Broad
River Basin Restoration
Priorities 2009

Ecosystem Enhancement Program

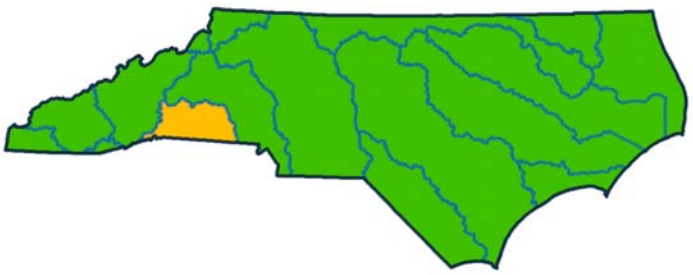


TABLE OF CONTENTS

This document was updated by Andrea Leslie, western watershed planner.

Cover Photo: First Broad River, Rutherford County

Introduction

First Broad River, Cleveland County

This document, prepared by the North Carolina Ecosystem Enhancement Program (EEP), presents a description of Targeted Local Watersheds within the Broad River Basin. This is an update of the original document developed in 2003 by the Wetlands Restoration Program (NCWRP, a precursor to EEP, which was formed in 2003), *Broad River Basin Watershed Restoration Plan*.

The original plan selected six watersheds to be targeted for stream, wetland and riparian buffer restoration and protection and watershed planning efforts. This plan retains five of these original watersheds, plus presents an additional ten Targeted Local Watersheds (TLWs) for the Broad River Basin. One 2003 TLW (Lower Sandy Run) was not re-targeted in this document due to a re-evaluation of local priorities.

This document is a supplement to EEP's *Broad River Basin Watershed Restoration Plan* (2003), and draws information from the detailed document, *Broad River Basinwide Water Quality Plan—July 2008*, which was written by the NC Division of Water Quality (DWQ). Therefore, this document does not provide detailed information found in those documents but provides a quick overview of EEP and the criteria EEP uses to select new Targeted Local Watersheds and then describes the newly selected Targeted Local Watersheds.

In past documents, watersheds were delineated by the DWQ "subbasin" units and the smaller Targeted Local Watersheds were defined by US Geological Survey (USGS) 14-digit hydrologic unit (HU). In this document, the watersheds are defined by the USGS 8-digit cataloging units and the Targeted Local Watersheds continue to be defined by the USGS 14-digit hydrologic unit.

What is a River Basin Restoration Priority?

EEP develops River Basin Restoration Priorities (RBRPs) to guide its mitigation activities within each of the major river basins. The RBRPs delineate specific watersheds that exhibit a need for restoration and protection of wetlands, streams and riparian buffers. These priority watersheds, or Targeted Local Watersheds (TLWs), are 14-digit hydrologic units which receive priority for EEP planning and project funds. The designation may also benefit stakeholders writing watershed improvement grants (e.g., Section 319 or Clean Water Management Trust Fund) by giving added weight to their proposals.

North Carolina General Statute 143-214.10 charges EEP to pursue wetland and riparian restoration activities in the context of basin restoration plans, one for each of the 17 major river basins in the State,

with the goal of protecting and enhancing water quality, fisheries, wildlife habitat, recreational opportunities and preventing floods.

Criteria for Selecting Targeted Local Watersheds

EEP evaluates a variety of GIS data and resource and planning documents on water quality and habitat conditions in each river basin to select TLWs. Public comment and the professional judgment of local resource agency staff also play a critical role in targeting local watersheds. TLWs are chosen based on an evaluation of three factors—*problems*, *assets*, and *opportunities*. *Problems* reflect the need for restoration, *assets* reflect the ability for a watershed to recover from degradation and the need for land conservation, and *opportunity* indicates the potential for local partnerships in restoration and conservation work.

Buffalo Creek headwaters, Cleveland County

TLWs that were chosen for the last Watershed Restoration Plan or River Basin Restoration Priorities document are reevaluated. If new information reveals that a watershed is not a good TLW candidate, then it will be removed from the TLW list. An explanation of the reasons for its removal from the list is provided in the last section of this document, which provides descriptions of each TLW chosen and delisted.

Problems: EEP evaluates DWQ use support ratings, the presence of impaired /303(d)-listed streams, and DWQ Basinwide Assessment reports to identify streams with known problems. EEP also assesses the potential for degradation by evaluating land cover data, riparian buffer condition, road density, and projected population increase.

Assets: In order to gauge the natural resource value of each watershed, EEP considers the amount of forested land, land in public or private conservation, riparian buffer condition, high and outstanding quality resource waters, and natural heritage elements.

Opportunity: EEP reviews restoration and protection projects that are already on the ground, such as Clean Water Management Trust Fund projects, US Clean Water Act Section 319 projects, and land conservation projects. EEP also considers the potential for partnership opportunities by consulting with local, state, and federal resource agencies and conservation organizations, identifying their priority areas.

Local Resource Professional Comments/Recommendations: The comments and recommendations of local resource agency professionals, including staff with Soil & Water Conservation districts, the Natural Resources Conservation Service (NRCS), county planning staff, NCDENR regional staff (e.g., Wildlife Resources Commission), and local/regional land trusts and watershed organizations are considered heavily in the selection of Targeted Local Watersheds. Local resource professionals often have specific and up-to-date information regarding the

condition of local streams and wetlands. Furthermore, local resource professionals may be involved in local water resource protection initiatives that provide good partnership opportunities for EEP restoration and preservation projects and Local Watershed Planning initiatives.

Broad River Basin Overview

The North Carolina portion of the Broad River basin is 1,513 mi^2 and straddles the southeastern corner of North Carolina's Blue Ridge ecoregion and the southwestern portion of the Piedmont ecoregion. The headwaters of the Broad River, First Broad River, and Second Broad River originate in the Blue Ridge mountains and foothills. These three rivers come together in southern Cleveland County and the Broad River then flows into South Carolina, where it joins the Santee River and eventually empties to the Atlantic Ocean north of Charleston.

First Broad River valley, Rutherford County

The Broad River basin is a varied landscape, ranging from forested lands in many headwater tributaries to agricultural land in pasture and row crops to urban land uses in the vicinity of Rutherfordton, Spindale, Forest City, Kings Mountain, and Shelby. It comprises most of Polk, Rutherford, and Cleveland Counties, which have a combined population of about 180,000 people, according to the 2000 census; it also contains small portions of Buncombe, McDowell, Henderson, Gaston, and Lincoln Counties.

Land use in this basin is changing—from 1992 to 2001, urban land use increased from 4% to 9% of the total land acreage, while agricultural land use increased from 23% to 27% of the landscape (NCDWQ, 2008). Forested land cover decreased from 72% to 61% of the landscape.

Most of the land in the Broad basin is privately owned, but there are a few North Carolina game lands and state parks, mainly in mountainous areas—South Mountains Game Land, Green River Game Land, part of Crowders Mountain State Park, and Chimney Rock State Park. The Upper First Broad River, Green River, and Kings Creek (in the southeastern corner of the basin) are priority freshwater conservation areas for the Wildlife Resource Commission (NCWRC, 2005).

The Broad River Basinwide Plan (NCDWQ, 2008) lists ten stream reaches as impaired, including sections of the Broad River, First Broad River, Cleghorn Creek, Catheys Creek, Mill Creek, Hollands Creek, Sandy Run, and Buffalo Creek. Habitat degradation from excess sedimentation is widespread in the basin, but there are also problems related to large and small impoundments (thermal pollution, fragmentation of aquatic populations, and shifts in sediment and hydrologic dynamics), point-source pollution, stormwater runoff, and agricultural pollutants.
The basin consists of one larger watershed area, called an 8-digit catalog unit, 03050105, and this contains forty-eight smaller watershed areas, or 14-digit hydrologic units.

From 2003 to 2005, EEP developed a local watershed plan (Catheys Creek Local Watershed Plan) for the Catheys Creek watershed, which consists of one 14-digit hydrologic unit. This plan identified a number of management strategies to address current problems and future problems resulting from additional population growth. From 2006 to 2007, EEP developed a fast-track local watershed plan (Cove Creek Local Watershed Plan) for the Cove Creek watershed, which consists of three 14-digit hydrologic units. This fast-track plan was an abbreviated planning effort, mainly using GIS analysis and limited field assessments to develop a broad watershed characterization and restoration strategy. Both the Catheys Creek and Cove Creek local watershed planning processes resulted in a set of priority restoration and preservation projects. EEP is hoping to implement stream and wetland restoration and preservation projects in the Catheys and Cove Creek watersheds.

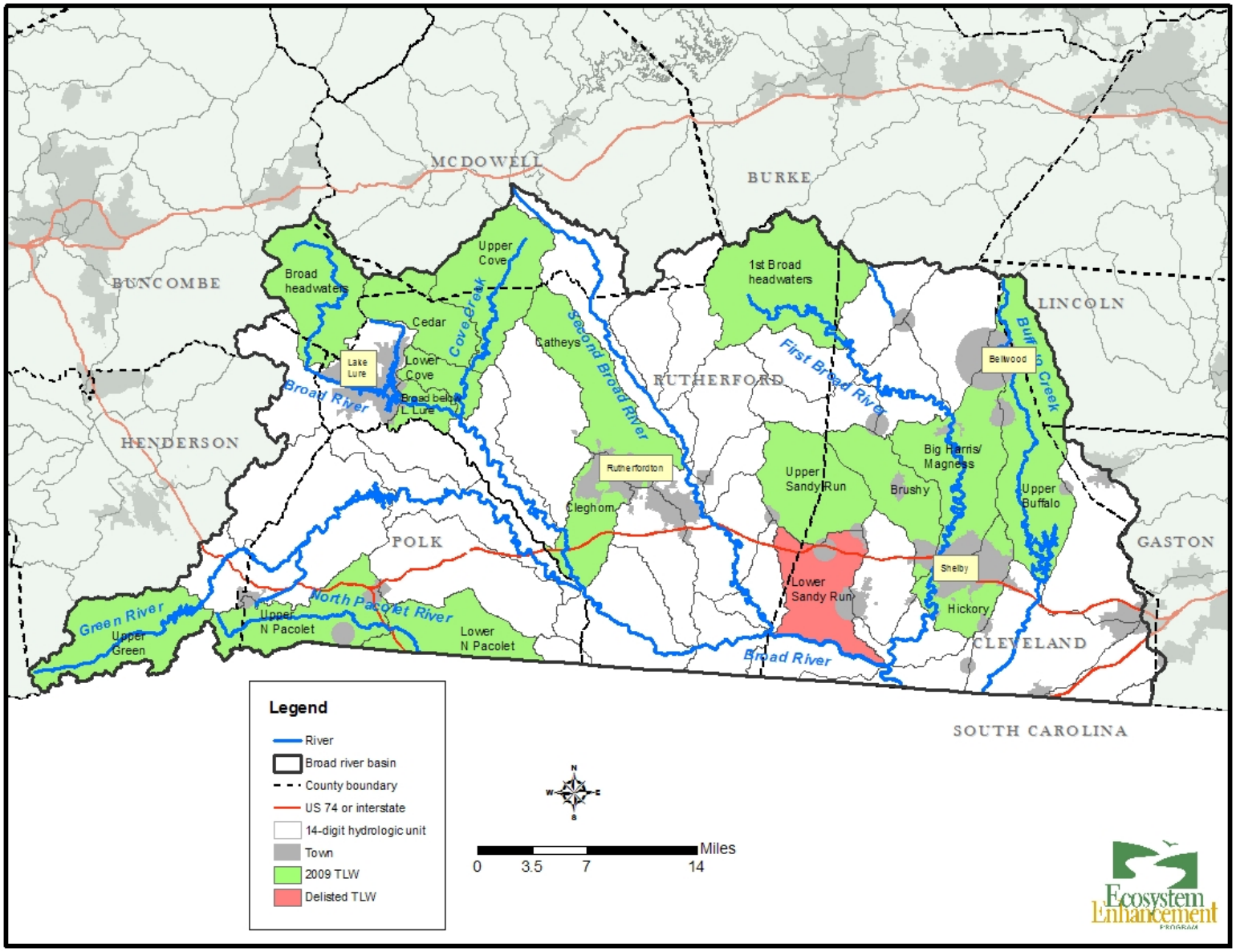
Broad River Basin Restoration Goals

Based on an assessment of existing watershed characteristics and resource information, EEP has developed restoration goals for the Broad River Basin (which consists of only one 8-digit catalog unit, 03050105). The goals reflect EEP's focus on restoring wetland and stream functions such as maintaining and enhancing water quality, restoring hydrology, and improving fish and wildlife habitat.

Sediment deposition in Brushy Creek

- Implement wetland and stream restoration projects that reduce sources of sediment and nutrients by restoring riparian buffer vegetation, stabilizing banks, excluding livestock, and restoring natural geomorphology, especially in headwater streams.
- Restore and protect habitat for priority fish, mussel, snail, and crayfish species in the basin [see Wildlife Resource Commission (2005) for a complete list].
- Prioritize project implementation in the Catheys Creek and Cove Creek local watershed planning areas.
- Cooperate with land trusts and resource agencies to help leverage federal and state grant funding for watershed restoration and conservation efforts.
- Protect high quality habitats, especially those prioritized by the Natural Heritage Program as Significant Natural Heritage Areas.
- Improve management of stormwater runoff, controlling both stormwater volume and pollutants, and promote low impact development techniques to lessen impacts of new development.

Broad River Basin and Targeted Local Watershed Map



Broad River Basin Restoration Priorities 2009

Targeted Local Watershed Summary Table*

Major Streams	14-digit Hydrologic Unit	Area (sq mi)	Ecoregion	HQW & ORW Stream Miles	# of NHEOs	% of Land in Conser-vation	Land Cover: % Forest & Wetland	% of Streams with Forested Buffer	Land Cover: % Developed	Land Cover: % Agriculture	Impaired Stream Miles	% 2005-2020 pop increase	Notes
Upper Green R	03050105010010	42	Blue Ridge	50	41	4	84	75	8	7	0	29	local & WRC priority
Broad R Headwaters	03050105040010	40	Blue Ridge	0	11	1	93	83	3	4	0	22	local priority
Broad R below L Lure	03050105040030	9	Piedmont	0	0	0	82	82	7	9	3.4 mi: Broad R	5	local priority
Upper Cove Cr	03050105040040	43	Blue Ridge	0	11	0	85	75	2	11	0	10	Cove LWP
Lower Cove Cr	03050105040050	12	Piedmont	0	0	0	72	73	9	16	0	4	Cove LWP
Cedar Cr	03050105040060	26	Blue Ridge	0	5	0	90	87	2	7	0	7	Cove LWP
Cleghorn Cr	03050105040090	24	Piedmont	0	1	0	56	71	23	21	4.3 mi: Cleghorn Cr	4	2003 TLW, EEP project
Catheys Cr	03050105070020	45	Piedmont	0	6	1	57	72	10	29	8.6 mi: Mill Cr, Catheys Cr, Holland Cr	4	Catheys LWP
Upper Sandy Run Cr	03050105070070	39	Piedmont	0	0	0	45	77	7	47	10.4 mi: Sandy Run	4	
1st Broad R headwaters	03050105080010	60	Blue Ridge	39	135	45	86	85	2	11	15 mi: Broad R	4	WRC priority
Big Harris, Magness Cr	03050105080060	51	Piedmont	0	7	0	39	76	12	49	1.8 mi: 1st Broad R	4	EEP project, local priority
Brushy Cr	03050105080070	29	Piedmont	0	2	0	41	80	8	51	0	4	2003 TLW
Hickory Cr, 1st Broad R	03050105080090	25	Piedmont	0	4	0	30	63	45	25	5.5 mi: 1st Broad R	4	2003 TLW
Upper Buffalo Cr	03050105100010	68	Piedmont	0	3	0	39	73	10	48	0	10	2003 TLW, local priority
Upper N Pacolet R	03050105150010	39	Blue Ridge	6	68	5	78	77	16	6	0	17	local priority
Lower N Pacolet R	03050105150020	30	Piedmont	0	5	0	54	76	7	36	0	16	local priority

*Table Notes:
2003 TLW=targeted local watershed in 2003 plan; LWP=local watershed plan
HQW=DWQ High Quality Water; ORW=DWQ Outstanding Resource Water; NHEO=Natural Heritage Element Occurrence, as maintained by the NC Natural Heritage Program
2005-2020 population data from NC Office of State Budget and Management (http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic-data.shtm)

Discussion of Targeted Local Watersheds in Broad River Basin

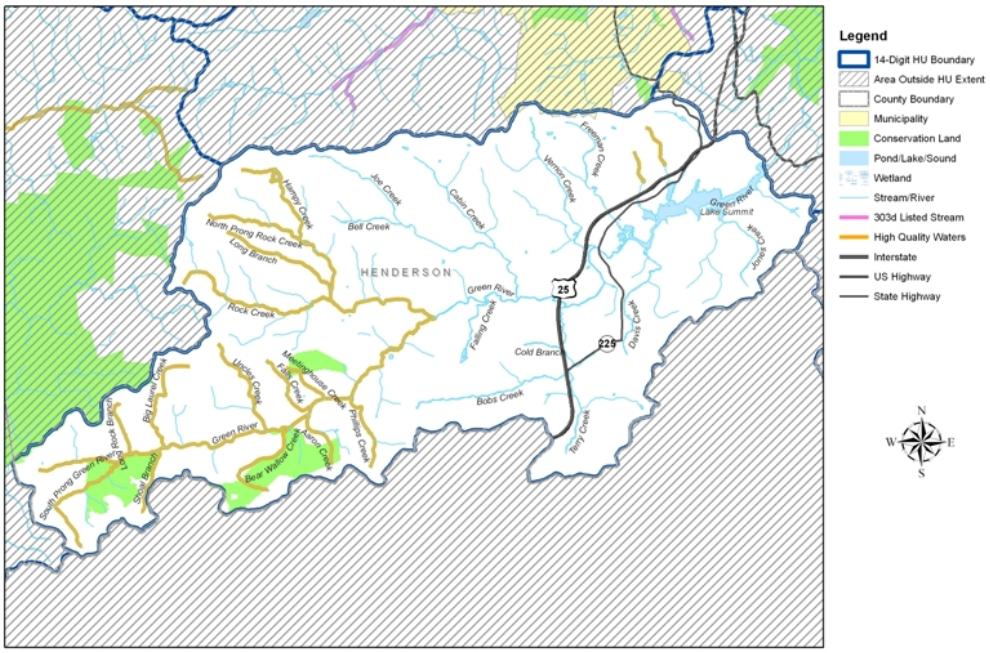
This section provides a description and map of each watershed chosen as a Targeted Local Watershed (TLW) in 2009 and one watershed named as a TLW in 2003 but not targeted in 2009. Information on impaired stream reaches and biological community ratings were drawn from the Broad River Basinwide Plan (NCDWQ, 2008).

2009 Targeted Local Watersheds

Upper Green River: 03050105010010

The upper Green River watershed includes Lake Summit and the Green River upstream of this impoundment. Although 84% of this watershed is forest or wetland, stream corridors are frequently used for agriculture (cattle, row crops, and tree nurseries) and residential land uses. The Wildlife Resources Conservation considers the entire Green River watershed a priority for freshwater conservation. Streams in much of the upper portion of this watershed are High Quality Waters (HQW), hosting biological communities that rated Excellent in the past. However, recent biological sampling in 2005 revealed degraded biological communities in the Green River and its tributaries; impacts from agriculture and recent development are suspected to be responsible for this decline. There are two large privately owned Significant Natural Heritage Areas (SNHAs, which are areas of special ecological significance, designated so by the Natural Heritage Program)—Pinnacle Mountain and Green River Headwaters. About 4,000 acres have been protected by the Carolina Mountain Land Conservancy and The Nature Conservancy (including a large part of the Green River Headwaters SNHA), and this area continues to be a priority area for protection activities by the Carolina Mountain Land Conservancy.

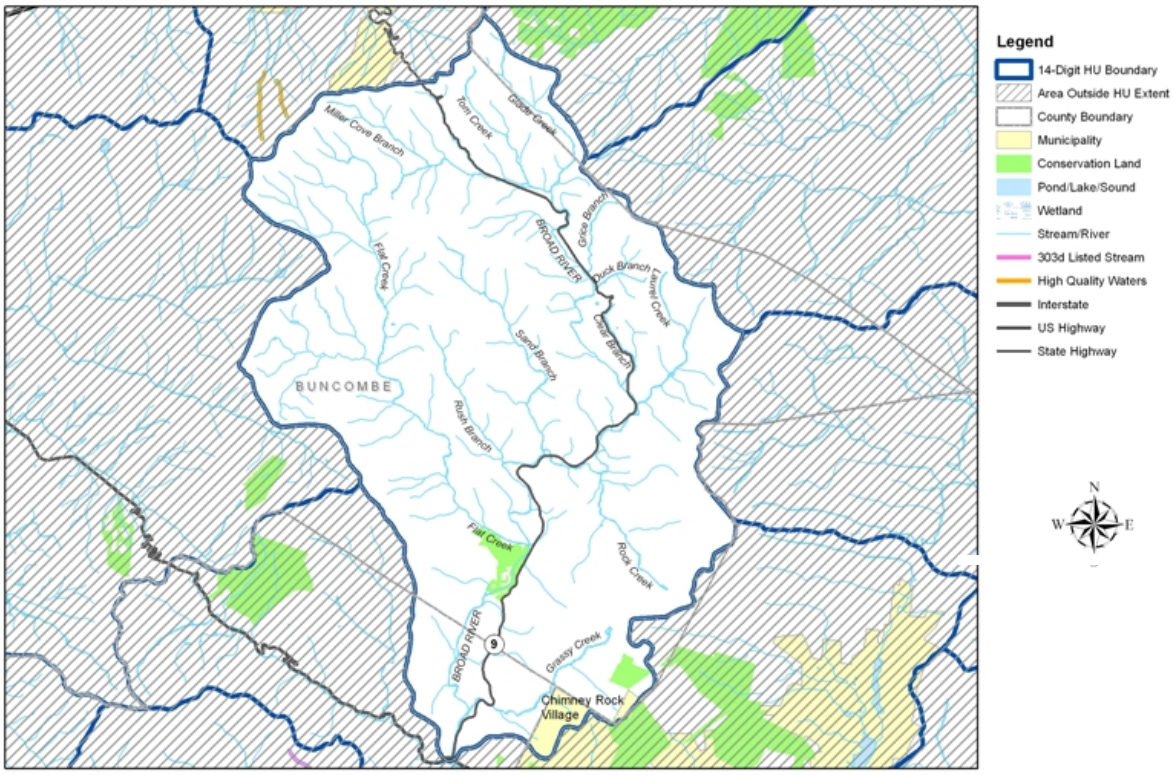
Upper Green River watershed



Broad River Headwaters: 03050105040010

This watershed, at the very northwestern corner of the Broad River basin, is characterized by a highly forested (93% of land cover) and steep landscape. Although only 3% of the land area is developed, it is projected that there will be a 22% increase in population between 2005 and 2020. Much development in this area is occurring on steeper slopes, which can serve as a significant source of sediment in streams. The Upper Broad River Watershed Protection Program works with landowners in this watershed to control erosion. Almost no land in this watershed is presently protected; it is a priority area for the Carolina Mountain Land Conservancy,

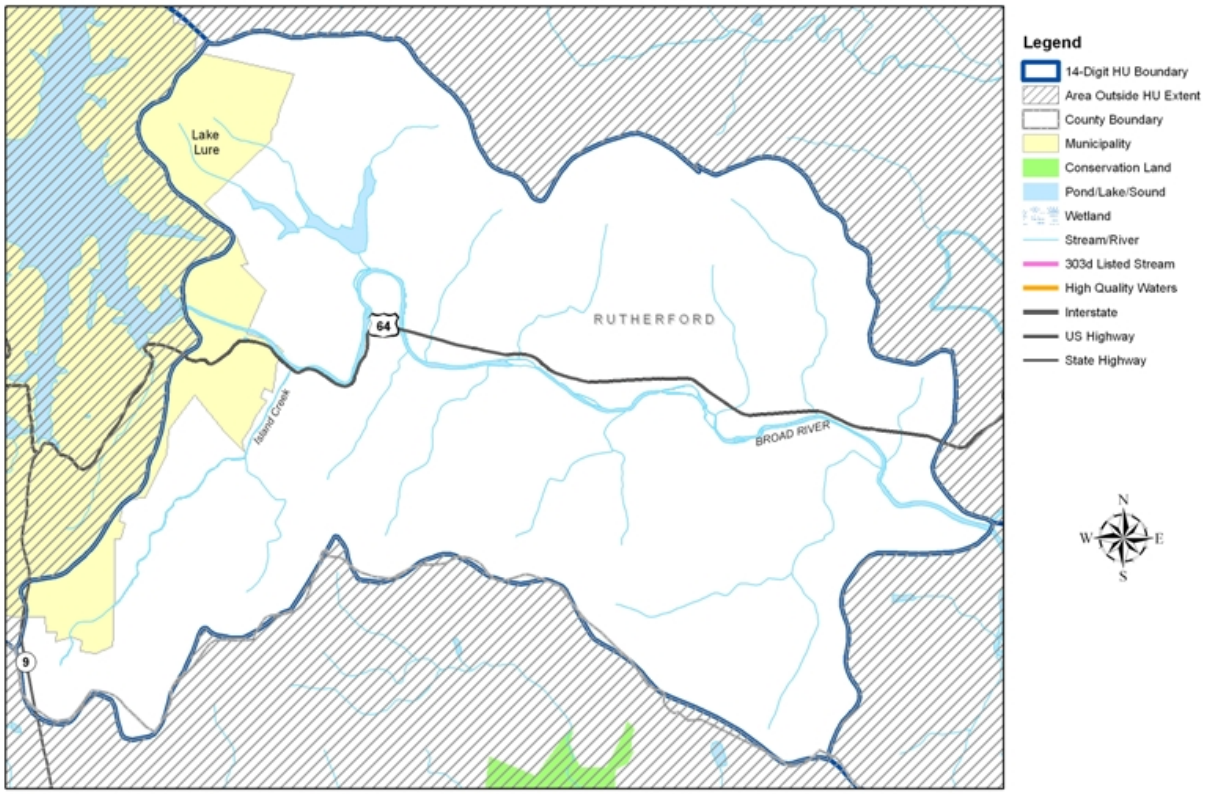
Upper Broad River Headwaters watershed



Broad River below Lake Lure (03050105040030)

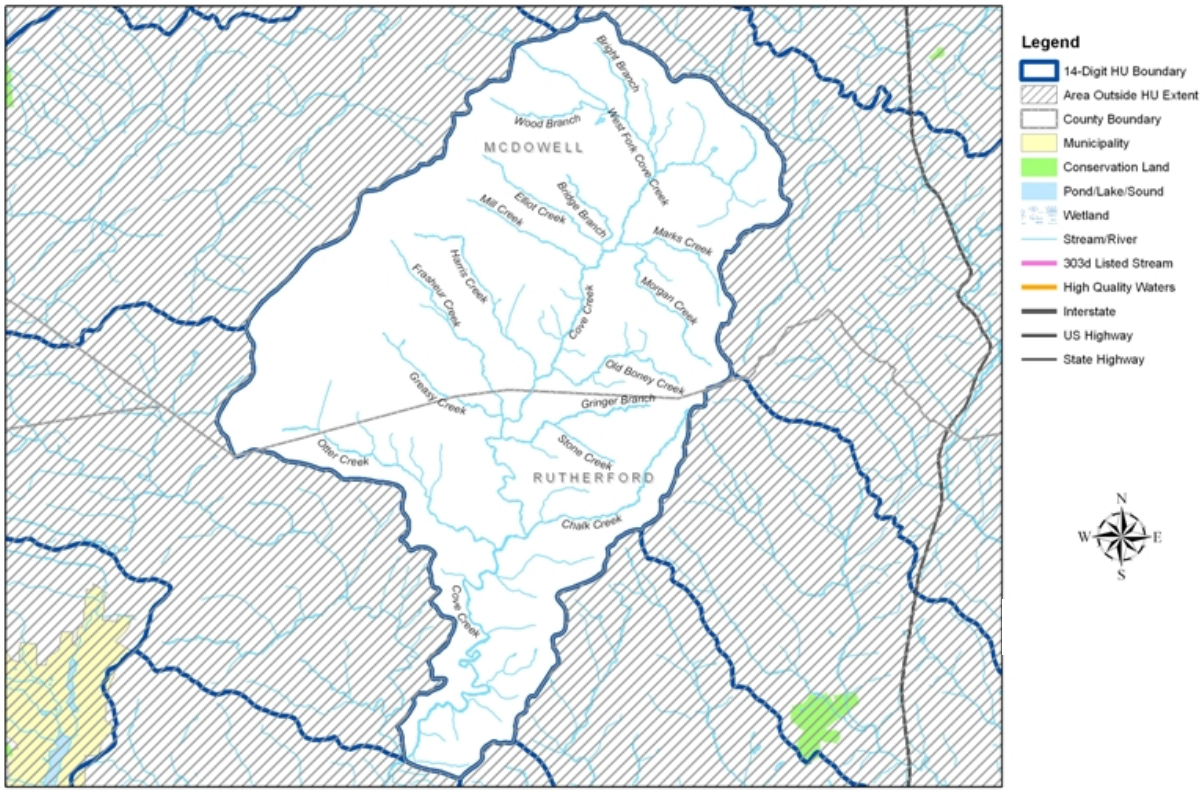
This small watershed includes the Broad River below the dam at Lake Lure and small tributaries to the river. The Broad River is impaired below the dam, and biological sampling in 2005 showed severe impacts to benthic macroinvertebrates. The Lake Lure wastewater treatment plant discharges to this section of river, and variable dam releases cause widely fluctuating water levels in both the river and its tributaries. Despite the fact that this watershed is on the edge of rapidly developing Lake Lure, 82% of the land is forested and 82% of the stream miles have a forested buffer. Due to the river's impaired status, work in this watershed is a priority of local and state organizations.

Broad River below Lake Lure watershed



Upper Cove Creek (03050105040040) and Lower Cove Creek (03050105040050):
Upper and Lower Cove Creeks are both characterized by steep forested headwaters and wide bottomlands that are planted in hay or row crops or kept in pasture. Cove Creek itself has limited forested buffer and unstable stream banks. This rural area is divided into the Blue Ridge and Piedmont ecoregions. Although Upper and Lower Cove Creeks are 2 and 9% developed, respectively, there is development pressure in the area, mainly in the form of retirement and vacation homes. Seven separate Significant Natural Heritage Areas occur in this area, including a local conservation priority, Hickory Nut Mountain, a nearly 8,000 acre privately owned tract mostly in the Upper Cove Creek watershed. Upper and Lower Cove Creeks and Cedar Creek were the subject of a fast-track local watershed plan in 2006-2007 (Cove Creek Local Watershed Plan). This plan identified restoration and preservation priorities for EEP.

Upper Cove Creek watershed

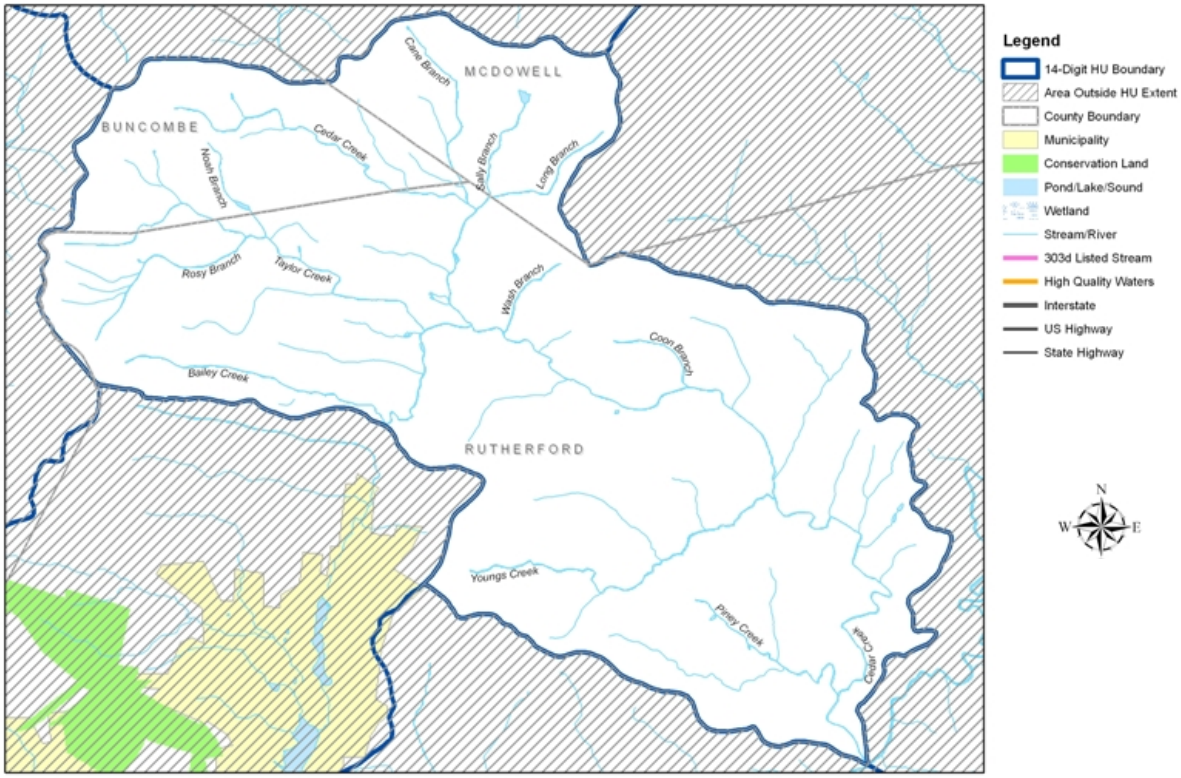


Lower Cove Creek watershed

Cedar Creek: 03050105040060

The Cedar Creek watershed has the second highest proportion (90%) of forested land and highest percentage of streams with a forested buffer (87%) of all of the Broad River TLWs. Although only 2% of the land cover is developed, it is adjacent to Lake Lure and is under pressure from retirement and vacation home development. It contains part of the privately owned Weed Patch Mountain/Joel Ridge Significant Natural Heritage Area in its headwaters. Along with the watersheds of Upper and Lower Cove Creeks , the Cedar Creek watershed was the subject of a fast-track local watershed plan in 2006-2007 (Cove Creek Local Watershed Plan).

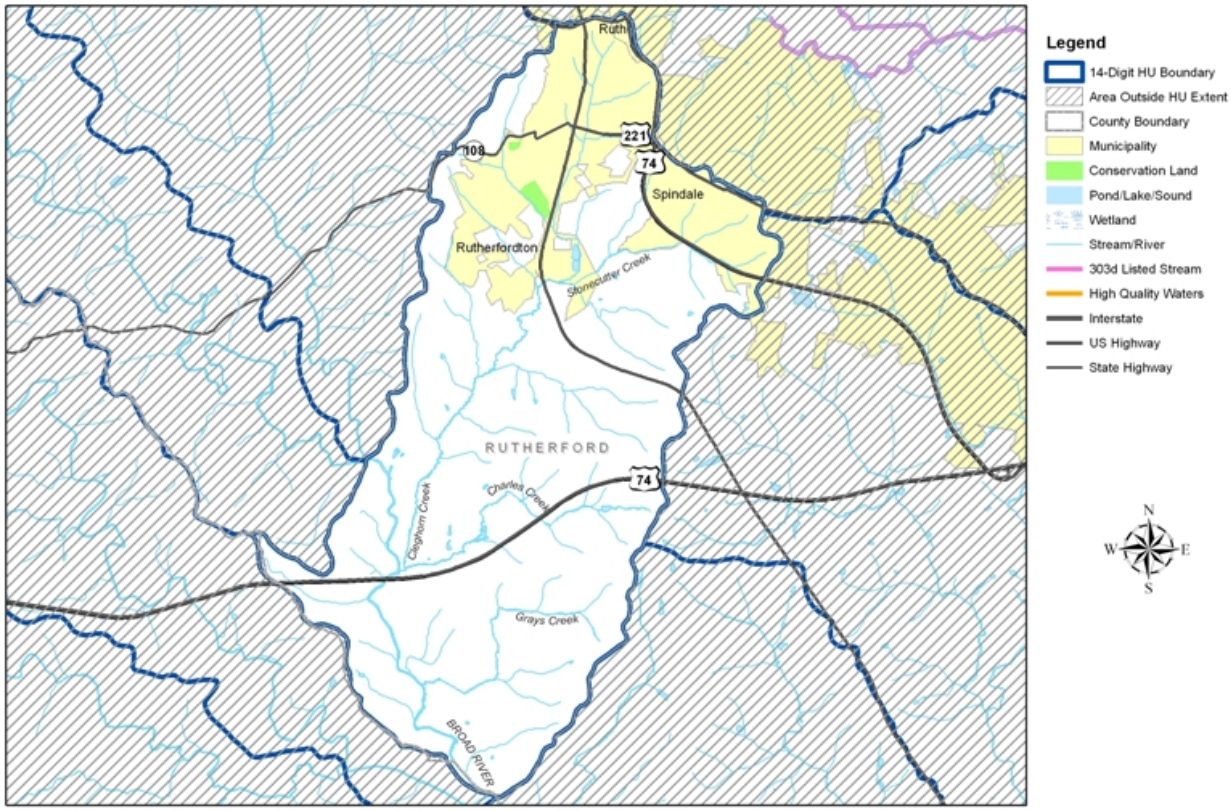
Cedar Creek watershed



Cleghorn Creek: 03050105040090

The headwaters of the Cleghorn Creek watershed are in the towns of Rutherfordton and Spindale. Upper Cleghorn Creek itself is extremely incised and unstable, and it is designated as an impaired stream by DWQ. It is the second most developed watershed among the Broad TLWs, with 23% of land cover developed; another 21% of the land is in agricultural use. The Cleghorn Creek watershed was designated as a TLW in 2003, and EEP has a large stream restoration project at its lower end. There is much local interest in improving the health of Cleghorn Creek; attention to stormwater control should be undertaken in order for Cleghorn Creek to improve.

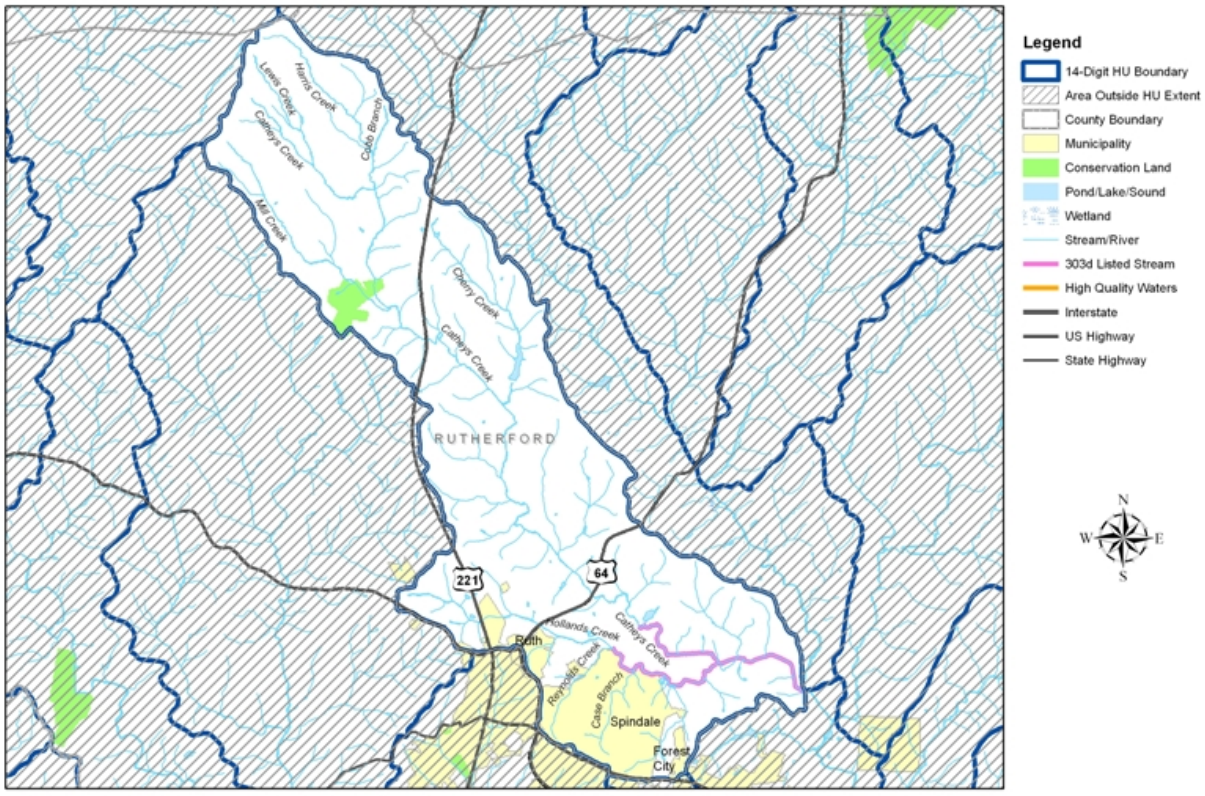
Cleghorn Creek watershed



Catheys Creek: 03050105070020

The Catheys Creek watershed is largely agricultural in its northern portions, but a major southern tributary, Hollands Creek, drains much of the town of Spindale. The northernmost headwaters drain two Significant Natural Heritage Areas (Upper Catheys Creek/Harris Mountain and Shoal Ridge, both privately owned). A moderate proportion (72%) of streams in this watershed has a forested buffer. Excess sedimentation is a problem for Catheys Creek and many of its tributaries. Three streams—portions of Mill Creek, Hollands Creek, and Catheys Creek—are impaired. A local watershed plan for the area was developed between 2003 and 2006 (Catheys Creek Local Watershed Plan). As urban stormwater impacts are likely the key stressor for Hollands Creek, stormwater controls are necessary to improve the health of this creek. The Rutherford County Soil and Water Conservation District and Natural Resources Conservation Service have prioritized this watershed for restoration work.

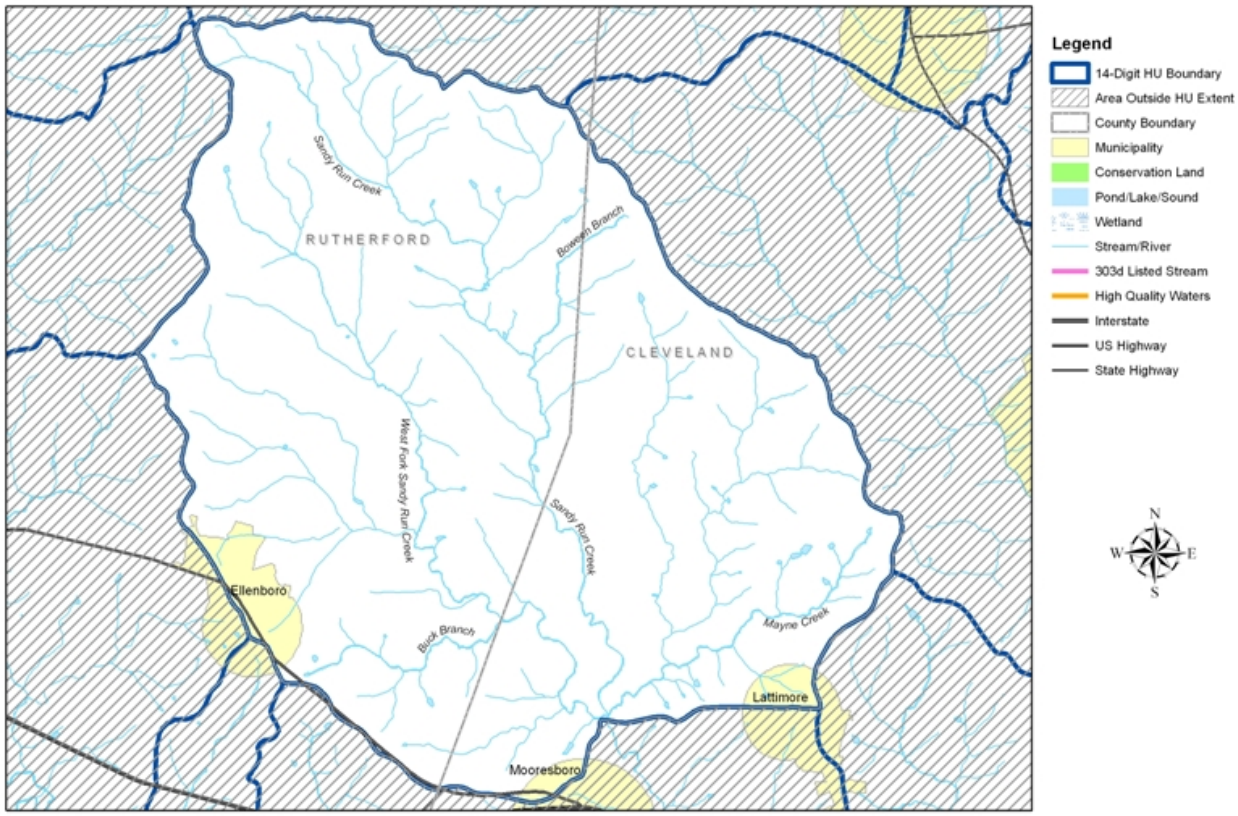
Catheys Creek watershed



Upper Sandy Run Creek: 03050105070070

The Upper Sandy Run Creek watershed has a high proportion (47%) of land in agricultural use (pasture, hay, row crop). Streams in this watershed are often very sandy, and there is frequent cattle access to streams. This rural watershed has good opportunity and need for stream restoration, enhancement, and livestock exclusion projects. Upper Sandy Run Creek is impaired; biological monitoring in 2005 demonstrated that fish and algal communities are impacted by excess nutrients.

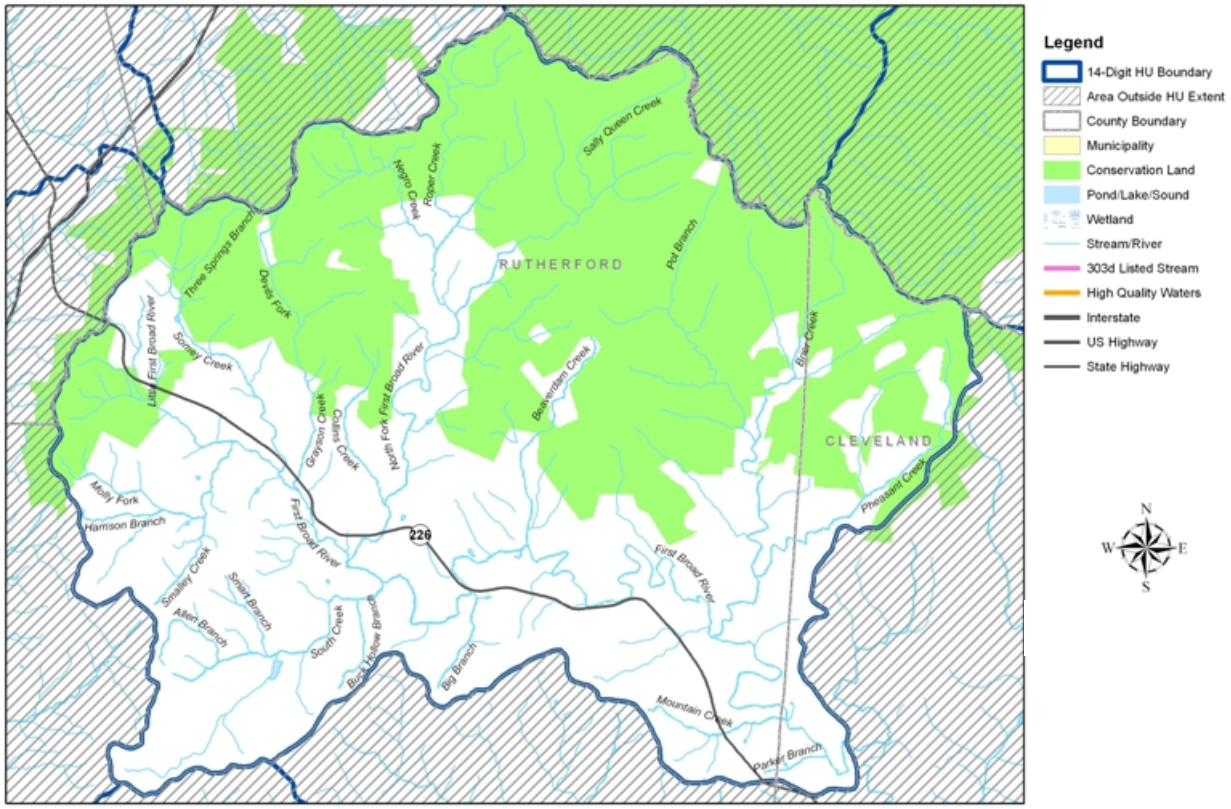
Upper Sandy Run Creek watershed



First Broad River Headwaters: 03050105080010

The First Broad River headwaters begin in the South Mountains Game Lands and flow into a patchwork of privately owned forested and agricultural land. The bottomlands in this watershed are farmed and buffers in these areas are minimal. This watershed is a freshwater conservation priority of the Wildlife Resources Commission, and a very high number (135) of Natural Heritage Element Occurences have been located in this watershed. Five Significant Natural Heritage Areas (SNHAs) cover approximately half of the watershed, with the South Mountains Natural Area as the largest of these SNHAs. The North Fork of the First Broad River is the only stream in the Broad River basin classified as an Outstanding Resource Waters. The First Broad River, however, is impaired due to low pH, although this does not seem to impact the biological community, which was rated Excellent in 2005.

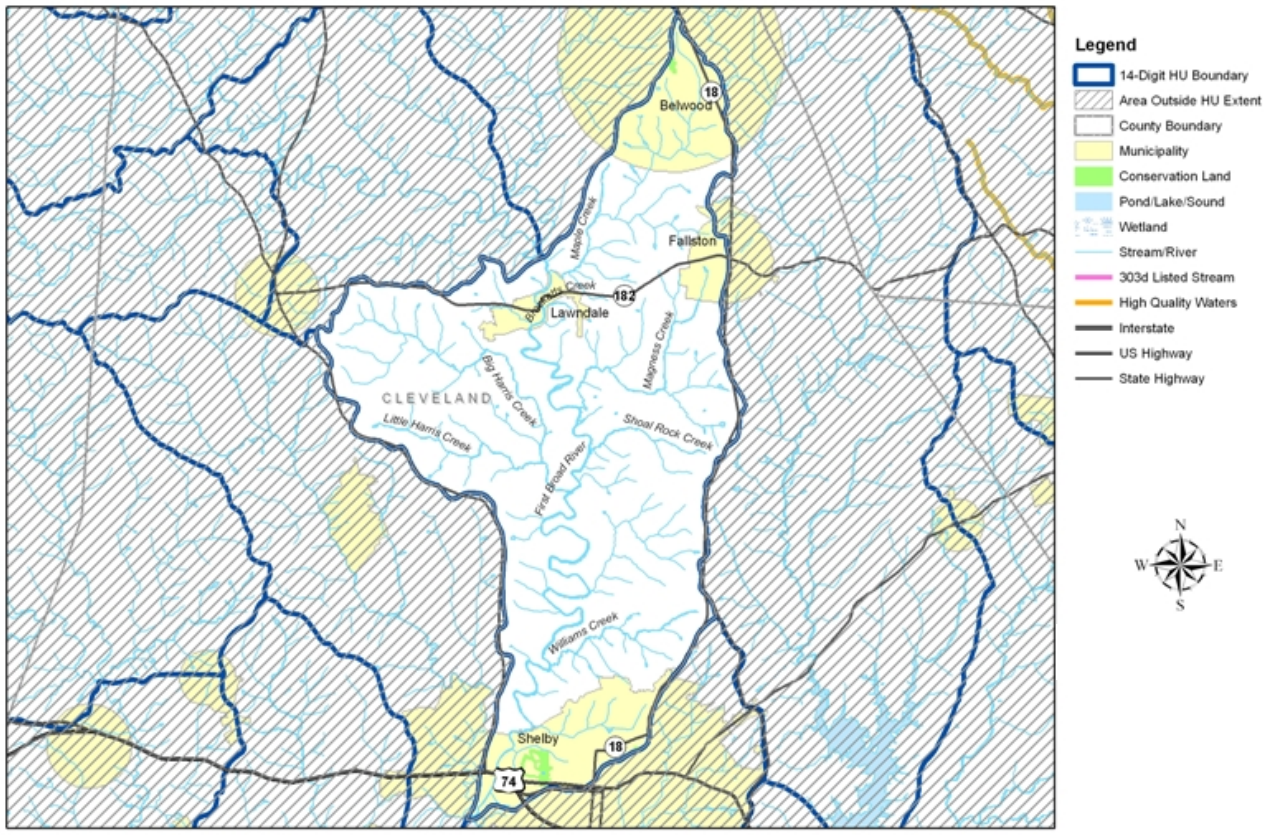
First Broad River headwaters watershed



Big Harris Creek/Magness Creek: 03050105080060

The Big Harris and Magness Creek watershed includes a portion of the First Broad River that is impaired due to high turbidity levels. Fecal coliform bacteria counts are high and aquatic habitat is degraded in the First Broad River according to the Broad River Basinwide Plan (NCDWQ, 2008). This watershed is the second most agricultural of the Broad TLWs, with 49% of the land in pasture, hay, and row crops. Big Harris Creek is a focus area for EEP, which has 7.5 miles of stream under easement for a large restoration and preservation project. Many streams in the watershed are highly unstable, with eroding banks and limited in-stream habitat. This watershed is also a priority for the Cleveland County Natural Resources Conservation Service.

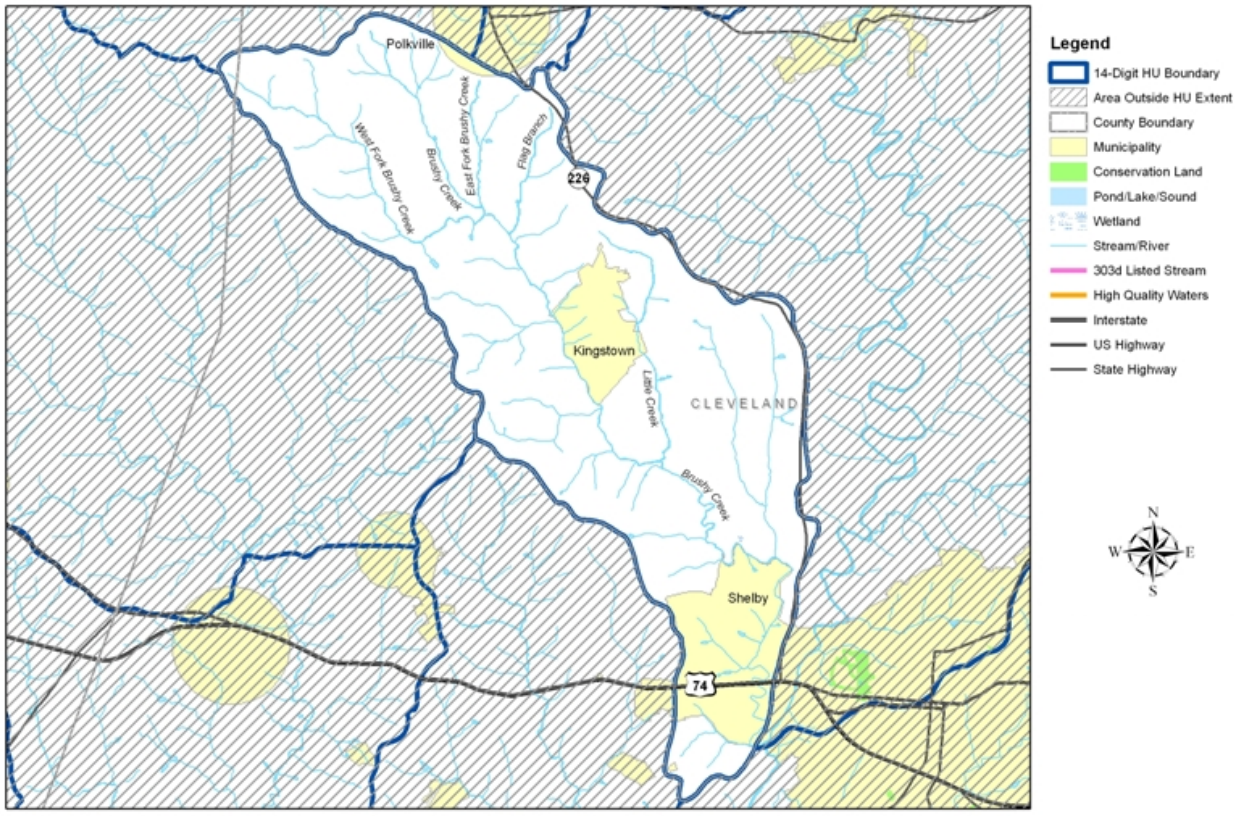
Big Harris/Magness Creek watershed



Brushy Creek: 03050105080070

Brushy Creek has the highest proportion (51%) of agricultural land of the Broad basin TLWs. Like the Big Harris/Magness Creek watershed, farmland is in a mix of pasture, hay, cotton, and other row crops. However, 80% of the stream length in the watershed has a forested buffer. This was designated as a TLW in 2003, and it is a priority of the Cleveland County Natural Resources Conservation Service.

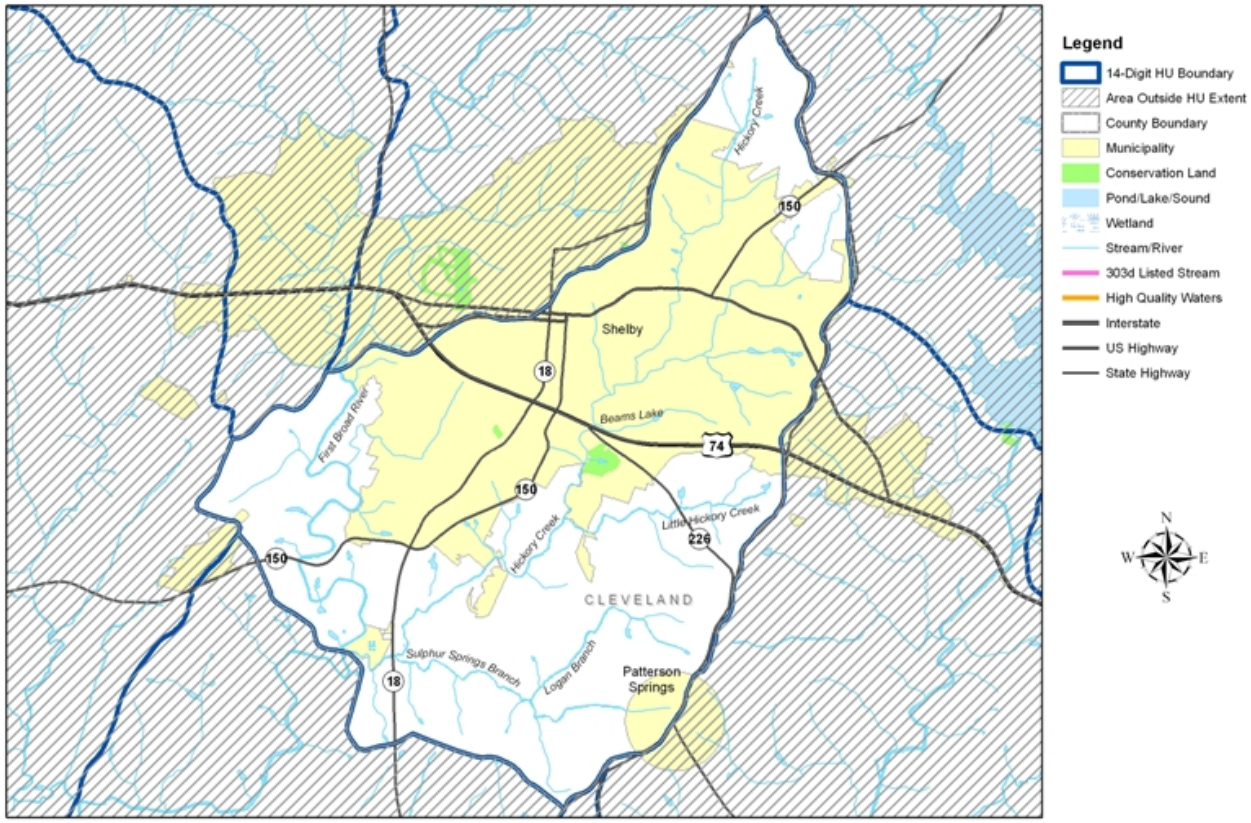
Brushy Creek watershed



Hickory Creek: 03050105080090

Hickory Creek drains much of Shelby and its environs, and US 74 cuts through the watershed. It is the most urban watershed of the Broad TLWs, with 45% of the land in developed use; but 25% of the land is in agricultural use, as well. It has the lowest proportion (63%) of streams with a forested buffer of all TLWs. Despite problems with stormwater inputs and degraded aquatic habitat, Hickory Creek is not considered impaired by DWQ (NCDWQ, 2008). The section of the First Broad River that flows through this watershed is just downstream of the reach within the Big Harris/Magness Creek watershed; it is impaired due to high turbidity levels, and fecal coliform bacteria and degraded aquatic habitat are also problems (NCDWQ, 2008) The Hickory Creek watershed was named a TLW in 2003. Watershed restoration efforts should include stormwater best management practices in the urban areas of this watershed.

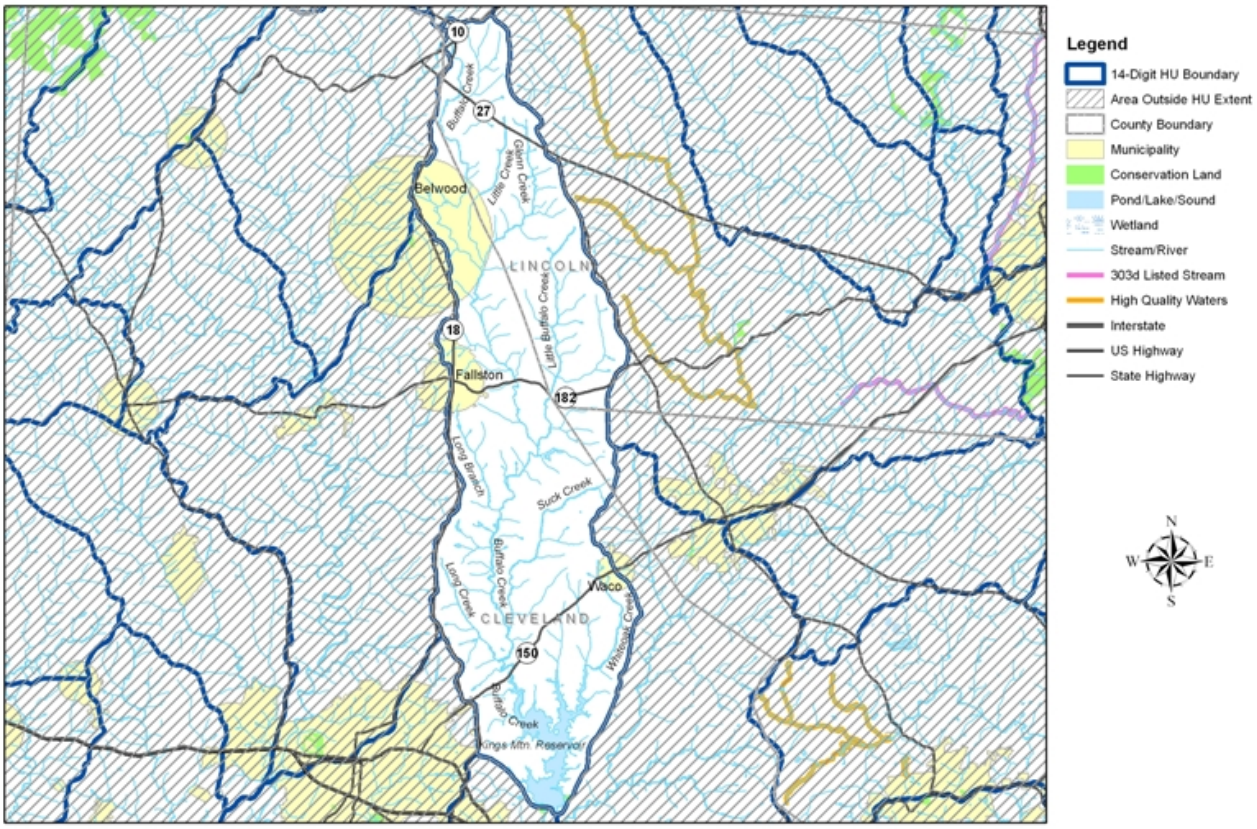
Brushy Creek watershed



Upper Buffalo Creek: 03050105100010

The 68 mi^2 Upper Buffalo Creek watershed is the largest of the Broad TLWs, and it drains the area upstream of the Kings Mountain reservoir. The land has a mix of uses—48% of the land is farmed, 10% is developed, and 39% is forested or wetland. Buffalo Creek carries a large amount of fine sediment and is quite incised. This watershed was named as a TLW in 2003 and is a priority area for the Cleveland County Natural Resources Conservation Service.

Upper Buffalo Creek watershed



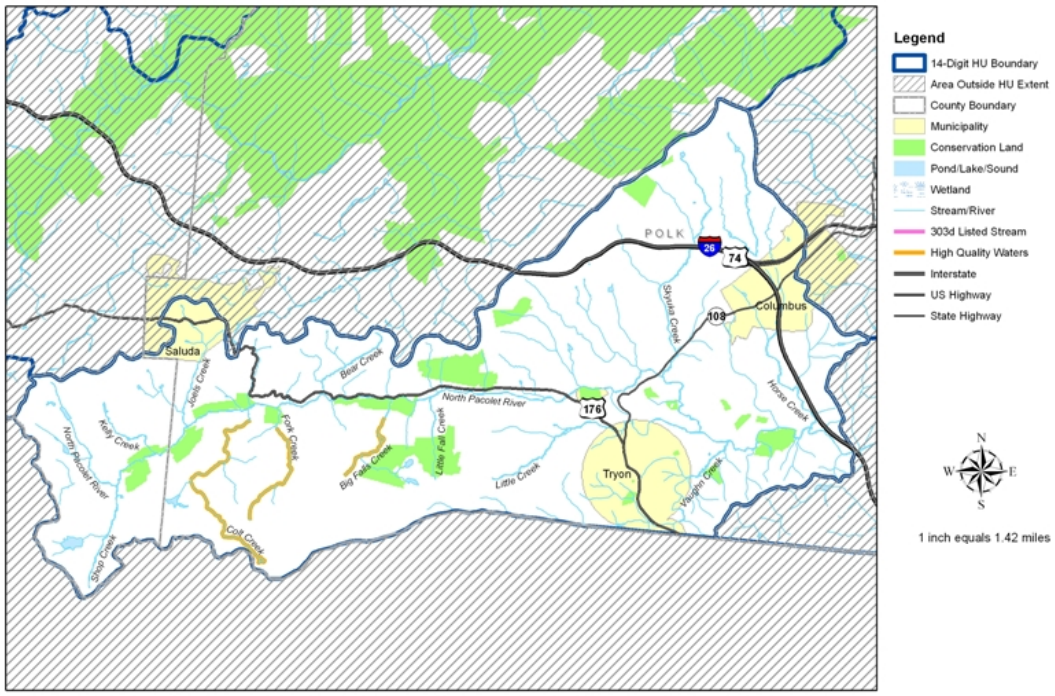
Upper North Pacolet River (03050105150010) and Lower North Pacolet River (03050105150020):

The Upper and Lower North Pacolet River watersheds are located in the far southwestern portion of the Broad River basin, and they straddle the line between the Blue Ridge and Piedmont ecoregions. The upper watershed is more forested than the lower (78% vs. 54% forested), but it is also more developed (16% of total land cover) and contains the towns of Saluda, Tryon, and Columbus. The lower watershed is more agricultural (36% of total land cover) than the upper watershed; horse pasture and row crops are common in the bottomlands. The character of the North Pacolet watershed is changing; it is a popular place to develop retirement and vacation homes and mini-farms.

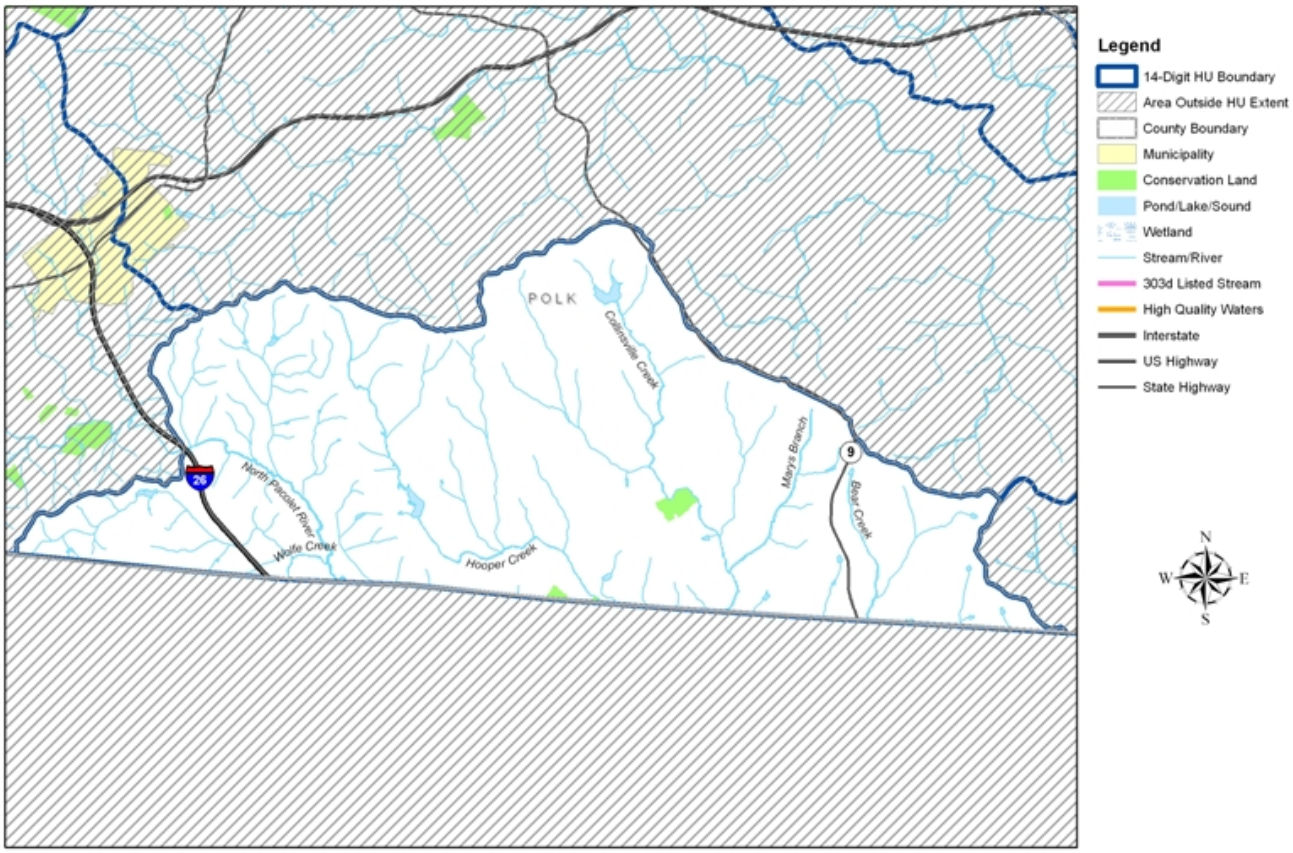
Three streams in the upper watershed (Colt, Big Falls, and Fork Creeks) are High Quality Waters. Seven Significant Natural Heritage Areas occur in the North Pacolet watershed, with six of these in the upper watershed. The Pacolet Area Conservancy has prioritized the preservation of both riparian and upland tracts in the North Pacolet watershed; most of the conserved land is in the Upper North Pacolet River watershed.

DWQ biologists noted problems with stream bank erosion, degraded in-stream habitat, and limited riparian vegetation at multiple sampling sites on the North Pacolet River (NCDWQ, 2008). The North Pacolet River was severely impacted during Hurricanes Frances and Ivan in 2004; it is the subject of a large stream and buffer restoration effort spearheaded by the Polk County Soil and Water Conservation District and funded by Clean Water Management Trust Fund.

Upper North Pacolet River watershed



Lower North Pacolet River watershed



2003 Targeted Local Watersheds Not Targeted in 2009

Lower Sandy Run Creek: 03050105070080

The Lower Sandy Run Creek watershed was a 2003 TLW, but it is no longer considered a TLW for EEP. It is similar to the Upper Sandy Run Creek watershed in land cover and the proportion of streams that have a forested riparian buffer. However, Upper Sandy Run Creek was chosen instead of the lower watershed because upper Sandy Run Creek is impaired, and the lower portion is not. In addition, focusing stream restoration and protection efforts in the upper reaches of a watershed can benefit aquatic functions in both the upper and lower reaches of a watershed.

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For More Information

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http://www.nceep.net/pages/lwplanning.htm

Definitions

303(d) List – This refers to Section 303(d) of the federal Clean Water Act, under which the U.S. EPA requires states to submit biennially a list of all impaired water bodies. Impaired water bodies are streams and lakes not meeting state water quality standards linked to their designated uses (e.g., water supply, recreation/fishing, propagation of aquatic life). Best professional judgment (in interpreting water quality monitoring data and observations) along with numeric and narrative standards/criteria are considered when evaluating the ability of a water body to serve its uses.

8-digit Catalog Unit (CU) – The USGS developed a hydrologic coding system to delineate the country into uniquely identified watersheds that can be commonly referenced and mapped. North Carolina has 54 of these watersheds uniquely defined by an 8-digit number. EEP typically addresses watershed – based planning and restoration in the context of the 17 river basins (each has a unique 6-digit number), 54 catalog units and 1,601 14-digit hydrologic units.

14–digit Hydrologic Unit (HU) – In order to address watershed management issues at a smaller scale, the U.S. Natural Resources Conservation Service (NRCS) developed methodology to delineate and uniquely identify watersheds at a scale smaller than the 8-digit catalog unit. A hydrologic unit is a drainage area delineated to nest in a multilevel, hierarchical drainage system. Its boundaries are defined by hydrographic and topographic criteria that delineate an area of land upstream from a specific point on a river, stream or similar surface waters. North Carolina has 1,601 14-digit hydrologic units.

Animal Operations – Inventory of animal farms (bovine; swine; poultry) provided by NC Department of Agriculture (NCDA) in December 2007.

Aquatic Habitat – the wetlands, streams, lakes, ponds, estuaries, and streamside (riparian) environments where aquatic organisms (e.g., fish, benthic macroinvertebrates) live and reproduce; includes the water, soils, vegetation, and other physical substrate (rocks, sediment) upon and within which the organisms occur.

Benthic Macroinvertebrates – organisms living in or on the bottom substrate of aquatic habitats; include insect larvae, worms, snails, crayfish and mussels; can be used as indicators of stream water quality and stream habitat condition.

BMPs (best management practices) – any land or stormwater management practice or structure used to mitigate flooding, reduce erosion & sedimentation, or otherwise control water pollution from runoff; includes urban stormwater management BMPs and agriculture/forestry BMPs.

EEP – The North Carolina Ecosystem Enhancement combines existing wetlands restoration initiatives (formerly the Wetlands Restoration Program or NCWRP) of the N.C. Department of Environment and Natural Resources with ongoing efforts by the N.C. Department of Transportation (NCDOT) to offset unavoidable environmental impacts from transportation-infrastructure improvements.

GIS - A geographic information system integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.

High Quality Waters (HQW) - Supplemental NC DWQ classification intended to protect waters with quality higher than state water quality standards. In general, there are two means by which a water body may be classified as HQW. They may be HQW by definition, or they may qualify for HQW by supplemental designation and then be classified as HQW through the rule-making process.

1) The following are HQW by definition:

• (Water Supply) WS-I, WS-II,
• SA (shellfishing area),
• ORW (outstanding resource water),
• Waters designated as Primary Nursery Areas (PNA) or other functional nursery areas by the Marine Fisheries Commission, or
• Native and special native (wild) trout waters as designated by the Wildlife Resources Commission.

2) The following waters can qualify for supplemental HQW designation:

• Waters for which DWQ has received a petition for reclassification to either WS-I or WS-II, or
• Waters rated as Excellent by DWQ.

II. Classifications by Other State and Federal Agencies.

NC DWQ – North Carolina Division of Water Quality.

NC WRP – The North Carolina Wetlands Restoration Program was a wetland restoration program under NC DENR and a predecessor of the NCEEP.

Natural Heritage Element Occurrences (NHEOs) – NC Natural Heritage Program (NHP) documented locations of rare and endangered species (plant and animal) populations and occurrences of unique or exemplary natural ecosystems and special wildlife habitats (terrestrial and palustrine community types).

Outstanding Resource Waters (ORW) - Supplemental NC DWQ classification intended to protect unique and special waters having excellent water quality and being of exceptional state or national ecological or recreational significance. To qualify, waters must be rated Excellent by DWQ and have one of the following outstanding resource values:

- Outstanding fish habitat or fisheries,
- Unusually high level of water-based recreation,
- Some special designation such as NC or National Wild/Scenic/Natural/Recreational River, National Wildlife Refuge, etc.,
- Important component of state or national park or forest, or
- Special ecological or scientific significance (rare or endangered species habitat, research or educational areas).
- No new discharges or expansions of existing discharges shall be permitted.

There are associated development controls enforced by DWQ. ORW areas are HQW by definition.

Preservation – the long-term protection of an area with high habitat and/or water quality protection value (e.g., wetland, riparian buffer), generally effected through the purchase or donation of a conservation easement by/to a government agency or non-profit group (e.g., land trust); such areas are generally left in their natural state, with minimal human disturbance or land-management activities.

RBRP - The River Basin Restoration Priorities are documents that delineate specific watersheds (Targeted Local Watersheds) within a River Basin that exhibit both the need and opportunity for wetland, stream and riparian buffer restoration.

Resource Professionals – staff of state, federal, regional or local (city, county) natural resource agencies –including planners, water resources and storm water engineers, parks & recreation departments, water quality programs, regional councils of government, local/regional land trusts or other non-profit groups with knowledge/expertise and/or interest in local watershed issues and initiatives

Restoration – the re-establishment of wetlands or stream hydrology and wetlands vegetation into an area where wetland conditions (or stable streambank and stream channel conditions) have been lost; examples include: stream restoration using natural channel design methods coupled with re-vegetation of the riparian buffer; riparian wetlands restoration through the plugging of ditches, re-connection of adjacent stream channel to the floodplain, and planting of native wetland species; this type of compensatory mitigation project receives the greatest mitigation credit under the 401/404 regulatory framework.

Riparian –relating to the strip of land adjacent to streams and rivers, including streambanks and adjoining floodplain area; important streamside zones of natural vegetation that, when disturbed or removed, can have serious negative consequences for water quality and habitat in streams and rivers.

Significant Natural Heritage Areas (SNHA) – NC Natural Heritage Program identified areas containing ecologically significant natural communities or rare species. May be on private or public lands, and may or may not be in conserved status.

TLW - Targeted Local Watershed, are 14-digit hydrologic units which receive priority for EEP planning and restoration project funds.

Use Support –refers to the DWQ system for classifying surface waters based on their designated best use(s); at present, the DWQ primary stream classifications include the following: class C [fishing/boating & aquatic life propagation]; class B [primary recreation/direct contact]; SA [shellfish harvesting]; and WSW [water supply]. Supplemental classifications include High Quality Waters (HQW), Outstanding Resource Waters (ORW), Nutrient Sensitive Waters (NSW), Trout Waters (Tr), and Swamp Waters (Sw). All waters must at least meet the standards for class C waters.

USGS – United States Geological Survey.

Watershed –all the land area which contributes runoff to a particular point along a stream or river; also known as a "drainage basin", although the term *Basin* usually implies a very large drainage system, as of an entire river and its tributary streams.

Watershed Restoration Plan – Older versions of RBRP documents were called Watershed Restoration Plans. In essence, they are the same thing.