

CHAPTER 2

GENERAL BASIN DESCRIPTION WITH WATER QUALITY STANDARDS AND CLASSIFICATIONS

2.1 FRENCH BROAD RIVER BASIN OVERVIEW

The French Broad River Basin is the ninth largest river basin in the state covering 2,842 square miles. It is located entirely within the Southern Appalachian Mountains region of western North Carolina (Figure 2.1), west of the Eastern Continental Divide. All waters from the French Broad basin drain to the Gulf of Mexico via the Tennessee, Ohio and Mississippi Rivers. The basin includes the highest point in the United States east of the Mississippi River located atop Mount Mitchell (elevation 6,684 feet above mean sea level (MSL)). The lowest elevation in the basin is 1254 feet MSL where the French Broad River flows into Tennessee.

The French Broad Basin in North Carolina is composed of three separate drainages which flow northwest into Tennessee and do not join until they reach of the headwaters of Douglas Reservoir (a large multi-use impoundment managed by the Tennessee Valley Authority) (Figure 2.2). These include the Pigeon River, French Broad River and the Nolichucky River watersheds. The Nolichucky includes the North and South Toe Rivers and Cane River. There are 4,113 miles of freshwater streams in the basin.

There are 9 counties and 24 municipalities located in whole or in part in the basin (Figure 2.3). The population of the basin, based on 1990 census data, was estimated to be 358,000. Municipalities with a population of 5,000 or more in the basin include Asheville, Black Mountain, Brevard, Hendersonville and Waynesville. The overall population density of the basin is 93 persons per square mile versus a statewide average of 123 persons per square mile. The percent population growth over the past ten years (1980 to 1990) was 8.7 % versus a statewide percentage increase of 12.7%.

Over half of the land in the basin is forested with much of it located within the 1.2 million-acre Pisgah National Forest. Steep slopes limit the land area suitable for development and crop production. Slopes of less than 12% are desirable for development purposes and, in the absence of public sewer lines, soil depth of three feet or more over bedrock is desirable in order to allow construction of onsite septic systems. It is estimated that just 18% of lands in North Carolina's mountains meet these requirements (Clay et. al., 1975). Most agricultural and development activities are therefore concentrated in river valleys. Statistics provided the US Department of Agriculture, Soil Conservation Service (USDA-SCS, 1994) indicate that cultivated cropland is shrinking as developed lands are increasing. Major industries in the basin include silviculture, agriculture (dairy, livestock, apples, Christmas trees), mining (feldspar, quartz, mica, gem stones and others) and tourism.

Water quality is generally high throughout the basin. Trout waters are abundant and many waters have been reclassified as High Quality or Outstanding Resource Waters. Impacts to water quality associated with land use activities or discharges are discussed in Chapter 3.

2.2 BASIN HYDROLOGY AND THE THREE MAJOR WATERSHEDS

The three major watersheds in the basin, the French Broad, Pigeon and Nolichucky Rivers, correspond with *8-digit hydrologic units* under a tiered watershed classification system devised by the U.S. Water Resources Council and U.S. Geological Survey (USGS) (Figure 2.2). In addition,

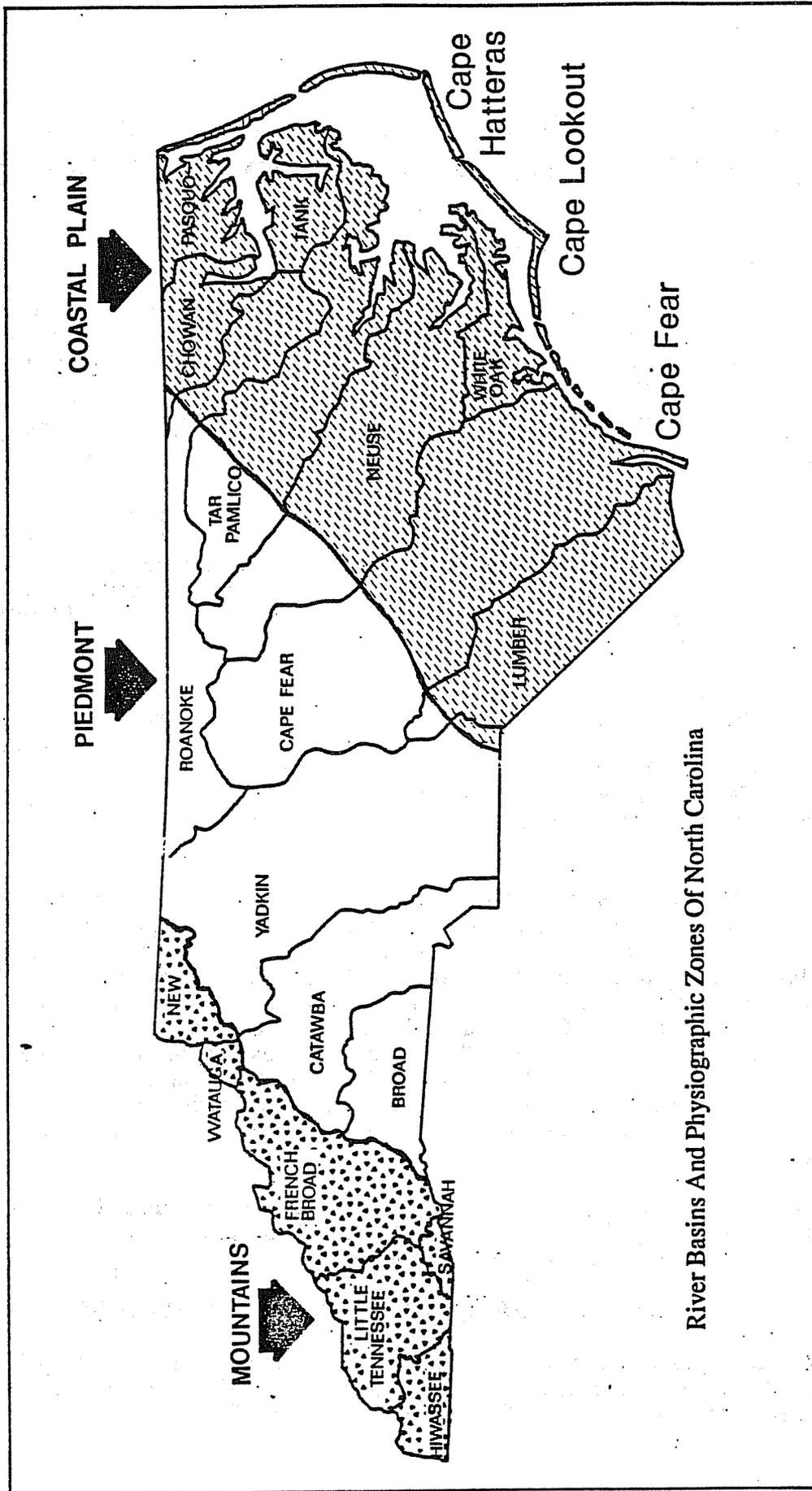


Figure 2.1 Physiographic Regions and Major River Basins in North Carolina

THE THREE MAJOR WATERSHEDS OF THE FRENCH BROAD RIVER BASIN IN NORTH CAROLINA
AND THEIR CONFLUENCES ABOVE DOUGLAS LAKE IN TENNESSEE

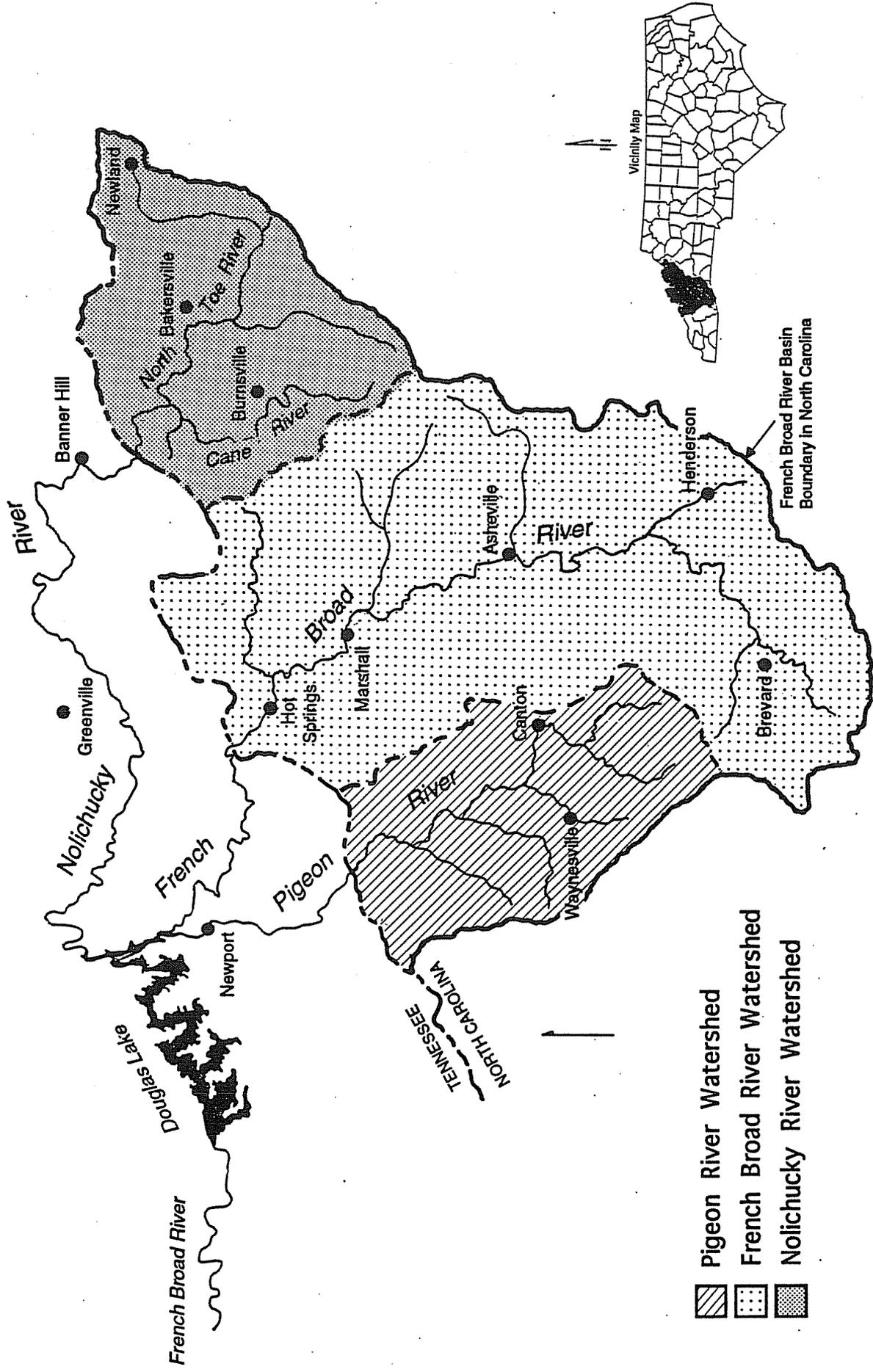


Figure 2.2 Three Major Watersheds of the French Broad River Basin

several of these watersheds are further subdivided for management purposes by DEM into subbasins denoted by 6-digit numbers (04-03-01 through 04-03-07) as shown in Figure 2.3, above, and presented in Table 2.1. Throughout the document, these subbasins are referred to by their last two digits (e.g. subbasin 04-03-01 would be called subbasin 01). The French Broad River watershed has four subbasins, the Pigeon River watershed has one and the Nolichucky watershed has two. There are a total of seven subbasins in the French Broad basin. Each of these three watersheds is discussed in more detail in sections 2.2.1 through 2.2.3, below.

Table 2.1 Hydrologic Divisions in the French Broad River Basin

<u>Watershed Name and Major Tribs</u>	<u>USGS 8-digit Hydrologic Units (Figure 2.2)</u>	<u>DEM Subbasin 6-digit codes (Figure 2.3)</u>
French Broad River and Major Tribs	06010105	04-03-01 to 04
Upper mainstem and headwater streams		
North, West and East Forks	"	01
Little River	"	01
Middle Mainstem and tribs	"	02
Mud Creek, Cane Creek, Swannanoa River, Hominy Creek, Sandymush Cr	"	02
Mills and Davidson River	"	03
Lower Mainstem and tribs	"	04
Big Ivy Creek (River), Big Laurel Creek and Spring Creek	"	04
Pigeon River and Major Tributaries	06010106	04-03-05
East and West Forks	"	05
Jonathon, Richland, Cataloochee and Big Creeks	"	05
Nolichucky River and Tributaries	06010108	04-03-06 and 07
Nolichucky Mainstem	"	06
North and South Toe Rivers	"	06
Big Rock Creek	"	06
Cane River	"	07

There are seven publically accessible impoundments (all manmade) in the basin which have been monitored by the NC Division of Environmental Management. Four are located in the French Broad watershed. Lake Julian (320 acres) is a cooling water lake owned by the Carolina Power and Light Company. Burnett Reservoir (330 acres) and Beetree Reservoir (55 acres) are water supply reservoirs for the City of Asheville. Busbee Reservoir (8 acres) is a small reservoir serving the Biltmore Estate. The other three impoundments are located in the Pigeon River watershed and include Waterville Lake (Walters Lake, 340 acres), Lake Junaluska (200 acres) and Allen Creek Reservoir (120 acres), a water supply for the City of Waynesville.

Despite its ranking as the ninth largest of the 17 river basins in the state, the French Broad basin has the third highest number of freshwater stream miles with 4,113. With a total land area of 2,842 square miles, the average drainage area per stream mile is 0.7 square mile. By comparison, the Cape Fear basin, with a total land area of 9,149 and 6,282 stream miles has an average drainage area of 1.5 square miles per stream mile.

2.3 LOCAL GOVERNMENT AND PLANNING JURISDICTIONS WITHIN THE BASIN

The basin encompasses all or part of the following 9 counties and 24 municipalities presented in Table 2.2. Also included in the table are abbreviations for the Lead Regional Organizations (Councils of Government) and Districts of the North Carolina League of Municipalities.

Table 2.2 Local Governments and Local Planning Units within the French Broad Basin

<u>County</u>	<u>% of county in basin</u>	<u>Region</u>	<u>League District</u>	<u>Municipality</u>	<u>Watershed</u>
Avery	(40%)	D	X	Newland Sugar Mountain	Nolichucky
Buncombe	(90%)	B	VII	Asheville Biltmore Forest Black Mountain Montreat Weaverville Woodfin	French Broad
Haywood	(100%)	A	XII	Canton Clyde Hazelwood Maggie Valley Waynesville	Pigeon
Henderson	(80%)	B	XII	Fletcher Hendersonville Laurel Park	French Broad
Madison	(100%)	B	XII	Hot Springs Mars Hill Marshall	French Broad
McDowell	(<1%)	C	XI	(none)	French Broad
Mitchell	(100%)	D	XII	Bakersville Spruce Pine	Nolichucky
Transylvania	(70%)	B	XII	Brevard Rosman	French Broad
Yancey	(100%)	D	XII	Burnsville	Nolichucky

Lead Regional Organizations:

<u>Region</u>	<u>Name</u>	<u>Location</u>
• A	Southwestern NC Planning and Economic Development Commission	Bryson City
• B	Land-of-Sky Regional Council	Asheville
• C	Isothermal Planning and Development Commission	Rutherfordton
• D	Region D Council of Governments	Boone

2.4 LAND COVER, POPULATION AND GROWTH TRENDS

2.4.1 General Land Cover

Land cover information in this section is derived from the US Department of Agriculture (USDA), Soil Conservation Service's (SCS) National Resources Inventory (NRI) of 1992 and 1982 (USDA, 1994). The NRI is a multi-resource national inventory based on soils and other resource data collected at scientifically selected random sample sites. According to the SCS 1992 NRI Instructions booklet, the 1982 NRI was the most comprehensive study of our nation's natural resources ever conducted. It is considered accurate to the 8-digit hydrologic unit scale established by the US Geological Survey (SCS, 1993). A 1992 update of this data was recently released. In addition, several state agencies including the NC Department of Transportation and the Department of Environment, Health and Natural Resources are working with the state's Center for Geographic Information and Analysis (CGIA) to develop statewide land cover information based on recent satellite imagery. However, until these other land coverages become available, the 1992 NRI data is the most recent comprehensive data for the basin as a whole.

Table 2.3 summarizes acreages and percentage of land cover from the 1992 NRI for the basin as a whole and for three major watershed areas within the basin. Land cover types identified by the NRI as occurring in the French Broad River Basin include cultivated cropland, uncultivated

Table 2.3 Land Cover in the French Broad River Basin by Major Watersheds (8-Digit USGS Hydrologic Units) (Source: USDA, Soil Conservation Service - 1982 and 1992 NRI)

LAND COVER	French Broad 06010105		Pigeon 06010106		Nolichucky 06010108		TOTAL ACRES (1000s)	% of TOTAL	% change since 1982
	Acres (1000s)	%	Acres (1000s)	%	Acres (1000s)	%			
Cult. Crop	45.6	4.4	0.0	0.0	0.0	0.0	45.6	2.5	-17
Uncult. Crop	12.1	1.2	3.8	1.1	4.5	1.1	20.4	1.1	-45
Pasture	163.0	15.6	38.6	11.4	36.2	8.5	237.8	13.1	-6
Forest	500.9	47.8	125.1	37.0	270.2	63.7	896.2	49.5	-3
Urban&built-up	129.2	12.3	27.5	8.1	25.0	5.9	181.7	10.0	+42
Other	196.3	18.7	143.4	42.4	88.1	20.8	427.8	23.6	+5
Totals	1047.1	100.0	338.4	100.0	424.0	100.0	1809.5	100.0	
% of Total Basin		57.9		18.7		23.4		100.0	
DEM Subbasins	01 to 04		05		06 and 07		01 to 07		

Note: The 95% confidence level for those categories with less than 30,000 acres ranges from approximately $\pm 50\%$ to greater than 100% for noncultivated cropland in the Pigeon and Nolichucky watersheds. Therefore, total acres and comparisons with 1982 totals represent very rough approximations.

cropland, pastureland, forest land, urban - large and small built-up lands, rural transportation, small water areas and census waters (Table 2.4).

Land cover in the basin, as presented in Table 2.3, is dominated by forest land which covers approximately 50% of the land area. Agriculture (including cultivated and uncultivated cropland and pastureland) covers approximately 17%. The developed category has 10% of the land area. The remaining 24% of land cover is in the other category. Comparisons of land cover types

between 1982 and 1992 show a decrease in the cropland categories and a substantial increase in the urban and built-up category.

Table 2.4 Description of Land Cover Types (1992 NRI - USDA SCS)

<u>Land Cover Type (No.)</u>	<u>Land Cover Description</u>
1) Cultivated Cropland	Land used for the production of adapted crops for harvest, including row crops, small-grain crops, hay crops, nursery crops, orchard crops, and other specialty crops. The land may be used continuously for these crops or they may be grown in rotation with grasses and legumes.
2) Uncultivated Cropland	Summer fallow, aquaculture in crop rotation, or other cropland not planted (may include cropland in USDA set-aside or similar short-term program).
3) Pastureland	Land used primarily for production of introduced or native forage plants for livestock grazing. This category includes land that has a vegetative cover of grasses, legumes, and /or forbs, regardless of whether or not it is being grazed by livestock.
4) Forest Land	Land at least 10 percent stocked by single-stemmed trees of any size which will be at least 4 meters at maturity, and land bearing evidence of natural regeneration of tree cover and not currently developed for nonforest use. Ten percent stocked, when viewed from a vertical direction, is a canopy cover of leaves and branches of 25 percent or greater. The minimum area for classification of forest land is 1 acre, and the area must be at least 1,000 feet wide.
5) Urban and Built-up Land	Includes airports, playgrounds with permanent structures, cemeteries, public administration sites, commercial sites, railroad yards, construction sites, residences, golf courses, sanitary landfills, industrial sites, sewage treatment plants, institutional sites, water control structure spillways and parking lots. Highways, railroads, and other transportation facilities are considered part of this category if surrounded by other urban and built-up areas. Tracts of less than 10 acres that do not meet this category's definitions (e.g., small parks or water bodies) but are completely surrounded by urban and built-up lands are placed in this category.
6) Other	<p><u>Rural Transportation:</u> Consists of all highways, roads, railroads, and associated rights-of-way outside Urban and Built-up areas; private roads to farmsteads, logging roads; and other private roads (but not field lanes).</p> <p>Includes the following three categories</p> <p><u>Small Water Areas:</u> Water bodies less than 40 acres in size and streams less than one-half mile wide.</p> <p><u>Census Water:</u> Large water bodies consisting of lakes and estuaries greater than 40 acres and rivers greater than one-half mile in width.</p> <p><u>Minor Land:</u> Lands not in one of the other categories.</p>

2.4.2 Population and Growth Trends in the Basin

The French Broad River basin has an estimated population of 358,000 based on 1990 census data. Table 2.5 presents census data for 1970, 1980 and 1990 for each of the subbasins. It also includes land areas and population densities (persons/square mile) by subbasin based on the *land area* (excludes open water) for each subbasin. There are well-defined patterns of population density along the Interstate 40 corridor from Black Mountain to Waynesville and along Interstate 26 from Hendersonville to Asheville. Most of the population is located in subbasin 02 in and around Asheville and Hendersonville as depicted in the population density map (Figure 2.4). This one subbasin contains approximately 65% of the total basin population and has population density of 290 persons/square mile versus a basin average of 93 persons/square mile. Other population centers outside of these corridors include Brevard, Mars Hill, Burnsville, Spruce Pine and Newland. The percentage increase in population for the entire basin was 24% from 1970 to 1990 and was 8.5% for the 10-year period from 1980 to 1990. This latter figure compares to a statewide increase of 12.7% over the same 10-year period. Population increases, by subbasin, are presented in Figure 2.5.

In using these data, it should be noted that some of the population figures are estimates because the census block group boundaries do not generally coincide with subbasin boundaries. The census data are collected within boundaries such as counties and municipalities. By contrast, the subbasin lines are drawn along natural drainage divides separating watersheds. Therefore, where a census block group straddles a subbasin line, an estimate has to be made on the percentage of the population that is located in the subbasin. This is done by simply determining the percentage of the census block group area located in the subbasin and then taking that same percentage of the total census block group population and assigning it the subbasin. Use of this method necessitates assuming that population density is evenly distributed throughout a census block group, which is not always the case. However, the level of error associated with this method is not expected to be significant for the purposes of this document. It is also important to note that the census block groups change each ten years so comparisons between years must be considered approximate.

Table 2.5 French Broad River Subbasin Population (1970, 1980 and 1990) and Land Area Summaries

SUBBASIN	POPULATION (Number of Persons)			POPULATION DENSITY (Persons/Square Mile)			LAND AND WATER AREAS			
	1970	1980	1990	1970	1980	1990	Total Land and Water Area (Sq. Miles)	Water Area (Sq. Miles)	Land Area (Sq. Miles)	
	(Acres)	(Acres)	(Acres)	(Acres)	(Acres)	(Acres)	(Acres)	(Acres)		
03-04-01	14,269	16,111	17,853	66	75	83	137,498	215	1	214
03-04-02	182,108	209,252	232,903	227	261	290	515,494	806	5	801
03-04-03	4,576	7,279	7,530	32	51	53	90,317	141	0	141
03-04-04	19,092	20,205	20,660	38	40	41	317,139	496	2	494
03-04-05	38,670	42,322	43,746	72	79	82	340,710	532	1	531
03-04-06	25,862	29,858	29,806	55	64	64	298,054	466	1	465
03-04-07	4,637	4,878	5,434	30	31	35	98,265	153	0	153
TOTALS	289,214	329,905	357,932	74	86	93	1,797,478	2,809	10	2,799

Note: Population, land area and water area were derived from 1970, 1980 and 1990 census data.



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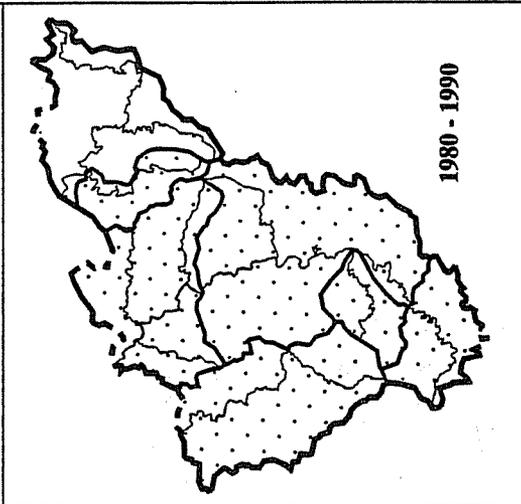
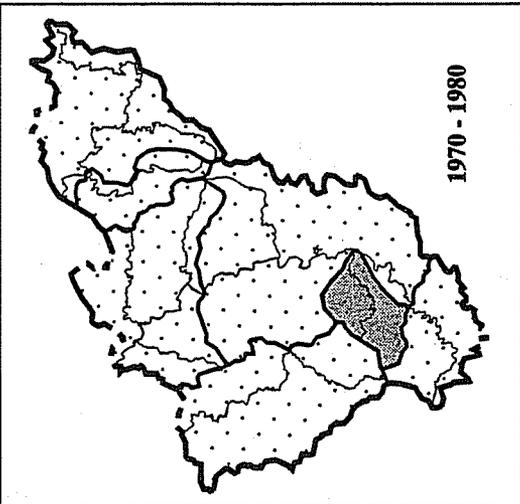
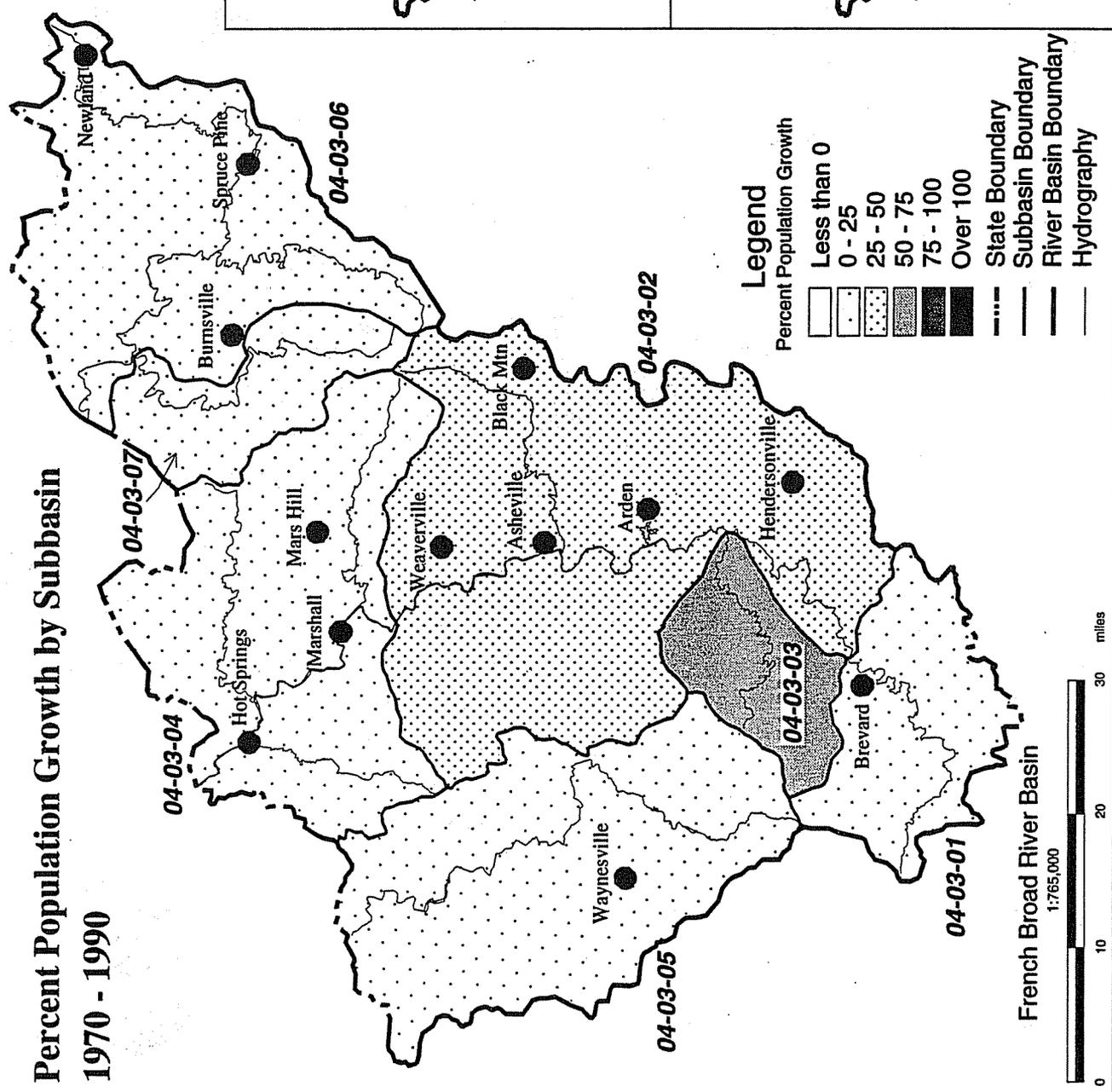


Figure 2.5 Population Growth Increases by Subbasin (1970 to 1990)

2.5 REGISTERED ANIMAL OPERATIONS

In 1992, the Environmental Management Commission adopted a rule modification (15A NCAC 2H .0217) to establish procedures for managing and reusing animal wastes from intensive livestock operations (See section 5.3.1 for additional information on rule requirements). The rule applies to new, expanding or existing feedlots with animal waste management systems designed to serve more than or equal to the following animal populations: 100 head of cattle, 75 horses, 250 swine, 1,000 sheep or 30,000 birds (chickens and turkeys) with a liquid waste system. The deadline for submittal of registrations to DEM for existing facilities was December 31, 1993. Table 2.6 summarizes the number of registered livestock operations and animals, by type and subbasin, for those registrations received for the basin through May 1994. Subbasins 05 (cattle) and 02 (dairy) have the largest concentrations of registered animal operations. It should be noted that there are no poultry operations listed because the registration requirement applies only to liquid wastewater systems. Most poultry operations use dry litter systems which do not require registration.

Table 2.6 Registered Animal Operations in the French Broad River Basin

TYPE OF OPERATION	SUBBASINS							TOTALS
	01	02	03	04	05	06	07	
CATTLE								
Operations	2	3	1	8	37	0	0	51
Animals	220	260	30	650	5,521	0	0	6,681
DAIRY								
Operations	0	27		1	12	0	0	40
Animals	0	6,934		245	3,118	0	0	10,297
SWINE								
Operations	0	0	1	0	0	0	0	1
Animals	0	0	200	0	0	0	0	200
TOTALS								
Operations	2	30	2	9	49	0	0	92
Animals	220	7,194	230	895	8,639	0	0	17,178

2.6 SURFACE WATER CLASSIFICATIONS AND WATER QUALITY STANDARDS

2.6.1 Program Overview

North Carolina has established a water quality classification and standards program pursuant to G.S. 143-214.1. Classifications and standards are developed pursuant to 15A NCAC 2B.0100 - Procedures for Assignment of Water Quality Standards. Waters were classified for their "best usage" in North Carolina beginning in the early 1950's, with classification and water quality standards for all the state's river basins adopted by 1963. The effort to accomplish this included identification of water bodies (which included all named water bodies on USGS 7.5 minute topographic maps), studies of river basins to document sources of pollution and appropriate best uses, and formal adoption of standards/classifications following public hearings.

The Water Quality Standards program in North Carolina has evolved over time and has been modified to be consistent with the Federal Clean Water Act and its amendments. Water quality classifications and standards have also been modified to promote protection of surface water

supply watersheds, high quality waters and the protection of unique and special pristine waters with outstanding resource values. Classifications and standards have been broadly interpreted to provide protection of uses from both point and nonpoint source pollution.

2.6.2 Statewide Classifications and Water Quality Standards

All surface waters in the state are assigned a primary water classification, and they may also be assigned one or more supplemental classifications (Table 2.7). As noted above, classifications are assigned to protect uses of the waters such as swimming, aquatic life propagation or water supplies. For each classification, there is a set of water quality standards that must be met in order to protect the uses. Appendix I provides a more detailed summary of the state's primary and supplemental classifications including, for each classification, the best usage, water quality standards, stormwater controls and other protection requirements as appropriate. This information is derived from 15A NCAC 2B 0.200 - Classifications and Water Quality Standards Applicable to Surface Waters of North Carolina.

Table 2.7 Freshwater Primary and Supplemental Classifications Applicable to the French Broad River Basin

PRIMARY FRESHWATER CLASSIFICATIONS

<u>Class</u>	<u>Best Uses</u>
C	Aquatic life propagation/protection and secondary recreation
B	Primary recreation and class C uses
WS	Water Supply watershed and class C uses. There are five WS classes, I through V. WS classifications are assigned to watersheds based on land use characteristics of the area. Each water supply classification has a set of management strategies to protect the surface water supply. A CA , or Critical Area, designation is also listed for watershed areas within a half-mile and draining to the water supply intake or reservoir where an intake is located.

SUPPLEMENTAL FRESHWATER CLASSIFICATIONS

<u>Class</u>	<u>Best Uses</u>
Tr	Trout Waters: modifies standards to protect trout propagation and survival
HQW	High Quality Waters: waters possessing special qualities including excellent water quality, Native or Special Native Trout Waters, Critical Habitat areas, or WS-I and WS-II water supplies
ORW	Outstanding Resource Waters: unique and special surface waters which are unimpacted by pollution and have some outstanding resource values.

Some of the classifications, particularly for HQW, ORW and WS waters, outline protective management strategies aimed at controlling point and nonpoint source pollution. These strategies are summarized in Appendix I and are discussed briefly below.

Special HQW protection management strategies are presented in 15A NCAC 2B.0201(d), which is included in its entirety in Appendix I under Antidegradation Policy. These measures are intended to prevent degradation of water quality below present levels from both point and nonpoint sources. HQW requirements for new wastewater facilities and for existing facilities which expand beyond their currently permitted loadings address oxygen-consuming wastes, total suspended solids, disinfection, emergency requirements, volume, nutrients (in nutrient sensitive waters) and toxic substances. For oxygen-consuming wastes, for example, effluent limitations for new or

expanding facilities are as follows: BOD₅ = 5 mg/l; NH₃-N = 2 mg/l; DO = 6 mg/l (except for those expanding discharges which expand with no increase in permitted pollutant loading).

For nonpoint source pollution, development activities which require an Erosion and Sedimentation Control Plan in accordance with rules established by the NC Sedimentation Control Commission or local erosion and sedimentation control program approved in accordance with 15A NCAC 4B .0218, and which drain to and are within one mile of High Quality Waters will be required to control runoff from the one-inch design storm using either a low density or high density option described in the rules.

The requirements for ORW waters are more stringent than those for HQWs. Special protection measures that apply to North Carolina ORWs are set forth in 15A NCAC 2B .0216 (most of which is included in Appendix I). At a minimum, no new discharges or expansions of existing discharges are permitted, and stormwater controls for most development needing an Erosion and Sedimentation Control Plan are required.

The requirements for WS waters vary significantly from WS-I to WS-V. The WS-I classification carries the most stringent requirements for dischargers and surrounding land use activities while WS-V carries the least.

2.6.3 Surface Water Classifications in the French Broad Basin

The French Broad Basin has examples of all of the primary and supplemental classifications presented above. Mileages of streams by classification are presented in Table 2.8. The table also includes the acreages of watershed areas associated with the water supply, HQW and ORW classifications.

Table 2.8 Water Quality Classification Statistics for the French Broad River Basin

PRIMARY CLASSIFICATIONS

Class	C	B	WS-I	WS-II	WS-III	WS-IV	WS-V
Miles	3,458	177	112	351	411	251	40
% of Miles	72	4	2	7	9	5	1
Acres	NA	NA	45,367	144,407	167,541	67,766	NA
% of Acres	NA	NA	3	8	9	4	NA

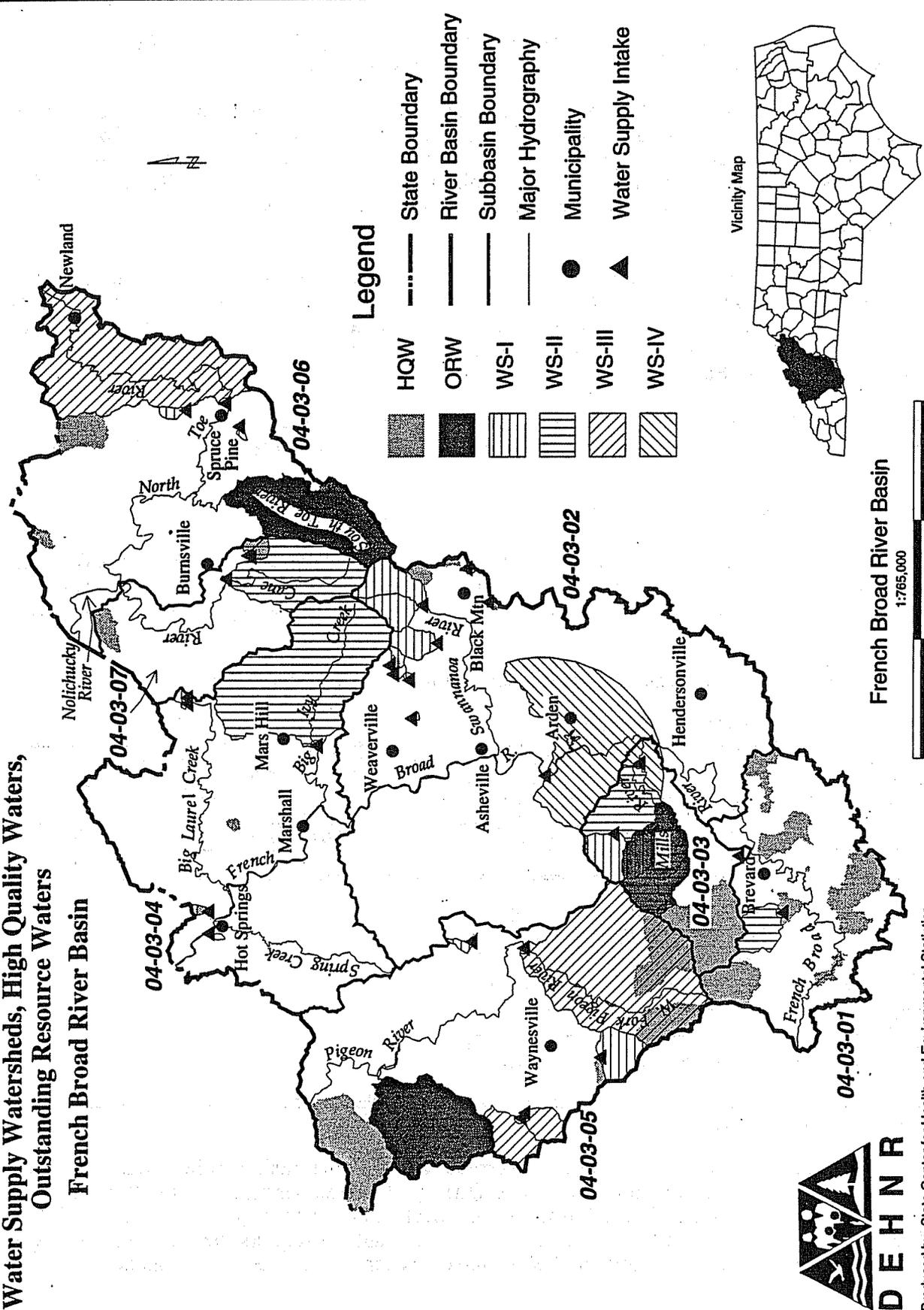
SUPPLEMENTAL CLASSIFICATIONS

Class	Tr	ORW	HQW*
Miles	2,499	285	312
% of Miles	52	6	7
Acres	NA	99,374	116,194
% of Acres	NA	6	6

* Calculations for HQW miles and acres do not include waters that are classified as WS-I and WS- II, although these waters are HQW by definition.

A complete listing of classifications for all surface waters in the basin can be found in a DEM publication entitled "Classifications and Water Quality Standards Assigned to the Waters of the French Broad River Basin". Figure 2.6 shows the locations of water supply watersheds, HQWs and ORWs throughout the entire basin. Figure 2.7, 2.8 and 2.9 depicts the location and major water body names of the WS, HQW and ORW waters in each of the three major watersheds.

Water Supply Watersheds, High Quality Waters, Outstanding Resource Waters French Broad River Basin



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November, 1994



Figure 2.6 Water Supply Watersheds, High Quality Waters (HQW) and Outstanding Resource Waters (ORW) in the French Broad River Basin

Water Supply Watersheds, High Quality Waters and Outstanding Resource Waters French Broad River Watershed

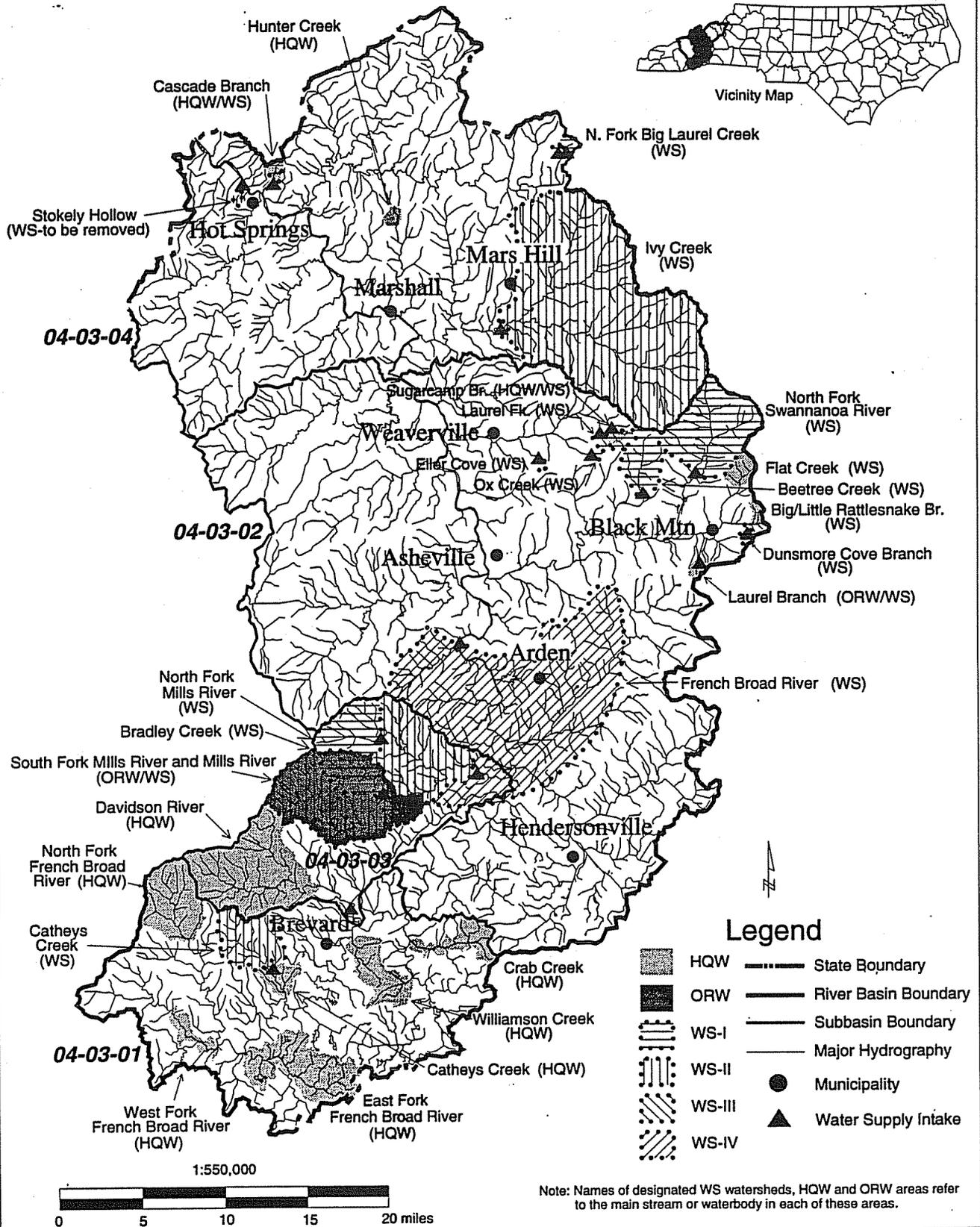
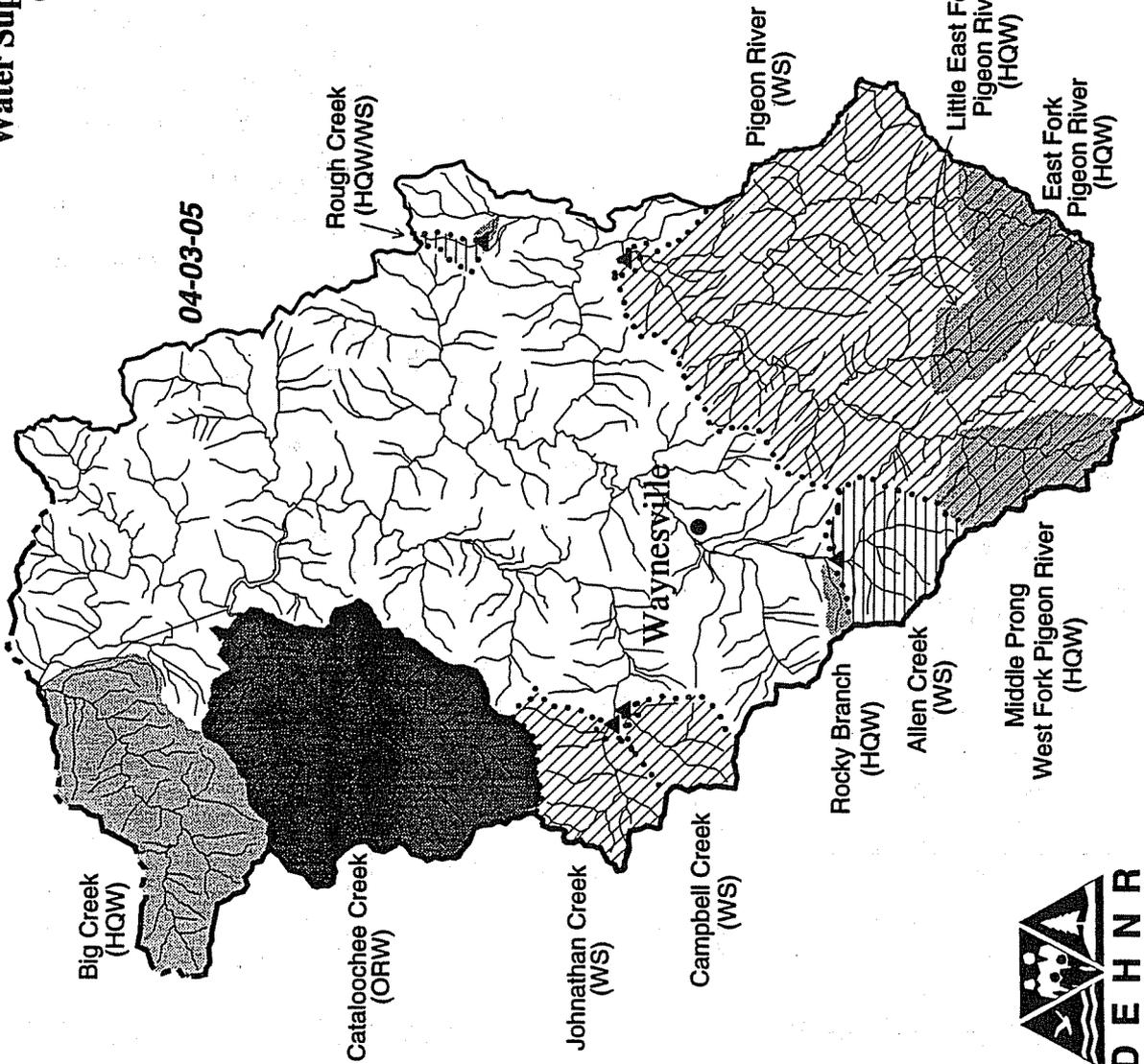


Figure 2.7 Water Supply Watersheds and HQW/ORW Waters in the French Broad River Watershed

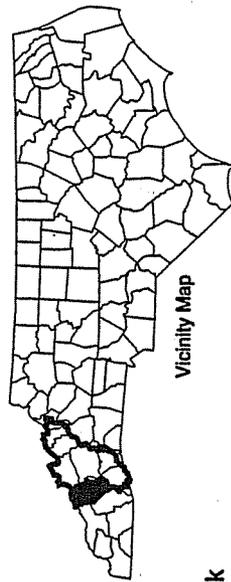
Water Supply Watersheds, High Quality Waters, Outstanding Resource Waters Pigeon River Watershed

04-03-05



Legend

- | | | | |
|--|--------|--|----------------------|
| | HQW | | State Boundary |
| | ORW | | River Basin Boundary |
| | WS-I | | Subbasin Boundary |
| | WS-II | | Major Hydrography |
| | WS-III | | Municipality |
| | WS-IV | | Water Supply Intake |



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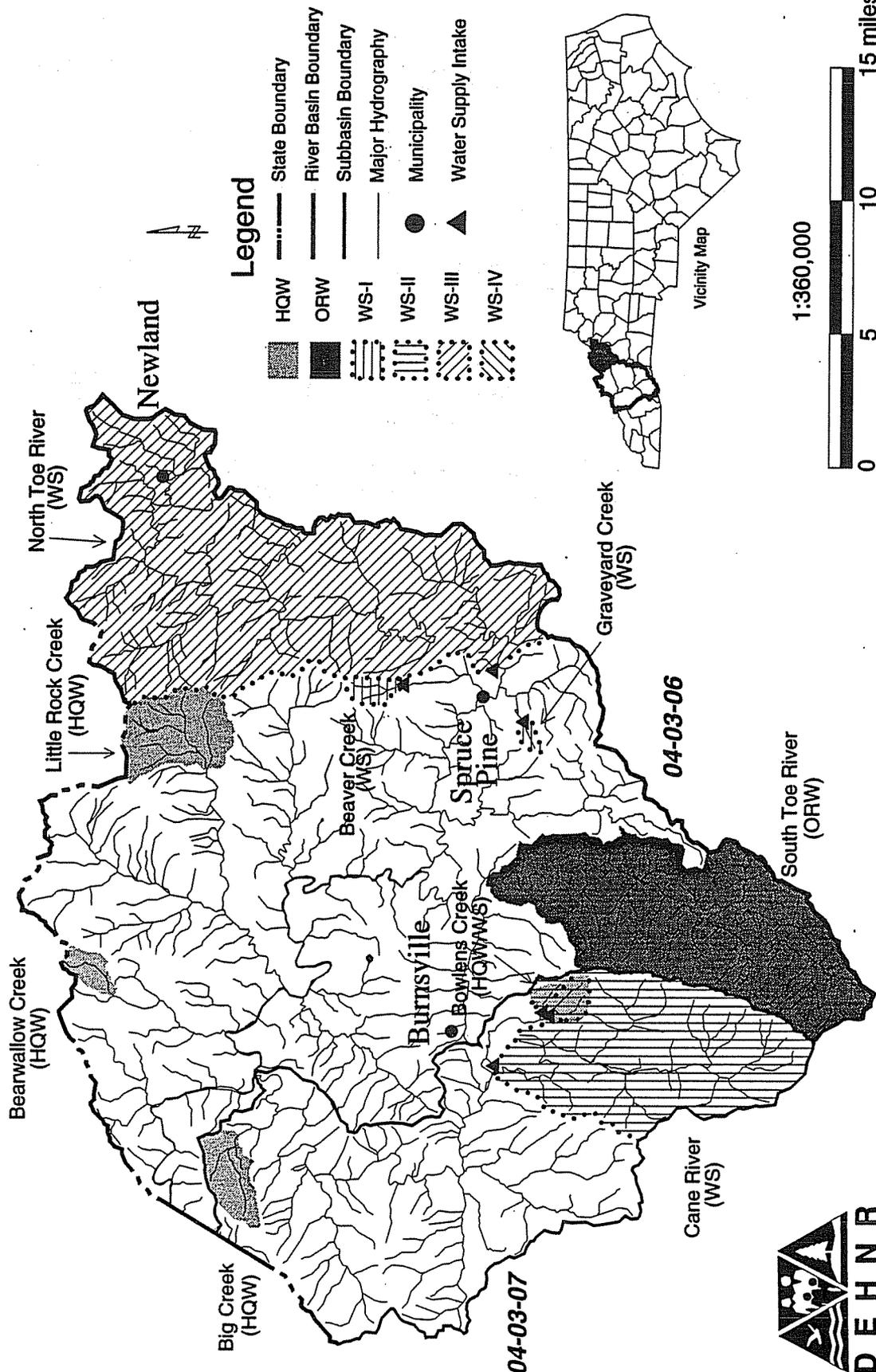


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Note: Names of designated WS watersheds, HQW and ORW areas refer to the main stream or waterbody in each of these areas.

Figure 2.8 Water Supply Watersheds and HQW/ORW Waters in the Pigeon River Watershed

Water Supply Watersheds, High Quality Waters and Outstanding Resource Waters Nolichucky River Watershed



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November, 1994

Noter: Names of designated WS watersheds, HQW and ORW areas refer to the main stream or waterbody in each of these areas.

Figure 2.9 Water Supply Watersheds and HQW/ORW Waters in the Nolichucky River Watershed

REFERENCES

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