and the improvements. This would broaden the tax base of the counties involved and result in increased tax revenues.

Flood control benefits--Benefits accruing to flood control from development of the Chattooga Project would not be significant.

Other influences--The four proposed reservoirs would inundate more than 3,700 acres of the lower Chattooga Valley that are now valuable for timber production and other uses and would also inundate a few fishing streams of good quality. But, they would, in addition to their specific uses, improve land values around their borders. The reservoirs themselves, together with associated access, generally create fishing values greater than those of the stream reaches they replace.

The initial impact from construction of the reservoirs would accrue to North Carolina, South Carolina, and Georgia. The benefits from the regulation that the reservoir system would provide would accrue to the Nation generally, but Georgia and South Carolina would receive the greater share of the benefits and costs.

The valley now has limited development, except for small areas of agricultural land, principally in the Warwoman site and some highways and roads. This series of units would be comparable to the developments on the Tugaloo and Tallulah Rivers which have created substantial recreation and fishing uses, even though development was expressly for hydroelectric power. However, available data indicate some damages could occur to fish and wildlife and to recreation by development of the 4 Chattooga River units.

The limited data on the Chattooga Project needs review in light of what has occurred as a result of quite similar developments on the Tallulah River.

The system of four reservoirs proposed would have both physical and economic effects on each unit in the system. This does not mean that the proposed system could not be improved by more thorough study or could not be developed in stages over a number of years. Further investigation may result in desirable adjustments in the proposed plan. Such studies should be made before any major segment of the plan is constructed. For example, pump storage multiplies the amount of peaking power that can be obtained from a limited stream flow--thus, pump storage as an alternative or supplemental means of power generation should be analyzed.

Chattooga Project Costs Related to Benefits
($1,000)

Investment*

Joint Costs	45,410**
Power facilities	91,720
Recreation facilities	1,170
Total	138,300**

*Investment costs are based on January 1, 1960 prices.
**Includes $60,000 for fish and wildlife facilities to mitigate fish and wildlife losses.

Annual equivalent

Investment		4,979
Operation, maintenance, and replacement		944
	Subtotal	5,923
		3,038
	Total	8,961

Allocation of Costs ($1,000)

	Investment	Annual equivalent		OM & R at year 2000
		Total	OM & R	
Power	136,900	*8,829	873	874
Recreation	1,400	122	71	73
	138,300	*8,961	944	947

*Includes $3,038,000 for taxes foregone

Hydroelectric Power Costs—Chattooga Project

	Costs ($)			
	Annual equivalent			Investment
Project	Total	Operation maintenance, & replacements	Taxes foregone	
Chattooga Units	8,839,000*	873,000	3,038,000	136,900,000

*Includes $3,038,000 for taxes foregone

Recreation Costs—Chattooga Project

	Costs ($)*		
	Annual Equivalent		Investment
Project	Total	Operation maintenance, & replacements	
Chattooga Units	122,000	71,000	1,400,000

*Allocated costs only

Cost sharing—Chattooga Project

Project	Investment costs non-Federal	Annual operation, maintenance, and replacement costs at year 2000, non-Federal
Chattooga Project	$138,300,000	$947,000

Cost sharing data shown above are only suggestive. Further study may result in different costs and cost-sharing arrangements.

Investment costs—include all of the costs of project construction including lands and rights-of-way, estimated for the period of development through the year 2000.

Operation, maintenance, and replacement costs—shown as an annual cost, and estimated on the basis of development at year 2000.

Operation, maintenance, and replacements costs for use in cost-sharing arrangements are based on full use of the facilities that are specifically proposed. Since the ultimate need during the period studied will not normally develop until the year 2000, the full operation, maintenance, and replacement costs for the Chattooga facilities are shown as "OM & R at year 2000." The plan is designed to meet needs to the year 2000, so additional needs, costs, and benefits that may develop after that year have not been evaluated. This does not ignore or preclude the possibility of adding facilities after the year 2000, if the Chattooga project then exists and additional needs should be met.

Costs of Chattooga Development Related to Benefits by States
(thousands of dollars)

Project	Georgia			South Carolina		
	Benefits	Costs		Benefits	Costs	
	Annual equivalent*	Total annual equivalent	Investment	Annual equivalent*	Total annual equivalent	Investment
Chattooga**	9,576	8,961	138,300	9,576	8,961	138,300

*Primary tangible only; intangible and secondary benefits and impacts considered are presented in narrative.
**The project would be located in two States; total costs and benefits are shown in each State.

REGIONAL NEED FOR DAMS

Present and future needs for electric power—The per capita use of electricity in the SERB area in 1959 amounted to about 3,000 kilowatt-hours, which was below the average for the Southeastern region, which in turn, was below the national average.

Energy requirements in the SERB area in 1959 totaled about 15 billion kilowatt-hours with a demand of about 2.9 million kilowatts. Hydroelectric plants generated about 3 billion kilowatt-hours that year and had a peak capacity of nearly 900,000 kilowatts.

(In FY 1968, Clark Hill with 280,000 kilowatts capacity generated about 660,365,000 kilowatt-hours. Hartwell with 264,000 kilowatts capacity generated 486,000,000 kilowatt-hours in FY 1968. Since power was put on the line in 1954, Clark Hill has sold $46,810,000 of power; since operation began in 1962 Hartwell has had revenue from power sales amounting to $16,293,000.)

Within the Savannah basin, the Georgia Power Company at four electric powerplants on the Tallulah River and two plants on the Tugaloo River has an installed capacity of 166,420 kilowatts. The Georgia Power Company and the City of Augusta in 1966 applied to FPC for a joint license to build a hydroelectric plant with 12,000 kw. capacity on the Augusta Canal.

Five other electric power plants in the Savannah Basin have an installed capacity of 26,100 kilowatts. In March 1967, Duke Power Company began construction of the Keowee-Toxaway power complex which will ultimately provide 10,408,000 kilowatts.

By 1975, the projected per capita use of about 7,600 kilowatt-hours per year will closely approach both the projected market area and national averages.

By 1975, electrical energy requirements in the SERB area are projected to 49 billion kilowatt-hours with a demand of about 9.1 million kilowatts. By 2000, total electrical requirements in the SERB area are expected to reach at least 119 billion kilowatt-hours with a demand for about 22 million kilowatts of capacity. Per capita use is expected to be at least 11,700 kilowatt-hours annually.

Facilities are included in 27 proposed projects in the Study Commission plan for the SERB area to provide additional installed hydroelectric power capacity of 2.5 million kilowatts and provide an additional production of 3.6 billion kilowatt-hours.

Area served from proposed Chattooga projects--The Savannah Basin exports power to market areas which include South Carolina, most of North Carolina, and most of Georgia.

The large interconnected power regions of the United States are subdivided into power supply areas embracing interconnected and coordinated electric facilities. The Southeast River Basins (SERB) are part of four power supply areas--21 through 24, as designated by the Federal Power Commission. The SERB area is connected to generating sources in adjacent areas through transmission lines ranging from 34,000 to 230,000 volts. Most of the Savannah Basin is in power supply areas 21 and 23.

Development of the units in the Chattooga Project would require construction of high-voltage transmission lines from the generating sources to load centers and ties to existing transmission grids. As the electric load grows, additional transmission and distribution lines would be constructed; substations would be enlarged; and new stations built to meet the shifting load patterns. Transmission and distribution of energy from source to user will pose no unusual problems.

The area served by the proposed Chattooga Project substantially depends upon whether public or private interests develop the project and would be contingent upon the marketing arrangement for the electric power generated.

Other potential damsites in the Savannah basin. Other potential projects including hydroelectric power as a purpose which are included in the Commission plan for development in the basin are:

Project	Normal pool elevation (ft.)	Power storage (acre-feet)	Gross head (ft.)	Installed capacity (kw.)	Average annual generation (million kilowatt-hour)
Horsepasture	2,960	11,400	1,860	58,000	89
Tallow Hill	610	560,000	190	172,000	113
Anthony Shoals	410	113,000	70	100,000	61.5
Trotter Shoals*	475	63,000	145	310,000	471.4
Lower Savannah: Burton's Landing	103	90,000	48	100,000	345
Stokes Bluff	55	110,000	35	60,000	197
		947,400	2,348	800,000	1,276.9

*Authorized, planning underway, construction not funded.

((The Secretary of the Interior in June 1966 filed a petition for intervention in Duke Power Company application to the Federal Power Company for license to build the Keowee-Toxaway Project (FPC Project No. 2503) and said in part—"The next step in the comprehensive plan for development of the Savannah Basin is the Trotters Shoals Project"—

—"Subsequently, power may be made available to applicant from the four Chattooga River plants (meaning—Warwoman, Sand Bottom, Rogues Ford, and Camp Creek), which comprise the next step in the comprehensive plan after Trotters Shoals."))

The more significant alternative unit considered but not included in the Study Commission plan was the upper Chattooga River project, a high head plant upstream from Warwoman reservoir. Data on that potential hydroelectric facility follows:

Upper Chattooga Project

Project	Normal pool elevation (ft.)	Power storage (acre-ft.)	Gross head (ft.)	Installed capacity (kw.)	Average annual generation (million kilowatt-hour)
Upper Chattooga	2,600	12,000	960	38,000	45.3

Other potential projects including hydroelectric power as a purpose which were considered and not included in the Commission plan for the Savannah basin are:

Other Potential Hydroelectric Powerplants

Project	Normal pool elevation (ft.)	Power storage (acre-feet)	Gross head (ft.)	Installed capacity (kw.)	Average annual generation (million kilowatt-hour)
Upper Whitewater	2,800	5,000	800	12,000	19.6
Lower Whitewater	2,000	5,800	900	22,000	28.2
		10,800	1,700	34,000	47.8

(It is not contended that the above cited power possibilities constitutes the total potential in the basin. Concerned power interests who operate in the Savannah basin may have under consideration other locations and other sources of electric power.)

SERB area, Savannah basin, and Chattooga River power production—present and future—The electric load of the SERB area and in the general southeastern electric power market area, at the time the study Commission performed its studies, had expanded beyond the ability of hydroelectric capabilities. Most of the energy requirements of the SERB area in the early 1960's were met from fuel-electric generating sources—70 percent, or 2,043,500 kilowatts; whereas 30 percent or 867,200 kilowatts were installed in hydroelectric plants. Thus, in the SERB area the installed capacity on December 31, 1960, exclusive of capacity not contributing to the public supply, totaled 2,910,700 kilowatts.

The Study Commission envisioned in its plan that by the year 2000, the SERB area would have a demand of approximately 22 million kilowatts. The 2.9 million kilowatts of installed capacity from 29 projects listed in the Study Commission Report would provide only about 13 percent of the total demand.

The following table indicates the location of the 29 projects within the SERB area.

Hydroelectric Power Supply Projects Under Construction and Selected Potential Projects

Basin and project	Installed capacity (thous.kw.)	Average annual energy (thousand kilowatt-hours)
Savannah basin:		
Horsepasture	58	88,500
Jocassee	150	77,100
Newry-Old Pickens (Keowee)	150	93,800
Warwoman	80	50,300
Sand Bottom	66	42,800
Rogues Ford	120	77,500
Camp Creek	100	75,000
Hartwell	330	450,000
Trotters Shoals	310	471,400
Tallow Hill	172	113,000
Anthony Shoals	100	61,500
Burtons Landing	100	345,000
Stokes Bluff	60	197,000
Sub-total	1,796	2,142,000
Altamaha basin:		
5 projects	388	670,000
Apalachicola-Chattahoochee-Flint Basins:		
10 projects	728	1,625,900
Choctawhatchee-Perdido basins:		
1 project	47	53,000
Total	2,959	4,492,600

(Of the 29 projects listed in the preceding table, the Corps of Engineers has since completed two of the projects and a third project is under construction, as follows):

Basin and project	Installed capacity (kilowatt)	Average annual energy (kilowatt-hour)
Savannah basin		
Hartwell	264,000	453,000,000
Apalachicola-Chattahoochee-Flint basin		
Walter F. George*	130,000	494,093,000 (1968 FY)
West Point**	73,375 (initial)	191,000,000
	109,000 (ultimate installation)	191,000,000

*Hartwell became operational in 1962, Walter F. George in 1963.
**West Point under construction, scheduled for completion in 1973.

Also, Trotters Shoals has been authorized, with an anticipated installed capacity of 310,000 kilowatts.

In addition, Duke Power Company has under construction the Keowee-Toxaway electric power complex, consisting of:

Facility	Kilowatts
Lake Keowee-Toxaway hydroelectric (Newry-Old Pickens)	140,000
Jocassee pump storage (reversible pump turbines)	305,000
Oconee nuclear (3 units)	2,658,900
Total	3,103,900

Eventually, Duke Power Company plans to install 7 million kilowatts of generating capacity in steam stations on the shores of Lake Keowee. Up to 3,000 mw. of steam electric power is in the immediate offing at that location. Two additional reversible pump turbines which will generate 305,000 kw. will be added to Jocassee at a later date.

Also, in 1966, the Congress authorized Duke Power Company to build a small coffer dam in the 1970's across the Savannah River at Middleton Shoals between Anderson County, South Carolina, and Elbert County, Georgia to provide cooling waters for a 2 million kilowatt steam plant.)

The electric energy requirements within the Savannah basin, excluding the Savannah River plant of the Atomic Energy Commission, are estimated to increase from 2.6 billion kilowatt-hours in 1959 to at least 6.5 billion kilowatt-hours by 1975 and to 16.4 billion kilowatt-hours by 2000. The demands, based on load factors of 59.6 percent for 1960, 62.4 percent for 1975, and 62.7 percent for 2000, are 504,500 kilowatts, 1,180,000 kilowatts, and 2,983,000 kilowatts, respectively.

Of the preceding indicated electric energy requirements of the basin, the 4 units in the Chattooga Project would generate an average annual output of 245.6 million kilowatt-hours, with an installed capacity of 366,000 kilowatts, if constructed according to the Study Commission plan. Thus, the hydropower potentials in the Chattooga Projects could meet only a portion of the power supply requirements.

The projected demands for electricity in the Southeast River Basins far exceed any potential which the area has for hydroelectric power development.

(The Chairman of the Federal Power Commission on November 7, 1969, in testimony before the Joint Committee on Atomic Energy said, "The projected growth of the electric utility industry during the next two decades may possibly require the construction of about 40 new hydroelectric installations of 100 megawatts or more, approximately 50 new pumped storage hydroelectric installations of 300 megawatts or more and about 90 fossil and 165 nuclear steam-electric plants on new sites. To meet these needs, the electric utility industry will need to install 1,000,000 megawatts of new capacity between 1970 and 1990."

The power official did not indicate where within the Nation the installations might be installed.)

Possibilities of potential impoundments on other rivers to satisfy power needs—

("The Nation's Water Resources," Water Resources Council, 1968, for the South-Atlantic Gulf Region, 24 distinct river systems extending from the Roanoke River Basin in Virginia to the Pearl River Basin in Mississippi, stated that—

"Federal hydroelectric projects currently under construction will provide 715,000 kw. of installed capacity, non-Federal projects about one million kw. Four other federally authorized projects on which construction has not been initiated but likely to be completed before 1980 will provide 580,000 kw. of hydropower. Non-Federal hydroelectric facilities may be developed that will provide 800,000 kw." The foregoing additional sources would total 3,095,000 kw.—if constructed. Thus, within the next

10 years in an area three times larger than the SERB area, only about 3 million kilowatts of additional capacity would be provided from impoundments.

The South Atlantic-Gulf Region totals 276,000 square miles, the Southeast River Basins area includes 88,000 square miles.

Unless a significantly larger amount of TVA electric power sources are wheeled into the SERB area, the only additional probabilities of potential impoundments on other rivers to satisfy immediate power needs would be provided by the sources mentioned in the Nation's Water Resources quoted above.)

Alternative means of meeting electric power needs—

(one alternative would be to expand and improve the design for projects in the Study Commission Report as has been done by Duke Power Company at its Keowee-Toxaway power complex.

For example, the Study Commission plan which included consideration only of hydroelectric potentials estimated that Jocassee and Newry-Old Pickens Projects would have an installed capacity of 300,000 kilowatts and an average annual generation of 170.9 million kilowatt-hours. Within the area covered by those two projects, Duke Power Company has expanded facilities under initial construction or to be added later to include pump storage and steam stations that would provide 10,408,000 kilowatts as follows:

Facility	Initial construction (kw.)	To be added later (kw.)	Total (kw.)
Jocassee (pump storage)	305,000	305,000	610,000
Newry-Old Pickens (Keowee-Toxaway)	140,000	—	140,000
Oconee Nuclear Station (3 units)	2,658,000	—	2,658,000
Steam stations	3,000,000	4,000,000	7,000,000
			10,408,000

Much of the power produced by Duke at Keowee-Toxaway power complex will be transmitted to customers in North Carolina and would be well beyond the SERB area. Only a small portion of the 10,408,000 kilowatts expected from that power complex would be used in the SERB area under present arrangements.)

Preliminary studies by the Study Commission indicated that pump storage would be economically feasible at the Trotters Shoals site at such times as load requirements justify such additions to the project. It is estimated that about 290,000 kilowatts of pump storage capacity could be developed in connection with the Trotters Shoals Project. The Clark Hill Reservoir could act as an afterbay for pump storage units in the Trotters Shoals project.

Pump storage capacity could be installed in the four units of the Chattooga River Project and possibly at other sites.

The feasibility of pump storage depends on the availability of off-peak energy and on the physical advantages of each site. The annual load factor of electric usage is expected to increase in the future. This will tend to decrease the availability of off-peak energy that comes from steam-electric generation, which is in excess of base-load requirements.

In the Piedmont province, there are other potentials for classical pump storage units along the major streams transversing the area.

Part of the additional capacity required to meet the increasing electric load may be in nuclear-fueled plants. Advances in the use of fuel cells, thermal-electric, solar and other types of devices to convert heat to electric energy have been made. With further experimentation, development, and improvement some type of direct conversion unit may become competitive with the present steam-electric central station plant for base load operations. Nuclear-fueled plants have recently become more competitive with conventional steam-electric plants.

Developments in the application of aircraft-type jet engines as prime movers of electric generators indicate that they have a potential for peaking purposes. The initial cost per kilowatt is considerably less than conventional thermal plants, thus reducing fixed charges. The plants can be fully automated reducing operator costs offsetting to some degree the high costs of fuel. These installations have further advantages of site location, cooling water requirements, and load availability. One major disadvantage is the problem of noise suppression.

While not an alternative means of meeting electric power needs, emerging super-transmission grids of the 230/500 kilovolt range would connect major load centers with the major generating center—and thus would facilitate the interchange of power between areas. But, in addition, radial transmission lines to convert new generating sources, nuclear, conventional fuel, or hydroelectric, will be needed. However, transmission is not now and is not expected to be a major problem in meeting future electric requirements.

Direct current transmission may be in the picture by the year 2000.

USE OF THESE DATA

Substantially all of the information contained in the Chattooga River Project is based on data contained in the Report of the U. S. Study Commission, Southeast River Basins, 1963. Much of the information in that Report is based on 1960 conditions—thus is based on conditions of about 10 years ago. The Study Commission Report plus the information contained herein is intended to serve as a guide to resources development.

The Georgia Power Company, the indicated Federal agencies and other interests involved in the Chattooga River should consider providing additional inputs, if the information furnished herein is to reflect current conditions and plans of all entities.

Much of the costs, benefits and other data shown for the Chattooga Development should be construed as extraneous, unless corresponding information is concurrently submitted and considered for the Chattooga River as a Wild or Scenic River. Otherwise, it would be inconsistent to furnish elements of the power and recreation plan indicated above, but not have a comparable wild or scenic river plan—so that the two plans may be equated. Further, if other plans are prepared, identical period of analysis and evaluation procedure should be agreed to at an early date for the two plans--wild (or scenic river) and the Chattooga Development.

Some inconsistencies and inadequacies are likely to occur when selected material is taken out of the context as in this instance when the Chattooga Development has been extracted from a comprehensive plan for the Savannah Basin. It would be more appropriate to consider the Savannah Basin and the Southeast River Basins area in the aggregate rather than disaggregating the Chattooga Development.

The power, recreation and other interests should give consideration to the advisability of or need for rearranging the sequence, content, and format of this resume which has been compiled substantially pursuant to an outline proposed by the Bureau of Outdoor Recreation, Regional Office, Atlanta.

APPENDIX D

Hydroelectric Power Potential of the Chattooga River Basin

Electric power loads in the Southeast are doubling every 8 to 10 years. The loads are supplied substantially by power from steam-electric generating plants, but the peak portions are supplied mostly from hydroelectric plants. Both complement each other to furnish the most economical supply available. The potential for future hydroelectric supply, however, in relation to the total load, is diminishing, and it is becoming harder and harder to find good sites for development of the type of power which can be utilized in the peak portions of the load. Based on preliminary studies, potential sites for hydroelectric power in the Chattooga River basin appear feasible for development and warrant additional study. Power from the potential Chattooga River basin projects could supply parts of the peak portions of the future additional power requirements.

Potential Hydroelectric Sites

Several combinations of conventional and pumped-storage hydroelectric projects in the Chattooga River basin could supply 1,800,000 kilowatts. Depending upon additional studies, installed capacity may possibly be increased to as much as 3,000,000 kilowatts. Table 1 shows information for several hydroelectric projects and different development schemes.

The Cashiers project would be a pure pumped-storage installation. The afterbay dam and reservoir of 450 acres would be located on the

TABLE 1
CHATTOOGA RIVER BASIN
Potential Hydroelectric Power Projects

PROJECT NAME	DAM			RESERVOIR				POWER INSTALLATION			
	River	River Mile	Drainage Area Sq Mi	Maximum Power Pool Elev Ft msl	Area Acres	Maximum Critical Drawdown Ft	Power Storage Capacity Ac Ft	Gross Power Head Ft	Installed Capacity Kw		Average Annual Generati Mwh
CASHIERS	Chattooga	46.9 2/	12.4	2880	450	45 3/	16.5M	640	550M	4/	482M
ROGUES FORD	Chattooga	11.3	193.0	1600	5800	25	140M	360	1 MM	5/	876M
SAND BOTTOM alternative for Rogues Ford	Chattooga	17.7	178.0	1640	5800	20	150M	280	1MM	6/	876M
OPOSSUM CREEK with Rogues Ford	Chattooga	4.9	258.0	1240	1000	40	40 M	348	230M	7/	202M
with Sand Bottom	Chattooga	4.9	258.0	1360	3200	10	40 M	468	300 M	8/	263M

Footnotes:

1/ Based on 10% annual load factor.

2/ Forebay will be located on Little Whitewater Creek tributary to Whitewater River.

3/ Afterbay drawdown = 45ft, Forebay drawdown = 60ft, Maximum power pool at elevation 3520 ft.

4/ 550M kw installation based on 15hrs continuous generation if reduced to 8hrs could be increased to about 1MM kw.

5/ 1MM kw installation based on 8 hrs continuous generation.

6/ 1MM kw installation based on 8 hrs continuous generation ultimate could be as much as 2MM kw.

7/ 115M kw pumped storage based on 8hrs continuous generation and 115M kw conventional installation.

8/ 150M kw pumped storage based on 8 hrs continuous generation and 150M kw conventional installation.

Chattooga River and the forebay dam and reservoir of 330 acres on Little Whitewater Creek, a tributary to the Whitewater River in the Keowee River basin. The small forebay reservoir would have an insignificant effect upon the water flows in the Whitewater River. An installed capacity of 550,000 kilowatts is based on 15 hours of continuous generation, and may be increased to about 1,000,000 kilowatts if the time of continuous generation is reduced to eight hours. Selection of the initial amount of installed capacity will depend upon additional economic studies and what can be utilized in the load.

The Rogues Ford or Sand Bottom project would be a pumped-storage installation. The dam sites for these potential projects are fairly near each other and substantially the same stretch of the river would be developed by either project. Construction of Rogues Ford or Sand Bottom, as shown in Table 1, will eliminate the other project as well as the Warwoman project shown in the U. S. Study Commission plan. The installed capacity at Sand Bottom may be increased to as much as 2,000,000 kilowatts, depending upon stream channel limitations, with a drawdown of about 25 feet at the Opossum Creek reservoir.

The maximum critical period drawdown is 25 feet for Rogues Ford and 20 feet for Sand Bottom. Drawdowns during the recreational season for either project during normal periods of operation are, however, expected to range between 5 and 10 feet. The reservoir surface for either project will be about 5,800 acres.

The Opossum Creek project would be a combined pumped-storage and conventional hydroelectric installation. Opossum Creek will provide afterbay storage for either Rogues Ford or Sand Bottom. The small amount

of afterbay storage needed for Opossum Creek will be provided by the existing Tugalo hydroelectric project. The Opossum Creek dam site is located about one mile downstream from the Camp Creek dam site which was included in the U. S. Study Commission plan. The height of the dam proposed for the Opossum Creek project would inundate the Camp Creek dam site and the reservoir area will be 1,000 or 3,200 acres depending upon whether Rogues Ford or Sand Bottom is built.

Economic Evaluations of Projects

Costs and benefits of hydroelectric power only have been considered in this preliminary analysis even though benefits from other water uses would also be realized. Considerable opportunities for recreation, water cooling, and other purposes would be provided but have not been considered in this preliminary analysis.

The investment cost for hydroelectric development in the Chattooga River basin that would provide nearly two million kilowatts of installed capacity is estimated to range from about $316 to $353 million, excluding transmission costs. The investment would vary somewhat depending upon the scheme of development selected.

Even though other benefits would be realized from water storage projects, development of the Chattooga River basin for hydroelectric power only appears feasible. The assumptions used in evaluating the potential projects are as follows:

(1) An interest rate of 4-7/8 percent which is the current rate designated to be used in plan formulation by Federal agencies.

(2) A 100-year period of analysis.

(3) A pumping energy cost of 3.5 mills per kilowatt-hour.

(4) Power values of $19.45 annually per kilowatt of capacity and 2.55 mills per kilowatt-hour of energy.

Based on the above assumptions, the annual equivalent cost would range from about $28.9 to $31.5 million, depending upon the development plan selected, and the annual equivalent benefit from hydroelectric power only would range from about $38.7 to $40.2 million.

Future Need for Electric Power

The large interconnected power regions of the United States are subdivided into power supply areas embracing interconnected and co-ordinated electric facilities. The Southeast Region, Federal Power Commission statistical Region III, encompasses Power Supply Areas 18, and 20 through 24. The power supply areas are usually associated with the following states: 18 with Virginia, 20 with Tennessee, 21 with North Carolina and South Carolina, 22 with Alabama, 23 with Georgia, and 24 with Florida. The Southeast Region has an area of about 355,000 square miles.

The Chattooga River basin lies largely in northeastern Georgia and northwestern South Carolina with the headwaters near Cashiers, North Carolina. The 268-square mile drainage area encompasses portions of Power Supply Areas 20, 21, and 23. Electricity generated at potential projects in the Chattooga River basin would probably be used primarily in Power Supply Areas 21 and 23, however, existing and future interconnecting transmission grids would permit using the energy by displacement throughout the Southeast Region.

The Southeast Region, with a population more than 30 million, had a coincidental peak demand of 38,987 megawatts in 1967. By 1990 the peak demand is expected to be about 210,400 megawatts which is nearly 540 percent of the 1967 demand or an average annual increase of about 7.6 percent. Generating capacity additions of about 193,500 megawatts, including reserve capacity, are contemplated to meet the annual peak load for 1990. Large fossil-fired and nuclear steam-generating plants are included in the projected capacity additions for base load operations, and conventional hydroelectric and pumped-storage installations are usually best suited for peaking purposes. Steam-generating plants and hydroelectric plants complement each other in meeting system demands. Currently in the Southeast about 82 percent of the total capacity is provided at base load plants and 18 percent at peaking plants. By 1990, however, the percentages that will best fit the load requirements may vary from 88 to 90 percent base load capacity and from 10 to 12 percent peaking capacity.

Potential Hydroelectric Projects on Other Rivers

Federal hydroelectric projects currently under construction in Region III will provide 715,000 kilowatts of installed capacity. Five other Federally-authorized projects on which construction has not been initiated but may be completed by 1990 will provide 669,000 kilowatts. Non-Federal hydroelectric facilities currently under construction and those being considered that may be constructed by 1990 would provide another 3,559,000 kilowatts of installed capacity.

Additional Installations Needed by 1990 for Peaking Purposes

Assuming the portion of the load that is adaptable to hydroelectric supply is about 11 percent in 1990, a total of more than 14 million kilowatts of additional capacity will be needed in Region III at peaking capacity installations. Nearly five million kilowatts of installed capacity are currently under construction or are being considered at both Federal and non-Federal hydroelectric projects outside the Chattooga River basin, and in areas where topographic conditions are not favorable for hydroelectric developments a total of about three million kilowatts of additional peaking capacity may be provided by gas turbines. Those capacities added to the nearly two million kilowatts proposed for the Chattooga River basin would still leave a need for over four million kilowatts of installed capacity that is adaptable to supply from hydroelectric developments. This indicates that all of the hydroelectric projects currently being considered and the potential hydroelectric development of the Chattooga River basin could be utilized by 1990.

Discussion and Conclusions

Conventional hydroelectric and pumped-storage developments are becoming increasingly important as sources of peaking capacity. A prerequisite, however, for pumped-storage developments is the availability of energy at low incremental cost for the pumping cycle. Peaking capacity is generally understood to mean that part of a system's generating equipment which is operated intermittently for short periods of time during the hours of highest daily, weekly, or seasonal kilowatt demand. Whether the maximum peak demand of a system lasts for a few minutes or a few hours, generating capacity must be available for supplying the damand at the moment it develops.

Conventional hydroelectric and pumped-storage projects have many favorable characteristics which provide strong incentives for developing potential water power sites. They utilize a renewable resource, they do not have significant thermal effects upon the water resource or contribute to air pollution, and they are very reliable in operation. Because of their ability to start quickly and make rapid changes in power output, they are particularly well adapted for serving peak loads, and for assisting in the supply of spinning reserve. In many cases, development of hydroelectric projects provides associated benefits such as recreation, water for cooling purposes, fish enhancement, flood control, water supply, and low flow augmentation. Load forecasts for electric utility systems in Region III indicate that the coincidental peak demand will increase from 52,960 megawatts in 1970 to 210,400 megawatts in 1990 which represents an increase of about 400 percent. Additional capacity needed by 1990 for peaking purposes is expected to amount to about 14 million kilowatts. Both Federal and non-Federal hydroelectric projects in Region III located outside the Chattooga River basin that are currently being considered would provide only about five million kilowatts of installed capacity. Nearly two million kilowatts of installed capacity, including both conventional hydroelectric and pumped-storage installations in the Chattooga River basin, appear feasible for single purpose development. This latter capacity would help meet the need for future peaking capacity but it represents only a minor part of the total Region III needs by 1990.

The rapidly expanding use of electricity in the Southeast is expected to double every 8 to 10 years. This large growth is a challenge to the

electric utility industry to keep abreast of the demand. The increasing need for additional capacity, particularly peaking capacity installations, and increasing demands for other water use purposes provide impetus for the preparation of long-range river basin plans that will harmonize the water requirements for all uses. Construction of any combination of the hydroelectric projects shown in Table 1 would still leave an 18- to 20-mile stretch of the river that could be considered for other purposes.

APPENDIX E

FEDERAL POWER COMMISSION
REGIONAL OFFICE
730 Peachtree Building
Atlanta, Georgia 30308
March 13, 1970

Mr. T. A. Schlapfer
Regional Forester
Forest Service
U. S. Department of Agriculture
Suite 800, 1720 Peachtree Road, N. E.
Atlanta, Georgia 30309

Dear Mr. Schlapfer:

This refers to the public meeting to be held in Clayton, Georgia, on March 17, 1970, to discuss the Chattooga Wild and Scenic River proposal. The Atlanta Regional Office of the Federal Power Commission has previously submitted a draft report of the hydroelectric potential of the Chattooga River basin which we assume will be made a part of the official recorded documents and fully considered by the study team in preparing the final report for the President and Congress. We believe, however, that it is appropriate to submit an explanatory statement for the forthcoming meeting.

In our draft report submitted December 8, 1969, to the Regional Director, Southeast Regional Office, Bureau of Outdoor Recreation, we briefly described two alternative plans for developing power potential in the Chattooga River basin. Each alternative plan involved three impoundments on the river. It should be noted, however, that the Cashiers project located in the upper reaches of the river could be constructed and operated independently from the other two impoundments in each plan.

The afterbay dam for the Cashiers project would be located about two miles upstream from Norton Mill Creek. The project as proposed would be a pure pumped-storage installation. After initial filling of the afterbay reservoir, releases from the impoundment could be regulated so that they would be nearly equal to the inflows. Therefore, the free flow characteristic of the river would not be necessarily interrupted as reported on page 30 of your Chattooga Wild and Scenic River report except for the inundated area of the reservoir. If the outflows are adjusted to equal the inflows, only about the middle one-third part of Section 1 as shown on page 6 would be affected by the Cashiers project and the scenic value of the Corkscrew Falls located just upstream from Green Creek would not be adversely affected. In fact,

with adequate storage in the Cashiers reservoir the flows downstream may be enhanced. Also, the Silver Slipper Falls, the Chattooga Cliffs, and the most magnificant long-range view and cascades on the river are located upstream from the headwaters of the proposed Cashiers impoundment. It appears that the stretch of the river that makes Section 1 suitable only for a scenic river classification rather than a wild river classification is the part that would be inundated by the afterbay reservoir of the Cashiers pure pumped-storage installation.

We would like to point out again that the rapidly expanding use of electricity in the Southeast is expected to double every eight to 10 years and that pumped-storage projects are expected to play an important role in providing the necessary peaking capacity to keep abreast of the demand for electricity. To classify the entire Chattooga River a wild or scenic river would virtually eliminate future development of the Cashiers project or any other power potential on the Chattooga River, either conventional or pumped storage.

We do not plan to make an oral statement at the March 17 meeting. However, we appreciate the opportunity of expressing our views concerning the power potential on the Chattooga River, the rapidly expanding demand for electricity in the Southeast, and the proposal to classify the Chattooga a wild and scenic river.

Very truly yours,

Robert C. Price
Regional Engineer

APPENDIX F

SATURATION LEVEL - RECREATION USE
CHATTOOGA RIVER
(Maximum use based on 12 hr. Days)

		PAOT*
Floating		
Wild	- 38 miles @ 10 craft/Mi & 2 people/craft =	760
Recreation	- 10 miles @ 20 craft/Mi & 2 people/craft =	400
Hiking	- 50 miles of trail @ 8 people/mile =	400
Hunting	- 15,000 acres @ 50 A/hunter =	300
Fishing	- 8 fishermen/mile x 60 miles =	480

COMPUTATION OF ALLOWABLE USE
CHATTOOGA RIVER
(Maximum use based on 12 hr. Days)

Wild 38 miles - (1/2 capacity per day for each use 100 day season)

380 floaters,	152 hikers,	152 fishermen
38,000	15,200	15,200

Wild 3.3 miles - Maximum allowable fishing (100 days)

		26 fishermen
		2,600

Scenic 5.5 miles - Maximum allowable fishing & hiking (100 days)

	44 hikers	44 fishermen
	4,400	4,400

Recreation 10.1 miles - (1/2 capacity per day for each use 100 days)

200 floaters	40 hikers	40 fishermen
20,000	4,000	4,000
78,000	23,600	26,200

Hunting entire area 300 per day @ 60 day Season 18,000 Visitor Day

Primitive Camping PAOT* 134 x 100 day Season 13,400

*People at one time.

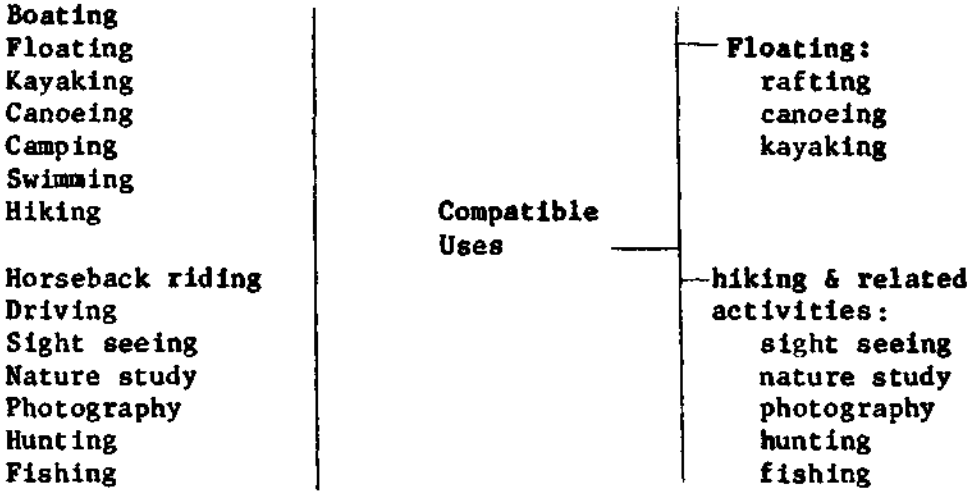
SATURATION LEVEL DETERMINATION

Demand Levels

Before demand levels can be studied, the recreation activities compatible with the wild and scenic environment of the Chattooga River should be established.

Of the twelve possible activities listed below, only seven seem compatible. Camping could be the eighth, but it must be clearly defined as to type and location before it can be considered.

The following diagram is used to illustrate how these activities will be discussed.



Hiking & Related Activities

In hiking, a variety of experiences is offered along the scenic and primitive areas on the Chattooga. There are some very rough, high and treacherous places within the gorge and some less demanding trails along the river banks. Existing hiking trails should be incorporated into a master trail system so that they can be planned and controlled.

Related activities to hiking include nature studies, photography, sight seeing, hunting and fishing. In most cases, the hike is necessary in order to fulfill either one of these activities. Nature study would certainly attract one to the depths of the gorge. Sight seeing and photography can be as extensive as one's ambition will permit. Hunting, on the other hand, will be limited within the boundary of the river because of the nature of the topography. Few hunters will venture into the gorge because the terrain does not afford them very many advantages. Fishing will not have such disadvantages. The wild and rugged environment helps to create a habitat conducive to good trout production. It also limits the number of fishermen.

Floating

Floating activities which include rafting, canoeing, and kayaking are very compatible uses for the river because these activities can capitalize on whitewater and scenic qualities that it possesses. By the nature of the activity, little damage, in comparison to other compatible activities, will be anticipated on the very fragile river banks. The quantity and floating quality of the water will usually determine where these activities are feasible. (See ACA report on Chattooga River.)

Although camping would normally appear to be a compatible use on the Chattooga River, the environment within the river boundary may not be capable of absorbing the impact and alteration that is so often related to this activity. Even the wilderness experience type of camping should not be permitted within the boundary.

There are no discrete ways of preventing hikers and canoers from camping on the river banks. However, there are ways to encourage them to camp beyond the boundary. One of these ways would be to provide drinking water and rough toilets just outside the boundary. The purpose here is to encourage the weary sportsman to camp near these comfort facilities. If these facilities are not provided, the sportsman is more apt to randomly select a campsite for the night that would be a convenient distance to his craft or trail. Since the river side environment is fragile, this would not be the wisest thing for the proponents of a wild and scenic river to let happen. Maintaining the primitive qualities of the river should be the first priority in planning the public use of the river.

The demand level for these activities is not easy to determine. Historical data as well as evidence of the present public interest would be needed in order to develop anything that even resembled a demand level.

Evidence of current interest in recreation activity on the Chattooga has been shown by several outing clubs and the American Canoeing Association. Data pertaining to the private citizen interested in the activities that are compatible with the wild and scenic river is currently not available.

Gathering demand data that would be usable for planning a comprehensive recreation program for the river is a task that is a separate study in itself. Presently, data is not available to speculate on the amount of water and land activities that are or will be in demand on the Chattooga River. In view of the unavailability of demand data, it would be wisest to plan the activities on the river according to the capability of the environment to absorb the proposed compatible uses.

Identifying the recreation resource and the saturation levels of the proposed recreation activities will be the main determinants for recreation planning. Models have been devised to help in identifying saturation levels. These models show the recreation activities on a wild and scenic river in various landscape situations. The landscape situation is described as the physical qualities a landscape possesses i.e., trees, rock and water that permit it to absorb use by man with minimal impact on its total physical quality.

The very dense, heavily foliated landscape away from the river edge, which usually becomes less fragile as the distance from the river increases, had the highest man use absorbing capacity.

Combining the landscape situation with the type of experience desired by the recreationer i.e., the communing with nature or the challenge of nature, sets the stage for saturation levels to be reached not only in recreation uses on the landscape but also the saturation of the experience. At what point in a landscape do the number of users at one time become dominant elements within the landscape and detract from the experience being pursued?

Hiking, for example, is a recreation activity which may be divided into two types of experiences: the wilderness type where the hiker desires an intimate communal relationship with nature and the challenge type usually associated with groups like the outing clubs and Boy Scouts. Both of these experiences have saturation levels, and both are dependent upon the numbers of people involved and the capability of the landscape to supply the atmosphere that evokes the experience.

If, for example, a trail through the dense foliated landscape mentioned earlier, became crowded with people seeking a wilderness experience, and hikers could see hikers from other groups, then that intimate communal feeling would be altered somewhat and possibly lost. What needs to be established then is a reasonable distance between hikers or groups of hikers so that this intimate quality can be maintained.

The challenger, on the other hand, often represented in groups is more concerned with the test of his skill against nature's obstacles than he is with the people around him. Naturally, his saturation level will be higher than his counterpart. A reasonable distance between groups of hikers would also apply to his saturation level. The challenger would not enjoy having to wait to climb a rock precipice or run his canoe through a whitewater rapid.

Distance is the significant factor then in determining the number of recreationers that can be tolerated in a particular experience in a particular activity.

For hiking and related activities the distance between hikers and groups of hikers is dependent upon the type of experience desired. The communal experience with nature can be maintained at 4 people per 1/2 mile. This is assuming that a hiking trail is layed out in predominately dense forest cover. More than 4 people would have a tendency to dominate the trailscape and possibly raise the noise above a desired level. A densely covered hiking trail can screen one group from another as well as absorb their sounds.

In the group experience where the challenge is the objective, the spacing between groups is not as critical. The distance here would be based on reasonable hike completion time.

Considering the terrain and the hike experience for both the communal hiker and the challenger, 8 people per mile should be the maximum figure to facilitate both experiences.

For floating and canoeing, 20 craft per mile in groups from 3-5 allows for congestion free trip with adequate safety. For a wilderness experience, however, the number should be limited to 10 craft.

Directly related to this distance factor is the absorbing capability of the landscape. The closed landscape can absorb more people, shortening the distance between hikers; the open landscape absorbs fewer people, lengthening the distance.

Since it would be extremely difficult to determine what is tolerable in terms of physical use of a landscape, standards must be assumed that rate a cross section of typical landscapes located within the boundary of the Chattooga River. These standards are as follows:

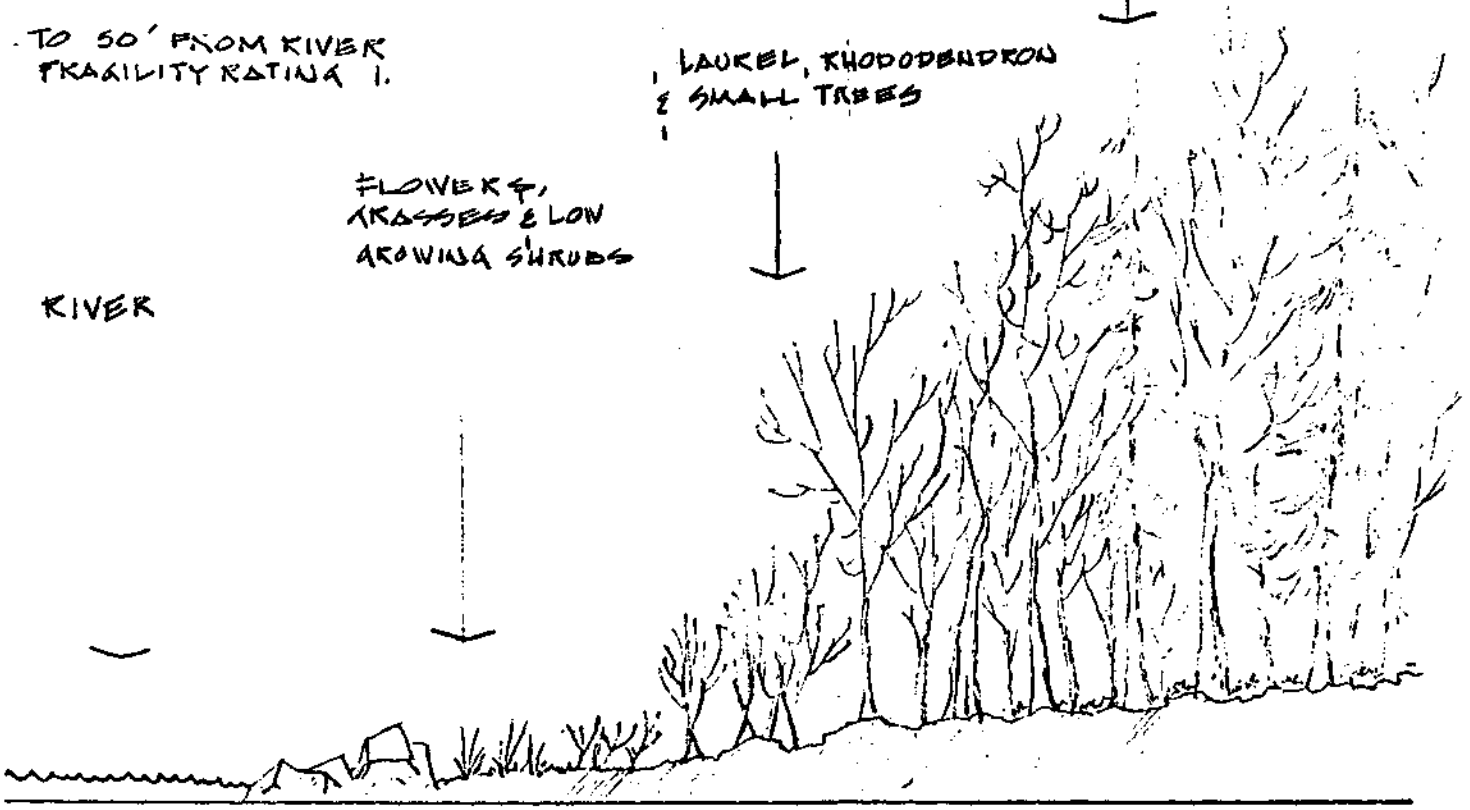
From least tolerable to most tolerable, (ratings 1 - 5)	
River edges to 50 feet from river	1.
Open landscapes from the river edge to within 50 feet of the river	2.
River edges from 50 feet to 200 feet from the river with moderate vegetation	3.
River sides from 50 feet to 200 feet from river with dense vegetation	4.
River sides from 200 feet plus with moderate to dense vegetation	5.

These assumed standards are only to be used as guides in determining landscape capabilities. There will always be exceptions to these standards, and these when recognized should be noted and considered when planning the uses for the river.

If the experience saturation levels are employed in regards to number of people using the river at one time, the landscape should be able to absorb this use with minimal affect. These interpretative saturation levels are valuable in that they are a basis upon which use levels can ultimately be determined. If these interpretative levels are in fact arbitrary, they can be tested in the field and a more realistic figure assumed. An underestimated recreation use capacity permits the planner the flexibility to make the needed adjustments when more accurate demand and saturation data is available.

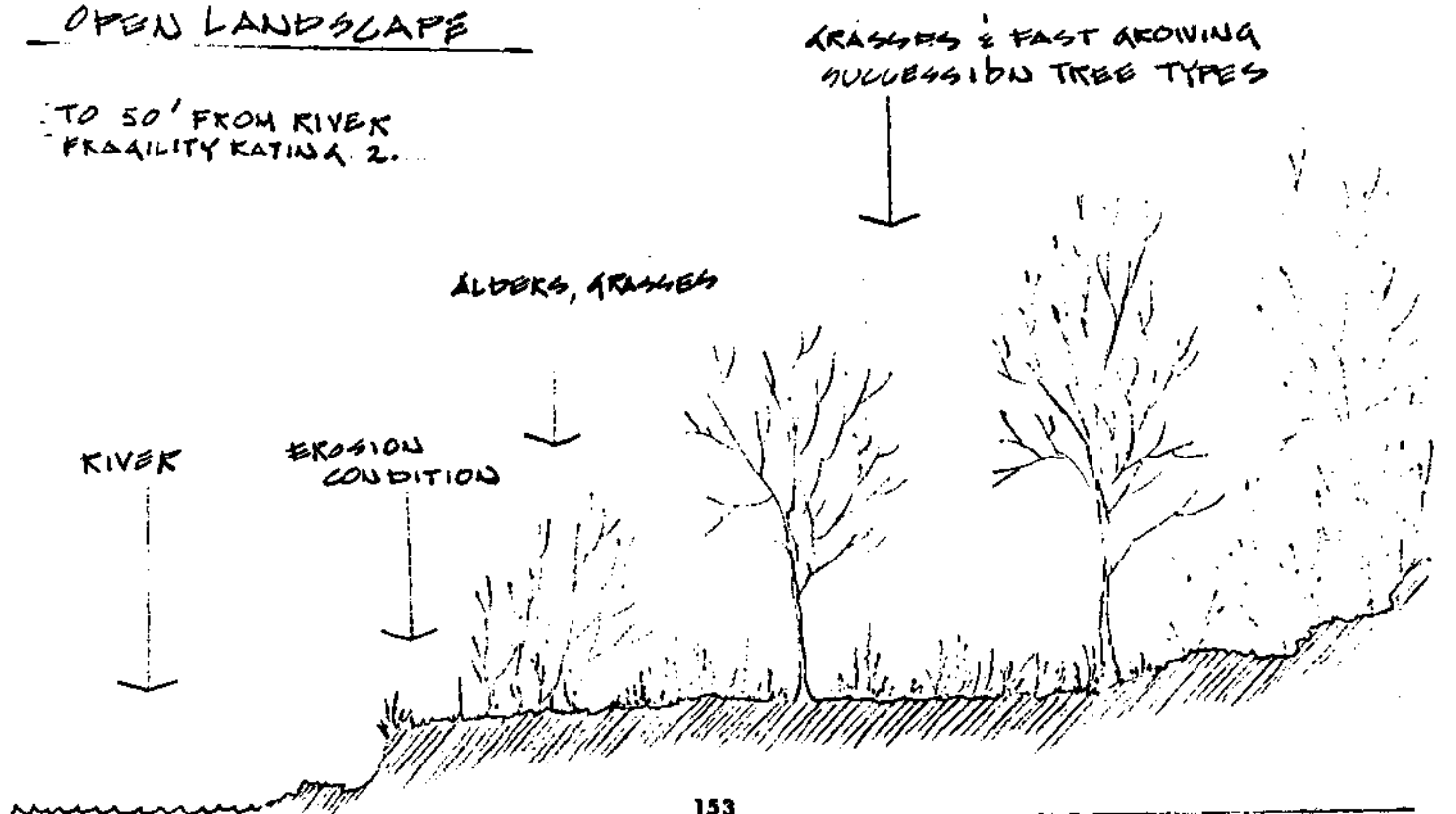
RIVER EDGES

- TO 50' FROM RIVER FRAGILITY RATING 1.



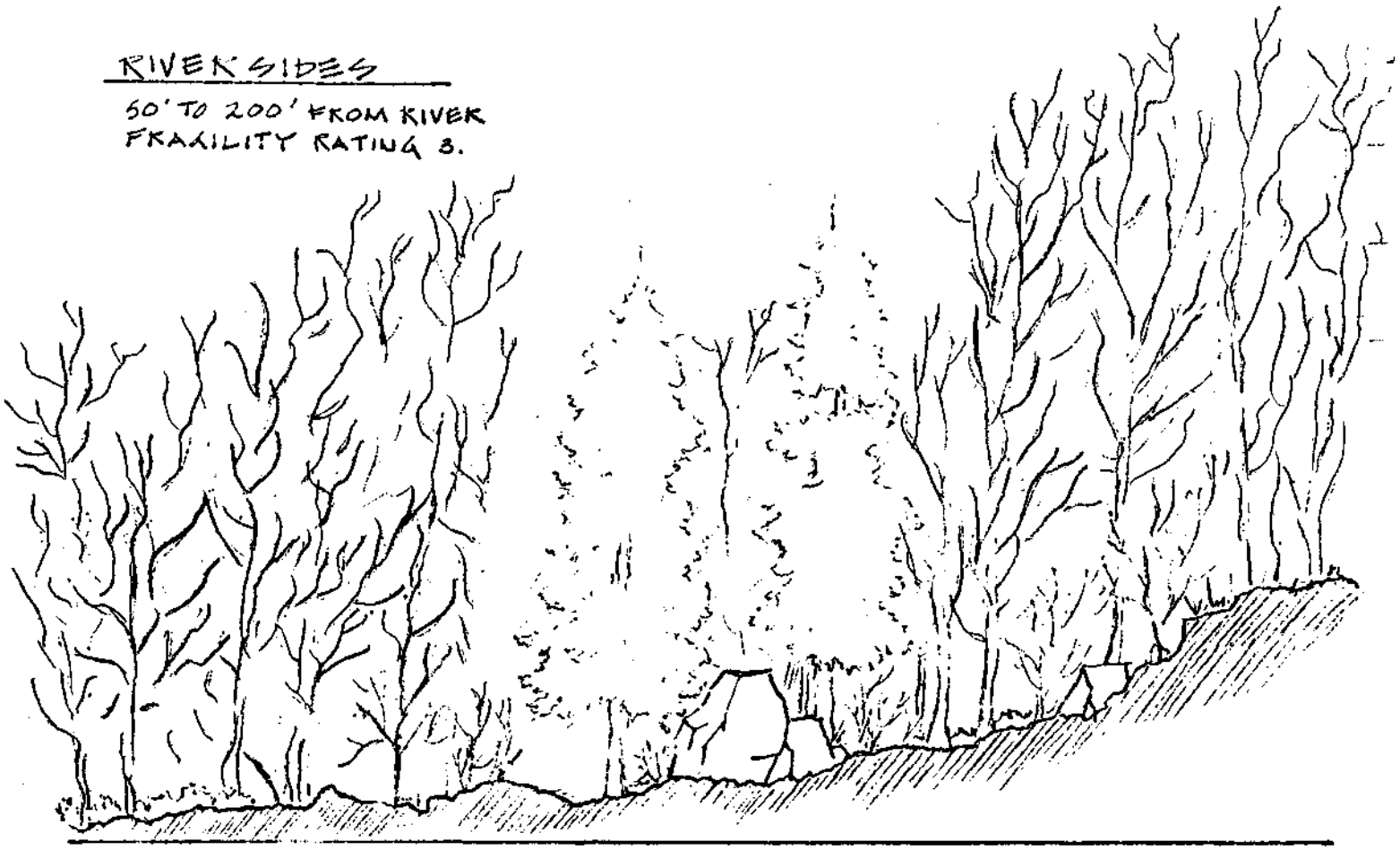
OPEN LANDSCAPE

- TO 50' FROM RIVER FRAGILITY RATING 2.



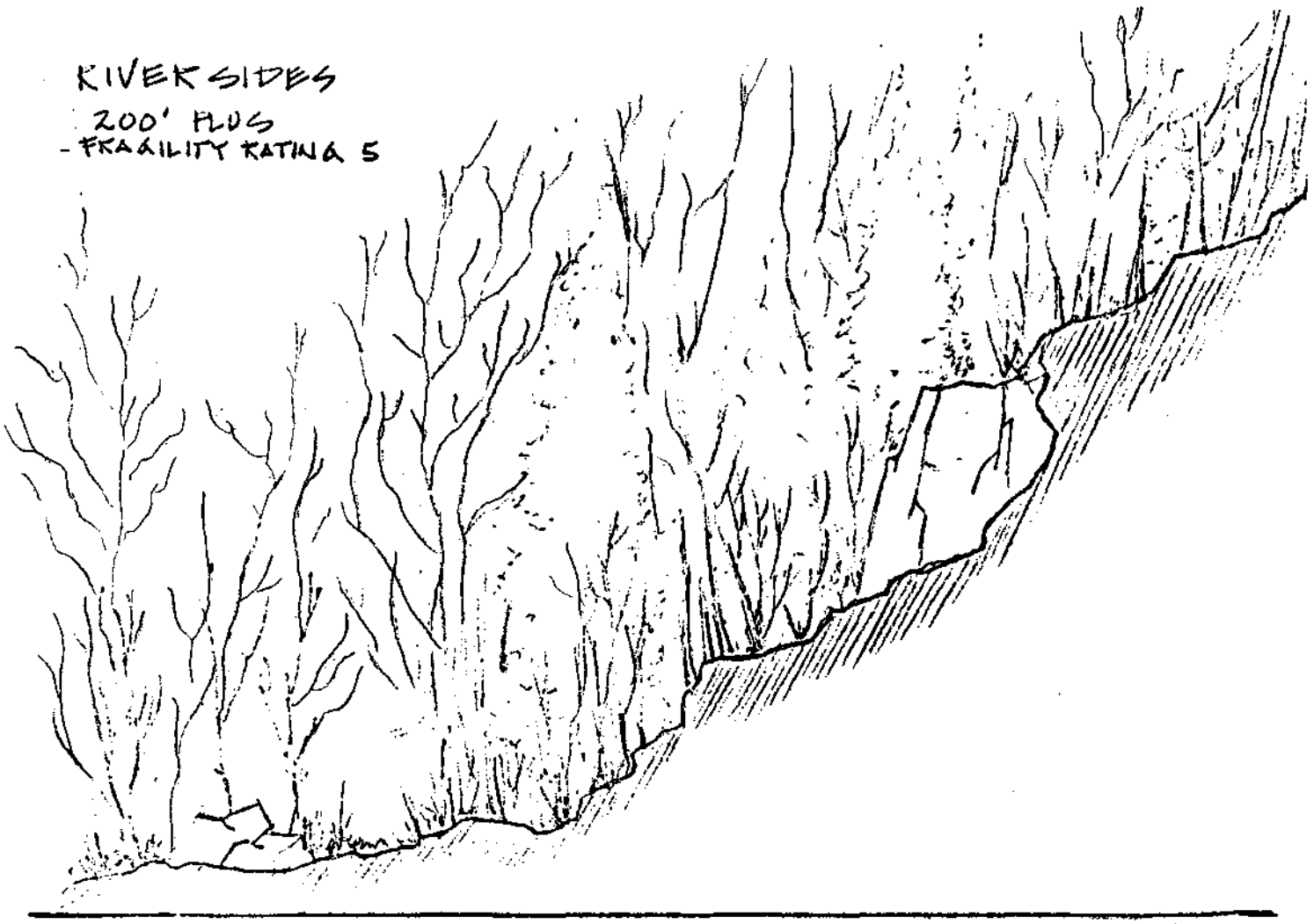
RIVERSIDES

50' TO 200' FROM RIVER
FRAILITY RATING 8.



RIVERSIDES

50' TO 200' FROM RIVER
FRAILITY RATING 4.

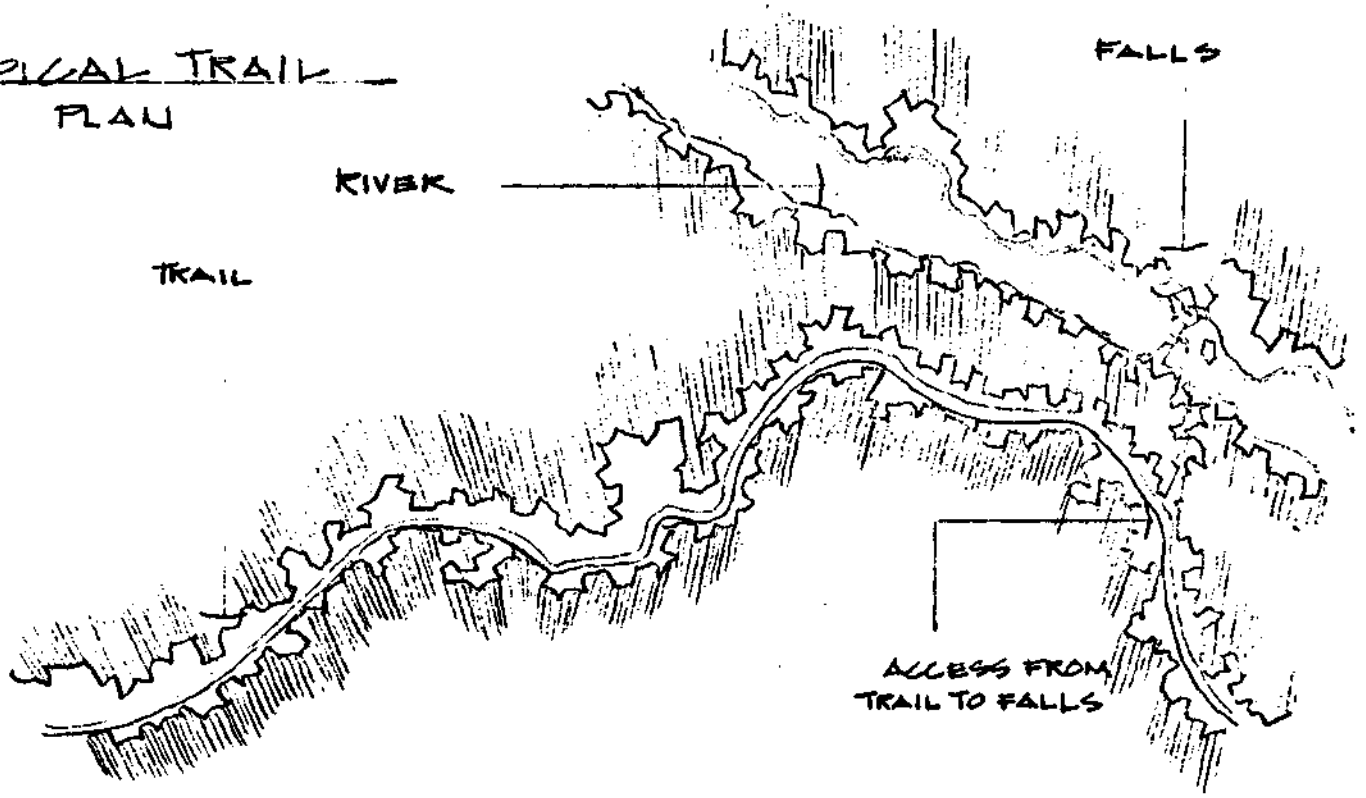


NOTES

THESE LANDSCAPES ONLY REPRESENT FIVE EXAMPLES OF RIVERSIDE CONDITIONS. THERE ARE INNUMERABLE VARIATIONS ON EACH ONE OF THESE LANDSCAPES. THE PURPOSE OF THESE SKETCHES IS TO SHOW GENERALLY WHAT IS CONTAINED WITHIN THESE FRAGILITY BOUNDARIES

TYPICAL TRAIL

PLAN

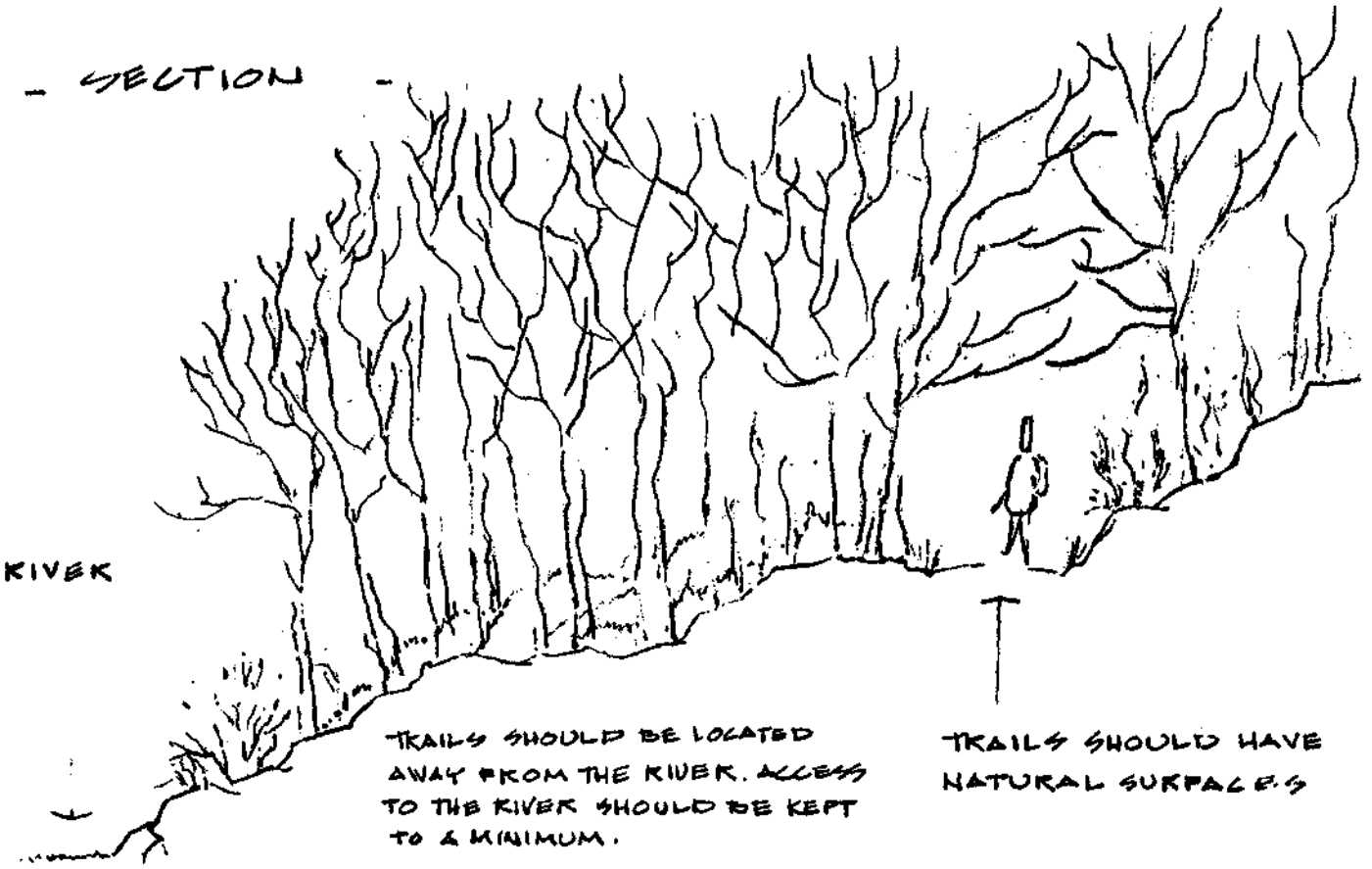


ELEVATION

A DESIGN CONTROL TO PROTECT THE MORE FRAGILE LANDSCAPES

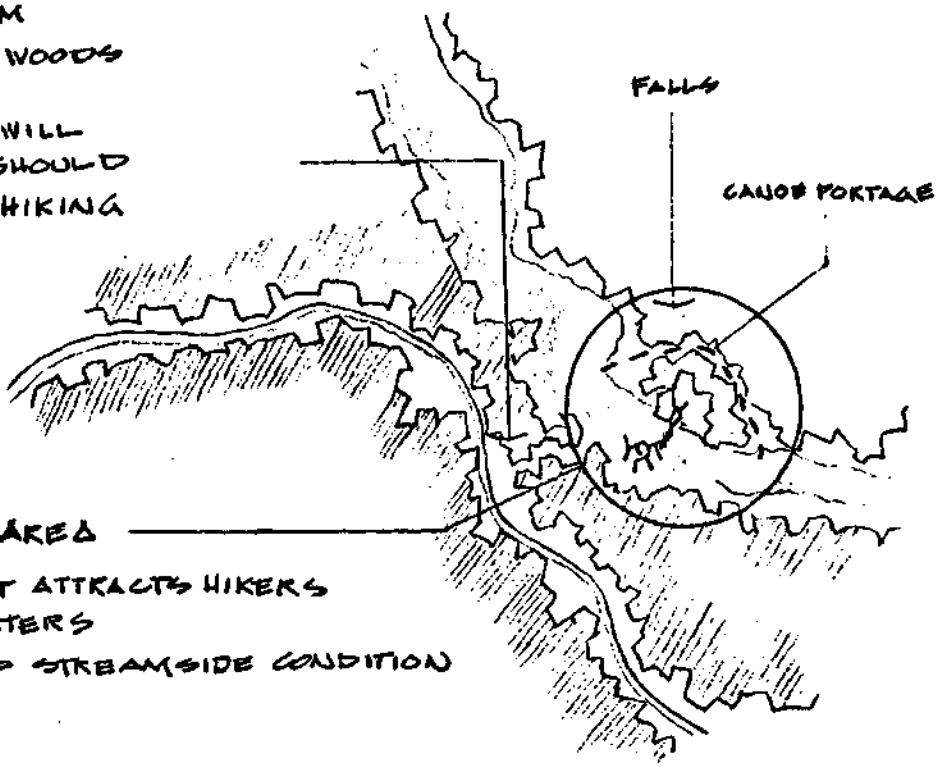
TRAILS WILL PASS THROUGH A VARIETY OF LANDSCAPES. TRAILS THROUGH WILD CLASS AREAS WILL EMPHASIZE RUGGED TOPOGRAPHY. TRAILS THROUGH THE SCENIC AREAS WILL BE LESS DEMANDING

- SECTION -



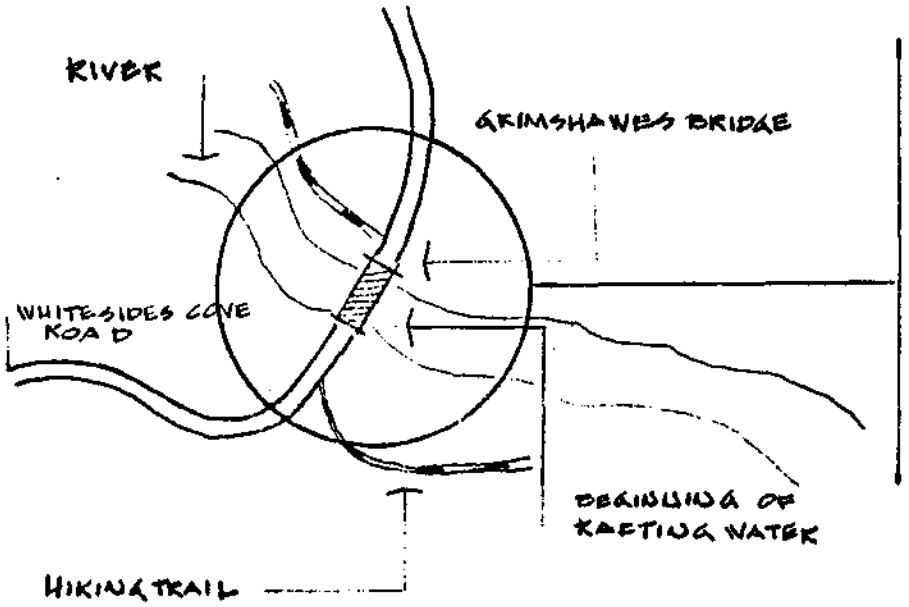
CONCENTRATION AREAS
NATURAL FEATURES

ACCESS TO FALLS FROM THE TRAIL IS THROUGH WOODS VIA UNMARKED PATH SOUND OF THE WATER WILL DIRECT HIKERS. THIS SHOULD ALSO HEIGHTEN THE HIKING EXPERIENCE



WATER FEATURE THAT ATTRACTS HIKERS AND DELAYS FLOATERS
DETERIORATION OF STREAMSIDE CONDITION EXPECTED HERE

CONCENTRATION AREAS
ACCESS NODES



HIKERS, RAFTERS AND VEHICLES WILL FREQUENTLY MEET HERE BECAUSE THIS ROAD IS THE ONLY MAJOR ACCESS TO THE RIVER IN THE HEADWATERS AREA

AS AN ACCESS NODE, VEHICLES WILL ONLY BE PERMITTED FOR PICK UP AND DROP OFF OF RECREATIONERS AND THEIR EQUIPMENT

APPENDIX G

DEVELOPMENT COSTS

First Year

Remove Burrels Ford & Bullpen Bridges	$135,000
Hiking Trail Construction 10 Miles @ $3,600/mi	36,000
Canoe portages 3 @ $1,300	4,000
Launching sites 2 @ $4,000 ea.	8,000
Parking lots 2 (20 cars ea.) @ $4,700 ea.	9,500
Close and revegetate jeep roads 20 mi. @ $700/mi.	14,000
Replan Burrells Ford Recreation Area	7,000
	$213,500

Second Year

Complete Burrells Ford Recreation Area (Dev. Scale I)	$25,000
Hiking Trail Construction 10 miles @ $3,600/mi.	36,000
Close and revegetate jeep roads 10 mi. @ $700/mi.	7,000
Parking lots 3 (65 cars) @ $4,700	14,000
Launch sites 2 @ $4,000 ea.	8,000
Access trail 0.5 mi. @ $3,600/mi.	1,800
	$91,800

Third Year

Hiking trail construction 10 mi. @ $3,600/mi.	$36,000
Campsite 2 (24 PAOT) @ $400/PAOT	9,600
Parking lots 2 (40 cars) @ $4,700 ea.	9,400
Launch sites 2 @ $4,000 ea.	8,000
Access trail 0.4 mi. (2 ea.) @ $3,600/mi.	1,400
Access road 1 mi. @ $27,000/mi.	27,000
	$91,400

Fourth Year

Hiking Trail Construction 10 mi. @ $3,600/mi.	$36,000
Access trail 0.8 mi. (1 trail) @ $3,600/mi.	2,900
Canoe portage 3 @ $1,300	3,900
Campsites 3 (24 PAOT) @ $400/PAOT	9,600
Launch site 1 @ $4,000 ea.	4,000
Parking lot 1 (30 cars) @ $7,000 ea.	7,000
	$63,400

Fifth Year

Hiking trail construction 10 mi. @ $3,600/mi.	$36,000
Canoe portage 2 @ $1,300 ea.	2,600
Launch site 1 @ $4,000	4,000
Access trail 0.5 mi. @ $3,600/mi.	1,800
Campsite 1 (8 PAOT) @ $400/PAOT	3,200
Parking lot 1 (20 cars) @ $7,000 ea.	7,000
Remove old buildings and clean up sites near 28 crossing	13,500
	$68,100

Total Five Year Program	$528,200

After Fifth Year

Put power line underground	$ 2,000
Erosion Control - Grimshawes and West Fork	2,700
Remove 2 wooden bridges and 2 steel bridge frames	20,500
Screen culvert on Overflow Road	1,000
Remove old road at 76 Bridge	5,000
Remove tanks and machinery on West Fork	1,000
Remove buildings around Highway 28	10,000
	$42,200

OPERATION COSTS

	1st Year	2nd Year	3rd Year	4th Year	5th Year
Supervision of Recreation Use	15,000	20,000	25,000	25,000	25,000
Cleanup of Developed Sites	15,000	20,000	25,000	30,000	35,000
Cleanup of River and River Area	6,000	7,000	8,000	10,000	12,000
Maintenace of Recreation Developments	6,000	6,000	18,000	20,000	25,000
Maintenance of Trails	5,000	8,000	10,000	13,000	15,000
Search and Rescue	2,000	3,000	4,000	4,000	5,000
Visitor Information Service	15,000	10,000	10,000	10,000	18,000
Benchmark System	10,000	5,000	5,000	5,000	10,000
	74,000	79,000	105,000	117,000	145,000

APPENDIX H

CHATTOOGA RIVER

Recreation Development Plan
Existing Facilities Near River

Area	State	Miles from River	Type	Capacity PAOT[1]	Operator
Cliffside Lake	NC	9	Picnic – Swim	65	USFS
Van Hook Glade	NC	9	Camping	95	USFS
Chattooga	SC	2	Picnic	75	USFS
Burrell's Ford	SC	0	Camping	45	USFS
Cherry Hill	SC	4	Camping – Picnic	100	USFS
Toxaway	SC	8	Picnic	20	USFS
Warwoman Dell	Ga	10	Camping – Picnic	70	USFS
Rabun Beach	Ga	18	Camping – Picnic – Swim	355	USFS
Black Rock State Park	Ga	12	Camping – Cabins	300	State of Ga
Oconee State Park	SC	7	Camping	700	State of SC
Betty's Creek	Ga	16	Camping – Cabins		Private
Rainy Mountain	Ga	5	Camping	150	Boy Scouts of America
Arrowhead	Ga	16	Camping	200	Private – KOA

[1]People at one time

APPENDIX I

CHATTOOGA RIVER

Potential Recreation Development Plan Summary

River Mile and Location	Proposed Classification	State	Type of Development - Proposed					
			Access Road Miles	Parking Lot Cars	Portage Each	Launch Site	Trail Miles	Campsite
53.6 Silver Slipper Falls	Scenic	N C	0.4[1]	X				
51.5 Grimshaws	Scenic	N C		X				
48.9 Monroe House	Scenic	N C						X
46.0 Bull Pen	Wild	N C		X		X		
42.5 East Fork	Wild	S C						X
40.3 Burrells Ford	Wild	S C		X		X		X
29.1 West Fork	Rec	S C		X		X		
25.6	Wild	Ga			1			
25.4 Big Shoals	Wild	Ga						X
25.3 Piney Knob	Wild	S C						X
24.1	Wild	Ga			1			
22.4 Earls Ford	Wild	Ga		X		X	0.5	
	Wild	S C		X		X	0.2	
21.8	Wild	S C			1			
19.6 Dicks Creek	Wild	Ga			1		0.8	
19.1 Sandy Ford	Wild	Ga	1.0[1]	X		X	0.2	
18.5 Narrows	Wild	Ga						X
18.2	Wild	Ga			1			
16.3 Buckeye Branch	Wild	Ga						X
15.5 Licklog	Wild	Ga		X		X	0.3	
14.7 Rhile Bend	Wild	S C						X
10.8 Bull Sluice	Wild	Ga						X
10.2	Wild	Ga			1			
10.0 Highway 76	Wild	Ga		X				
	Wild	S C		X		X		

Continued

Continued

River Mile and Location	Proposed Classification	State	Type of Development - Proposed					
			Access Road Miles	Parking Lot Cars	Portage Each	Launch Site	Trail Miles	Campsite
8.2 Sutton Hole	Wild	S C			1			
8.1 Woodall Shoals	Wild	S C		X		X	0.5	
7.5	Wild	S C			1			
7.1 Cliff Creek	Wild	Ga						X
6.8	Wild	Ga			1			
6.4	Wiid	Ga			1			
5.9	Wild	S C			1			
5.4 Camp Creek	Wild	Ga		X		X		
5.0	Wild	Ga			1			
4.9	Wild	Ga			1			
4.7 Sockum Dog Hole	Wild	S C			1			
3.9 West Fork Chattooga	Rec	Ga		X		X		

[1] Outside Proposed Boundary

APPENDIX J

CHATTOOGA RIVER
Recreation Development Plan
Hiking Trail Construction

River Trails

South Carolina	15.4 Mi.
North Carolina	12.0 Mi.
Georgia	26.6 Mi.
	54.0

First 5 Years Trail Construction

10 Mi/Year @ $3,600/Mi. = $36,000 Year

After First 5 Years

4 Mi. River Trails

APPENDIX K

CHATTOOGA RIVER

Recreation Development Plan
Complementary Campgrounds Near River

Campground	State	Miles from River	Capacity PAOT	Status	Planned Opening	Operator
Pigpen Branch	SC	0.5	350	Planned	1977	USFS
Cobb Bridge	SC	11	300	Planned	1979	USFS
Brasstown Falls	SC	9	250	Planned	1980	USFS
Cherry Hill Expansion	SC	30	125	Planned	1983	USFS
Narrows of Chauga	SC	6	250	Planned	1984	USFS
Riley Moore Falls	SC	9	75	Planned	1986	USFS
Woodall Bridge	SC	5	75	Planned	1987	USFS
Fowlers Lake	SC	2	500	Planned	1992	USFS
Brasstown Creek	SC	6	250	Planned	1994	USFS
Hedden Creek	Ga	4	250	Proposed	1980	USFS

APPENDIX L

Proposed Multiple Use Management Direction and Coordinating Requirements.

If Congress approves the addition of the Chattooga Wild and Scenic River to the National System, multiple use planning and coordination guidelines will be added to the Southern Region Multiple Use Guide. These guidelines will establish management direction and coordinating requirements for all lands under Forest Service jurisdiction within the Chattooga Wild and Scenic River. Also, the guide will provide a framework for the development of multiple use plans on the Ranger Districts. Provision for inter-Forest and inter-District preparation and review of multiple use guidelines will serve to insure full coordination of action plans and programs within and adjacent to the Chattooga Wild and Scenic River.

Basic Planning assumptions for long range resource management and supporting activities follow:

Range

1. Woodland grazing of domestic livestock will not be compatible with management objectives.

2. Saddle and pack stock use could result in soil damage and water pollution.

Recreation

1. Opportunities for compatible recreation uses featuring floating, hiking, primitive camping, fishing, and hunting are outstanding.

2. Maintaining the quality of these recreation experiences should command priority over meeting public demands.

Timber

1. The role of timber management will be to enhance the aesthetic, watershed, and wildlife values by maintaining healthy stands of trees of all ages, sizes, and species common to the area.

2. Commercial timber uses will not be compatible with management objectives.

Watershed

1. Intensive protection and management of soil and water resources will be essential on all lands within the Chattooga Wild and Scenic River area.

2. Lands not under Forest Service jurisdiction in the Chattooga River watershed will pose a constant threat to maintaining the flow and quality of water to meet aesthetic, recreation, and fishery objectives.

Wildlife

1. Desirable levels of both large and small game will be maintained for public hunting without large-scale habitat manipulation within the river boundary.

2. In river sections where stocking is appropriate, stocking of sub-adult trout will be the most compatible way to maintain a satisfactory level of trout fishing opportunity.

3. Interest in all wildlife for non-hunting pursuits like bird-watching and nature photography will increase.

Land Uses

1. On lands under Forest Service jurisdiction, both within and adjacent to the river boundary, conflicting uses will be terminated.

2. On lands not under Forest Service jurisdiction, positive actions may be necessary to eliminate or avoid conflicting uses.

Minerals

1. Prospecting and mining activities will not be compatible with management objectives.

Fire Control

1. Fire control planning will be designed to meet the degree of protection required for resource value class 6, (the highest degree of protection provided on National Forests) on all lands within the river boundary.

2. Use of some mechanized equipment like tractor-plows in ground control of forest fires is not compatible with management objectives.

Forest Insect and Disease Control

1. Coordination of insect and disease control on all lands within and immediately adjacent to the river boundary will become an increasingly important management consideration.

2. Extreme care in the selection and application of control methods will be essential to protect the river environment.

Land Ownership Adjustment

1. Lands acquired in fee within the river boundary will be on a willing buyer - willing seller basis.

2. Where title in fee is not essential, necessary protection of the river may be achieved through scenic easements.

Transportation Systems

1. Conflicting or non-standard transportation facilities will be removed or brought to standard.

2. Within the river boundary, additional overland transportation facilities will be designed for foot travel only.

The following general coordinating requirements are established to direct the development of multiple use plans and to coordinate current action plans and programs with river management objectives. To the extent practicable these coordinating requirements shall apply to all sections within the river boundary.

1. On lands where title in fee is unessential, apply scenic easements and other means of insuring harmony between activities and developments, and Forest Service management objectives.

2. Use amicable procedures to acquire title in fee where public owner ship is essential to meet wild and scenic river purposes.

3. Exclude woodland grazing. Regulated grazing may be desirable on pastoral settings in the upper reaches of the river.

4. Exclude use of pack and saddle stock within the boundary.

5. Direct recreation uses toward floating, hiking, fishing, hunting, and primitive camping, except where transecting public roads permit driving for pleasure and related uses.

6. Base recreation planning on saturation levels for high quality recreation experiences rather than on meeting public demands.

7. Restrict additional transportation facilities to foot trails. Design essential trail bridges to harmonize with the natural setting.

8. Eliminate conflicting transportation facilities.

9. Provide only essential, primitive camping facilities.

10. Prohibit motorized equipment except that necessary for management of the area in Wild River sections.

11. Conserve or restore scientific, biologic, geologic, historic and other values.

12. Exclude all conflicting water-related structures not essential to W&SR objectives.

13. Maintain a natural shoreline except for essential alterations necessary for safety, access, or scenic management.

14. Harmonize and minimize boundary, information, and directional signing consistent with public safety and need.

15. Construct portages around waterfalls and other danger spots in keeping with the environment.

16. Limit silvicultural treatments to those required to maintain healthy, vigorous stands of all ages and species common to the area that enhance and compliment W&SR objectives.

17. Special fishing regulations are recommended for the W&S river corridor.

18. Limit manipulation of wildlife and fish habitats and populations to those required to maintain healthy balanced populations of species common to the area.

19. Seek improved enforcement of hunting and fishing regulations and control of free-running dogs.

20. Emphasize the stocking of sub-adult trout in sections where stocking is appropriate.

21. Emphasize prevention of soil erosion and prompt restoration of disturbed or damaged areas in all activities, including fire control.

22. Prohibit prospecting and mining activities.

23. Prohibit new special uses other than those essential to meeting river management objectives.

24. Terminate conflicting, existing land uses and restore use areas to a natural condition.

25. Establish "seen area" management units in District multiple use plans for appropriate National Forest lands outside the W&SR to maintain and enhance scenic views from vantage points within the corridor.

26. Locate essential developed recreation sites outside the W&S River boundary sufficiently distant from the river to avoid concentrations of use and overcrowding of sections.

27. Prohibit unplanned motorized vehicle access to the river boundary.

28. Provide small parking lots at hiking trail access points.

29. Strictly adhere to Federal and State water quality standards in all activities within the Chattooga River watershed.

30. Restore erosion problem areas and prevent erosion in all activities in the Chattooga River watershed.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