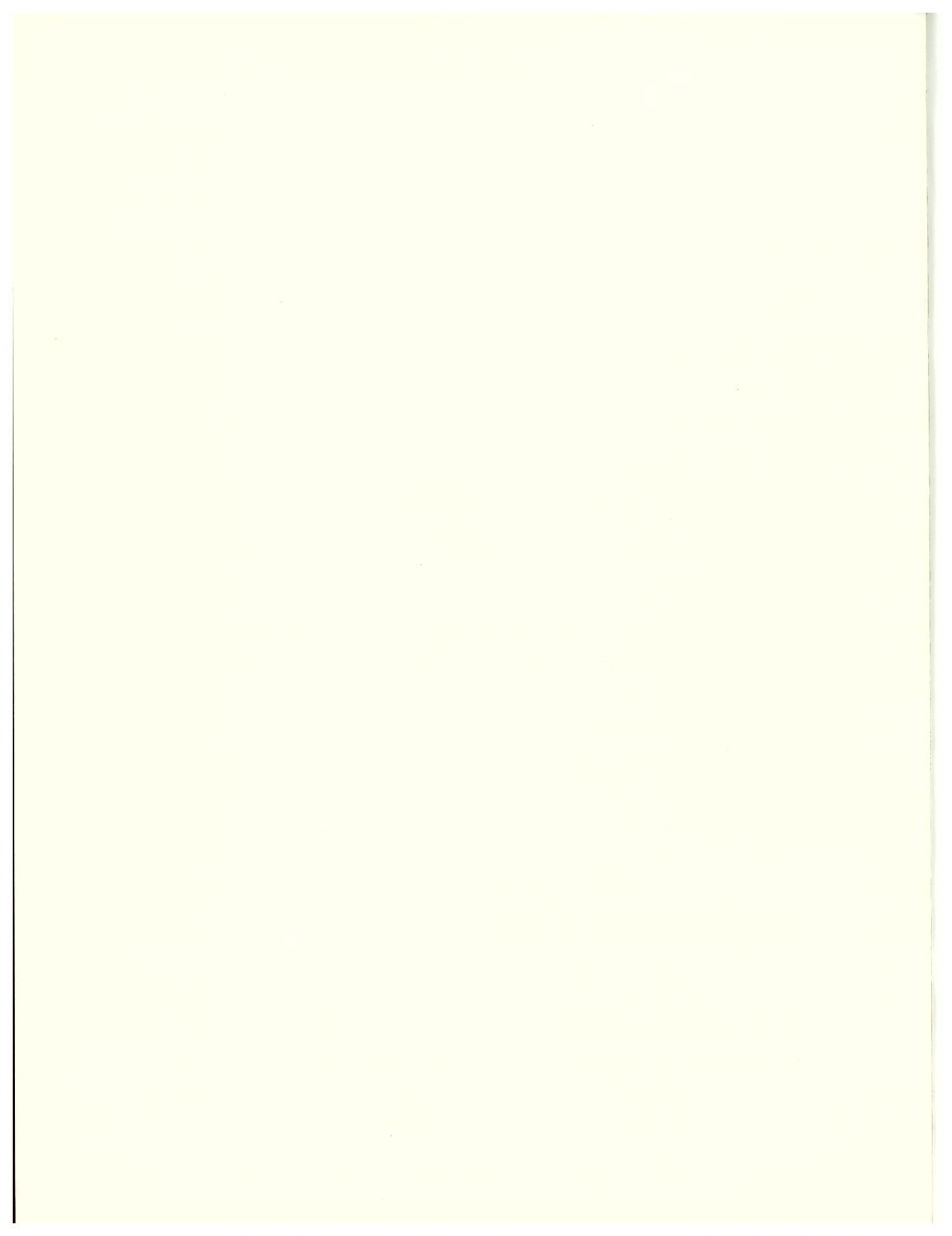




The Reedy River Report:

Managing a Watershed



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Managing a Watershed



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Report 22

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Next, appreciation goes to the members of the Reedy River Task Force (see Table 1). This 36-member group directed the study and assembled this watershed plan. These individuals gave significant time and effort over many months to see that a well-balanced, comprehensive management plan for this valuable natural resource was completed. The task force represented a broad range of interests, yet they worked together to assemble a plan that takes a long-term, watershed-based view of the management of the Reedy River.

The task force and project staff had significant support from individuals and organizations in the area that made many contributions to the effort. Guy Jones of River Runner Outdoor Center in Columbia provided canoes and logistical support for several canoe trips on the Reedy River. Dave Hargett also provided much appreciated help and support on the canoe trips. Presbyterian College graciously provided meeting space for several task force meetings throughout the study. The Western Carolina Regional Sewer Authority provided an insightful tour of the Durbin Creek Wastewater Treatment Plant. Richard Sawyer took task force members on a walking tour of the urban portion of the river in Greenville and gave a comprehensive overview of the history of this portion of the Reedy River.

Completing a study like this for the Reedy River Watershed is not possible without significant staff support. A very special thanks is owed to John Foster of the Natural Resources Information Management and Analysis (NRIMA) Section of the South Carolina Department of Natural Resources. John is responsible for many of the geographic information system maps (GIS) in the document. Richard Lacy, also of NRIMA, helped with the remote sensing maps on growth. Special thanks also go to Dave Chestnut of the South Carolina Department of Health and Environmental Control's Bureau of Water. Dave provided water quality data and maps which illustrated SCDHEC's sampling locations and use classifications. We appreciate the assistance of Kathryn Diaz in the layout and design of the report. Ann Nolte provided invaluable editing assistance, as she does with each of our reports. Also, we would like to thank Tom Blagden for the beautiful photographs used on the cover and throughout the document.

One last special thanks is owed to Lynn Quattro. When it was time to put this document together, our administrative assistant was on maternity leave. Although she was also officially on maternity leave, Lynn volunteered to coordinate the editing of the final report and use her word processing skills to pull all the separate pieces of this document into a final report. All of this work is greatly appreciated.

Finally, we would like to recognize the individuals who served on the seven issue committees. These individuals provided significant expertise to the study, giving the final plan needed insight and credibility in the issues addressed in this management plan. Committee members

attended numerous meetings and gave an incredible amount of time and effort as they examined issues and drafted the recommendations contained in this study. The members of the issue committees deserve a great deal of credit for the success of the Reedy River study.

To give special recognition to these individuals, they are listed here.

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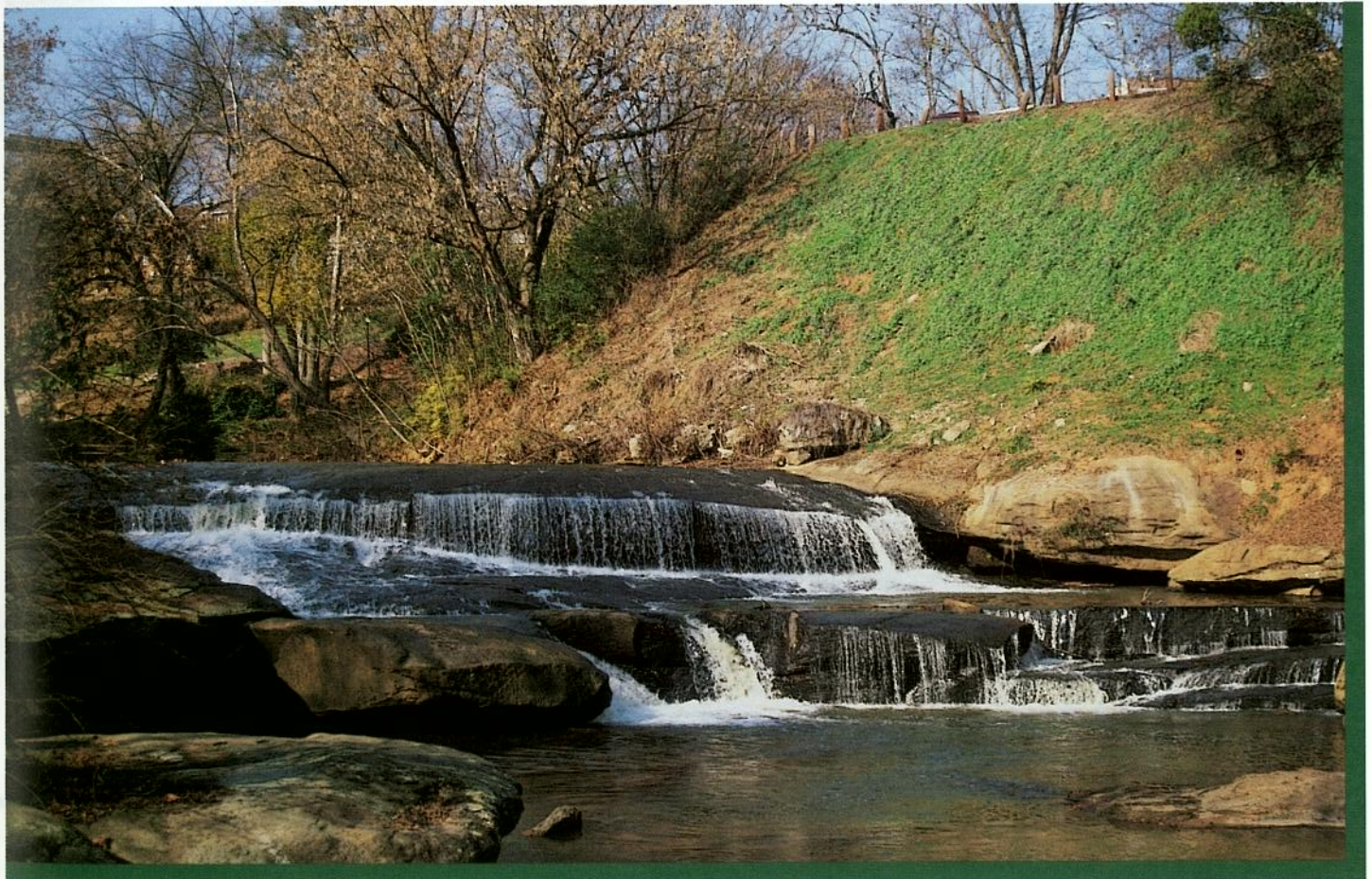
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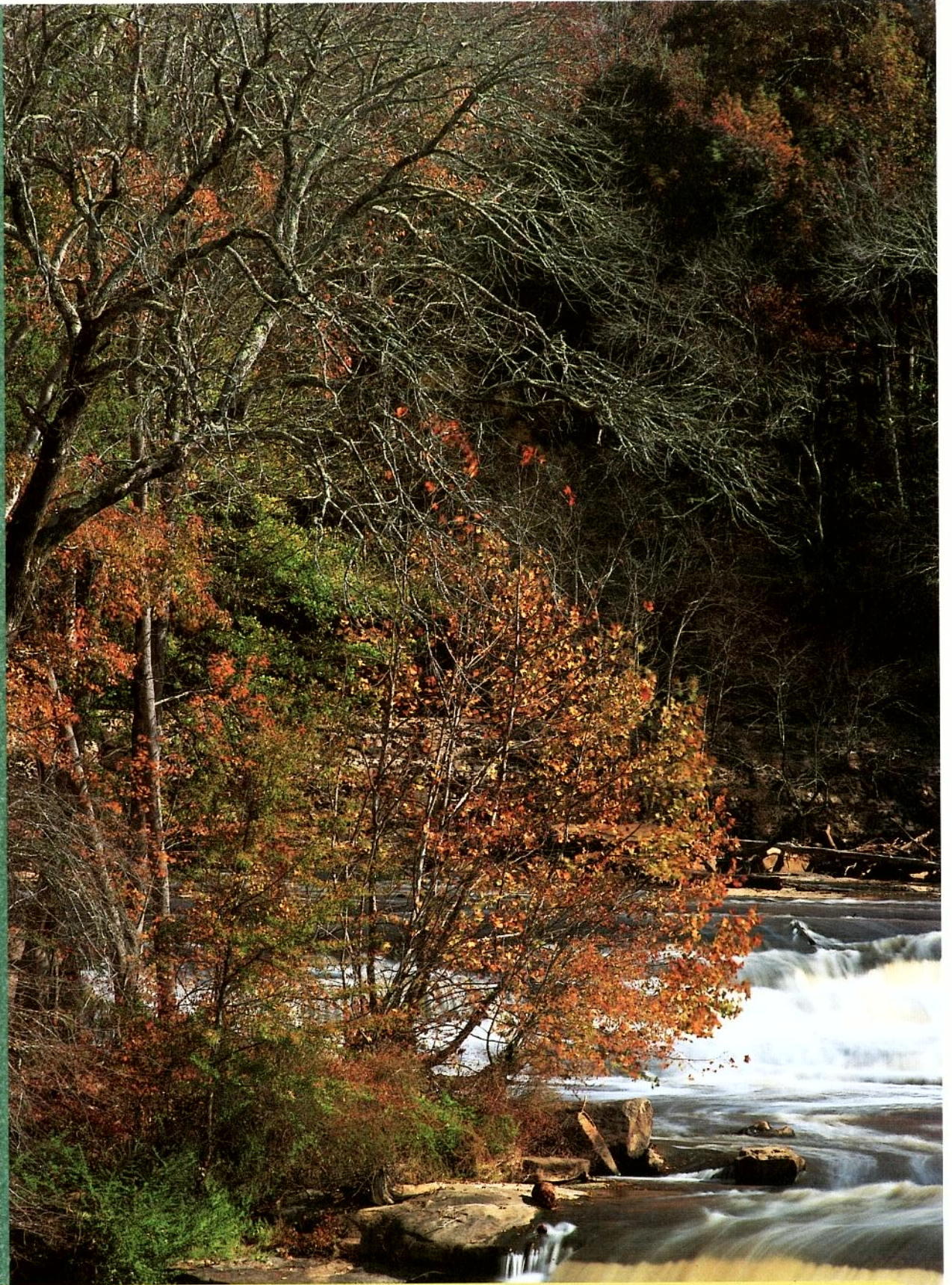
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Introduction

Photograph by Tom Blagden

The Reedy River is a small river with big responsibilities. Although the Reedy flows through a relatively small watershed of approximately 167,000 acres, the upper portion of the watershed includes the rapidly growing City of Greenville, portions of Mauldin and Simpsonville and the industrialized Interstate 85 corridor. Flowing through this urban environment places a significant set of demands on this small ribbon of water. The Reedy takes the community's treated wastewater, the runoff from yards, parking lots, streets and construction sites, other trash and debris we leave behind and moves silently downstream.

Like many of our nation's rivers, the Reedy River has accepted and transported our refuse for decades. However, we have come to understand that the river is more than a simple receptacle for our various forms of waste. The Reedy River is much more. It is home to an array of aquatic creatures and provides us with a source of recreation. Its riparian forests provide habitat for a range of birds and animals. It connects us to our past through the historical resources associated with the river.

For many years the Reedy River occupied a special place in the lives of the people of Greenville and Laurens Counties. Kids played in the Reedy River. Couples were married below the beautiful falls of the Reedy. Families picnicked and played at places like the Reedy River Falls, Cedar Falls and Ekom Beach along the Reedy River.

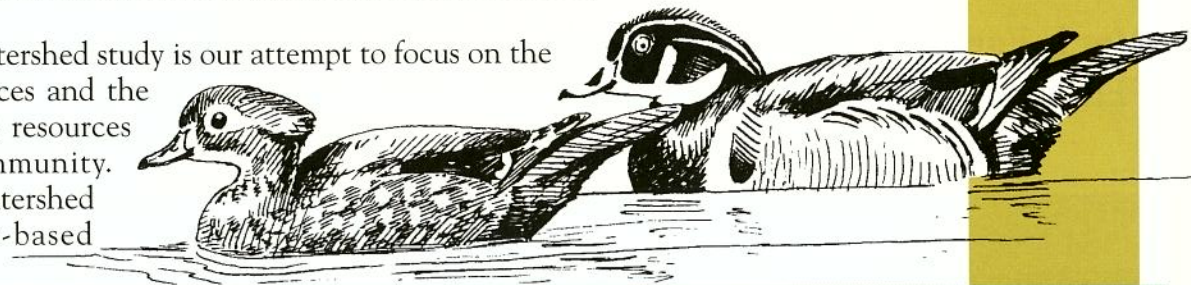
Over time, activities along the river changed. Textile mills dominated the use of the river in the City of Greenville, while picnic areas and swimming holes were forgotten. The use of the river changed during this time and this once vibrant, important resource became polluted and little used for recreational activities. It continued to be used for waste purposes.

In recent years, the character of Reedy River has changed for the better. Laws such as the Clean Water Act of 1972 have allowed the Reedy to rebound resulting in improved water quality. Additionally, community interest in the river throughout the watershed appears to be at an all time high.

The community has turned its attention to the Reedy River with a wide range of concerns for this important resource. Into this mix comes a comprehensive study of the Reedy River Watershed. In recent years we have developed a better understanding of the inter-connected nature of the resources that sustain and drive human society. The natural resources of land and water are obviously bound together and the health of these resources is tied to our economic well-being. Both our natural resources base and sound economic opportunities yield a good quality of life for everyone in the watershed.

In years past we have too often made one-dimensional decisions based on a single societal need or value. In too many cases, we have failed to examine and consider the multiple values represented in natural resources such as our rivers, lakes and forests.

A comprehensive watershed study is our attempt to focus on the broader set of resources and the values each of these resources represents in a community. The Reedy River watershed study is a citizen-based



planning effort that takes a comprehensive look at the watershed's resources and examines the interrelationships among these resources in a long-term management plan. This type of approach to natural resources planning recognizes that to be successful in sustaining our natural resources, we must understand all uses and interests in the community to make sound management decisions.

In light of these considerations, the Reedy River Task Force was established to examine the critical resources in the watershed and create a long-term management plan to help guide the use of this critical asset. The task force is a group of 36 individuals who represent the wide range of interests, values and expertise surrounding the resources of the watershed (Table 1). The work of the task force was facilitated by the South Carolina Department of Natural Resources (SCDNR).

On a fundamental level, the watershed study is an effort to create a common vision for the future of the Reedy River and its surrounding watershed that is based on sound information and local values as determined by the citizens who served on the task force. This vision will assist in the long-term management and sustainability of the critical natural resources of the Reedy River.

The watershed study takes a landscape level approach to understanding these natural resources. The recommendations developed as a result of this study will assist in making proactive decisions that can help guide the continuing growth and change in the watershed. It is hoped that this study can assist decision makers in shaping change to meet the needs of coming generations, as they will also need to depend upon the natural resource base of the Reedy River.

The Reedy River is a unique river in that it heads up in the foothills, flows through a major metropolitan area and discharges into a lake. The Reedy has been the catalyst for economic development in the early twentieth century. Because of this, the Reedy has been a very abused river.

The Reedy River Task Force, by pulling together a broad range of interests, has been able to develop a workable plan that will satisfy all the interests and restore the Reedy to a healthy river. In its renewed state, the Reedy will return to its status as a major economic development tool and, at the same time, protect the environmental qualities of the area.

Jack Earle
Laurens County Water and Sewer Commission

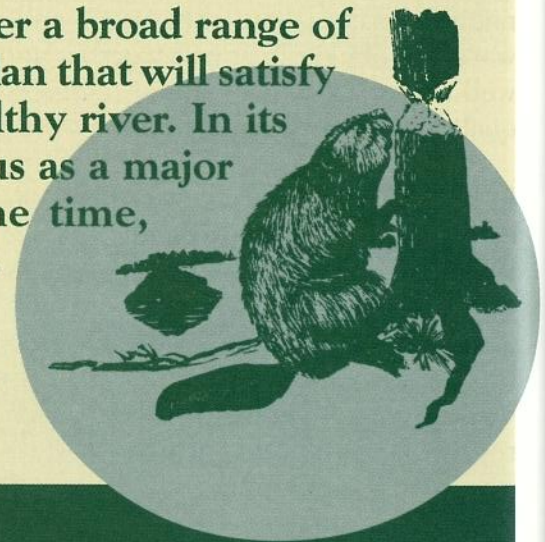
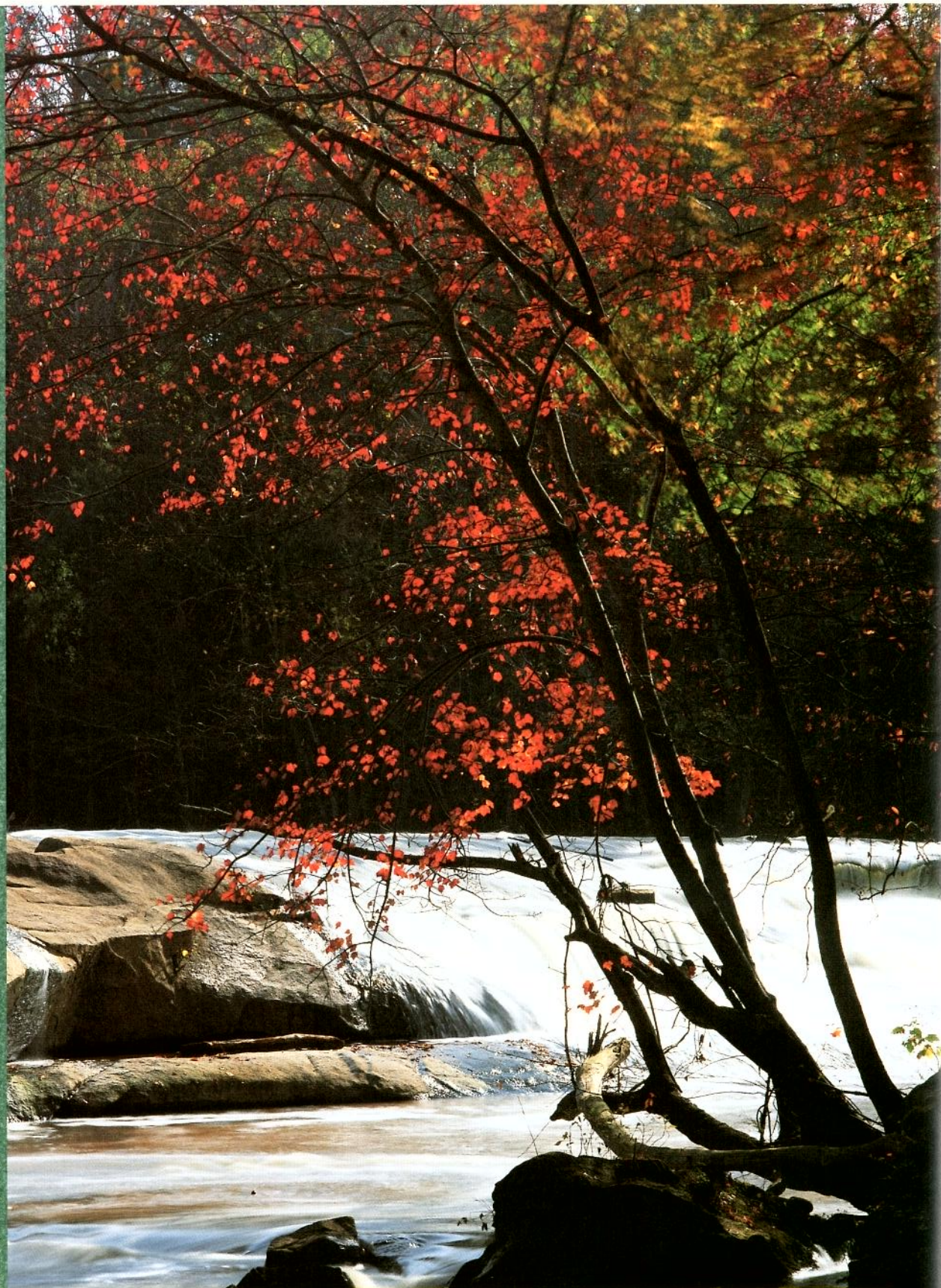


Table 1: Reedy River Task Force Members

Name	Affiliation
George Acker	Duke Power Company
Jeff Allen	Clemson University
Judith Bainbridge	Furman University
Robert Becker	Clemson University
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Joe Edwards	Laurens County Council
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Bill Erkes	Laurens County Recreation Department
Tom Fischer	Laurens County Community Member
George Fletcher	The Fletcher Group
Jimmy Forbes	Greenville County Planning Commission
Dave Hargett	Friends of the Reedy River
Robert Harley	Bowater, Inc.
Robert Hudson	Presbyterian College
Bob Hughes	Hughes Development
Ryan Lawson	Commissioner, Laurens County Soil and Water Conservation District
Pedrick Lowery	Carolina Foothills Garden Club
Charlotte Lynch	Greenville County
Marion Mahon	Commissioner, Laurens County Soil and Water Conservation District
Ray Orvin	Western Carolina Regional Sewer Authority
Michael Pitts	Laurens County Council
Ernest Segars	Laurens County Administrator
Norm Sharp	Sierra Club
Coleman Smoak	City of Laurens Public Works
Steve Thompson	City of Greenville
Tom Trantham	Landowner
Stan Turner	Landowner
Knox White	Mayor, City of Greenville
Brad Wyche	Upstate Forever



Resources of the Reedy River

Photograph by Tom Blagden

Rivers provide local communities with numerous goods and services, such as water for drinking, manufacturing and irrigation, electricity from hydropower production, and various recreational opportunities. They also channel floods, provide essential fish and wildlife habitat and assimilate wastes. Rivers are dynamic and their physical, chemical and biological characteristics are a function of the landscape that they drain. Alteration of the watershed results in changes in the structure and function of rivers. When a river is degraded and can no longer meet societal needs, a decline in the goods and services humans receive within the watershed may result. Costly examples of degradation may include a drop in real estate values due to erosion or flooding; a decline in drinking water quality and increased treatment costs; loss of recreational opportunities; and reduced ability of the river to receive wastewater due to a decrease in water supply.

The Reedy River has been an important natural resource for hundreds of years. It has been utilized and valued by people who have admired its scenic beauty and relied on its water. The river's name was derived from the dense groves of forest and extensive floodplain marshes that once teemed with reeds. The watershed has undergone a great deal of change since the days when the land surrounding the river provided the setting for villages and valuable hunting grounds for Native Americans. European settlers discovered the Reedy in the late 1700s and began building mills on its banks. As development increased along the river, the importance of the river to the community increased.

Over the past century, the Reedy River has been under increasing pressure from a number of sources. The relationship between a community and its water resources is often taken for granted; however, the social and economic costs of degradation can be significant. The appropriate use of river resources and protection of their valuable natural, cultural and recreational features can drive local and state initiatives in river management, conservation and restoration. *The Reedy River Report: Managing a Watershed* is a tool to conserve and restore the beauty of the Reedy River.

Located in northwestern South Carolina, the Reedy River originates near the town of Travelers Rest at the base of the Appalachian Mountains where two groundwater-fed streams meet. The river flows through the City of Greenville and into Lake Conestee, a mid-stream reservoir originally constructed in the early 1800s. Below the lake, the river flows unimpounded to Boyd Mill Pond, passing the Town of Fork Shoals (Figure 1).

The Reedy River Watershed contains 325 miles of streams encompassing more than 167,000 acres (Figure 2). The northern portion of the watershed is divided from the southern portion at the confluence of the river and Huff Creek, near the Town of Fork Shoals (Figures 3 and 4). Along its 73-mile course, the character of the Reedy River and its adjacent landscape change substantially, yielding a watershed with two distinctly different portions: one urban and one rural.

The Reedy River Watershed has grown over the past several decades. As population and economy of the watershed continue to expand, demand on this river by the community will increase, along with its dependency upon its resources. Today, the problems facing the Reedy River are complicated. The manner in which these problems are approached and addressed may affect everything from quality of life to future economic growth in the watershed.

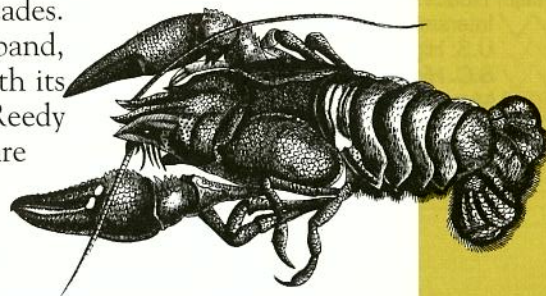


Figure 1: Reedy River Watershed Study Project Area



Figure 2: Reedy River Watershed Surface Hydrology

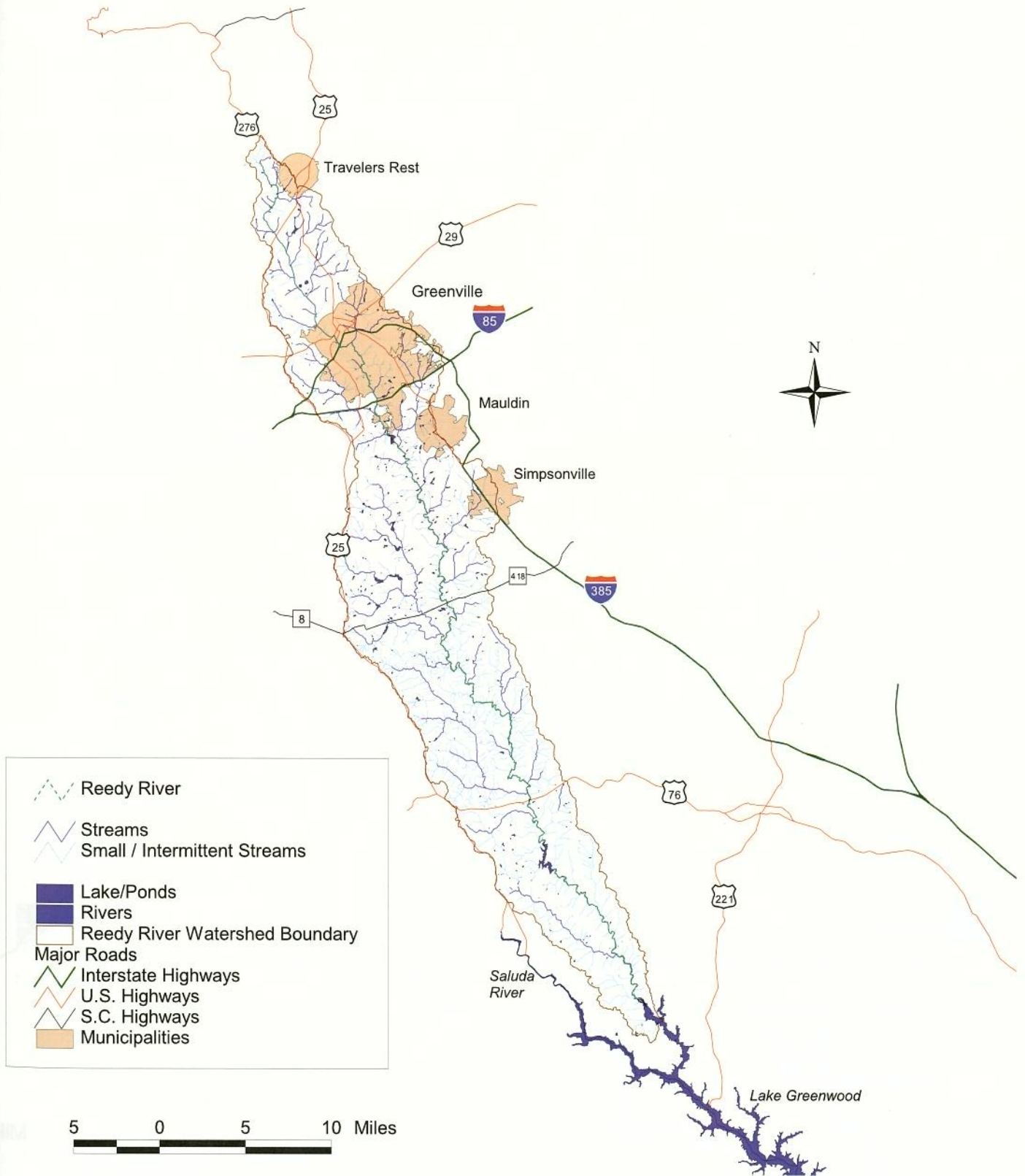


Figure 3: Northern Reedy River Watershed

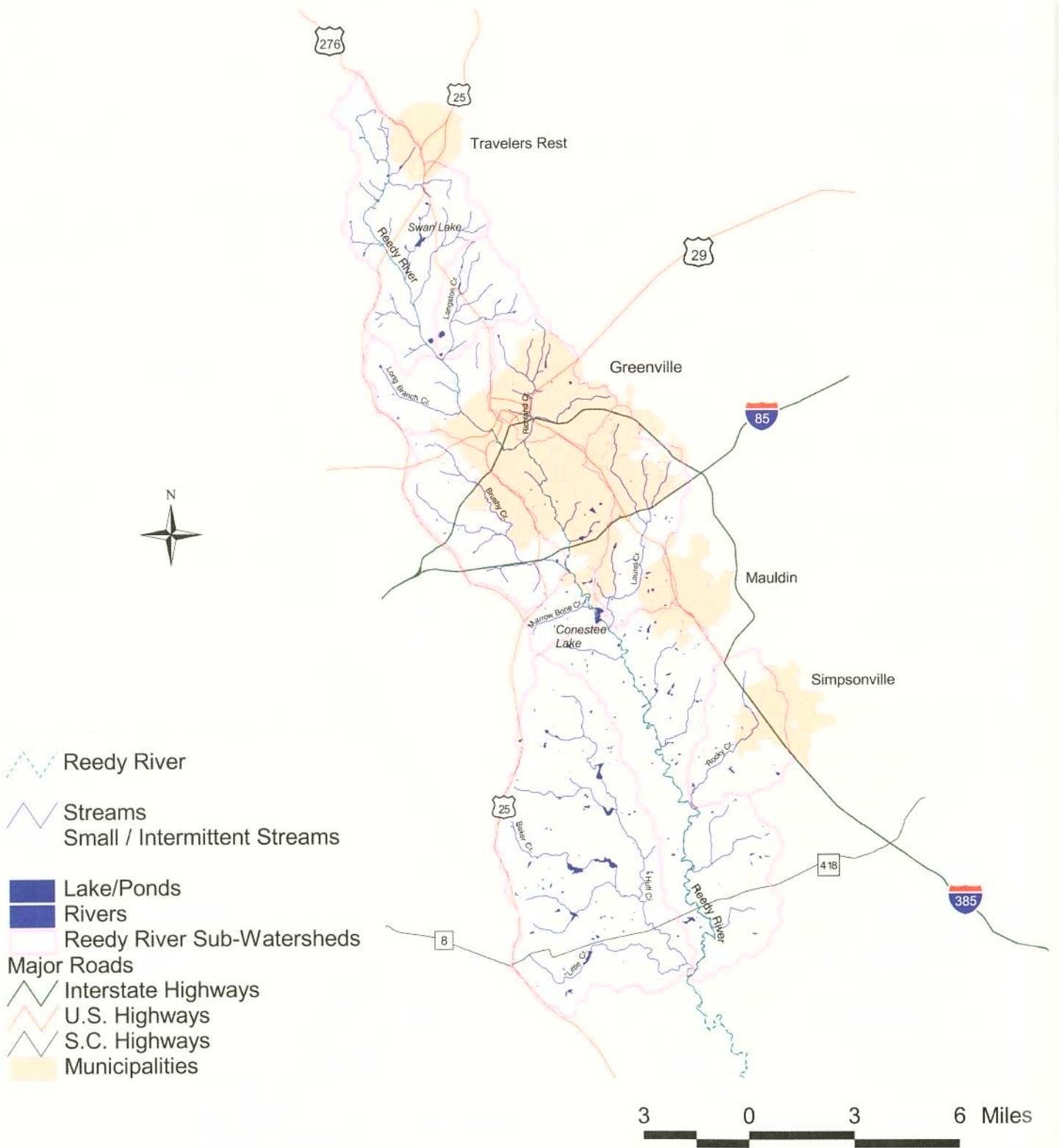
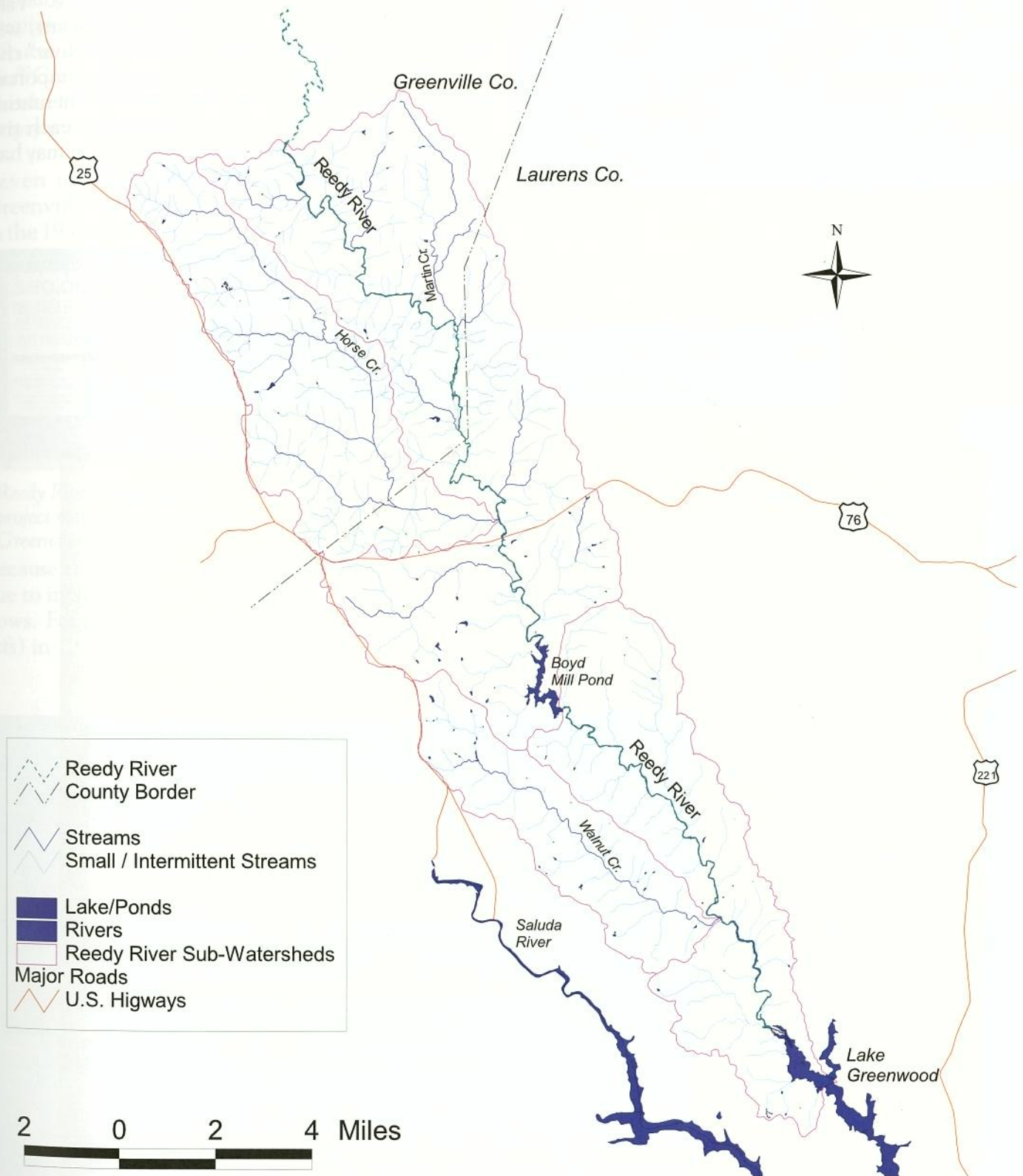


Figure 4: Southern Reedy River Watershed



The Reedy River was included in the *South Carolina Rivers Assessment* (South Carolina Water Resources Commission, 1988). The assessment provided an analysis of the importance of each river in the state as it relates to river uses and was designed as a planning tool to aid in decisions about the future of individual rivers in the state. A value was placed on each river based on 14 river use categories, providing a common index for river comparison in the state and serving as one of the best available collections of data for determining compatible and conflicting river uses in South Carolina. The study set the stage for statewide multi-objective river corridor planning.

The Reedy River was given a rating by value class for each river use category (Table 2). Value classes ranged from one to four, with class one of highest value. "Value class one" rivers were considered superior in the rivers assessment, with resources of statewide or greater significance. "Value class two" rivers were considered outstanding, with resources of regional significance. "Value class three" rivers were considered significant, with resources of local significance. "Value class four" river resources were considered unknown, but important enough to require further research and documentation. Although the entire river was evaluated for each river use category, only specific portions of the river may have fallen inside the class ranks stated in Table 2.

**Table 2: River Use Classifications for the Reedy River
(From the *South Carolina Rivers Assessment*)**

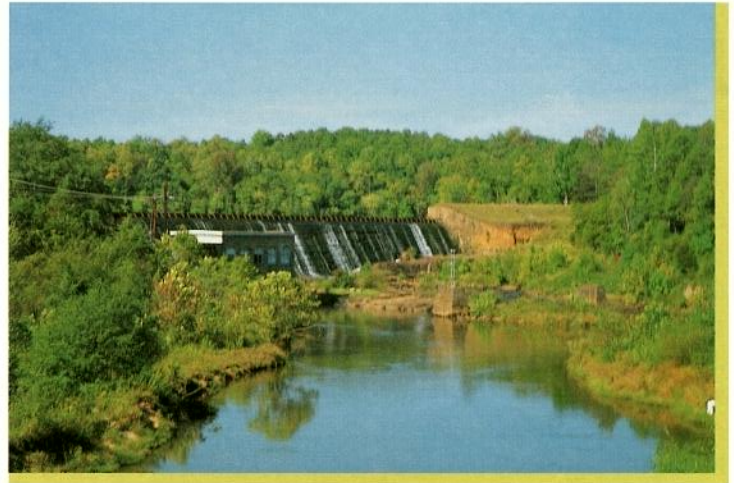
River Use Category	Class
Agricultural	-
Historic and Cultural	-
Industrial	2
Inland Fisheries	3
Natural Features	-
Recreational Boating (flatwater/backcountry)	-
Recreational Fishing	3
Timber Management	-
Undeveloped	-
Urban	2
Utilities	1
Water Quality	-
Water Supply	2/3
Wildlife Habitat	3

(- Represents category falling outside of class ranks)

Hydrology

The entire Reedy River Watershed is located within South Carolina. There are 13 subwatersheds, illustrated in Figure 5, within the Reedy drainage. Two major impoundments, Lake Conestee and Boyd Mill Pond, are present along the 73-mile course of the river. Major tributaries include Long Branch Creek, Brushy Creek, Huff Creek, Horse Creek, Martin Creek and Walnut Creek. Many other small creeks and drainage ditches empty into the river.

Seven miles of the Reedy River in the City of Greenville were affected by a “beautification” project in the 1930s that included removing debris and riparian



Boyd Mill Dam

vegetation. This project involved modification of the river’s channel by straightening bends and meanders and removal of riparian vegetation along the riverbank. Additionally, the river channel has been carved out, both manually (to “improve” the river) and naturally (through increased flow), resulting in steeply sloped banks. This channel modification disconnected the river from its floodplain and, over time, has resulted in a canyon-like setting. Today, the runoff from urban areas creates storm water surges (or flashfloods) within the river channel.



Reedy River “beautification” project makes headlines in the Greenville News

Because the Reedy basin is long and narrow with steep slopes, water levels within the river rise and fall quickly due to increased runoff during precipitation events. This phenomenon is evident in the variations in mean daily flows. For example, near Ware Shoals the mean daily flow (historically) has varied from 4.8 cubic feet per second (cfs) in 1973 to 8,800 cfs in 1963.

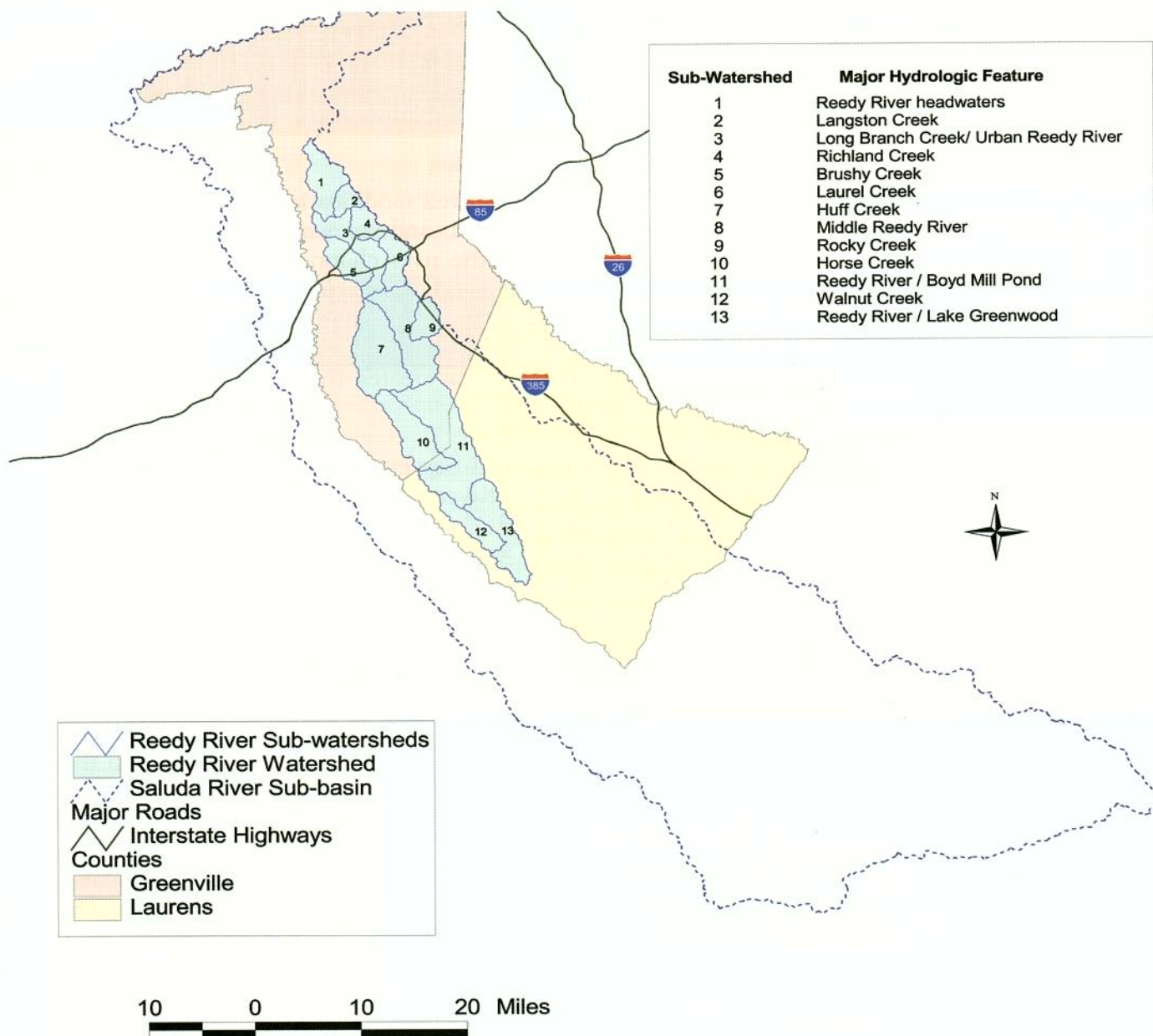
The United States Geological Survey (USGS) currently maintains three gauging stations on the Reedy River: near Greenville (installed in 1941); above Fork Shoals (installed in 1993); and near Ware Shoals (installed in 1939).



Lake Conestee

Based on data from the three USGS gauging stations, average annual streamflow in the Reedy varies. Near Greenville, average annual flow is 83.2 cfs; above Fork Shoals, average annual flow is 235 cfs; and near Ware Shoals, average annual flow is 359 cfs. The lowest daily mean flow of record within the river (4.8 cfs) was measured near Ware Shoals on September 9, 1973. The highest daily mean flow (8,800 cfs) also occurred near Ware Shoals, on March 7, 1963. Very high flows were measured at all stations on August 27, 1995, during Tropical Storm Jerry. At that time, flows varied from 5,400 cfs near Greenville to 6,260 cfs above Fork Shoals.

Figure 5: Subwatersheds of the Reedy River



As development throughout the watershed increases, storm runoff will also increase. Because the Reedy is already experiencing drastic fluctuations in flow, efforts should be made to reduce storm water flows to the river.

Natural Resources

Water Quality

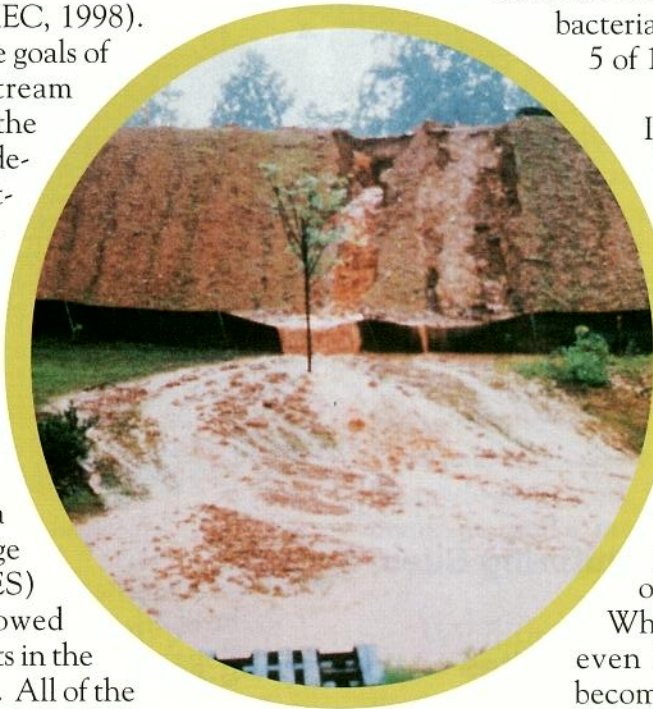
The South Carolina Department of Health and Environmental Control (SCDHEC) classifies the Reedy River as Freshwaters (FW). Waters with the FW classification are protected for several uses including drinking water after treatment, recreation, survival and propagation of a balanced aquatic community of flora and fauna, and industrial and agricultural uses (SCDHEC, 1998).

This classification reflects the goals of SCDHEC rather than instream water quality. Additionally, the FW classification is used to determine permit limits for treated wastewater dischargers and any other activities that may impact water quality.

There are ten permitted point source dischargers within the Reedy River Watershed. Each of these facilities currently has a National Pollutant Discharge Elimination System (NPDES) permit that states the allowed levels for specific contaminants in the discharge from these facilities. All of the permitted facilities are located within the northern portion of the watershed (Figure 6). Additionally, nonpoint sources (NPS) also contribute to contaminant loading within the river. NPS contamination is generally introduced to a water body during a storm event and originates from a variety of activities that include agriculture, silviculture, construction, urban storm water runoff and residential wastes.

SCDHEC regularly collects and analyzes water samples from the Reedy River Watershed to determine whether its classification of FW is being met. There are a total of 18 monitoring sites located on the river. These sites

are divided among primary, secondary, and basin monitoring sites and macroinvertebrate monitoring sites (Figure 6). Four primary stations are located on the mainstem of the river; samples are collected from these stations monthly throughout the year. Six secondary stations are located within the watershed; samples are collected from these stations monthly from May through October, a period critical to aquatic life due to higher water temperatures and lower flows. Two basin stations are located on the mainstem of the river from which samples are collected on a monthly basis, year round, during a basin's target year. Finally, six macroinvertebrate sampling stations are located within the watershed. Data collected from these sites are used to determine whether aquatic life use and recreational use are supported at each station. For the Reedy River, aquatic life use is supported at 9 of 16 stations and recreational use (based on fecal coliform bacteria concentrations) is supported at 5 of 13 stations.

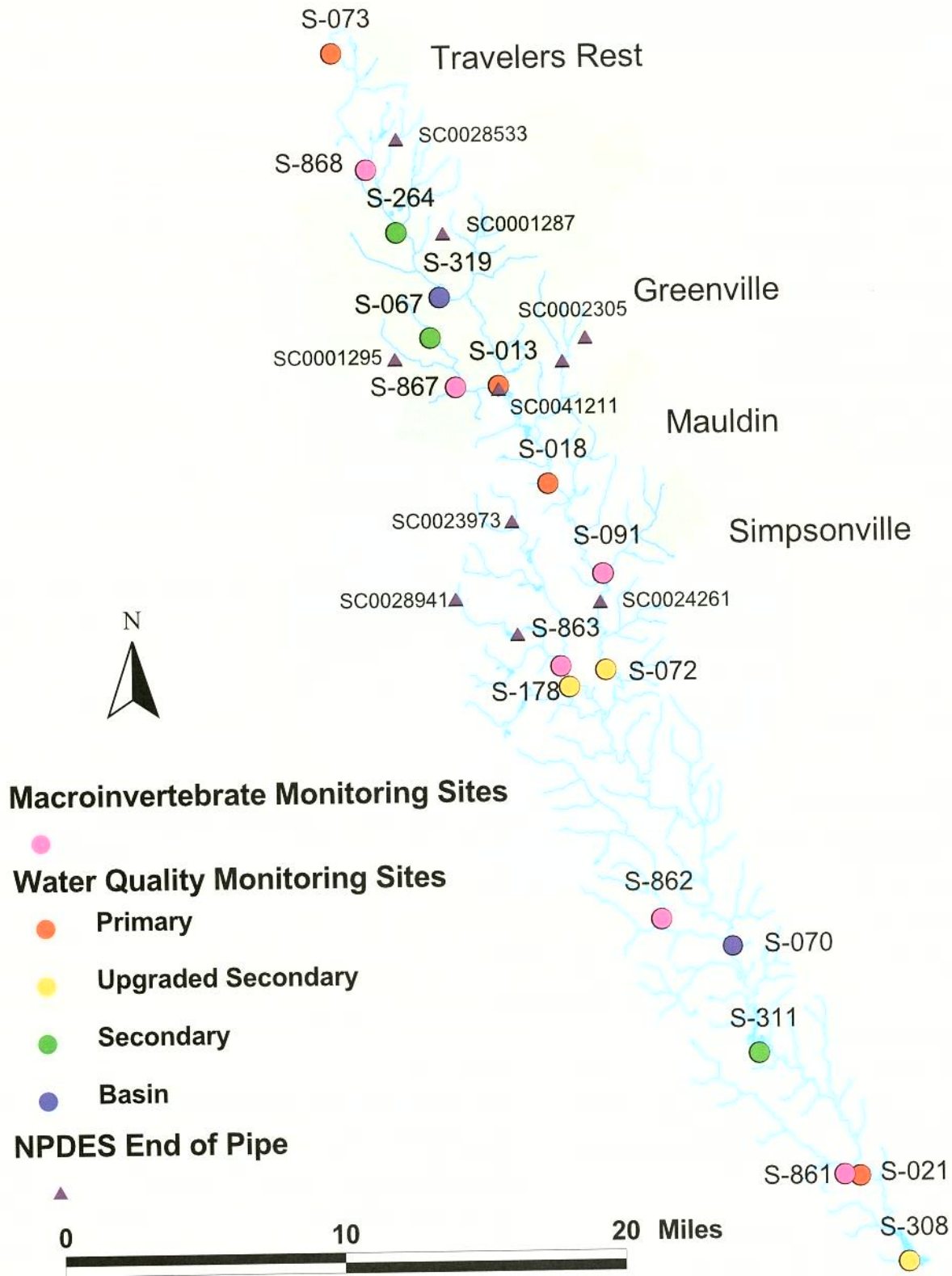


Sediment runoff from a construction site to the Reedy River [Dave Hargett]

In recent years, portions of the Reedy River appear to have been adversely affected by nitrification, the process whereby an excess of plant nutrients are added to the river. In terms of water quality, phosphorus and nitrogen are the nutrients that cause the most concern. In general, increased nutrient concentrations provide the potential for accelerated growth of aquatic plants, including algae.

When present in great quantities, even beneficial aquatic plants can become a nuisance. Nuisance plant growth is detrimental for several reasons. Aquatic communities can change as the number and density of plants increase. This creates an imbalance in the ecosystem and may result in reduction in animal communities, such as fish and aquatic insects. Large concentrations of plants can reduce dissolved oxygen levels and cause fluctuations in pH, resulting in catastrophic fish kills in extreme cases. Human communities are affected by nuisance plant growth, too. As waterways become choked with nuisance plants, aesthetic and access problems occur. South Carolina currently has no official standards or criteria for nutrients in water. However, the United States Environmental Protection

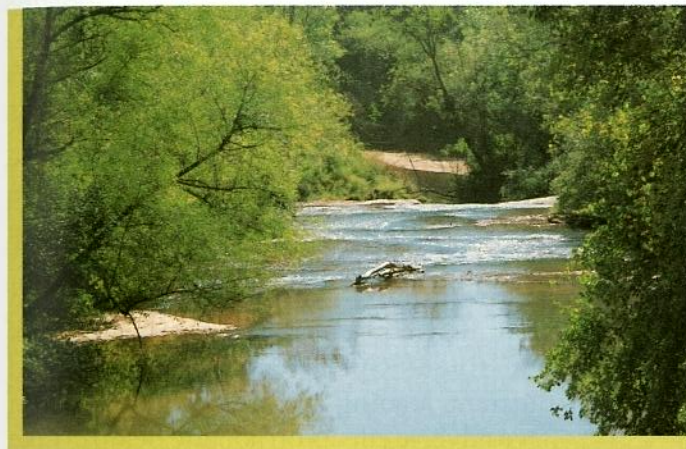
Figure 6: Locations of Permitted Facilities and Monitoring Sites



Prepared by the South Carolina Department of Health and Environmental Control, Bureau of Water, for the Reedy River Task Force

Agency (USEPA) has issued recommendations for phosphorus concentrations to prevent over-enrichment of water bodies. SCDHEC does include phosphorus standards for applicable NPDES permits. Both Boyd Mill Pond and the Reedy segment of Lake Greenwood are exhibiting high concentrations of phosphorus that is resulting in high densities of algae.

Litter and debris in the Reedy River also result in potential water quality problems, as well as aesthetic impacts. In 1994, the problem of litter in the Reedy prompted Friends of the Reedy River to organize a stream adoption program. Individuals, businesses and corporations came together to inspect and clean specific segments of the river on a regular basis. During three cleanups between 1994 and 1995, more than 12,000 pounds of trash and 900 tires were retrieved from the river.



Healthy riparian zone adjacent to the river

With increasing growth and urbanization occurring within the watershed, additional efforts will be needed to lower the amount of NPS and point source pollution and reduce litter in the watershed.

Riparian Zone

The health and viability of the river are dependent on several factors. One of the most important of these factors is the condition of the riparian zone. On the smallest scale, the riparian zone would be the immediate water's edge where specialized plants and animals form a distinct community. At a larger scale, it would be the area periodically inundated by high water that includes the banks and floodplain of the river. Finally, on the largest scale, it would be the band of forest that has a significant influence on the river ecosystem or, conversely, is significantly influenced by the river (Hunter, 1990).

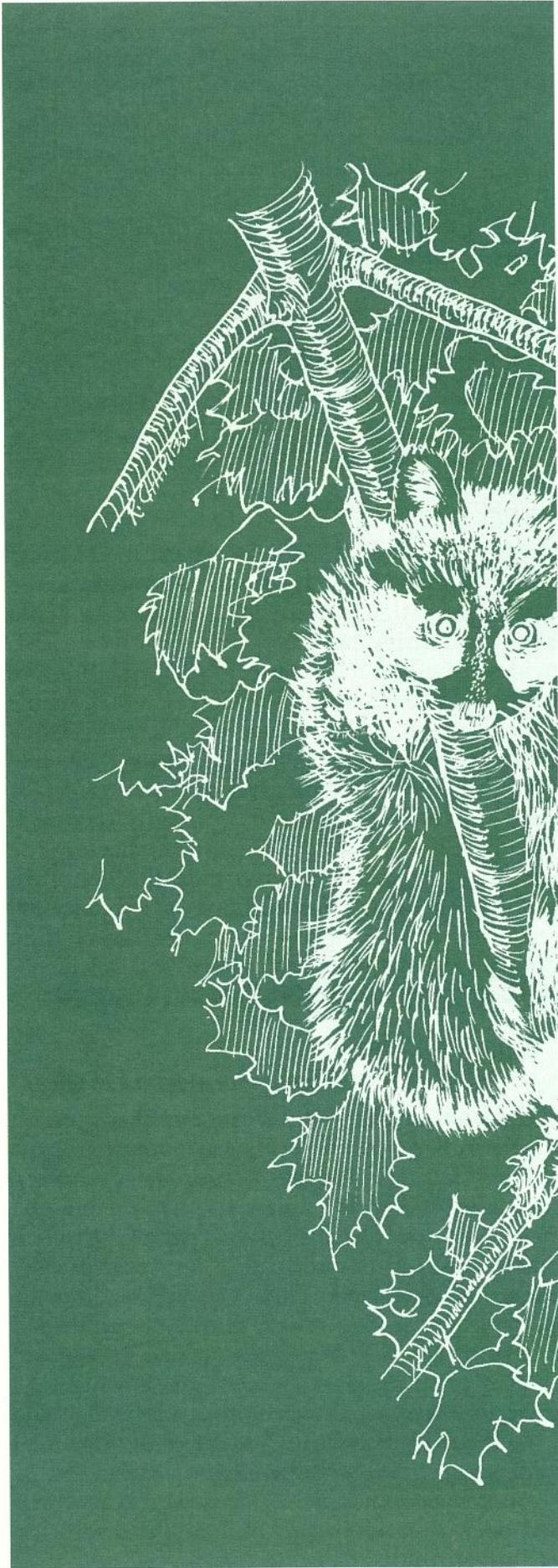


Modified riparian zone [Dave Hargett]

Activities on river-bordering land have a direct and immediate impact on the river. An undisturbed vegetated area along the river can serve as a buffer between intensive land uses and the river. This provides benefits such as streambank stabilization, erosion and flood control, filtration of runoff, scenic beauty, recreation areas, stream shading and wildlife habitat. In the northern portion of the river, much of the riparian zone has completely disappeared, especially around urban centers, like downtown Greenville. Below the City of Greenville, however, much of the riparian zone is intact and the river flows through forestland and scattered farms. However, efforts should be made to restore riparian areas that have been eliminated and to protect existing areas as development continues throughout the watershed.

Wildlife and Fish

Forested lands mostly characterize the southern portion of the Reedy River (mainly evergreen forests, with some deciduous and mixed forests adjacent to the river). These forests provide habitat for many game and nongame species. The northern portion of the river is characterized mainly by urban development with small pockets of forested land. These forested areas provide important habitat for a variety of wildlife species and the basic necessities these animals need for survival including cover, food and water. Areas where the riparian zone is intact also serve as travel corridors and nesting/breeding grounds for forest species. Common wildlife species in these forested areas include foxes, gray squirrels, opossums, otters, raccoons, turkey, white-tailed deer, a variety of amphibians and reptiles, waterfowl and numerous songbirds.



In addition to supporting terrestrial wildlife, the Reedy River provides habitat for game and nongame fish species and a variety of aquatic invertebrate species. Critical elements of aquatic habitats include riffles, pools, undercut streambanks, downed trees, lack of impoundments and the forest canopy. In the northern portion of the river, many of these elements are not present. The riparian zone in urban areas of the upper Reedy has been cleared and developed in many areas, which has resulted in limited habitat for terrestrial wildlife and contributed to instability of the riverbanks during periods of high flow. Bank instability results in scouring during periods of high flow, which in turn, increases sedimentation in the river channel and greatly limits habitat available for fish and aquatic invertebrates. Clean water is also critical to healthy aquatic populations. Point and NPS discharges have reduced water quality in the river in its northern portion. Impacted water quality and aquatic habitat have resulted in less species diversity for both fish and invertebrates in the northern portion of the Reedy.

In the southern portion of the Reedy River, fish habitat impacts due to sedimentation are reduced because the riparian zone is more intact. Although there are no point source discharges below Fork Shoals, contaminants originating upstream continue to plague the southern portion of the river. Specifically, sediment and nutrient loading transported downstream have adverse effects on aquatic health. Like the northern portion of the river, the southern portion also exhibits reduced fish and invertebrate species diversity.

Over 22 miles of the southern portion of the river was severely impacted in June 1996 by a diesel fuel spill. The spill resulted in a significant fish kill and contamination of the river sediments. Data suggest that the area of the river affected by the spill is recovering and aquatic life is recolonizing the area; however, fuel residue entrained in the sediments and just beneath the river's channel may continue to pose a long-term problem.

In response to the 1996 diesel spill, the South Carolina Department of Natural Resources (SCDNR) conducted a fish kill investigation in the Reedy River (1996). This study determined that common fish species in the river include catfish, bullheads, sunfish (including redbreast sunfish), minnows, shiners, chubs, carp, gizzard shad and the recreationally important crappie and largemouth bass.

Cultural & Historical Resources –

Looking over today's urbanizing landscape of the upper Reedy River Watershed, as seen from Paris Mountain, one might have to strain to imagine the first humans arriving in these valleys some 15,000 years ago, finding grasslands and pine forests near the end of the last ice age. The Paleo-Indians of 10,000 to 12,000 years ago were hunting mammoth, mastodon, and giant bison with spears, and beginning the human alteration of the landscape with fires set to drive their big game. For the next 10,000 years, as the end of Pleistocene glaciation changed the region's ecology to a northern hardwood forest, and then a subtropical hardwood forest, various Indian cultures adapted and thrived, introducing agriculture to the landscape. However, the arrival of colonial Europeans in the 1500's, first Spanish, then French and then English, brought collapse of the native cultures through disease, war, slavery and alcohol. Reminders of the Native American presence include place names like Cherokee and Saluda and culinary traditions like barbecue.

The view to the north of Paris Mountain reveals the Blue Ridge Mountains in the distance, uplifted more than 350 million years ago by continental collisions and rising magma, and subsequently worn down by erosion. Paris Mountain stands apart from the Blue Ridge. It is a monadnock, or small, isolated mountain surrounded by the Piedmont uplands that are the terrain for the rest of the Reedy River Watershed. From the French for "foot of the mountains," the Piedmont has broad, rolling hills between wider, more gently sloping river valleys than the Blue Ridge, though both share the same billion-year old basement rock metamorphosed into gneiss and schist, with granite intrusions of cooled magma that are mined today for crushed stone.

Today's Reedy River Watershed boundaries are remarkably coincident with roads originally located along rounded ridgelines that avoid stream crossings. The beginning of the watershed is at the intersection of two such roads, US 276 and Old White Horse Road. Again, Paris Mountain is an exception, with Altamount Road accessing the peak along a steeper, more irregular ridgeline that defines part of the eastern edge of the watershed. Further to the south, the eastern watershed boundary coincides with portions of Pelham Road, I-385, the CSX railroad, Fairview Road, Neely Ferry Road and Todds Quarters Road. On the western edge of the watershed, the boundary travels south along Augusta Road, Indian Mound Road, and then River Fork Road to Lake Greenwood.

In the days of colonial Carolina, some of these same roads were paths between the "Back Country" and the first, permanent European settlement at Charles Town, founded in 1670. Carolina traders came to the "Back Country" to barter with the Indians for deerskins, which were exported to England. Scotch-Irish and German farmers settled portions of the Piedmont in the mid-1700's, bringing open-range cattle and hogs, and tobacco and wheat as cash crops. Though the Cherokees controlled most of what is now known as Greenville, Anderson, Oconee and Pickens Counties until the late 1700's, Indian trader Richard Pearis managed to acquire lands in the 1770's for a plantation and store at the falls of the Reedy River, the heart of the future city of Greenville.

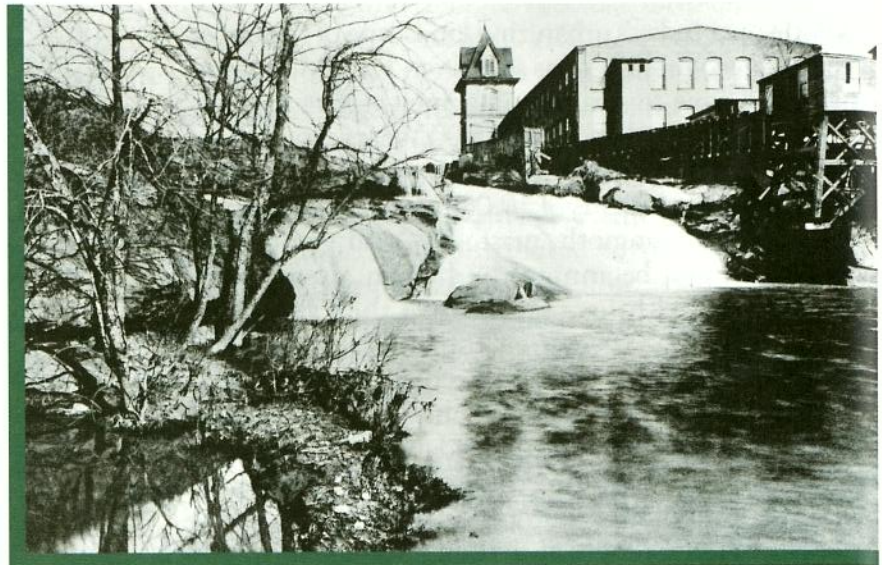
A more significant agricultural transformation of the upstate landscape began after the Revolutionary War, as cotton displaced indigo, and eventually rice, in the "Low Country" plantation economy. In the first few decades of the 1800's, cotton plantations and slavery spread rapidly into the Piedmont, supplying a growing textile manufacturing industry in England. With land cheaper than labor, most planters grew cotton until the fertility of the soil was exhausted, then abandoned their fields, and cleared more forests to plant again. Many migrated to Georgia, Alabama and Mississippi before the Civil War to find more fertile land. Not all farms in South Carolina were large cotton plantations run with slaves during this period. The area now known as Greenville and Laurens Counties tended to have smaller farms with fewer slaves, though Laurens grew much more cotton than Greenville.

Canals and railroads radiated inland from Charleston during the 1800's, serving the expansion of cotton plantations. By the 1850's, the Greenville and Columbia Railroad as well as the Laurens Railroad were operating. Towns formed along the railroads, such as Fountain Inn, Simpsonville and Mauldin on the eastern edge of the Reedy River Watershed.

In 1860, South Carolina was third in the nation for per capita income, but would drop to fortieth by 1870, in the aftermath of the Civil War. In the following decades, cotton production rebounded under a tenant farming system, despite low prices for the crop. It also shifted from the lower Piedmont toward the upper Piedmont as continuous cropping wore out the land. Phosphate fertilizers from the outer Coastal Plain were applied to stretch the yields.

These same decades around the turn of the century saw the textile mill industry expand rapidly in the upper

Piedmont, taking advantage of its waterpower, cotton production, lower wages and rail transportation. The companies established self-contained mill villages to attract workers. Though the Piedmont landscape had already been altered with hundreds of millponds constructed in the 18th and 19th centuries to mechanically power gristmills and saw mills, these new textile mills used waterpower for electricity. Larger dams and reservoirs for hydroelectricity were developed in later years, including Lake Greenwood in 1940.



Camperdown Mill on the Falls of the Reedy River in the early 1900's [Coxe Collection of the Greenville County Historical Society]

Cotton production peaked in South Carolina in 1920. The collapse of cotton prices after World War I and the boll weevil infestation were part of the decline, but soil depletion was a more fundamental reason. "By the 1930's Piedmont South Carolina was one of the most severely eroded areas in the United States, so scarred and gullied that much of the land had become unsuitable for cultivation. It is estimated that from the beginning of the "King Cotton Era" in the 1800's through the 1930's much of the South Carolina Piedmont lost almost 10 inches of topsoil and in some large areas more than 12 inches." (Kovacik, 1987).

Population growth in the upper Piedmont during the early 1900's was much greater than that of the state as a whole and was characterized by an immigration of whites, as well as an outmigration of blacks who were denied significant employment in the textile mills. Even the thriving mills were hurt by the Depression, which literally starved many South Carolinians. The New Deal programs of the 1930's, for cotton and tobacco acreage reductions and parity payments, soil conservation measures, reforestation and public works projects, began the economic recovery and hastened the decline of small-scale tenant farming.

New employment opportunities for young men included the Civilian Conservation Corps (CCC), which started the development of the state parks, such as Paris Mountain. The CCC also drained, blasted and dug the channel of the Reedy River through Greenville to discharge floodwaters and flush pollutants.



Reedy River floodplain development in Greenville suffered recurring floods in the early 1900's [Coxe Collection of the Greenville County Historical Society]

Both agriculture and industry in South Carolina strengthened in the 1940's, as part of the World War II economy. New military installations were established, like the Greenville Army Air Base, which later became the Donaldson Center Industrial Air Park. However in the 1950's extensive cropland acreage was abandoned in the Piedmont, as handpicked cotton failed to compete with irrigated and mechanized farms in other states. Consequently, fields in various stages of vegetative succession are now a common sight in the Piedmont.

In a century-long natural process, abandoned, sunlit fields are first occupied by dog fennel and rabbit tobacco, followed by broomsedge, then pine seedlings, red cedar and wild cherry trees. After about 35 years, the pine trees dominate the upper canopy, but young oaks, hickories, dogwoods and red maples occupy the understory. After 70

to 75 years, the fields have mature pines and hardwoods. By then, the forest floor is too shaded for pine seedlings to replace dying pines and, 100 years after abandonment, the fields have a stable, climax forest of oak and hickory, with an understory of dogwood, red maple and sourwood. However, the most common tree in the Piedmont today is the loblolly pine, introduced from the Coastal Plain and widely planted by paper companies.

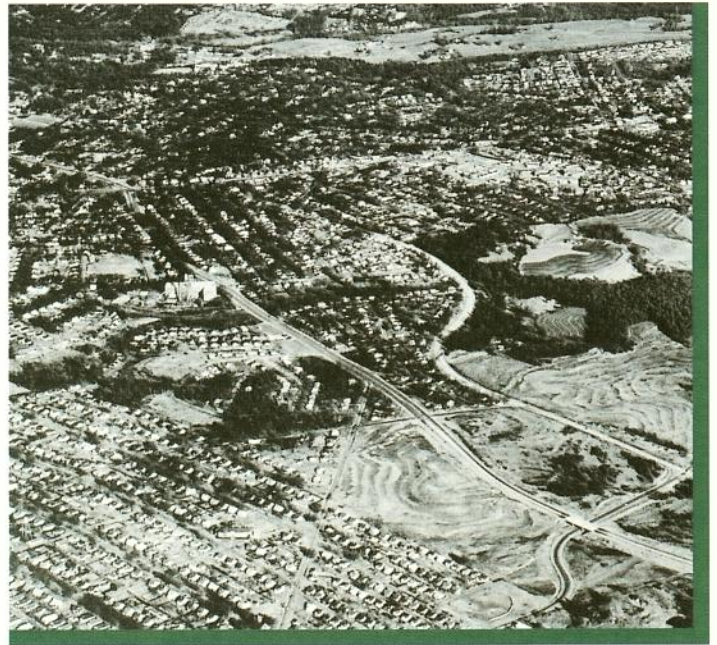
After World War II, South Carolina's economy shifted increasingly toward manufacturing and its population toward urban areas. By 1980, the state's immigration exceeded outmigration and more than half the population was in urban places of 2,500 or more.



Donaldson Center Industrial Air Park began in World War II as the Greenville Army Air Base

However, within the metropolitan counties, like Greenville, most of the growth was in the suburbs, not the central cities. Residential development sprawled outward, supported by urban and interstate highway expansion that enabled commuting to central city jobs. Retail and office jobs followed residents to the suburbs and by the 1970's, Greenville business and government leaders were countering the trend with downtown revitalization projects.

Textile manufacturing employment peaked in South Carolina in the 1970's and its decline led to the adaptive reuse of mill buildings. However, other industries in metals, machinery, rubber, plastics, electronics, instruments and chemicals arrived, especially in Greenville and Spartanburg Counties. The State Development Board (now South Carolina Department of Commerce) aggressively marketed the



This post-World War II aerial photograph shows dispersed, low-density, automobile-oriented development forming around Greenville [Coxe Collection of the Greenville County Historical Society]

upstate's non-unionized labor pool, highway and airport transportation investments dating to the 1960's and quality of life. The State's financial incentives and technical education system helped attract major foreign investments from Germany, England, France and Japan. The most significant natural resource industry in South Carolina is now pulp and paper, using planted pines such as those evident in the lower Reedy River Watershed. Agriculture in the watershed includes beef and dairy cattle, horse pasture and vegetables.

Humans have expected much of the Reedy River over the centuries and much has been left behind as evidence of this human activity. The cultural resources that exist in the river corridor are valuable to understanding our past and should be preserved to help build a better future.



This Michelin Tire plant represents foreign investment located in the Reedy River Watershed

Recreational Resources

One very important quality of life issue for community members is the availability of and opportunity to enjoy open space and the surrounding natural resources. In the northern portion of the Reedy River, open space and natural resources adjacent to the river are more limited than in the southern portion, especially in the City of Greenville. However, Cleveland Park and Linkie Stone Park, both in the city, provide the public with the opportunity to enjoy the Reedy River. Walking trails and picnic areas are available and kayaks and canoes are frequently seen on the river. Recently, the City of Greenville installed slalom gates for kayaks in Linkie Stone Park. As urban areas continue to expand throughout the watershed, it will be increasingly important to plan for open space and greenways.

Downstream of Greenville, the river flows through forestland and scattered farms. Wildlife is abundant and readily observed from a canoeist's perspective. The natural setting of the southern portion of the Reedy provides opportunities both for novices to enjoy a leisurely float and for experienced boaters to be challenged by its whitewater rapids.



Cleveland Park in the City of Greenville

Another popular recreational activity on the river is fishing. Boyd Mill Pond and Lake Greenwood also

attract fishermen to the watershed. The Reedy River is home to a number of game fish species including catfish, bream and bass.



The Monaghan Plant of JPS Converter occupies an old textile mill on the Reedy River

In addition to boating and fishing, the river and its floodplain host a number of species of plants and animals. Observation of the natural environment and the wildlife that inhabit it is another recreational use that the river offers. Kingfishers, herons, egrets, muskrats, otters and signs of beaver activity can be observed within the river corridor.



Canoeing on the Reedy River [Dave Hargett]

One of the most challenging issues facing local governments and recreation providers is how to allow access to the river without harming its environment or impacting the rights of riparian landowners. Currently, there are only a few legal public access points to the river within the watershed. Because the community has so few access points, trespassing on private property and degradation of the riparian zone at uncontrolled access points occurs. Finding a balance between public access and riparian landowners' rights, along with sufficient funding for publicly controlled access, will be essential.

Land Use

Land use within the Reedy River Watershed is distinctly different between the northern and southern portions of the river. The amount of forest and urban land use present within each portion of the watershed illustrates the major difference. Figures 7 and 8 illustrate the differences in land use for four major cover types (water, forest, agriculture and urban) between the northern and southern portions of the watershed. In these figures, forested areas dominate both portions of the watershed. However, 75.4 percent of the southern portion of the watershed is in forested land use compared to 57.4 percent in the northern portion. Urban land use represents 28.3 percent of the northern portion of the watershed, but only 7.5 percent of the southern portion. There is little difference between the percentage of agricultural areas between the northern and southern portions of the watershed. Therefore, the highly urbanized areas in and around the City of Greenville characterize the northern portion of the watershed and forested areas characterize the southern portion. The manner in which Figures 7 and 8 are created can result in some mistakes in land use determination. Though checked against aerial photographs, this analysis is prone to mistake some agricultural land of bare soil as urban, and some urban land in residential areas with many trees as forested land.

Although Figures 7 and 8 illustrate the basic land use differences within the watershed, the differences between the northern and southern portions are more striking when more than four types of land use are considered, as illustrated in Figure 9. In this figure, urban uses are divided into three separate categories and forest uses are divided into six separate categories. Therefore, the potential for mistakes is smaller. Figure 9 clearly shows the northern portion of the watershed in urban uses and the southern portion in rural lands.

One of the things which impressed me the most while serving as a member of the Reedy River Watershed Task Force was the concept (new to me) of a community-based group to plan for the river's future. I believe that this idea presents the best approach to any study involving so many interests and is the only way to achieve success. Unless the viewpoints of various individuals are incorporated into this planning process, support from many groups will be lacking. I applaud the vision of Barry Beasley and other DNR members who were able to write the grant to allow this body to form.

Of personal interest, making contact with a variety of people from a variety of agencies has already been helpful to my teaching at Presbyterian College. My research for the last two decades with freshwater mussels has been funded primarily by the Tennessee Wildlife Resources Agency and TVA and I have had very little contact with biologists and others associated with ecosystem management and research in our own state. This task force has allowed me to become acquainted with several people in these fields and build relationships that should last long into the future.

Looking toward the future, my hopes are that the recommendations of our task force will be funded from the mitigation settlement as well as collective agency contributions to allow these recommendations to become a reality. Certainly easements for owners of riparian lands as well as assistance in the construction of water retention devices will be needed to allow individual companies and landowners to implement recommendations. Furthermore, I would like to see the development of some relationship between Presbyterian College and the proposed river education center which was initiated by a donation to Clemson University by Mr. Joe Adair involving some land along the Reedy River, similar to the relationship we share with the Joe Adair Outdoor Education Center in Laurens County. I believe that education is the best way to build enthusiasm about the stewardship of our environment. Once a person integrates what they learn into a personal relationship with their place in nature, harmony with this environment can begin. My personal relationship is certainly richer as a result of my service on this task force.

Thanks,
Bob Hudson
Presbyterian College

Figure 7: Land Use/Land Cover in the Northern Reedy River Watershed

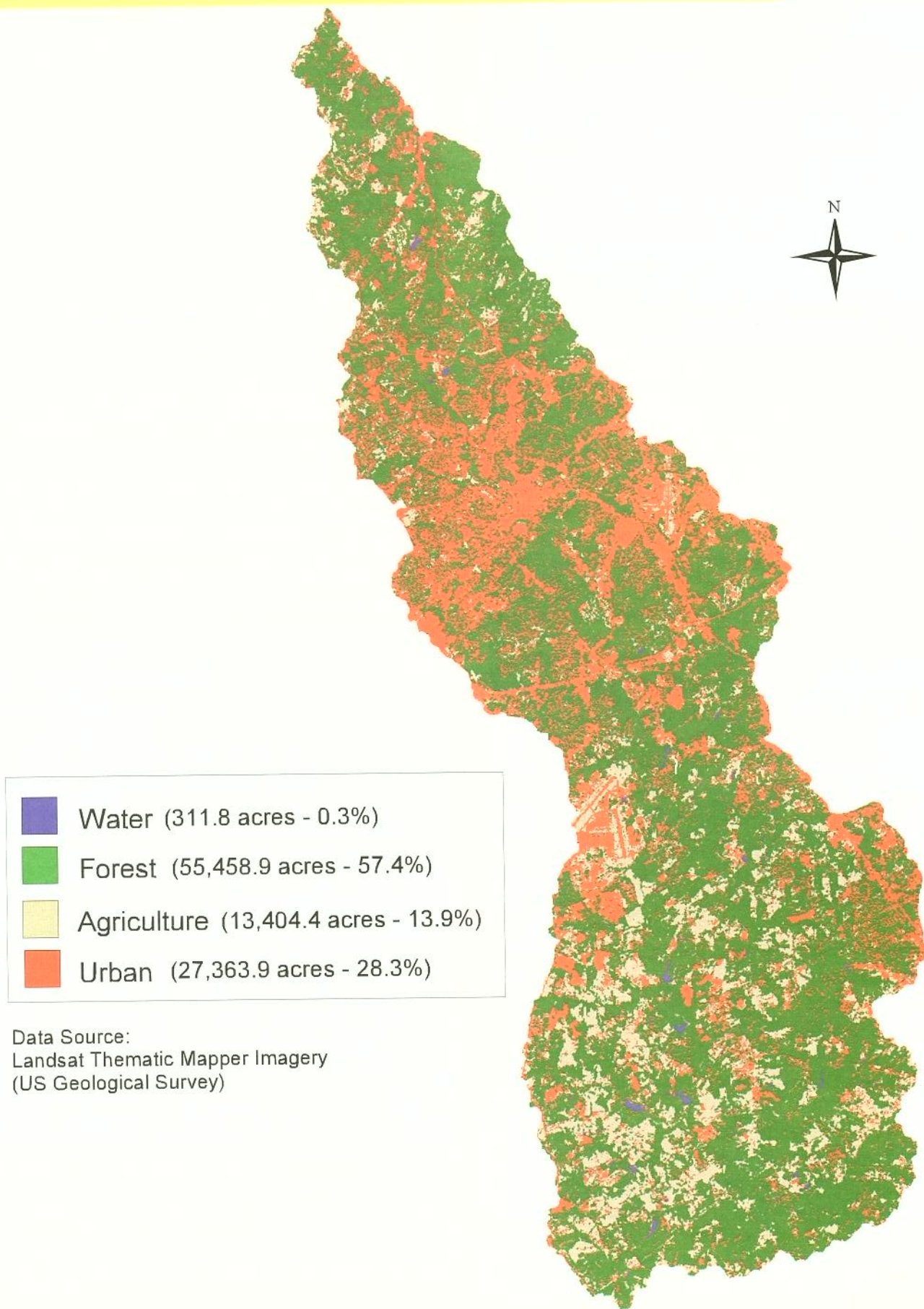
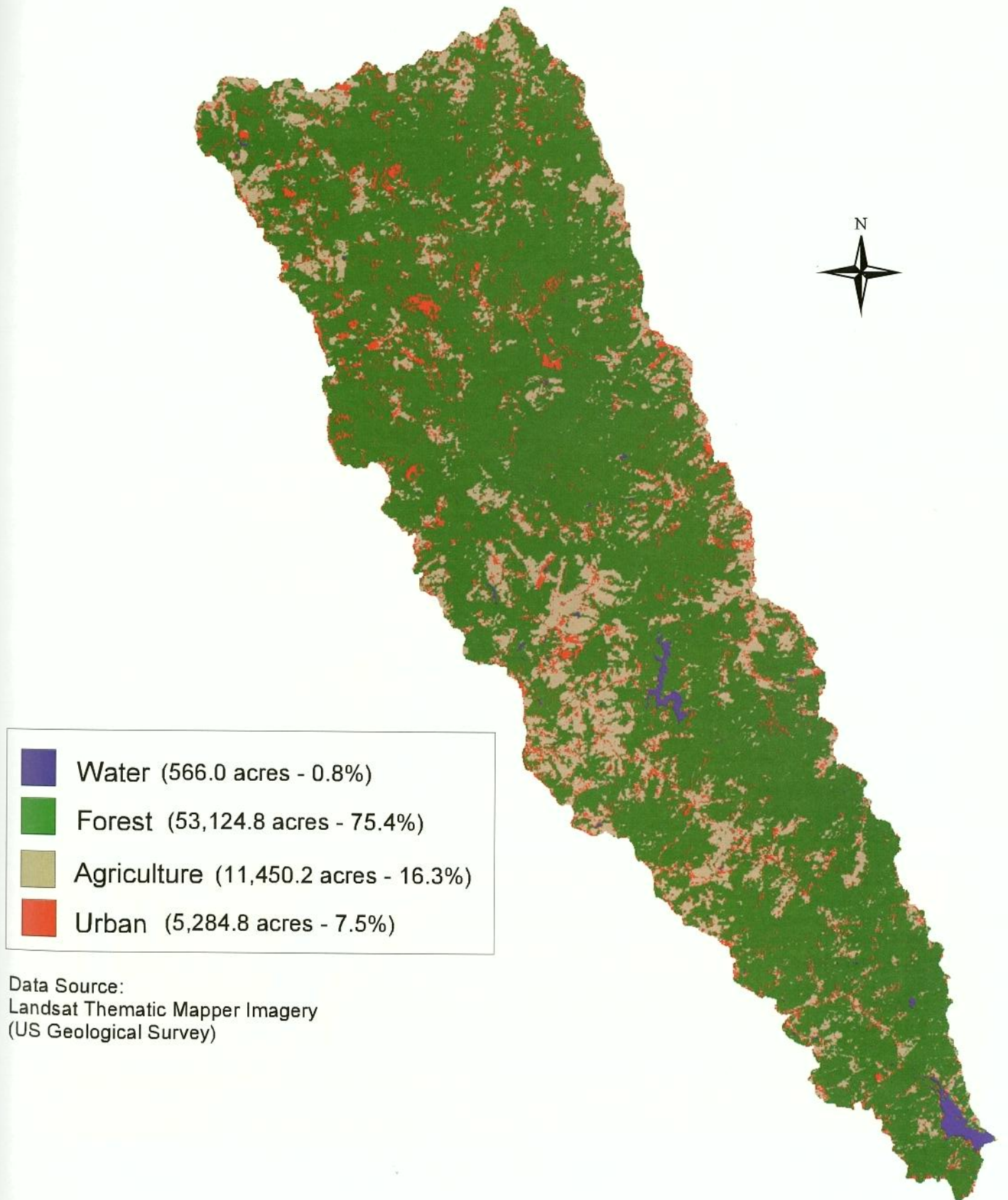
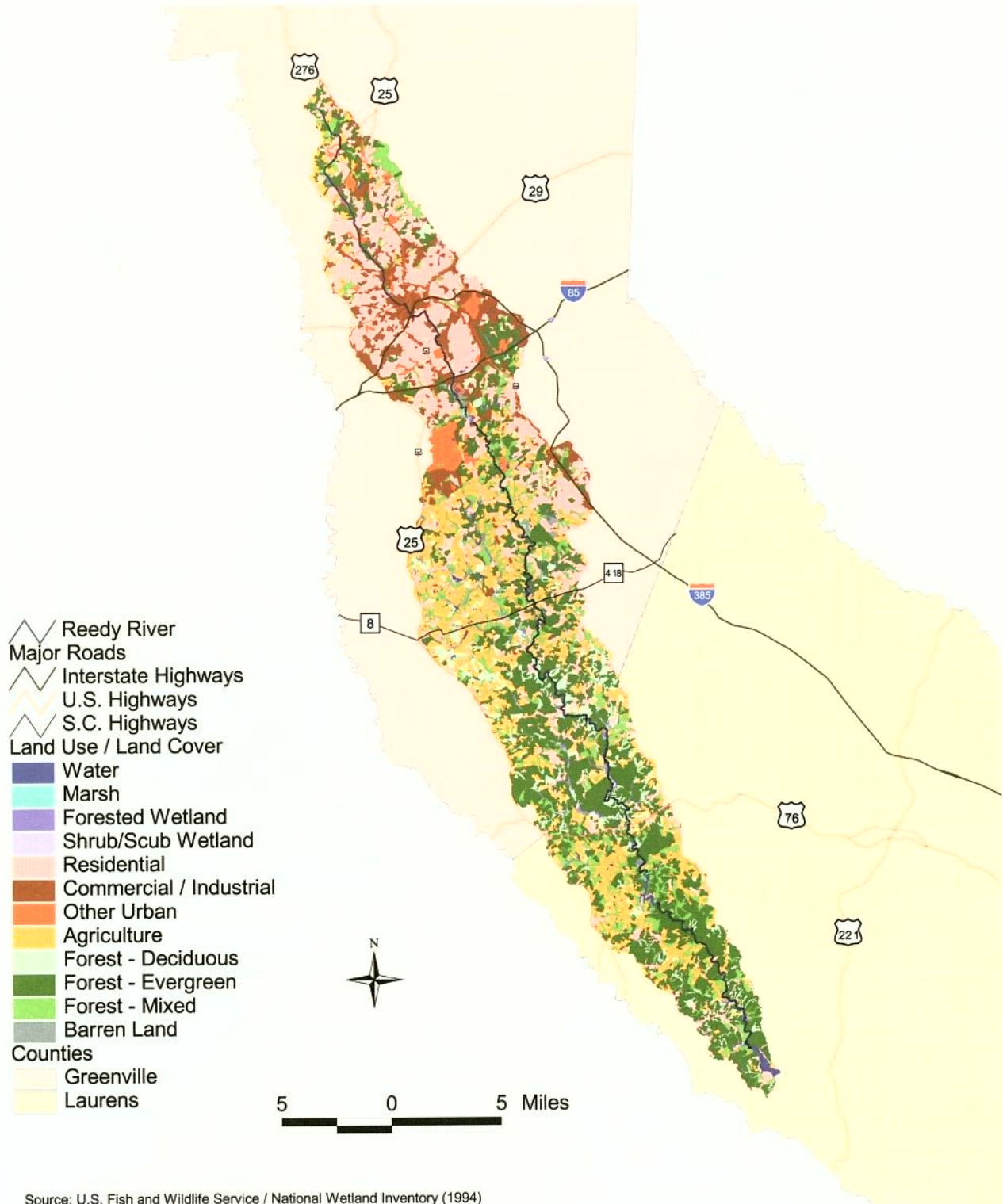


Figure 8: Land Use/Land Cover in the Southern Reedy River Watershed



**Figure 9: Land Use/Land Cover in the Reedy River Watershed
(Based on National Wetland Inventory Data)**



Source: U.S. Fish and Wildlife Service / National Wetland Inventory (1994)



A River Runs Through It ~

***F**or many Greenwillians, the Reedy is known only from River Street to Church Street. Its source, its course through the county, and its destination are hidden and unmarked.*

Despite its waterfalls, the Reedy is not a Niagara; it is a minor stream, a tributary of the Saluda, but it helped form this area's history, and it may be instructive to trace its progress from its source to its conclusion.

It will not be a scenic tour.

Begin at Ebenezer Church a little north of Renfrew above Travelers Rest. Raindrops falling there have a choice of destination: those to the north reach creeks flowing into the Enoree Watershed; those to the west empty into the Saluda; those to the south eventually join a narrow stream that rises from two marshy springs about a hundred yards apart on low ground near Ebenezer Church Road. There they form the beginning of the Reedy River, initially a creek about four inches deep and five feet wide, edged always with thick underbrush and low-hanging trees.

It flows behind the old Renfrew Bleachery village, is bridged at McAlhaney Road, and helps form the water hazards at the Green Valley Golf Course. Years ago, Roe's Ford at Cherry Laurel Court provided an easy crossing point for the channel that has become almost ten feet wide.

The Reedy wends its way past Riverbend Equestrian Park. At its bridge on Riverbend Road, canebrakes--reed-like bamboo--cluster around the stream, giving a hint of its natural state and the source of its name.

After it curves around the Richmond Hill sub-division and crosses White Horse Road extension near University Inn, it broadens as other creeks flow into it: one from the sewage treatment ponds south of Renfrew, another from Travelers Rest, a third from Furman University's golf course and lake.

Furman's Alma Mater begins "A mountain city is her home / A mountain river laves her feet." Although it was written in 1907, when Furman was located in downtown Greenville, the description remains technically true.

Just beyond the university, near Sulpher Spring Road, Little Creek joins the Reedy; at Watkins Bridge Road it meets the railroad tracks of the Greenville and Northern Railroad that will accompany it all the way to Main Street.

Glimpses of the river come only when streets and highways cross it; bridges are not marked outside the city limits, but even in the countryside the high trees and shrubs along its bank and its floodplain identify its course.

By the time the river reaches Blue Ridge Drive, it has been joined by Langston Creek, the water source for the old Union Bleachery; tangled undergrowth makes its banks jungle-like.

Then it cuts between Cedar Lane Road and Old Bleachery Road on the edge of Sans Souci. Riverside, a middle class subdivision developed in 1907, overlooks it. Nearby Verner Springs, now a cluster of Habitat for Humanity homes with a new park, was once a local beauty spot and longtime home of a Coca-Cola bottling plant.

The Reedy edges Monaghan Mill (but does not flow along its central street; the creek beside Ravenel is another tributary--Greenville is a well-watered county). Then it curves toward the Southernside community where there was once a favored swimming hole for local boys.

At Southernside, named for the industrial area around the Southern Railroad Station and its roundhouse, the river, now 20 feet wide, flows around warehouses, industrial buildings, and two sets of railroad tracks, for both the Greenville and Northern's famous (or infamous) "Swamp Rabbit" and the Piedmont and Northern's interurban trains followed the river.

The well-named "Swamp Rabbit" ran from downtown along and through the course of the river's marshes and swamps to Montague Station on Duncan Chapel Road; then it diverged to go on to Travelers Rest and up the Middle Saluda to River Falls. James B. Duke's electrified interurban line provided passenger service connecting Charlotte, Greenville, and Greenwood from 1911 to 1947. Its tracks wander along and through the river for about five miles.

The Reedy crosses under Bramlett Avenue; Republic Locomotive Works is nearby. Then it flows behind the far end of West Washington Street, emerges at Willard Street next to the CSX Bulk Transfer operation, and curves gently into the marshy meadow behind Mayberry and Meadowbrook Parks. Once a favored ice-skating site for town residents, the parks recall Greenville's once-segregated athletic facilities.

The White Oak Branch from Poe Mill and Long Branch, rising near Woodside Mill, have joined it; the Poinsett Mill, opened in 1903 as the Carolina Mill and a part of Brandon Mills in the 1920s, perches on the hill above Mayberry Street. It is this floodplain area that developers are eyeing with particular interest.

At Mayberry and Hudson Streets, once a brickyard, now the site of the Sanitation Department headquarters and the city's central maintenance shops, the river's current course is identified by a marker. A treeline slanting across Hudson at Welborn Street still marks its former bed, a ghostly reminder of the frequency with which the river has been rechanneled, dammed, and dynamited.

Great boulders once lined its banks around Main Street; railroad tracks divided the river, providing service to the cotton warehouse, now Falls Place, on its bank; a dam above Main Street provided power for the Coach Factory.

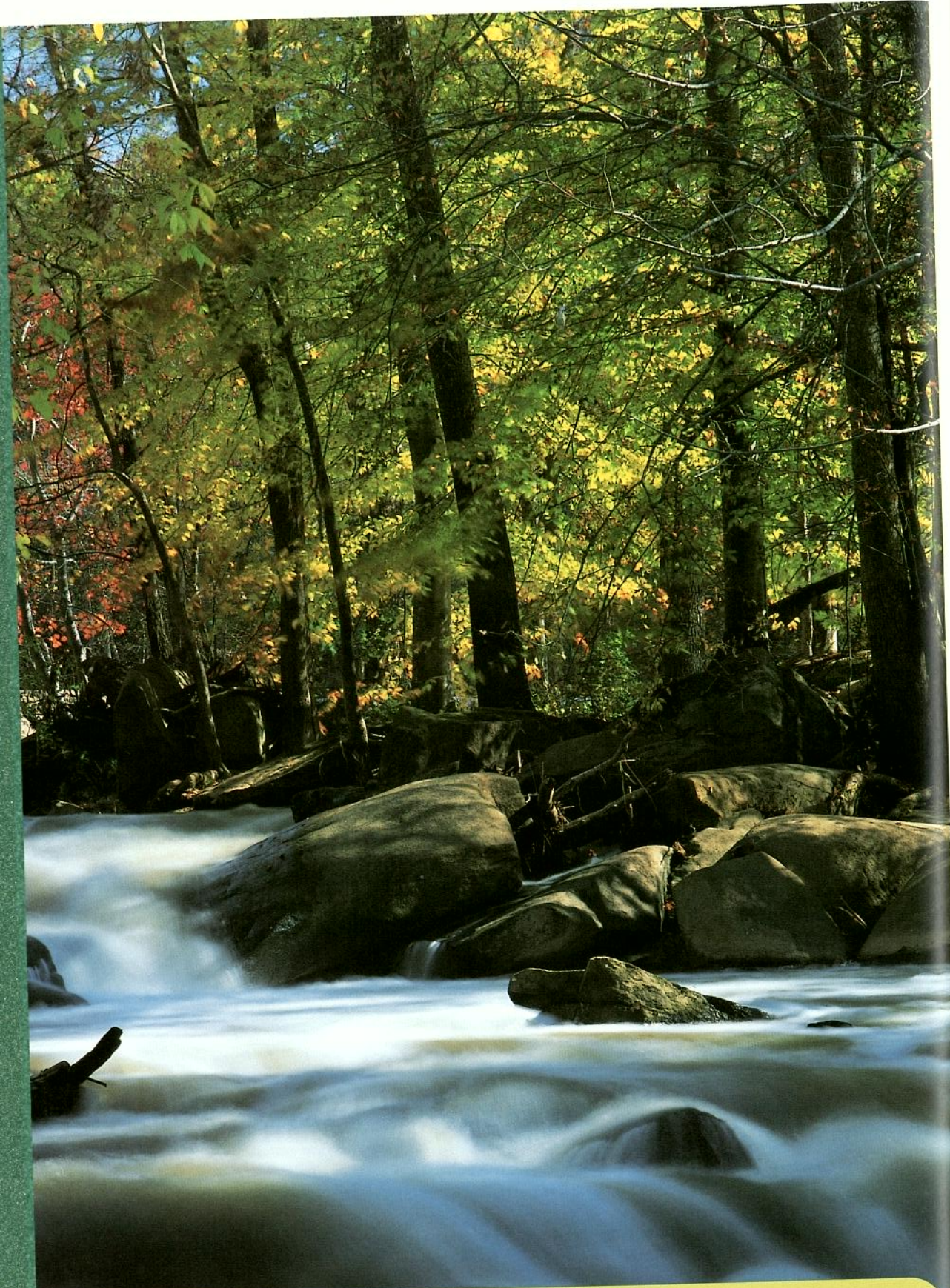
Between Hudson and River Streets there was once a "washhole" where young boys learned to swim (ladies crossing the Main Street bridge modestly averted their eyes from the nude swimmers). Nearer River Street was the favorite baptismal location for the Baptist Church.

From Linky Stone Park, crossing Main Street and flowing along the historic greenway to McDaniel Avenue and its intersection with Richland Creek in Cleveland Park, the Reedy is known, although the beauty of its falls is obscured by the Camperdown Bridge. Once the heart of Greenville industry, the area is now the pride of the city.

Then it edges the Greenville Country Club, flows under Interstate 85, pauses at the waste water treatment plant at Parkins Mill, and widens at its confluence with Brushy Creek. From there the river meanders southward toward the old mill and dam at Conestee, Fork Shoals, and past the site of the Revolutionary War Battle of the Great Canebrake some sixteen miles south of the city before entering Laurens County. Just past the old village of Waterloo it merges with the Saluda and eventually disappears into Lake Greenwood.

Not an impressive stream, perhaps, but it is ours, and we have a responsibility to use it wisely and develop it carefully.

Judith Bainbrige
Furman University



Study Process

Photograph by Tom Blagden

Developing a management plan for a land area that is the size of the Reedy River Watershed is a complex process. The many residents, landowners, industries and local governments sometimes have competing and conflicting interests. Gaining public acceptance for the plan is often equally as difficult as developing the plan itself. For these reasons, the Reedy River watershed study is a community driven project. The list of resource issues that needed to be addressed and the solutions that were proposed to remedy these resource problems are a product of people who live or work within the Reedy River basin, with occasional input from outside experts. The South Carolina Department of Natural Resources (SCDNR) staff took on the role of facilitators during the process and also offered technical and administrative support as needed.

The first step in the study process was the creation of the Reedy River Task Force. Members of this group developed the vision for the watershed, specified the issues that were explored and made the final decisions about the remedies for those issues. The task force was selected from a broad range of landowners, local government officials, researchers and academicians, representatives from industry, conservation organizations, community groups and state and federal agencies. Each member either had a special interest in the watershed or possessed expertise in one or more of the issues that were addressed.

The first meeting of the task force was held in Greenville on February 10, 1999. The task force and the public were given an overview of the watershed, key issues and the study process. During the following meeting, the task force identified critical issues and problems facing the river. All the individuals at the meeting were given the opportunity to express their ideas.

The needs and concerns expressed by the participants were many. They ranged from water quality problems, like nonpoint source pollution and industrial spills, to urban sprawl and the need for open space, to education and communication, to habitat protection and outdoor recreation, to property rights issues. The broad list of issues and concerns was grouped into seven critical issue areas:

- Storm Water Management/River Flow
- Water Quality
- Aquatic Health and Riparian Zone Management
- Cultural and Historical Resources
- Recreation
- Growth Management
- Education

Following the delineation of these issues, the education and evaluation phase of the Reedy River project began. For the next seven months, the general task force meetings were used to educate both task force members and the general public on the critical issues. Local, regional and national experts, identified in Table 3, spoke at the task force meetings on conditions and events within the watershed and problems and the remedies used in other watersheds.

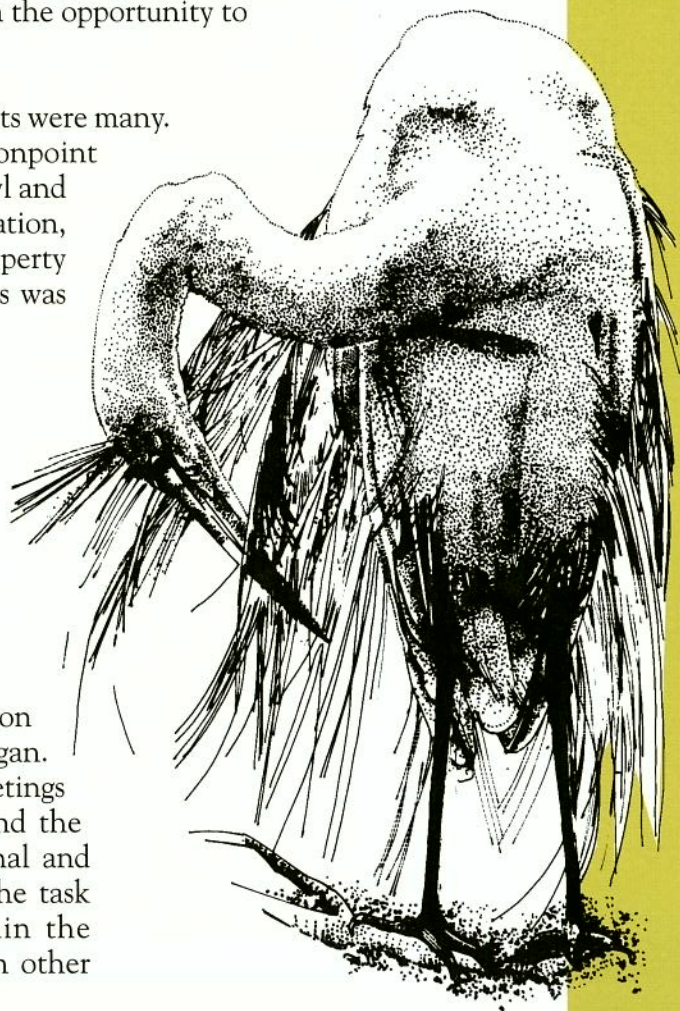


Table 3: Content of Each Task Force Meeting

Meeting Date	Speakers	Issue/Topic
June 1, 1999	Jerald Robinson George Fletcher Julie Arrowood	Charlotte-Mecklenburg County Storm Water Monitoring Project Greenville County Storm Water Task Force City of Greenville Storm Water Program
July 8, 1999	Bud Badr	Hydrology of the Reedy Basin
August 11, 1999	David Chestnut Andy Miller Dennis Bauknight Dale MasonBest	Water Quality in the Reedy River Watershed Point and Non-Point Contamination Sources Best Management Practices for Agriculture Management Practices for Forestry
September 8, 1999	Gerrit Jöbsis Jim Glover Jim Bulak Dave Hargett	Oil Spill Impact on Aquatic Health of Reedy River Macroinvertebrate Community Sampling Following the 1996 Oil Spill Fish Community Sampling Following the 1996 Oil Spill Condition of the Riparian Zone in the Reedy River Watershed
October 7, 1999	Richard Sawyer Judy Bainbridge Elaine Martin Chris Stone Tom Fischer Dave Hargett	History of Greenville History of Mills in the Reedy River Watershed History of Laurens County Recreational Vision of the Reedy River Recreational Program on the Enoree River Paddling Opportunities on the Reedy River
November 4, 1999	Mitch Woodward Anne Marie Johnson Laura Blind Dave Hargett	Neuse River Educational Efforts SCDHEC Non-Point Source Education and Outreach Program Role of Watershed Based Outdoor Education Centers Educational Efforts of the Friends of the Reedy River
December 1, 1999	Sen. Phil Leventis Dr. Jeff Allen Bob Zimmerman Richard Lacy	Growth: Should it be Managed? A State Perspective Lessons from the Low Country Growth and Impacts on Natural Resources: The Charles River Upstate Growth Trends

The SCDNR also arranged a number of informational field trips, including a walking tour of part of the urbanized portion of the watershed in Greenville and a tour of one of the Western Carolina Regional Sewer Authority's sewage treatment plants. Several canoe trips on different stretches of the river were sponsored, giving members of the task force and the general public a first hand view of some of the river's assets and problems.

Concurrent with the informational meetings, the task force formed subcommittees for each of the seven critical issue areas. Issue committee members are listed in the *Acknowledgements* section of this report. The individual issue committees studied specific problems in depth, then formulated recommendations to address the delineated management issues and problems. Each issue committee was asked to develop three to five recommendations.

The issue committees met from August of 1999 through February of 2000. Committees with overlapping interests sometimes held joint meetings in order to coordinate their efforts. All committee meetings were open to the public with input welcome from anyone who attended the meeting. The education and evaluation phase of the Reedy River project was completed during late winter of 1999/2000.

The recommendations that were developed by the individual issue committees were presented to the task force over the course of three general task force meetings. At these meetings, task force members and other attendees had the opportunity to ask questions and make comments concerning the recommendations. During the next two general meetings, the task force made their final decisions about whether to accept a recommendation and include it in *The Reedy River Watershed Plan*, reject a recommendation, or accept it with modifications.

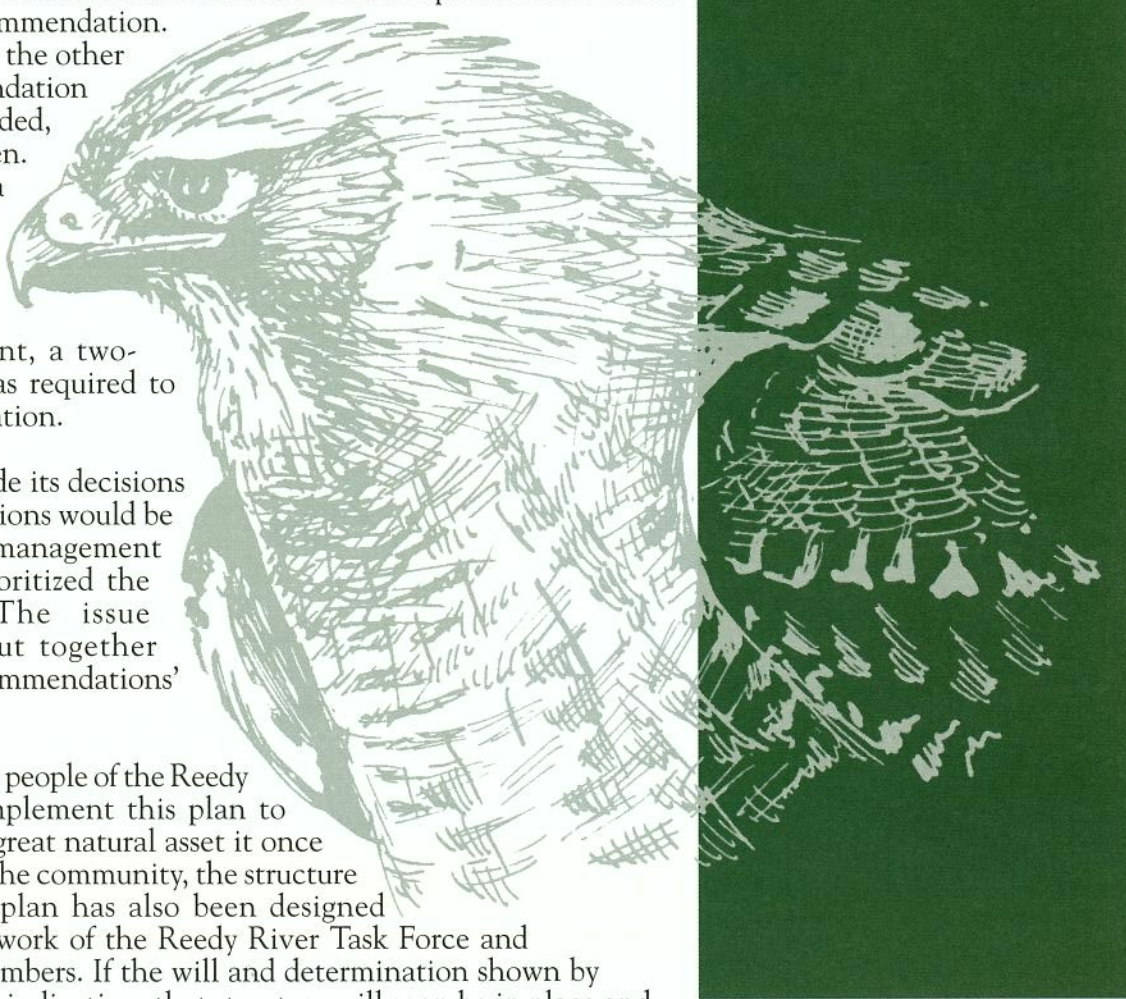
The decision making process for each recommendation began with a reading of the recommendation before the whole group. Discussion followed, and the recommendation was approved by consensus or vote. If the vote was unanimous, the recommendation was accepted, and the next recommendation was read before the group. Sometimes a task force member would request a modification or amendment to a recommendation.

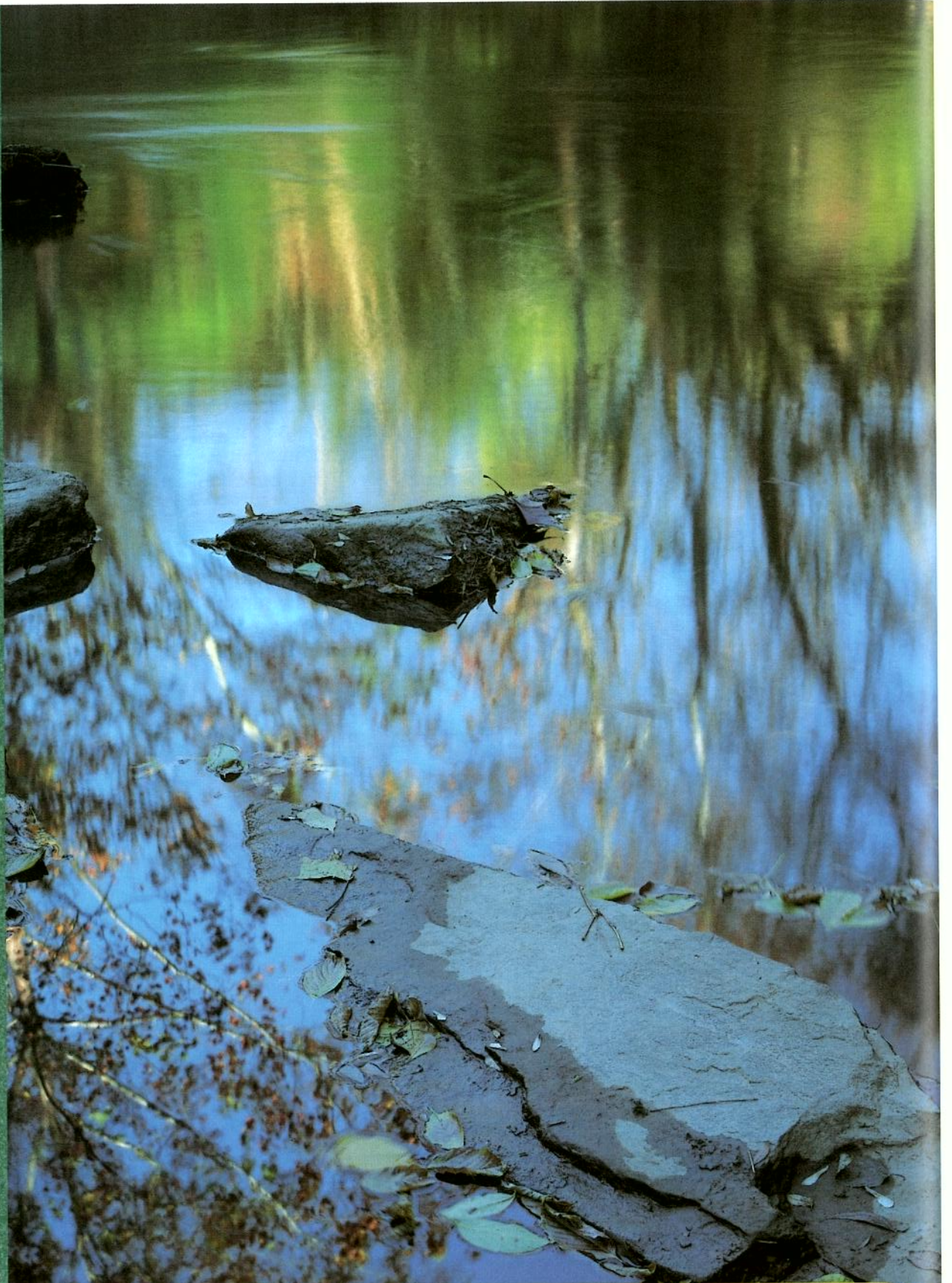
If this was acceptable to the other members, the recommendation would be reread as amended, and a vote would be taken.

In the rare case when a recommendation was not passed by the task force unanimously, and no modification could rectify the disagreement, a two-thirds majority vote was required to accept the recommendation.

After the task force made its decisions on which recommendations would be included in the final management plan, the members prioritized the recommendations. The issue committees met to put together strategies for their recommendations' implementation.

Ultimately, it is up to the people of the Reedy River Watershed to implement this plan to restore the river as the great natural asset it once was. However, to assist the community, the structure for implementing the plan has also been designed through the dedicated work of the Reedy River Task Force and the issue committee members. If the will and determination shown by this diverse group is any indication, that structure will soon be in place and the goals of this plan achieved.





Storm Water

Photograph by Tom Blagden

Flow issues are significant in any watershed; however, the characteristics of the Reedy River make the understanding and management of flow a critical issue for this river. The upper Reedy River drains a highly urbanized watershed. During significant rainfall, flow in the river can rise several hundred cubic feet per second in a matter of minutes. The shallow, docile Reedy River can become a raging torrent in flood situations as it did on August 27, 1995 during Tropical Storm Jerry. During the storm, the river rose to a flow of 5,400 cubic feet per second (cfs), flooding Cleveland Park and other areas in the Greenville vicinity. To put the flow from Tropical Storm Jerry in a more meaningful context, the mean flow for the month of July was 26.4 cfs and for the month of September the daily mean flow was 52 cfs. The annual mean flow for 1994 was 82.7 cfs and for 1995 it was 88.5 cfs. All of these data are from the United States Geological Survey gauging station near Mauldin Road in Greenville. Obviously a flow of 5,400 has a significant impact on the Reedy River given the river's average flow values.



Cleveland Park before...

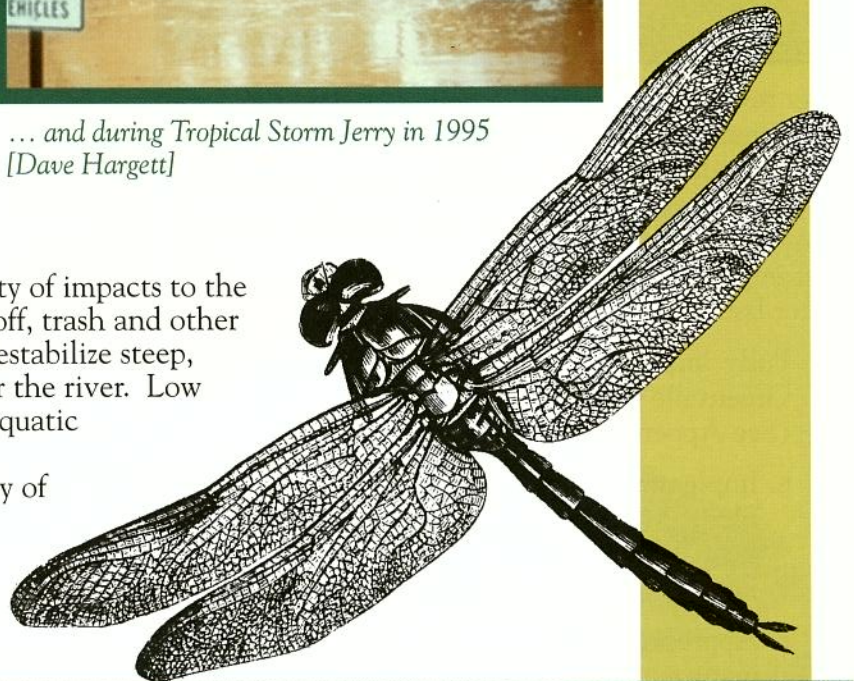
Low flow events are as critical in the Reedy River as the flood flows. One statistic typically used as a measure of low flow is 7Q10. This figure is the lowest average flow over seven days during a period of ten years. The South Carolina Department of Health and Environmental Control (SCDHEC) uses this figure in considering flow allocations for wastewater permits. The 7Q10 value for the Reedy River at the gauging station at Mauldin Road is 16 cfs. During the recent drought cycles in South Carolina, the Reedy River has dropped below the 7Q10 flows for 49 days in 1999 and 63 days in 2000 as measured at the Mauldin Road station. Flow data for the Mauldin Road gauging station from 1941 to 2000 for the Reedy River are found in Appendix A.



*... and during Tropical Storm Jerry in 1995
[Dave Hargett]*

These flood and low flow cycles bring a variety of impacts to the Reedy River. Floodwaters carry polluted runoff, trash and other debris to the river. These flood events also destabilize steep, eroding riverbanks, causing sediment to enter the river. Low flow cycles impact the overall health of the aquatic system. Low flows also impact recreational opportunities and the overall aesthetic quality of the river.

It was the responsibility of the Storm Water Issue Committee to address these significant and complex issues.



Methodology

The Storm Water Issue Committee was chaired by George Fletcher of The Fletcher Group and included representatives from the private sector, Greenville and Laurens Counties, Soil and Water Conservation Districts, county and municipal government, utility interests in Greenville and Laurens counties, environmental organizations and other interested parties. The mission of the committee was to examine flow issues in the Reedy River Watershed, including storm water and low flow.

The committee met regularly from September 1999 through March 2000. The initial work of the committee was focused on defining the key dimensions of the storm water management and flow issues. Water quality was not a focus of this committee because two other issue committees were addressing that issue.

During its meetings, the Storm Water Issue Committee examined the work of the Greenville County Flood Mitigation Task Force, heard presentations on the hydrological characteristics of the Reedy River and reviewed available geographic information system databases and existing storm water management programs.

Based upon this information, the Storm Water Issue Committee agreed on the following recommendations.

Recommendations

After reviewing the issues that affect storm water, the issue committee developed and submitted the following recommendations to the Reedy River Task Force. All were subsequently approved for inclusion in this plan. Below each recommendation is the elaboration and brief implementation strategy provided by the Storm Water Issue Committee.

1. Fully implement the recommendations of the Greenville County Flood Mitigation Task Force (See Appendix B).
 - a. Implementing the recommendations of the Flood Mitigation Task Force will provide a logical first step in implementing the long-range goals of the Reedy River Task Force.
 - b. Appropriate ordinances and a flood mitigation management program should be adopted for Laurens County.
2. Combine all existing and proposed elements for storm water management into a Master Plan for the Reedy River. Studies for the Master Plan should include:
 - a. Any studies on Total Daily Maximum Loads (TDMLs) for the river;
 - b. Greenville County National Pollutant Discharge Elimination System (NPDES) Permit studies;
 - c. Greenville County studies on Langston Creek;
 - d. Federal Emergency Management Agency (FEMA) floodplain information; and
 - e. Greenway Master Plan.
3. Adopt a 100-foot wide buffer on the Reedy River and all tributaries that drain 100 acres and more.
 - a. Best Management Practices (BMPs) could be substituted for the buffer requirement, but in no case should the buffer be less than 35 feet in width.
 - b. Existing uses should be grandfathered.
 - c. Exceptions could be allowed after stringent review of proposed usage.
 - d. Provide incentives for reforestation of floodplain.
4. Allow floodplains to be floodplains.
 - a. Use any available funding sources to remove existing structures from floodplains.
 - b. Building construction should be prohibited in the 100-year floodplain.
 - c. In areas where the FEMA has not identified the 100-year floodplain, use soil data to determine the 100-year floodplain.
 - d. Construction of roads, utilities or recreation facilities in the flood plain should be controlled through a permit process.
5. Provide additional storm water retention beyond that required by current ordinances.
 - a. Design detention basins for at least the 25- year, 24-hour storm.
 - b. Design storm water sewers for no more than the 10-year, 24-hour storm.
 - c. Reduce impervious parking lots for malls and large shopping centers by 20 percent using Turf Pave™ or similar materials.

- d. Improve inspection and maintenance of existing detention ponds.
- 6. Provide additional groundwater recharge opportunities in the design of storm water detention facilities.
 - a. Provide incentives to develop possible locations for regional detention sites along the Reedy River.
 - b. Provide incentives to develop underground storm retention areas that enhance re-infiltration of groundwater.
- 7. Conduct a study for base flow and peak flow issues in the Reedy River Watershed.
- 8. Develop appropriate Best Management Practices for the Reedy River basin.
 - a. Develop BMPs as part of the Greenville County NPDES storm water permit.
 - b. Adopt appropriate BMPs in all counties and municipalities in the watershed.
 - c. Implement cross fencing, alternative watering systems and heavy use areas on all farms in the Reedy River Watershed raising livestock. This could be implemented by a cost share program or funded by Colonial Pipeline settlement.
 - d. Provide design of, and incentives for, the restoration of stream banks and riparian areas.
- 9. Establish an integrated Reedy River Greenway Program.
 - a. Program should be funded by deed transfer tax.
 - b. The Greenway should connect all municipalities and counties along the river.

The first stage should connect Lake Conestee to Furman University.

Growing up along the Reedy River never truly gave me a full understanding of its value as a natural resource for the Upstate. It was an enlightening experience to be involved in the Reedy River Task Force. The entire process was filled with thought provoking discussions among a wide array of individuals. The meetings were open to all who were interested in participating. This provided for unique personal insights into the many functions of the watershed itself. Now is the time to fully embrace the recommendations of the Reedy River Task Force. The Reedy River Watershed is a regional resource. The task force is a regional collection of interested parties. The region must continue to work together to restore and preserve this valuable waterbody for the entire state.

*Michelle Watson
Hydrogeologist
South Carolina Department of
Health and Environmental Control*

