

Chapter 1 - Current Water Quality Initiatives

1.1 Workshop Summaries

In October 2001, there were three workshops held by DWQ in the Broad River basin at Lake Lure, Spindale and Shelby. There were 104 people in attendance representing a variety of interests. Figure C-1 gives an estimation of groups/interests represented based on information recorded on attendance sheets.

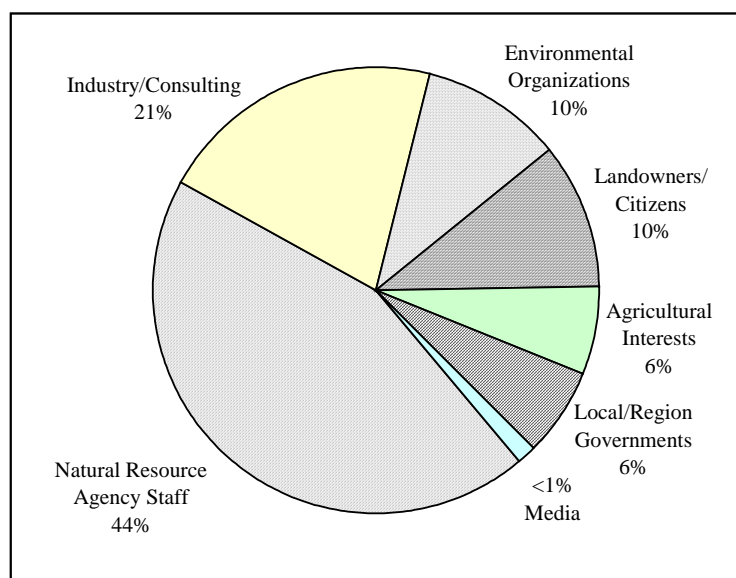


Figure C-1 Percent of Total Attendance by Various Interests at DWQ Water Quality Workshops in the Broad River Basin (2000)

DWQ staff gave presentations about general water quality in the Broad River basin, basinwide planning and the Wetlands Restoration Program. Participants at each workshop also gave brief presentations about local water quality initiatives. Workshop attendees were asked to discuss the following questions in small groups:

1. What are the main threats to water quality in the Broad River basin?
2. Where are the problem areas or waters?
3. What recommendations do you have for addressing these problems/waters?
4. What local agencies or organizations should be involved in addressing the problems?

A detailed outline of each small group's discussion of these questions is available upon request. Good discussion was generated at each workshop, and all of the information was considered and, in some cases, incorporated into this draft plan. The most frequently cited threats to water quality identified by workshop participants are listed below.

Important Issues Basinwide

- Sedimentation
- Nonpoint source pollution (agriculture, urban runoff, silviculture)
- Lack of local planning
- Wastewater treatment (collection system failures, discharges, failing septic systems)
- Water quantity issues (water withdrawals, interbasin transfers, flow management)
- Organic contaminants (PCBs, PBDEs, pesticides)

1.2 Federal Initiatives

1.2.1 Clean Water Act – Section 319 Program

Section 319 of the Clean Water Act provides grant money for nonpoint source demonstration projects. Approximately \$1 million is available annually for demonstration and education projects across the state. Project proposals are reviewed and selected by the North Carolina Nonpoint Source Workgroup, made up of state and federal agencies involved in regulation or research associated with nonpoint source pollution. Information on the North Carolina Section 319 Grant Program, including application deadlines and requests for proposals, are available online at <http://h2o.enr.state.nc.us/nps/bigpic.htm>.

One project in the Broad River basin, the Upper Broad River Watershed Protection Program, has been partially funded (federal Section 319 money must be matched with nonfederal dollars) through the Section 319 base program between 1990 and 2000. This project is discussed below on page 138.

1.2.2 USDA – NRCS Environmental Quality Improvement Program (EQIP)

The Environmental Quality Incentives Program provides technical, educational and financial assistance to eligible farmers and ranchers to address soil, water and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with federal and state environmental laws and encourages environmental enhancement. The purposes of the program are achieved through the implementation of a conservation plan which includes structural, vegetative and land management practices on eligible land. Five to ten-year contracts are made with eligible producers. Cost share payments may be made to implement one or more eligible structural or vegetative practices, such as animal waste management facilities, terraces, filter strips, tree plantings and permanent wildlife habitat. Incentive payments can be made to implement one or more land management practices, such as nutrient management, pest management and grazing land management.

Fifty percent of the funding available for this program is targeted at natural resource concerns relating to livestock production. The program is carried out primarily in priority areas that may be watersheds, regions or multistate areas, and for significant statewide natural resource concerns that are outside of geographic priority areas. Areas north and east of the Broad River in Rutherford County, including all or part of the Mountain Creek, Cleghorn Creek, McKinney

Creek, Floyds Creek, Cathey's Creek, Second Broad River, Cane Creek, Camp Creek, Puzzle Creek, Roberson Creek, Hills Creek and Big Horse Creek watersheds, make up the Broad EQIP Priority Area (2001). This priority area covers approximately 220,800 acres of privately-owned land, all in Rutherford County. Primary resource concerns include streambank stabilization, sedimentation, exclusion of livestock, and establishment of resource management systems on pastureland. In 2001, \$35,000 was allocated to this priority area in Rutherford County. Requests exceeded \$86,000.

NRCS district contacts for the Broad River basin are included on the nonpoint source contact sheet found in Appendix VI or you may visit the website for more information:

<http://www.nc.nrcs.usda.gov/Programs/eqip.htm>.

1.2.3 US Army Corps of Engineers

In September 2001, the US Army Corps of Engineers (USCOE) produced a draft report of an expedited reconnaissance study which was conducted in the Broad River basin in North Carolina and South Carolina. The purpose of the study was to identify water resource related problems and opportunities within the Broad River basin and determine federal interest in participating in locally supported cost shared feasibility studies. Several problems and opportunities across the Broad River basin in North Carolina are identified by the study report. However, the study recommendation was for the USCOE to develop a basinwide watershed management plan to address the following issues:

- Water quality (flooding and stormwater management)
- Water quality (point and nonpoint source pollution)
- Ecosystem restoration
- Recreation needs
- Growth-related impacts on water resources
- Flood forecasting/tracking/charting
- Drought/low-water forecasting

The USCOE is currently presenting the findings of the Reconnaissance Report to the public. In order to proceed, a nonfederal sponsor must commit to equally share the cost of the feasibility study with the USCOE. At that point, the Reconnaissance Report is submitted to the USCOE headquarters and a Project Management Plan is developed. The Feasibility Cost Sharing Agreement between the USCOE and a nonfederal partner(s) must be signed before a feasibility study can be initiated.

For more information about the US Army Corps of Engineers Reconnaissance study in the Broad River basin, contact Andy Borden in Charleston, South Carolina by calling (843) 329-8050.

1.3 State Initiatives

1.3.1 Clean Water Management Trust Fund

North Carolina's Clean Water Management Trust Fund (CWMTF) was established by the General Assembly in 1996 (Article 13A; Chapter 113 of the North Carolina General Statutes). At the end of each fiscal year, 6.5 percent of the unreserved credit balance in North Carolina's General Fund (or a minimum of \$30 million) goes into the CWMTF. Revenues from the CWMTF are then allocated in the form of grants to local governments, state agencies and conservation nonprofit organizations to help finance projects that specifically address water pollution problems. The 18-member, independent, CWMTF Board of Trustees has full responsibility over the allocation of moneys from the fund.

The CWMTF funds projects that 1) enhance or restore degraded waters; 2) protect unpolluted waters; and/or 3) contribute toward a network of riparian buffers and greenways for environmental, educational and recreational benefits. In the Broad River basin, six projects have been funded for a total of \$6,521,460. Table C-1 lists the individual grants.

Table C-1 Projects in the Broad River Basin Funded by the Clean Water Management Trust Fund (1997-2001)

Fiscal Year	Stream or Watershed	Project	Project Lead	Amount Funded
1997	Lake Lure	Restoration	Mountain Valley RC&D	\$641,000
1997	First Broad River	Land acquisition	Wildlife Resources Commission	\$4,200,000
1998	North Pacolet River	Buffer acquisition and conservation easements	Pacolet Area Conservancy	\$290,000
1999	North Pacolet River	Wastewater system improvements	Town of Tryon	\$660,490
2000	Broad River and Jolly Creek	Land acquisition and greenway	Cleveland County	\$330,000
2001	Second Broad River and Sandy Run	Restoration – Agricultural BMPs	Rutherford Soil and Water Conservation District	\$400,000

Several statewide and regional grants which are partially applicable to the Broad River basin have also been funded by the CWMTF, including grants to the Conservation Trust for NC to develop riparian corridor protection plans (refer to page 134 for details), the Division of Soil and Water Conservation for the Agriculture Sediment Initiative, and the Center for Geographic Information Analysis for mapping and geographic information management.

For more information about the CWMTF, grant applications or details about a specific grant, call (919) 733-6375 or visit the website at www.cwmtf.net.

1.3.2 NC Wetlands Restoration Program

The North Carolina Wetlands Restoration Program (NCWRP) is a nonregulatory program responsible for implementing wetland and stream restoration projects throughout the state. The

program's mission is to improve watershed functions including water quality protection, floodwater retention, fisheries and wildlife habitat, and recreational opportunities in North Carolina's 17 river basins. To accomplish this mission, the NCWRP works closely with DWQ and other resource agencies to identify specific 14-digit hydrologic units in each river basin that exhibit both the need and opportunity for wetland, stream and riparian buffer restoration. These watersheds are called Targeted Local Watersheds and receive priority for NCWRP planning and restoration project funds.

Prior to July 2002, the NCWRP developed Watershed Restoration Plans (formerly called Basinwide Wetlands and Riparian Restoration Plans) for each river basin in the state (NCDENR-DWQ-WRP, August 1998). Beginning with the Neuse River basin in 2002, the NCWRP began incorporating its Targeted Local Watershed selections and restoration project information into the DWQ basinwide plans. This programmatic change allows the NCWRP to focus more planning effort at the local level where stream and wetland restoration efforts can have the greatest measurable impact.

Targeted Local Watersheds

The NCWRP evaluates a variety of data and information on water quality and habitat conditions in each river basin to select Targeted Local Watersheds. However, public comment and the professional judgment of local resource agency staff play a critical role in targeting local watersheds. A summary of the Targeted Local Watersheds selected for the Broad River basin, including the pertinent factors for selecting those watersheds, is delineated in Table C-2. A description of the factors NCWRP considers in watershed selections follows.

Table C-2 NCWRP Targeted Local Watersheds in the Broad River Basin

DWQ Subbasin	Local Watershed (Name and HU Code)	County Municipality	Land Area (sq. miles)	Land Cover C = Cleared D = Developed F = Forested			Impaired Waters? ¹	Public Water Supply ²	HQW or ORW ³	Aquatic NHP Element ⁴	Comments
				C	D	F					
03-08-02	Catheys Creek 03050105 070020	Rutherford	44.77	19%	3%	77%	Yes	Yes	No	Yes	SWCD efforts
03-08-02	Cleghorn Creek 03050105 040090	Rutherford	24.38	17%	9%	74%	No	No	No	Yes	ESB notes habitat degradation
03-08-04	Hickory Creek 03050105 080090	Cleveland Shelby	25.27	38%	19%	43%	No	No	No	No	ESB notes habitat degradation
03-08-04	Brushy Creek 03050105 080070	Cleveland Kingstown	29.12	44%	3%	53%	Yes	Yes	No	No	ESB notes habitat degradation
03-08-04	Lower Sandy Run Creek 03050105 070080	Rutherford Cleveland Boiling Springs	34.84	37%	3%	60%	Yes	No	No	No	Preservation
03-08-05	Buffalo Creek 03040101 100010	Lincoln Gaston Cleveland Bellwood Fallston	67.55	54%	1%	45%	No	Yes	No	No	Local Resource Professional recommendations

¹ Stream segments (or entire streams) that do not support their designated uses and are therefore considered impaired based on declining biological ratings [e.g., due to degraded aquatic habitat] and/or failure to meet NC DWQ water quality standards.

² Public Water Supply (WS) = waters used as water supply sources for drinking, culinary or food processing purposes.

³ ORW = Outstanding Resource Waters. HQW = High Quality Waters.

⁴ Aquatic Natural Heritage elements are special species, habitats or community types identified by the NC Natural Heritage Program and that occur or spend some portion of their life cycle in wetlands, streams, riparian areas or estuarine waters.

Water Quality Problems

The NCWRP targets watersheds with existing and potential water quality problems resulting from nonpoint source pollution. To make this determination, the NCWRP evaluates DWQ use support ratings, the 303(d) List and DWQ basinwide assessment reports. NCWRP also uses land cover data to evaluate riparian buffer condition. The NCWRP believes that riparian buffers provide many water quality benefits, and streams that lack a well-vegetated riparian buffer are at greater risk for water quality degradation.

Cumulative Wetland and Stream Impacts

The cumulative impact of many wetland and stream impacts due to farming, development and road building can have a detrimental effect on water quality. The NCWRP is responsible for addressing these cumulative impacts and uses data from the 401 Wetlands Program database to locate those watersheds facing the greatest water quality threats due to unmitigated wetland and stream impacts.

Resource Values

The NCWRP recognizes that resource values beyond water quality should be considered in evaluating the restoration need and opportunity of a watershed. The resource values that the NCWRP considers in targeting local watersheds include public water supply, shellfish areas, outstanding or high quality resource waters, aquatic natural heritage elements and regulated trout waters.

Watershed Approach

The NCWRP watershed approach advocates concentrating multiple water quality projects in one small watershed to yield a greater cumulative impact on water quality. The NCWRP wants to tie wetland and stream restoration projects with other efforts such as agricultural best management practices, stormwater control and riparian buffer preservation to restore watersheds, not just streams and wetlands. For this reason, the NCWRP targets areas with existing watershed planning or protection initiatives already underway.

Partnership Opportunities

To assess the potential for partnership opportunities at the local watershed scale, the NCWRP reviews existing or planned Clean Water Management Trust Fund and Section 319 projects and also considers if a municipality is located in the watershed. Municipal governments often own good sites for water quality improvement projects, but lack the technical expertise and the resources to implement the projects. For these reasons, the NCWRP views municipalities as good potential partners for restoration projects. In addition, many cities are subject to Phase I or Phase II Stormwater Regulations and gather monitoring information that is useful in designing and measuring the long-term benefits of restoration efforts.

Land Cover

Water quality studies suggest that heavily forested watersheds regulate stormwater runoff reducing the likelihood for severe streambank erosion, nutrient runoff and sediment pollution. For this reason, the NCWRP uses the percentage of cleared land in a watershed as an indicator of restoration need and opportunity.

For more information about the NCWRP, please contact George Norris at (919) 716-1922 or visit the website at <http://h2o.enr.state.nc.us/>, then click on Wetlands Protection.

1.3.3 NC Agriculture Cost Share Program

The North Carolina Agriculture Cost Share Program was established in 1984 to help reduce the sources of agricultural nonpoint source pollution to the state’s waters. The program helps owners and renters of established agricultural operations improve their on-farm management by using Best Management Practices (BMPs). These BMPs include vegetative, structural or management systems that can improve the efficiency of farming operations while reducing the potential for surface water and groundwater pollution. The Agriculture Cost Share Program is a voluntary program that reimburses farmers up to 75 percent of the cost of installing an approved BMP. The cost share funds are paid to the farmer once the planned control measures and technical specifications are completed. The annual statewide budget for BMP cost sharing is approximately \$6.9 million.

Over \$2 million were expended in the Broad River basin from 1996 through 2000 on a variety of nonpoint source pollution reduction projects. Figure C-2 presents Agriculture Cost Share Program dollars spent over the five-year period for each county in the North Carolina portion of the basin.

Soil and Water Conservation District contacts for the Broad River basin are included in Appendix VI or visit the website at <http://www.enr.state.nc.us/DSWC/files/acs.htm> for more information.

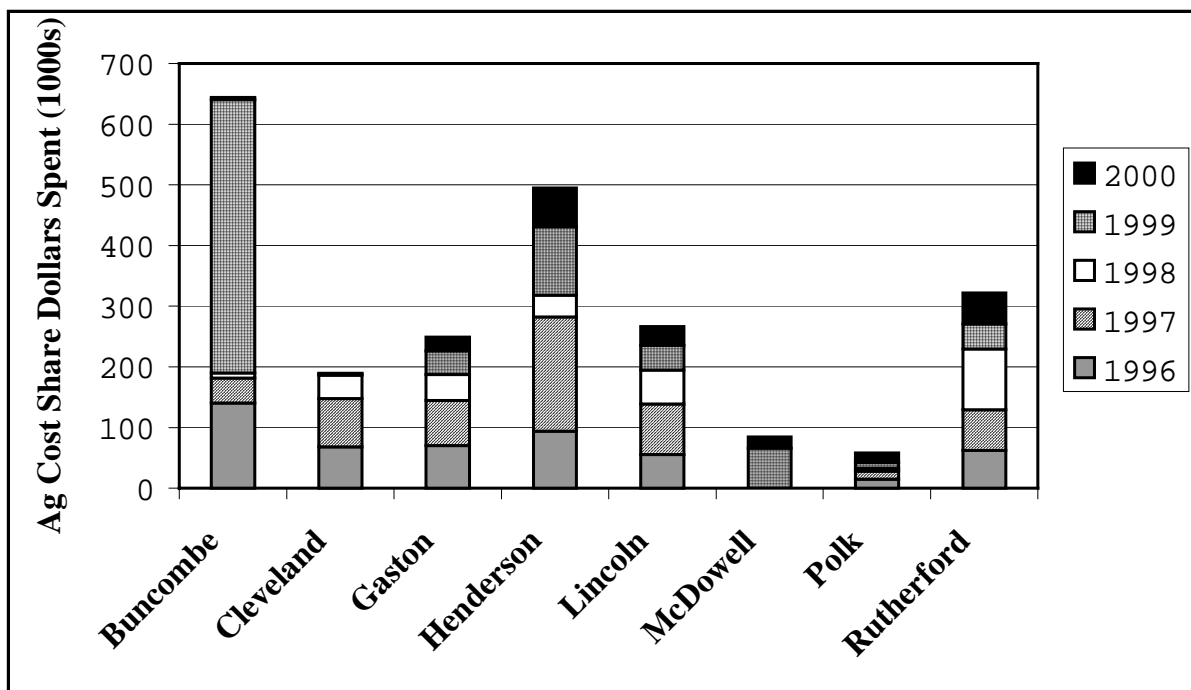


Figure C-2 Agricultural Cost Share Program Dollars Expended (1996-2000) in Counties in the Broad River Basin (Source: NC Division of Soil and Water Conservation)

1.3.4 Wildlife Resources Commission Fisheries Management Direction

A *Draft Fisheries Management Direction for the Broad River Basin* was completed by the NC Wildlife Resources Commission (WRC) in July 1998. The document summarizes WRC's general direction for managing fisheries resources in the Broad River basin. Specific habitat-related problems which impair a stream's ability to support quality fisheries are identified. The focus of the plan is on riparian and wetland areas with the intention of providing input to the Wetlands Restoration Program described above.

WRC fisheries management activities within the Broad River basin include monitoring the abundance of fish populations, establishing harvest and size limit regulations, stocking fish, and protecting or enhancing habitat.

The *Draft Fisheries Management Direction for the Broad River Basin* is cited in both Section A, Chapter 4 and in Section B. For additional information regarding local fisheries, contact Scott Loftis by calling (828) 452-0422 or visit the Wildlife Resources Commission website at <http://www.state.nc.us/Wildlife/>.

Rollins/South Mountains Area Protection

State funding from the Natural Heritage Trust Fund and the North Carolina Clean Water Management Trust Fund led to the acquisition of the Rollins/South Mountains Natural Area by the NC Wildlife Resources Commission. For more information on the Rollins/South Mountains Area, please refer to page 22.

1.3.5 South Carolina Department of Health and Environmental Control

In 1991, the South Carolina Department of Health and Environmental Control (SCDHEC) Bureau implemented the Watershed Water Quality Management Strategy in order to more efficiently protect and improve the quality of South Carolina's surface water resources. This management strategy recognizes the interdependence of water quality and all the activities that occur in the associated drainage basin. Under the watershed management approach, monitoring, assessment, problem identification and prioritization, water quality modeling, planning, permitting and other SCDHEC initiatives are coordinated by basin. A watershed water quality assessment document is produced for each basin on a five-year rotating schedule. The first Watershed Water Quality Management Strategy for the Broad River basin was published in 1998. A second update is planned for 2002.

To obtain a copy of the Watershed Water Quality Assessment or for further information about water quality in the Broad River basin in South Carolina, contact Richelle Tolton at (803) 898-4213 or by email toltonrd@columb32.dhec.state.sc.us or visit the website at <http://www.scdhec.net/water>.

1.4 Regional Initiatives

1.4.1 Mountain Valleys RC&D

The Mountain Valleys Resource Conservation and Development Council is a nonprofit organization which covers Buncombe, Cleveland, Henderson, Madison, McDowell, Polk, Rutherford and Transylvania counties. The council is sponsored by the Soil and Water Conservation Districts and County Commissioners of those eight counties, in addition to the Region B and C Councils of Governments. The council carries out a program of natural resource conservation and community development with the overall goal of achieving "communities in harmony with their environment". In addition to water quality and stream and watershed restoration projects, the council's current priorities include new income opportunities for the rural economy of the region, farmland and family farm preservation, and community recreation development.

The Mountain Valleys RC&D Council has been very active in the Upper Broad River Watershed Protection Project, which is striving to stabilize eroding areas to reduce sedimentation of Lake Lure. More information about the Upper Broad River Watershed Protection Project can be found on page 138.

For more information on the Mountain Valleys RC&D, contact Sally Stokes at (828) 254-0916, ext. 5 or email s.stokes@juno.com.

1.4.2 Conservation Trust for North Carolina

The mission of the Conservation Trust of North Carolina (CTNC) is to conserve land resources through direct action and by helping communities, private land trusts and individual landowners protect lands most important to them for their natural, scenic, historic and recreational values. CTNC helps government agencies allocate funds to local trusts or districts seeking funding for activities including land acquisition and water quality projects. The organization also acts as a service/resource center for local land trusts, as well as a mentor to help start new local trusts. A Land Trust Council was established to distribute information to the various land trusts statewide and to represent them at the legislature. The Pacolet Area Conservancy, Carolina Mountain Land Conservancy and the Foothills Conservancy are three organizations which are associated with CTNC that work in the Broad River basin and surrounding watersheds.

In 1997, 1999 and 2000, the CTNC was awarded a total of \$855,000 from the Clean Water Management Trust Fund to prepare riparian corridor conservation design plans statewide. CTNC awarded the Pacolet Area Conservancy and Carolina Mountain Land Conservancy a portion of the grant to prepare Riparian Corridor Conservation Designs for the North Pacolet and upper Green Rivers, respectively. Details about each of these organizations and the corridor studies are provided in Parts 1.4.3 and 1.4.4 below.

For more information about CTNC, contact Kathy Drew at (919) 828-4199 or visit the website at <http://www.ctnc.org/>.

1.4.3 Pacolet Area Conservancy

The Pacolet Area Conservancy (PAC) was formed in 1989 to preserve and protect land and natural resources in the greater Pacolet area through conservation easements and gifts of land. The highest priorities of PAC are the protection of water quality, particularly that of the North Pacolet and Green Rivers, and protection of the Blue Ridge escarpment (the "Blue Wall"). Through contributions and a \$290,000 grant from the Clean Water Management Trust Fund in 1998, PAC has protected over 1,000 acres with conservation easements and 305 acres through conservation ownership. PAC has also been involved in the government purchase of over 3,300 acres of wildlife lands.

In addition to protection of land, the Pacolet Area Conservancy coordinates an expansive volunteer water quality monitoring program in the North Pacolet River watershed through the Volunteer Water Information Network (VWIN). More information about VWIN can be found on page 137, and data collected during the most recent basinwide planning cycle are summarized on page 46.

To promote the development and management of trails in Polk County, PAC formed the Polk County Greenways Association. The trails developed will ultimately link with Henderson County to the northwest and to the statewide Palmetto Trail of South Carolina in the south. PAC secured funding from the State of North Carolina to establish a trail centerpiece at Harmon Field. This multi-use trail at Harmon Field and hiking trails at nearby Wilder Forest were recently opened to the public. Involved in the cooperative effort are the Polk County Board of Commissioners, Harmon Field Board, Polk Soil and Water Conservation District, USDA Natural Resources Conservation Service, Town of Tryon, City of Saluda and the Polk Board of Education.

North Pacolet River Riparian Corridor Conservation Design

The Conservation Trust of North Carolina awarded the Pacolet Area Conservancy a grant to prepare a riparian corridor conservation design for the lower North Pacolet River. The goals of the plan are fourfold:

- Compile a complete picture of the health of the North Pacolet River's riparian corridor.
- Prioritize riparian areas according to the need for restoration, revegetation or preservation, and match each area with initiatives which will accomplish the objectives of the recommendation.
- Open dialog with, provide information to, and work with the landowners along the North Pacolet River.
- Supply the community, conservationists and county officials with the information and tools necessary to bring health and stability back to the North Pacolet River.

To achieve these goals, an on-site assessment of eight miles of the lower North Pacolet River was conducted using the Stream Visual Assessment Protocol. Field data collected include channel conditions, hydrologic alteration, bank stability, type and size of the riparian zone, pool and riffle embeddedness, stream water appearance and nutrient enrichment, and fish and invertebrate habitat. Using the data, the conservation design contains prioritized sites for

conservation, riparian zone revegetation and streambank restoration. The conservancy is currently working to identify riparian landowners who are willing to work with them on the projects outlined in the conservation design.

For more information on the Pacolet Area Conservancy or the *North Pacolet River Riparian Corridor Conservation Design*, please contact Mike Oliphant by calling (828) 894-3018 or by email pax@teleplex.net or visit the website at <http://www.pacolet.org/>.

1.4.4 Carolina Land Conservancy

The Carolina Mountain Land Conservancy (CMLC) is a partnership of people working in Henderson, Transylvania, Buncombe and Rutherford counties to ensure that, as the North Carolina mountain region changes, important land is not lost forever. The CMLC is a nonprofit, voluntary organization that:

- Works to directly protect the natural diversity and beauty of the region by preserving significant natural lands and scenic areas.
- Helps families meet their conservation and financial goals while preserving their forest, farm and natural lands for future generations.
- Provides communities and individuals with a range of conservation tools and tax-saving techniques, such as land acquisition and conservation easements.
- Fosters a greater understanding and appreciation of natural heritage.

As of January 2001, the CMLC has protected over 1,049 acres including the ownership of 593 acres at two sites and conservation easements at four sites. The CMLC also facilitated the state acquisition of the 7,600 acres that became Dupont State Forest in 1996. In addition to land acquisition and land conservation, the CMLC initiated a county-wide greenspace mapping and conservation planning project in partnership with the Henderson County Greenways Commission and co-hosted the Sustainable Forestry Demo Day at the Humphrey Farm and a Conservation Easement Workshop and the NC Arboretum.

Upper Green River Riparian Corridor Conservation Design

In January 2000, the Conservation Trust of North Carolina awarded a grant of \$20,000 to the Carolina Mountain Land Conservancy to develop a parcel-by-parcel riparian conservation design for the upper Green River and Rock Creek. The design area includes the entire length of the Green River from its source on Forked Mountain to the upstream boundary of the NC Gamelands below Lake Summit. It also includes Rock Creek, the largest tributary to the upper Green River and its north prong.

In developing the design, the CMLC has several objectives. The first objective is to document the existing condition of forested areas in the watershed with emphasis on riparian forests in the design area. The second objective of the design is to prioritize the forested areas for protection based on water quality considerations. The design identifies four sites at the headwaters of North Prong Rock Creek, the Green River and Rock Creek as the highest priority parcels for protection. In addition to these four sites, the design identifies 14 individual parcels plus four sets of parcels as high priority preservation sites, and ten individual parcels plus seven sets as medium priority

preservation sites. For each of the highest priority sites, an appropriate protection strategy has been developed.

In addition to prioritizing sites for protection, the design identifies sites that could cause nonpoint source impacts to the river and its tributaries and recommends appropriate restoration techniques and strategies. The design also includes general conservation recommendations for the upper Green River project area.

For more information on the Carolina Mountain Land Conservancy or the *Upper Green River Riparian Corridor Conservation Design*, please contact Kieran Roe by calling (828) 697-5777 or by email carolan@ioa.com or visit the website at www.main.nc.us/cmlc.

1.4.5 Foothills Conservancy

The Foothills Conservancy was formed in 1994 to preserve and protect important natural areas and open spaces of the Foothills region, including Alexander, Burke, Caldwell, Catawba, Cleveland, Lincoln, McDowell and Rutherford counties. As of January 2001, the Foothills Conservancy has protected 452 acres of land including the ownership of 33 acres at one site and 419 acres of conservation easements at two sites. The Foothills Conservancy facilitated the protection of 17,829 acres and protected an additional 26,250 acres at three sites by direct methods other than acquisition or conservation easement. Highlights of the Foothills Conservancy's work include the first conservation easement to protect 114 acres of forestland and open space along the Broad River in Rutherford County and an agricultural conservation easement for 305 acres on a Rutherford County farm via the NC Farmland Preservation Program.

For more information on the Foothills Conservancy, please contact Susie Hamrick Jones by calling (828) 437-9930 or by email foothillscnc@vistatech.net.

1.4.6 Volunteer Water Information Network (VWIN)

The Volunteer Water Information Network (VWIN) is a partnership of groups and individuals dedicated to preserving water quality in western North Carolina. The University of North Carolina at Asheville (UNCA) Environmental Quality Institute provides technical assistance through laboratory analysis of water samples, statistical analysis of water quality results, and written interpretation of the data. Volunteers, trained by VWIN, collect monthly water quality samples from streams and rivers throughout the Network area.

The VWIN began in February of 1990, when volunteers began monthly sampling at 27 stream sites in Buncombe County. The program expanded to 45 sites by November of that year. Since that time, nine other area counties have begun monitoring of local streams, rivers and lakes to bring the total number of monitoring sites to 192. Samples sites are chosen to adequately cover as many watershed drainage areas as possible within each county. There are 32 VWIN sites in the Broad River basin. The data collected through VWIN over the most recent basinwide planning cycle, as well as a listing of monitoring locations, are summarized on page 46.

For more information about VWIN, contact Marilyn Westphal at (828) 251-6823.

1.4.7 The Nature Conservancy

The Nature Conservancy, an international private nonprofit organization, works with members, contributors and partners to acquire conservation land. The North Carolina Chapter of The Nature Conservancy has helped to protect 72,000 acres across the state. Some of the land is owned and managed by The Nature Conservancy, and other sites are acquired on behalf of state and federal conservation agencies to be placed in public ownership. The North Carolina Chapter works in conjunction with the NC Natural Heritage Program of the NC Division of Parks and Recreation to identify and inventory unique natural areas and habitats. The NC Chapter establishes protection priorities based on information gathered by the Heritage Program.

In the Broad River basin, The Nature Conservancy has had several conservation projects. In 1994, the conservancy purchased 5,090 acres from Duke Energy and Crescent Timber on behalf of the NC Wildlife Resources Commission that are now managed as the Green River Game Land and is open to the public for outdoor activities. In 1998, the conservancy purchased the Rollins Tract from the McDonald Investment Corporation and transferred the property to the NC Wildlife Resources Commission to become the South Mountains Game Land. The game land is adjacent to the South Mountains State Park, offering numerous outdoor activities for the public. A partnership of public and private conservation groups, including The Nature Conservancy, the Foothills Conservancy of NC, and the NC Wildlife Resources Commission, worked for four years to make the South Mountains Game Land a reality. The conservancy has been involved with the protection of the 93-acre Bat Cave preserve since the early 1980s and expanded its conservation efforts in the Hickory Nut Gorge in 2001. The conservancy purchased 93 acres adjoining the Bat Cave preserve, approximately 800 acres that cover the northeast side of Rumbling Bald. These preserves are only open to the public via a conservancy led field trip.

For further information about past or current protection efforts, contact Mountains District Coordinator, Beth Bockoven, by calling (828) 749-1700 or by email bbockoven@tnc.org.

1.5 Local Initiatives

1.5.1 Upper Broad River Protection Program

The Upper Broad River Watershed Protection Program (UBRWP) is a group of local citizens with professional assistance from the Mountain Valleys RC&D, USDA Natural Resources Conservation Service, Town of Lake Lure, Chimney Rock Village, and Environmental Quality Institute. The partnership is developed through watershed meetings that include guest presentations, water quality reports and progress reports on UBRWP Programs. As of January 2002, the UBRWP has received funding from Clean Water Management Trust Fund and from the Section 319(h) to restore and maintain water quality within the upper Broad River watershed.

The upper Broad River watershed encompasses 94 square miles and reaches east to the Youngs Mountain Range in Rutherford County, north to the Continental Divide near the City of Black Mountain, west to the edge of Henderson County at Little Pisgah Mountain, south nearly to Edneyville in Henderson County, and consists of a small portion of McDowell County.

The UBRWP's vision is: "Protecting Soil and Water Resources through Watershed Education and Program Participation." These goals are accomplished by providing information, technical support, and financial reimbursements and incentives to program participants. Programs range from financial assistance in implementing erosion control measures on existing eroding sites, low interest loans for new construction, streambank restoration that include free Riparian Tree Kits, and Riparian Conservation Easements.

Participants in the Upper Broad River Cost Share are provided with on-site technical assistance that includes a detailed written Conservation Plan outlining erosion control measures to stabilize existing eroding sites. The UBRWPP works with grading and hydroseeding contractors to ensure that erosion control measures are installed properly on the participant's property. Cost share participants receive financial reimbursement between 50 percent and 100 percent of actual cost of the erosion control measures. Low interest loans provide up to 50 percent of erosion control costs at new construction sites using Natural Resources Conservation Service erosion control standards. The Stream Bank Restoration Program assists property owners with repairing eroding streambanks and preventing further erosion through the reestablishment of riparian forest buffers. The UBRWP also offers technical support to property owners wishing to permanently protect riparian streambank property through the use of riparian conservation easements.

For more information about the Upper Broad River Watershed Protection Program, contact Pamela Pyles at the Town of Lake Lure at (828) 625-9983, ext. 123 or by email ubrwp@rfci.net. Further information may be obtained from their website at www.rfci.net/ubrwp.

1.5.2 Rutherford County Source Water Protection Plan

The Environmental Finance Center at the University of North Carolina at Chapel Hill (efc@unc) received funding from the US Environmental Protection Agency (EPA) to develop a source water protection plan for a group of communities in North Carolina. This planning effort was one of approximately 20 pilot projects around the United States attempting to determine how well multiple units of local government can work together to protect their shared drinking water resources. In particular, EPA was interested in getting protection plans in place for water supplies that were likely to be rated moderately to severely threatened by potential contaminants under the Source Water Assessment Program (SWAP) that all states are currently conducting.

The center consulted with the NC Public Water Supply Section to come up with a list of candidate communities, and the communities that rely on the Broad River and the Second Broad River for their drinking water were selected for the pilot project. This water supply watershed includes the towns of Forest City, Spindale, Rutherfordton, Ellenboro, Bostic and Ruth, as well as the Town of Lake Lure, Rutherford County and any other water users in the area.

In 2001, a local steering committee, including representatives from the Broad River Water Authority, Forest City's water system, local governments and local natural resource agencies, began meeting to discuss potential sources of pollution in two surface water supply watersheds: the mainstem of the Broad River and the Second Broad River. Risks to surface waters prioritized by the committee include transportation accidents (road and railroad corridors), sedimentation and turbidity from land-disturbing activities, contamination from stormwater runoff, wastes in

groundwater (particularly leaking underground storage tanks), and bacteria from animal and human waste.

The group recommended that the Rutherford County Water Resources Committee be created to serve as an advisory and implementing body for all matters pertaining to drinking water protection in the county. Many specific water quality management measures were also recommended including, but not limited to the following:

- Investigate a program to restore eroded streambanks.
- Continue and seek expanded agricultural cost share funding for exclusion of animals from streams and provision of alternative watering systems.
- Consider extending the critical area around intakes from one-half mile to one mile.
- Expand pesticide and fertilizer use education for homeowners and golf courses.
- Expand education about erosion and sediment control practices.
- Encourage proper onsite wastewater management.
- Expand education about proper used oil/garage/car repair practices.
- Investigate funding for citizen water quality monitoring.
- Consider support for conservation land acquisition in areas important to water quality, including the critical area around intakes.

In August 2002, the Rutherford County Board of Commissioners, Town of Forest City Town Council, Town of Rutherfordton Town Council, Broad River Water Authority Board of Directors, Isothermal Planning and Development Commission, Rutherford Soil and Water Conservation District, and Rutherford Polk McDowell District Health Department all affirmed by signature that they had reviewed and endorsed the plan.

For more information on the Rutherford County Drinking Water Protection Project, please contact Richard Whisnant by calling (919) 962-9320 or visit the website at www.efc.unc.edu.

1.5.3 Town of Lake Lure

To assist the Town of Lake Lure with the challenges of managing the community's prize asset – the lake – the Town Council created a Lake Advisory Committee in March of 1992. Committee members are appointed by the council and meet monthly to review activities and situations that are lake related and make recommendations to the council. Each member of the committee has an area of responsibility (Emergency Preparedness, Fish and Ecosystem, Dam and Sewer System, Dredging, Recreation, Law Enforcement and Lake Structures).

The Lake Advisory Committee has actively promoted establishing a holistic approach to lake management. Some of their past projects assigned by council and completed for the town's people are:

- Creating a Lake Structures Ordinance (zoning and structural requirements for all docks, seawalls, boathouses and cluster mooring facilities).
- Developing a Lake Management Plan (giving some continuity for the local government in managing a multi-million dollar facility).

- Writing a Standard Operating Procedure (SOP) for the facilities at the dam (power station and sewer treatment plant).
- Performing a Lake Use Study to establish boating carrying capacity and activity preferences based on permit sales data, gas sales and an in-depth citizen survey (over 30 percent responded).

In addition to these projects the committee has been involved in:

- Major cleanup in the wake of two major floods in 1994 and 1996.
- Establishing a partnership between the town and the Environmental Quality Institute at UNCA to participate in VWIN (refer to page 46 and page 137) to collect monthly water samples from the lake and its tributaries to establish baseline data and monitor fluctuations in conditions.
- Help create the Upper Broad River Watershed Protection Program (discussed in Part 1.6.1 above).
- Touring the shoreline of the lake annually to establish placement of regulatory buoys.
- Reviewing activity data, getting feedback from state and local enforcement officers, and recommending adjustments to the town's local boating ordinances.
- Organizing two well attended workshops on lake management held by the NC Lake Management Society with the support and financial assistance from the local business community.
- An eight-year fish stocking program that has improved the game fishing.
- Working with NC DWQ to develop the Broad River Basinwide Water Quality Plan.
- Establishing a ten-year dredging plan and acquiring a dredge to maintain the navigable waterways.

1.5.4 Town of Tryon

Sewer Line Replacement

The Town of Tryon was awarded \$660,490 in 1999 by the CWMTF to replace a failing sewer line. This particular line paralleled the Pacolet River and actually crossed the river multiple times. Due to the age of the line, there was a chronic problem with collapse and discharge of raw sewage into the Pacolet. The funds were used to abandon the existing line and replace it with a new line which allowed buffers to be established between the river and the line.

Mercury Reduction Efforts

In October 2000, the Town of Tryon joined with Waste Reduction Partners and the NC Division of Pollution Prevention and Environmental Assistance (NCDPPEA) in efforts to address the problem the town was having with elevated levels of mercury in its wastewater discharge. The Waste Reduction Partners is a team of highly experienced volunteer engineers, architects and scientists that provide western North Carolina's businesses with a no-cost waste and energy reduction assessments. The Waste Reduction Partners and the NCDPPEA staff developed a public education campaign to inform area businesses and residents of the wastewater compliance issues. The campaign included a series of six mercury education articles in the local newspaper prior to a mercury collection day, when residents and businesses were encouraged to bring

common mercury-containing products, such as thermometers, barometers, fluorescent lights and button cell batteries to a collection site for proper recycling. Over 175 pounds of mercury-containing products were collected during the collection day.

The public education campaign was just one part of a multifaceted approach Tryon is taking to address the elevated mercury levels in the town's wastewater discharge. In addition to the public education campaign, town officials have followed up on a list of comprehensive mercury reduction recommendations from the Waste Reduction Partners including: using cleaner techniques techniques, imposing limits for dental offices and modifying NPDES permits.

NCDPPEA has also introduced another approach to reducing the mercury in Tryon's discharge by implementing the "Silver Star" Program. Thirteen local businesses, including jewelers, dentists, hardware stores, pharmacies and automotive service shops, have promised to help reduce mercury in the environment by pledging to:

- Discontinue the purchase and sale of mercury-containing equipment and products whenever nonhazardous alternatives are available.
- Replace existing mercury devices with nonhazardous devices whenever possible.
- Properly manage mercury-containing wastes by collecting them for proper disposal.
- Educate employees about sources of mercury and proper mercury management.

Following the establishment of the education campaign, collection day and the implementation of the "Silver Star" Program, the Town of Tryon wastewater effluent has been below the detection limit for mercury.

For more information on the Town of Tryon's Mercury Reduction Efforts, please contact Terry Albrecht with the Waste Reduction Partners at (828) 232-5080 or by email terry.albrecht@ncmail.net or Joel Burrell with the Town of Tryon's Wastewater Treatment Plan at (828) 859-5626.

1.5.5 Broad River Greenway

The Broad River Greenway hosts interpretive programs and special events year round and has expanded trails and facilities. In 1994, citizens of Cleveland County joined together to develop a public use park along the Broad River, just south of Boiling Springs. Through the initiatives of Cleveland Tomorrow, a unique blend of private volunteers and public officials, and a grant of \$330,000 from the Clean Water Management Trust Fund, a 448-acre tract of land along both sides of a one and one half-mile stretch of the Broad River was purchased and deeded to Cleveland County. Immediately following the purchase of the land, a governing volunteer body, the Broad River Council, was formed to manage the park. Since that time, the Broad River Council has guided the development of what is now called the Broad River Greenway, following a 20-year master plan.

For more information on the Broad River Greenway, contact the Park Ranger by calling (704) 434-0040 or visit the website at <http://www.broadrivergreenway.com>.

1.5.6 Concerned Citizens of Rutherford County

Interest in water quality issues began in 1995 among Concerned Citizens of Rutherford County (CCRC) and stemmed from the organization's involvement in opposing the construction of a high-capacity chip mill in Union Mills. Today, CCRC continues to be a model community-based grassroots group dealing with the impacts of wood chip mills throughout North Carolina and the Southeastern and Appalachian regions.

CCRC has four major program areas:

- **Community Outreach** – continues to support local communities within Rutherford County and throughout North Carolina and the regions who are dealing with the adverse affects of chip mills and unsustainable forestry practices.
- **Landowner Outreach** – hosted the Fourth Annual Horseslogging and Sawmilling Fun and Field Day at the Hemphill/Robbins Farm on October 26th, 2002. The event attracted 600 people and focused on sustainable forestry practices for private landowners, local harvesters and sawmillers, foresters, community members, and the media.
- **Forest Watch** – has become a model for other communities throughout North Carolina desiring to monitor active timber harvesting sites. To date, CCRC has evaluated 179 sites in 11 counties throughout North Carolina. Forest Watch has become the "eyes" of what is happening to our forests, water quality, and human and natural communities. This program has garnered the attention of the NC Division of Forest Resources (DFR), timber industry, legislators, citizens, activists, other environmental organizations, and the media. CCRC has designed its own Site Evaluation Form and sends reports to DFR staff. These reports include the Evaluation Form, copies of topographic maps for the site, road map copies, pertinent information from local courthouses, and panoramic photographs. CCRC feels that the data and documentation, which are collected through Forest Watch, will help support the need for protective forest policy and legislation in the future. On February 9th, 2002, CCRC was honored at the NC National Wildlife Federations' 40th Annual Governor's Awards Banquet in Raleigh with the Forest Conservationist of the Year Award. October 25th, 2002, CCRC hosted the Second Annual Forest Watch Conference, which focused on water quality issues and sustainable forestry throughout the regions. The Forest Watch Conference and Training attracted 83 grassroots community-based representatives and leaders, teachers, college students, harvesters, foresters, agency officials and reporters. Participants came from the following seven states: Missouri, North Carolina, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia.
- **Demonstration Forests** – The Hemphill/Robbins Model Forest is located on the private forestland of Rodney and Donna Robbins. Mr. Robbins is a third generation timber harvester and sawmiller whose forestland has been in Mrs. Robbins' family for over 150 years. This "Demonstration Forest" is located in the Union Mills Community of Rutherford County approximately 8 miles from the Weyerhaeuser/Willamette Industries' chip mill. One of CCRC's goals is to have several "Model Forests" throughout Rutherford County, which can be replicated on other forestlands in Western North Carolina. We engaged the services of a Certified Forest Stewardship Contractor and Licensed Soil Scientist who conducted research and surveyed the designated area to determine what types of tree and plant species, waterbodies, and wildlife exist on their forestland. Mr. Robbins' "Model Forest" is a working forest where hardwood tree species are cultivated, timbering in the form of selective cutting

takes place, and alternative types of harvesting are utilized through the use of lighter logging equipment and horse harvesting. CCRC has recently been contacted by two other private landowners who are interested in displaying their forestlands as demonstration forests and where timber can be logged selectively by local conventional logging companies and horseloggers. This will provide CCRC and Rutherford and surrounding counties with three excellent and unique examples of "Model Demonstration Forests".

For more information about programs offered by the Concerned Citizens of Rutherford County, please contact Lynne Faltraco at (828) 287-4429 or by email mfaltra@rfci.net.