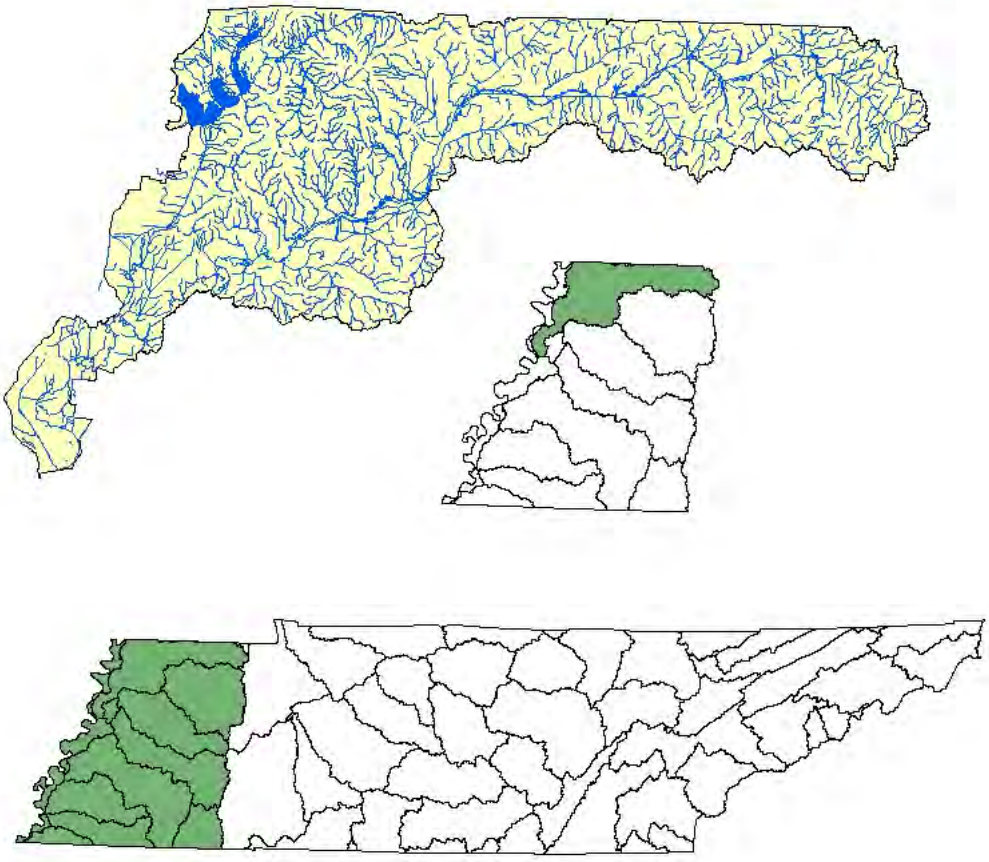
NORTH FORK OBION RIVER WATERSHED (08010202) OF THE MISSISSIPPI RIVER BASIN

WATERSHED WATER QUALITY MANAGEMENT PLAN



TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
WATERSHED MANAGEMENT SECTION

NORTH FORK OBION RIVER WATERSHED
WATER QUALITY MANAGEMENT PLAN

TABLE OF CONTENTS

GLOSSARY

1Q20. The lowest average 1 consecutive days flow with average recurrence frequency of once every 20 years.

30Q2. The lowest average 3 consecutive days flow with average recurrence frequency of once every 2 years.

7Q10. The lowest average 7 consecutive days flow with average recurrence frequency of once every 10 years.

303(d). The section of the federal Clean Water Act that requires a listing by states, territories, and authorized tribes of impaired waters, which do not meet the water quality standards that states, territories, and authorized tribes have set for them, even after point sources of pollution have installed the minimum required levels of pollution control technology.

305(b). The section of the federal Clean Water Act that requires EPA to assemble and submit a report to Congress on the condition of all water bodies across the Country as determined by a biennial collection of data and other information by States and Tribes.

AFO. Animal Feeding Operation.

Ambient Sites. Those sites established for long term instream monitoring of water quality.

ARAP. Aquatic Resource Alteration Permit.

Assessment. The result of an analysis of how well streams meet the water quality criteria assigned to them.

Bankfull Discharge. The momentary maximum peak flow before a stream overflows its banks onto a floodplain.

Basin. An area that drains several smaller watersheds to a common point. Most watersheds in Tennessee are part of the Cumberland, Mississippi, or Tennessee Basin (The Conasauga River and Barren River Watersheds are the exceptions).

Benthic. Bottom dwelling.

Biorecon. A qualitative multihabitat assessment of benthic macroinvertebrates that allows rapid screening of a large number of sites. A Biorecon is one tool used to recognize stream impairment as judged by species richness measures, emphasizing the presence or absence of indicator organisms without regard to relative abundance.

BMP. An engineered structure or management activity, or combination of these, that eliminates or reduces an adverse environmental effect of a pollutant.

BOD. Biochemical Oxygen Demand. A measure of the amount of oxygen consumed in the biological processes that break down organic and inorganic matter.

CAFO. Concentrated Animal Feeding Operation.

Designated Uses. The part of Water Quality Standards that describes the uses of surface waters assigned by the Water Quality Control Board. All streams in Tennessee are designated for Recreation, Fish and Aquatic Life, Irrigation, and Livestock Watering and Wildlife. Additional designated uses for some, but not all, waters are Drinking Water Supply, Industrial Water Supply, and Navigation.

DMR. Discharge Monitoring Report. A report that must be submitted periodically to the Division of Water Pollution Control by NPDES permitees.

DO. Dissolved oxygen.

EPA. Environmental Protection Agency. The EPA Region 4 web site is http://www.epa.gov/region4/

Field Parameter. Determinations of water quality measurements and values made in the field using a kit or probe. Common field parameters include pH, DO, temperature, conductivity, and flow.

Fluvial Geomorphology. The physical characteristics of moving water and adjoining landforms, and the processes by which each affects the other.

HUC-8. The 8-digit Hydrologic Unit Code corresponding to one of 54 watersheds in Tennessee.

HUC-10. The 10-digit NRCS Hydrologic Unit Code. HUC-10 corresponds to a smaller land area than HUC-8.

HUC-12. The 12-digit NRCS Hydrologic Unit Code. HUC-12 corresponds to a smaller land area than HUC-10.

MRLC. Multi-Resolution Land Classification.

MS4. Municipal Separate Storm Sewer System.

Nonpoint Source (NPS). Sources of water pollution without a single point of origin. Nonpoint sources of pollution are generally associated with surface runoff, which may carry sediment, chemicals, nutrients, pathogens, and toxic materials into receiving waterbodies. Section 319 of the Clean Water Act of 1987 requires all states to assess the impact of nonpoint source pollution on the waters of the state and to develop a program to abate this impact.

NPDES. National Pollutant Discharge Elimination System. Section 402 of the Clean Water Act of 1987 requires dischargers to waters of the U.S. to obtain NPDES permits.

NRCS. Natural Resources Conservation Service. NRCS is part of the federal Department of Agriculture. The NRCS home page is http://www.nrcs.usda.gov

Point Source. Any discernable, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from irrigated agriculture (Clean Water Act Section 502(14)).

Q Design. The average daily flow that a treatment plant or other facility is designed to accommodate.

Reference Stream (Reference Site). A stream (site) judged to be least impacted. Data from reference streams are used for comparisons with similar streams.

SBR. Sequential Batch Reactor.

Stakeholder. Any person or organization affected by the water quality or by any watershed management activity within a watershed.

STATSGO. State Soil Geographic Database. STATSGO is compiled and maintained by the Natural Resources Conservation Service.

STORET. The EPA repository for water quality data that is used by state environmental agencies, EPA and other federal agencies, universities, and private citizens. STORET (Storage and Retrieval of National Water Quality Data System) data can be accessed at http://www.epa.gov/storet/

TDA. Tennessee Department of Agriculture. The TDA web address is http://www.state.tn.us/agriculture

TDEC. Tennessee Department of Environment and Conservation. The TDEC web address is http://www.tdec.net

TMDL. Total Maximum Daily Load. A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of the amount to the pollutant's sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation includes a margin of safety to ensure that the waterbody can be used for the purposes the State has designated. The calculation must also account for seasonal variation in water quality. A TMDL is required for each pollutant in an impaired stream as described in Section 303 of the Federal Clean Water Act of 1987. Updates and information on Tennessee's TMDLs can be found at http://www.tdec.net/wpc/tmdl/

TMSP. Tennessee Multi-Sector Permit.

USGS. United States Geological Survey. USGS is part of the federal Department of the Interior. The USGS home page is http://www.usgs.gov/.

WAS. Waste Activated Sludge.

Water Quality Standards. A triad of designated uses, water quality criteria, and antidegradation statement. Water Quality Standards are established by Tennessee and approved by EPA.

Watershed. A geographic area which drains to a common outlet, such as a point on a larger stream, lake, underlying aquifer, estuary, wetland, or ocean.

WET. Whole Effluent Toxicity.

WWTP. Waste Water Treatment Plant

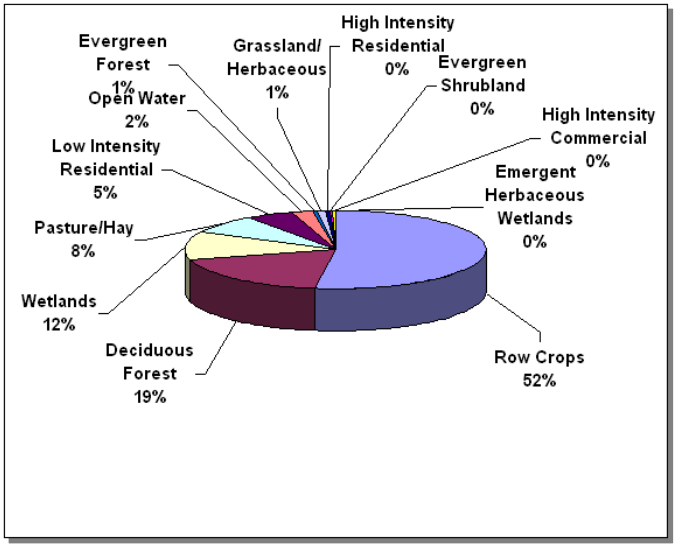
Summary – North Fork Obion River Watershed (08010202)

In 1996, the Tennessee Department of Environment and Conservation Division of Water Pollution Control adopted a watershed approach to water quality. This approach is based on the idea that many water quality problems, like the accumulation of point and nonpoint pollutants, are best addressed at the watershed level. Focusing on the whole watershed helps reach the best balance among efforts to control point sources of pollution and polluted runoff as well as protect drinking water sources and sensitive natural resources such as wetlands. Tennessee has chosen to use the USGS 8-digit Hydrologic Unit Code (HUC-8) as the organizing unit.

The Watershed Approach recognizes awareness that restoring and maintaining our waters requires crossing traditional barriers (point *vs.* nonpoint sources of pollution) when designing solutions. These solutions increasingly rely on participation by both public and private sectors, where citizens, elected officials, and technical personnel all have opportunities to participate. The Watershed Approach provides the framework for a watershed-based and community-based approach to address water quality problems.

Chapter 1 of the North Fork Obion River Watershed Water Quality Management Plan discusses the Watershed Approach and emphasizes that the Watershed Approach is not a regulatory program or an EPA mandate; rather it is a decision-making process that reflects a common strategy for information collection and analysis as well as a common understanding of the roles, priorities, and responsibilities of all stakeholders within a watershed. Traditional activities like permitting, planning and monitoring are also coordinated in the Watershed Approach.

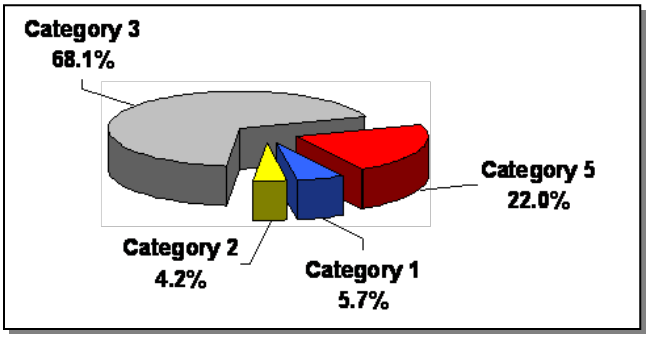
A detailed description of the watershed can be found in Chapter 2. The North Fork Obion River Watershed is approximately 1,313 square miles (1,169 mi^2 in Tennessee) and includes parts of seven Tennessee counties. A part of the Mississippi River drainage basin, the watershed has 1,741.1 stream miles and 15,500 lake acres in Tennessee.



Land Use Distribution in the Tennessee Portion of the North Fork Obion River Watershed.

One designated state natural area, two national wildlife refuges, six wildlife management areas, and one stream listed in the National Rivers Inventory are located in the watershed. Forty-five rare plant and animal species have been documented in the watershed, including five rare fish species.

A review of water quality sampling and assessment is presented in Chapter 3. Using the Watershed Approach to Water Quality, 537 sampling events occurred in the North Fork Obion River Watershed in 2000-2005. These were conducted at ambient, ecoregion or watershed monitoring sites. Monitoring results support the conclusion that 31.0% of stream miles assessed fully support one or more designated uses.



Water Quality Assessment of Streams and Rivers in the Tennessee Portion of the North Fork Obion River Watershed. Assessment data are based on the 2006 Water Quality Assessment of 515.9 stream miles in the watershed.

Also in Chapter 3, a series of maps illustrates overall use support in the watershed, as well as use support for the individual uses of Fish and Aquatic Life Support, Recreation, Irrigation, and Livestock Watering and Wildlife. Another series of maps illustrates streams that are listed for impairment by specific causes (sediment/habitat alteration, nutrients, E. coli).

Point and Nonpoint Sources are addressed in Chapter 4 which is organized by HUC-12 subwatersheds. Maps illustrating the locations of STORET monitoring sites and stream gauging stations are also presented in each subwatershed.

Point source contributions to the Tennessee portion of the North Fork Obion River Watershed consist of 11 individual NPDES-permitted facilities. Other permits in the watershed (as of October 7, 2008) are CAFO permits (18), mining permits (12), Aquatic Resource Alteration Permits (53), Tennessee Multi-Sector Permits (35), Construction General Permits (31), and Ready Mix Concrete Plant Permits (2). Agricultural operations include cattle, chicken, hog, and sheep farming. Maps illustrating the locations of permit sites and tables summarizing livestock practices are presented in each subwatershed.

Chapter 5 is entitled *Water Quality Partnerships in the North Fork Obion River Watershed* and highlights partnerships between agencies and between agencies and landowners that are essential to success. Programs of federal agencies (Natural Resources Conservation Service, U.S. Fish and Wildlife Service, U.S. Geological Survey, and U.S. Army Corps of Engineers), and state agencies (TDEC/State Revolving Fund, TDEC Division of Water Supply, Tennessee Department of Agriculture, West Tennessee River Basin Authority, and Tennessee Wildlife Resources Agency) as well as Kentucky Division of Water) are summarized. Local initiatives of organizations active in the watershed (Friends of West Tennessee Refuges) are also described.

Point and Nonpoint source approaches to water quality problems in the North Fork Obion River Watershed are addressed in Chapter 6. Chapter 6 also includes comments received during public meetings, links to EPA-approved TMDLs in the watershed, and an assessment of needs for the watershed.

HUC-8	HUC-10	HUC-12
08010102	0801020201	080102020101 (North Fork Obion River)
		080102020102 (Walnut Fork)
		080102020103 (Terripen Creek)
		080102020104 (North Fork Obion River)
		080102020105 (Cane Creek)
		080102020106 (Powell Creek)
		080102020107 (Blackamore Creek)
	0801020202	080102020201 (North Fork Obion River)
		080102020202 (Cypress Creek)
		080202020203 (North Fork Obion River)
		080202020204 (Richland Creek)
		080202020205 (North Fork Obion River)
		080202020206 (Harris Fork Creek)
		080202020207 (Needham Creek)
		080202020208 (Houser Creek)
		080202020209 (Little Cypress Creek)
		080202020210 (North Fork Obion River)
	0801020203	080202020301 (Obion River)
		080202020302 (Davidson Creek)
		080202020303 (Grass Creek)
		080202020304 (Dillard Creek)
		080202020305 (Mill Creek)
		080202020306 (Richland Creek)
		080202020307 (Clover Creek)
		080202020308 (Obion River)
		080202020309 (Reeds Creek)
		080202020310 (Biffle Creek)
		080202020311 (Obion River)
		080202020312 (Ray's Creek)
		080202020313 (Obion River)
		080202020314 (West Levee Drainage)
	0801020204	080202020401 (North Reelfoot Creek)
		080202020402 (South Reelfoot Creek)
		080202020403 (Reelfoot Lake)
		080202020404 (Indian Creek)
		080202020405 (Pawpaw Creek)
		080202020406 (Running Reelfoot Bayou)

The Tennessee Portion of the North Fork Obion River Watershed is Composed of thirty-seven USGS-Delineated Subwatersheds (12-Digit Subwatersheds).

The full North Fork Obion River Watershed Water Quality Management Plan can be found at: http://www.state.tn.us/environment/wpc/watershed/wsmplans/

CHAPTER 1

WATERSHED APPROACH TO WATER QUALITY

1.1 BACKGROUND. The Division of Water Pollution Control is responsible for administration of the Tennessee Water Quality Control Act of 1977 (TCA 69–3–101). Information about the Division of Water Pollution Control, updates and announcements, may be found at http://www.state.tn.us/environment/wpc/index.html, and a summary of the organization of the Division of Water Pollution Control may be found in Appendix I.

The mission of the Division of Water Pollution Control is to abate existing pollution of the waters of Tennessee, to reclaim polluted waters, to prevent the future pollution of the waters, and to plan for the future use of the waters so that the water resources of Tennessee might be used and enjoyed to the fullest extent consistent with the maintenance of unpolluted waters.

The Division monitors, analyzes, and reports on the quality of Tennessee's water. In order to perform these tasks more effectively, the Division adopted a Watershed Approach to Water Quality in 1996.

This Chapter summarizes TDEC's Watershed Approach to Water Quality.

1.2 WATERSHED APPROACH TO WATER QUALITY. The Watershed Approach to Water Quality is a coordinating framework designed to protect and restore aquatic systems and protect human health more effectively (EPA841-R-95-003). The Approach is based on the concept that many water quality problems, like the accumulation of pollutants or nonpoint source pollution, are best addressed at the watershed level. In addition, a watershed focus helps identify the most cost-effective pollution control strategies to meet clean water goals. Tennessee's Watershed Approach, updates and public participation opportunities, may be found on the web at http://www.state.tn.us/environment/wpc/wshed1.htm.

Watersheds are appropriate as organizational units because they are readily identifiable landscape units with readily identifiable boundaries that integrate terrestrial, aquatic, and geologic processes. Focusing on the whole watershed helps reach the best balance among efforts to control point source pollution and polluted runoff as well as protect drinking water sources and sensitive natural resources such as wetlands (EPA-840-R-98-001).

Four main features are typical of the Watershed Approach: 1) Identifying and prioritizing water quality problems in the watershed, 2) Developing increased public involvement, 3) Coordinating activities with other agencies, and 4) Measuring success through increased and more efficient monitoring and other data gathering.

Typically, the Watershed Approach meets the following description (EPA841-R-95-003):

- Features watersheds or basins as the basic management units
- Targets priority subwatersheds for management action
- Addresses all significant point and nonpoint sources of pollution
- Addresses all significant pollutants
- Sets clear and achievable goals
- Involves the local citizenry in all stages of the program
- Uses the resources and expertise of multiple agencies
- Is not limited by any single agency's responsibilities
- Considers public health issues

An additional characteristic of the Watershed Approach is that it complements other environmental activities. This allows for close cooperation with other state agencies and local governments as well as with federal agencies such as the Tennessee Valley Authority and the U.S. Army Corps of Engineers, U.S. Department of Agriculture (*e.g.*, Natural Resources Conservation Service, United States Forest Service), U.S. Department of the Interior (*e.g.* United States Geological Survey, U.S. Fish and Wildlife Service, National Park Service). When all permitted dischargers are considered together, agencies are better able to focus on those controls necessary to produce measurable improvements in water quality. This also results in a more efficient process: It encourages agencies to focus staff and financial resources on prioritized geographic locations and makes it easier to coordinate between agencies and individuals with an interest in solving water quality problems (EPA841-R-003).

The Watershed Approach is not a regulatory program or a new EPA mandate; rather it is a decision making process that reflects a common strategy for information collection and analysis as well as a common understanding of the roles, priorities, and responsibilities of all stakeholders within a watershed. The Watershed Approach utilizes features already in state and federal law, including:

- Water Quality Standards
- National Pollutant Discharge Elimination System (NPDES)
- Total Maximum Daily Loads (TMDLs)
- Clean Lakes Program
- Nonpoint Source Program
- Groundwater Protection

Traditional activities like permitting, planning, and monitoring are also coordinated in the Watershed Approach. A significant change from the past, however, is that the Watershed Approach encourages integration of traditional regulatory (point source pollution) and nonregulatory (nonpoint sources of pollution) programs. There are additional changes from the past as well:

THE PAST	WATERSHED APPROACH
Focus on fixed-station ambient monitoring	Focus on comprehensive watershed monitoring
Focus on pollutant discharge sites	Focus on watershed-wide effects
Focus on WPC programs	Focus on coordination and cooperation
Focus on point sources of pollution	Focus on all sources of pollution
Focus on dischargers as the problem	Focus on dischargers as an integral part of the solution
Focus on short-term problems	Focus on long-term solutions

Table 1-1. Contrast Between the Watershed Approach and the Past.

This approach places greater emphasis on all aspects of water quality, including chemical water quality (conventional pollutants, toxic pollutants), physical water quality (temperature, flow), habitat quality (channel morphology, composition and health of benthic communities), and biodiversity (species abundance, species richness).

1.2.A. Components of the Watershed Approach. Tennessee is composed of fifty-five watersheds corresponding to the 8-digit USGS Hydrologic Unit Codes (HUC-8). These watersheds, which serve as geographic management units, are combined in five groups according to year of implementation.

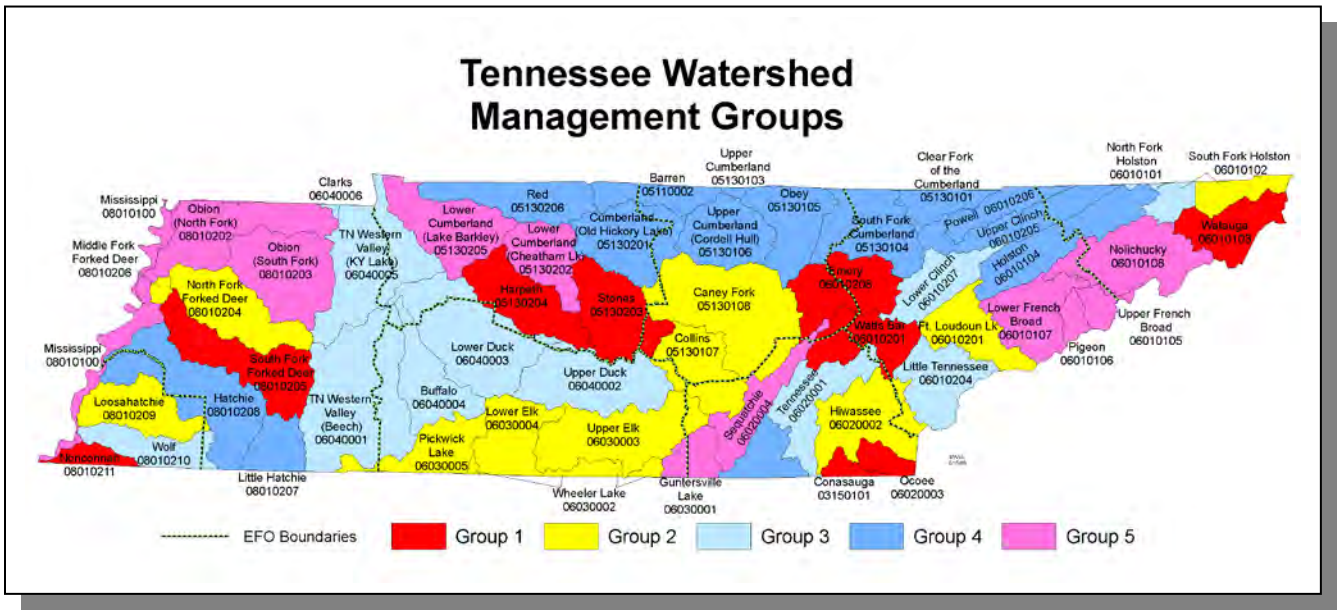


Figure 1-1. Watershed Groups in Tennessee's Watershed Approach to Water Quality.

Each year, TDEC conducts monitoring in one-fifth of Tennessee's watersheds; assessment, priority setting and follow-up monitoring are conducted in another one fifth of watersheds; modeling and TMDL studies in another one fifth; developing management plans in another one fifth; and implementing management plans in another one fifth of watersheds.

GROUP	WEST TENNESSEE	MIDDLE TENNESSEE	EAST TENNESSEE
1	Nonconnah South Fork Forked Deer	Harpeth Stones	Conasauga Emory Ocoee Watauga Watts Bar
2	Loosahatchie Middle Fork Forked Deer North Fork Forked Deer	Caney Fork Collins Lower Elk Pickwick Lake Upper Elk Wheeler Lake	Fort Loudoun Hiwassee South Fork Holston (Upper) Wheeler Lake
3	Tennessee Western Valley (Beech River) Tennessee Western Valley (KY Lake) Wolf River	Buffalo Lower Duck Upper Duck	Little Tennessee Lower Clinch North Fork Holston South Fork Holston (Lower) Tennessee (Upper)
4	Lower Hatchie Upper Hatchie	Barren Obey Red Upper Cumberland (Cordell Hull Lake) Upper Cumberland (Old Hickory Lake) Upper Cumberland (Cumberland Lake)	Holston Powell South Fork Cumberland Tennessee (Lower) Upper Clinch Upper Cumberland (Clear Fork)
5	Mississippi North Fork Obion South Fork Obion	Guntersville Lake Lower Cumberland (Cheatham Lake) Lower Cumberland (Lake Barkley)	Lower French Broad Nolichucky Pigeon Upper French Broad

Table 1-2. Watershed Groups in Tennessee's Watershed Approach.

In succeeding years of the cycle, efforts rotate among the watershed groups. The activities in the five year cycle provide a reference for all stakeholders.

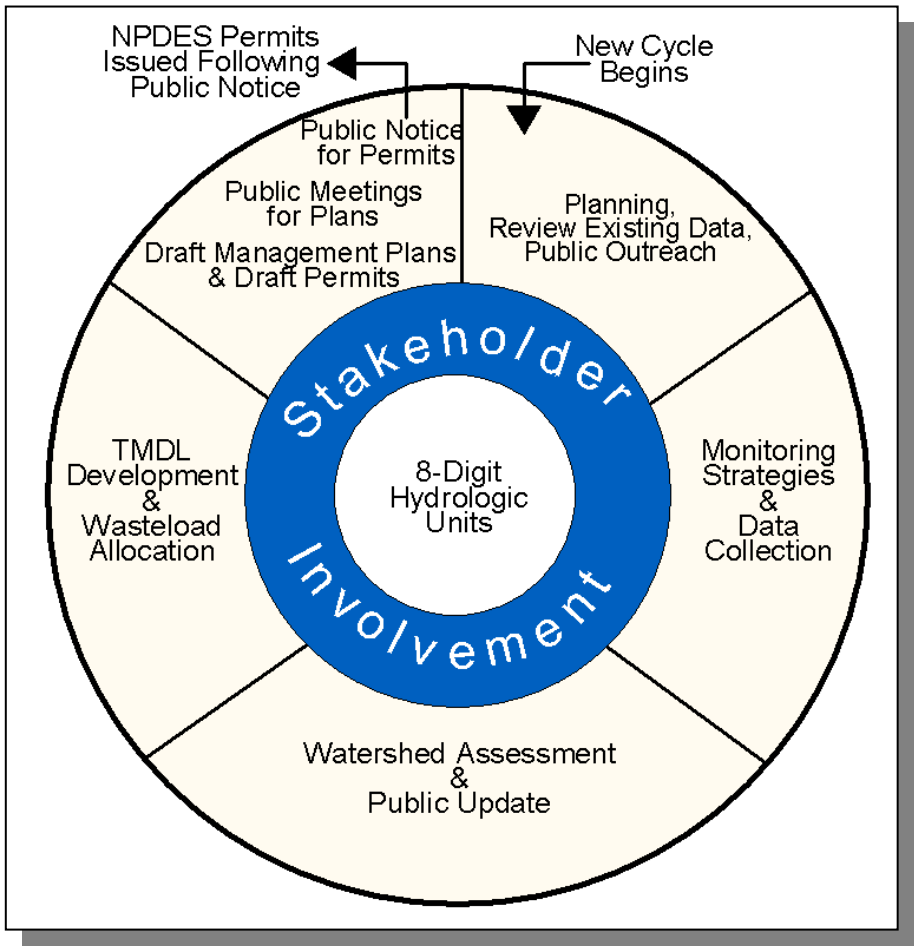


Figure 1-2. The Watershed Approach Cycle.

The six key activities that take place during the cycle are:

1. Planning and Existing Data Review. Existing data and reports from appropriate agencies and organizations are compiled and used to describe the current conditions and status of rivers and streams. Reviewing all existing data and comparing agencies' work plans guide the development of an effective monitoring strategy.

2. Monitoring. Field data is collected for streams in the watershed. These data supplement existing data and are used for the water quality assessment.

3. Assessment. Monitoring data are used to determine the status of the stream's designated use supports.

4. Wasteload Allocation/TMDL Development. Monitoring data are used to determine nonpoint source contributions and pollutant loads for permitted dischargers releasing wastewater to the watershed. Limits are set to assure that water quality is protected.

5. Permits. Issuance and expiration of all discharge permits are synchronized based on watersheds. Currently, 1700 permits have been issued in Tennessee under the federally delegated National Pollutant Discharge Elimination System (NPDES).

6. Watershed Management Plans. These plans include information for each watershed including general watershed description, water quality goals, major water quality concerns and issues, and management strategies.

Public participation opportunities occur throughout the entire five year cycle. Participation in Years 1, 3 and 5 is emphasized, although additional meetings are held at stakeholder's request. People tend to participate more readily and actively in protecting the quality of waters in areas where they live and work, and have some roles and responsibilities:

- Data sharing
- Identification of water quality stressors
- Participation in public meetings
- Commenting on management plans
- Shared commitment for plan implementation

1.2.B. Benefits of the Watershed Approach. The Watershed Approach fosters a better understanding of the physical, chemical and biological effects on a watershed, thereby allowing agencies and citizens to focus on those solutions most likely to be effective. The Approach recognizes the need for a comprehensive, ecosystem-based approach that depends on local governments and local citizens for success (EPA841-R-95-004). On a larger scale, many lessons integrating public participation with aquatic ecosystem-based programs have been learned in the successful Chesapeake Bay, Great Lakes, Clean Lakes, and National Estuary Programs.

Benefits of the Watershed Approach include (EPA841-R-95-004):

- Focus on water quality goals and ecological integrity rather than on program activities such as number of permits issued.

- Improve basis for management decisions through consideration of both point and nonpoint source stressors. A watershed strategy improves the scientific basis for decision making and focuses management efforts on basins and watersheds where they are most needed. Both point and nonpoint control strategies are more effective under a watershed approach because the Approach promotes timely and focused development of TMDLs.

- Enhance program efficiency, as the focus becomes watershed. A watershed focus can improve the efficiency of water management programs by facilitating consolidation of programs within each watershed. For example, handling all point source dischargers in a watershed at the same time reduces administrative costs due to the potential to combine hearings and notices as well as allowing staff to focus on more limited areas in a sequential fashion.

- Improve coordination between federal, state and local agencies including data sharing and pooling of resources. As the focus shifts to watersheds, agencies are better able to participate in data sharing and coordinated assessment and control strategies.

- Increase public involvement. The Watershed Approach provides opportunities for stakeholders to increase their awareness of water-related issues and inform staff about their knowledge of the watershed. Participation is via three public meetings over the five-year watershed management cycle as well as meetings at stakeholder's request. Additional opportunities are provided through the Department of Environment and Conservation homepage and direct contact with local Environmental Assistance Centers.

- Greater consistency and responsiveness. Developing goals and management plans for a basin or watershed with stakeholder involvement results in increased responsiveness to the public and consistency in determining management actions. In return, stakeholders can expect improved consistency and continuity in decisions when management actions follow a watershed plan.

Additional benefits of working at the watershed level are described in the Clean Water Action Plan (EPA-840-R-98-001), and can be viewed at http://www.cleanwater.gov/action/toc.html.

The Watershed Approach represents awareness that restoring and maintaining our waters requires crossing traditional barriers (point *vs.* nonpoint sources of pollution) when designing solutions. These solutions increasingly rely on participation by both public and private sectors, where citizens, elected officials and technical personnel all have opportunity to participate. This integrated approach mirrors the complicated relationships in which people live, work and recreate in the watershed, and suggests a comprehensive, watershed-based and community-based approach is needed to address these (EPA841-R-97-005).

CHAPTER 2

DESCRIPTION OF THE OBION RIVER (NORTH FORK) WATERSHED

2.1. BACKGROUND. Obion is thought to be a Chickasaw Indian name meaning "river of many forks". The Obion River system is the primary surface water drainage system of northwest Tennessee and is comprised of four major forks, the North Fork, Middle Fork, South Fork and Rutherford Fork, that flow as separate streams for the majority of their lengths. The confluences of these forks are only a few miles above the mouth of the Obion's discharge into the Mississippi River.

This Chapter describes the location and characteristics of the Tennessee Portion of the Obion River (North Fork) Watershed.

2.2. DESCRIPTION OF THE WATERSHED.

2.2.A. General Location. The Tennessee portion of the Obion River (North Fork) Watershed is located in West Tennessee and includes parts of Dyer, Gibson, Henry, Lake, Lauderdale, Obion, and Weakley Counties.

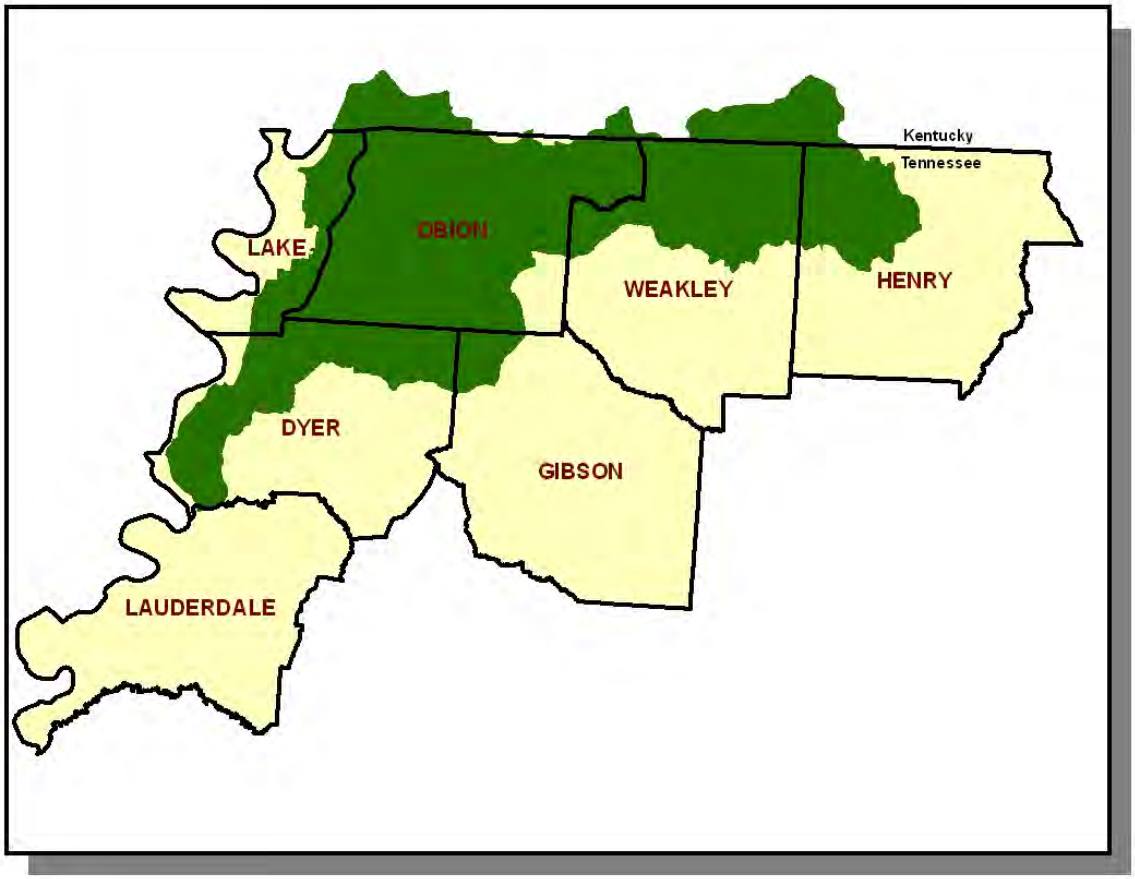


Figure 2-1. General Location of the Obion River (North Fork) Watershed.

COUNTY	% OF WATERSHED IN EACH COUNTY
Obion	43.74
Weakley	18.88
Dyer	17.58
Henry	10.21
Lake	6.74
Gibson	2.73
Lauderdale	0.08

Table 2-1. The Tennessee Portion of the Obion River (North Fork) Watershed Includes Parts of Seven West Tennessee Counties.

2.2.B. Population Density Centers. Twenty-eight highways serve the major communities in the Tennessee Portion of the Obion River (North Fork) Watershed.

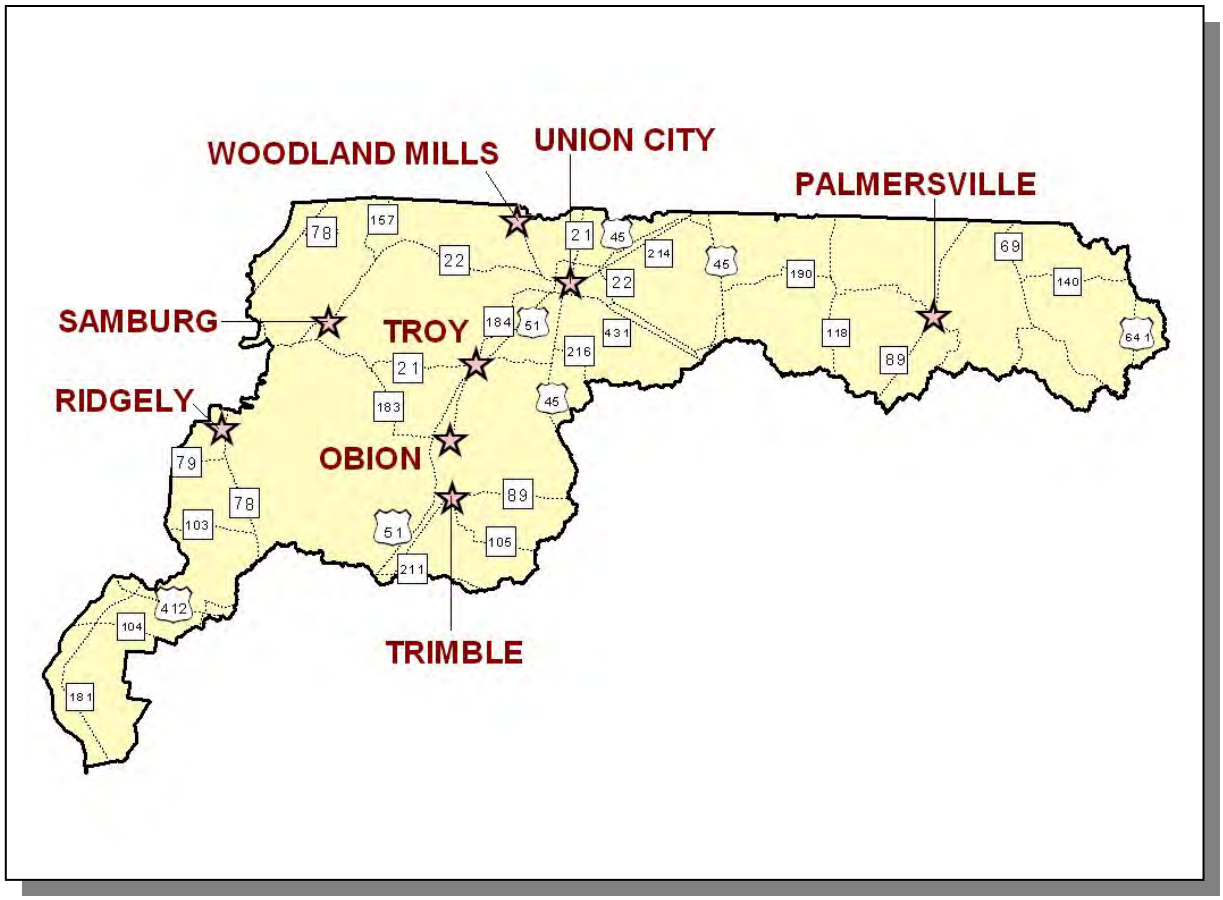


Figure 2-2. Communities and Roads in the Tennessee Portion of the Obion River (North Fork) Watershed.

MUNICIPALITY	POPULATION	COUNTY
Union City*	10,876	Obion
Ridgely	1,667	Lake
Troy	1,273	Obion
Obion	1,134	Obion
Palmersville	927	Weakley
Trimble	728	Dyer, Obion
Woodland Mills	385	Obion
Samburg	260	Obion

Table 2-2. Municipalities in the Tennessee Portion of the Obion River (North Fork) Watershed. *Population based on 2000 census (Tennessee Blue Book) or http://www.hometownlocator.com. Asterisk (*) indicates county seat.*

2.3. GENERAL HYDROLOGIC DESCRIPTION.

2.3.A. Hydrology. The Tennessee Portion of the Obion River (North Fork) Watershed, designated 08010202 by the USGS, is approximately 1,313 square miles (1,169 square miles in Tennessee) and drains to the Obion River.

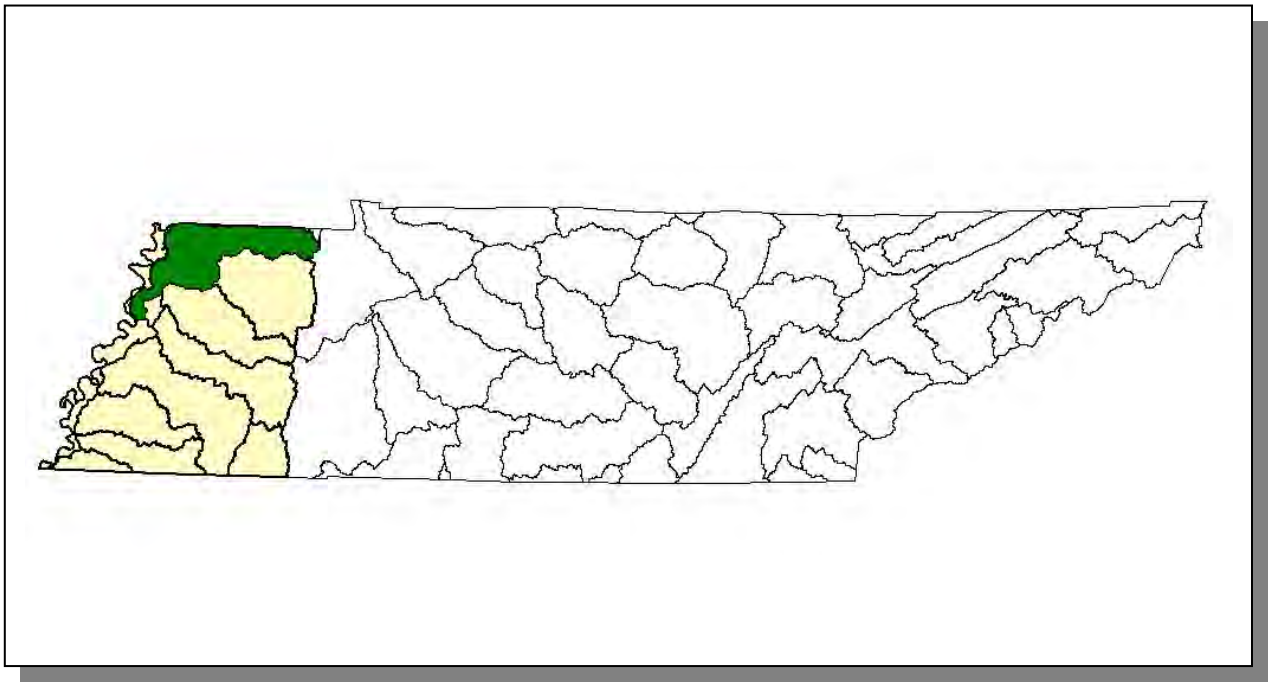


Figure 2-3. The Tennessee Portion of the Obion River (North Fork) Watershed is Part of the Mississippi River Basin.

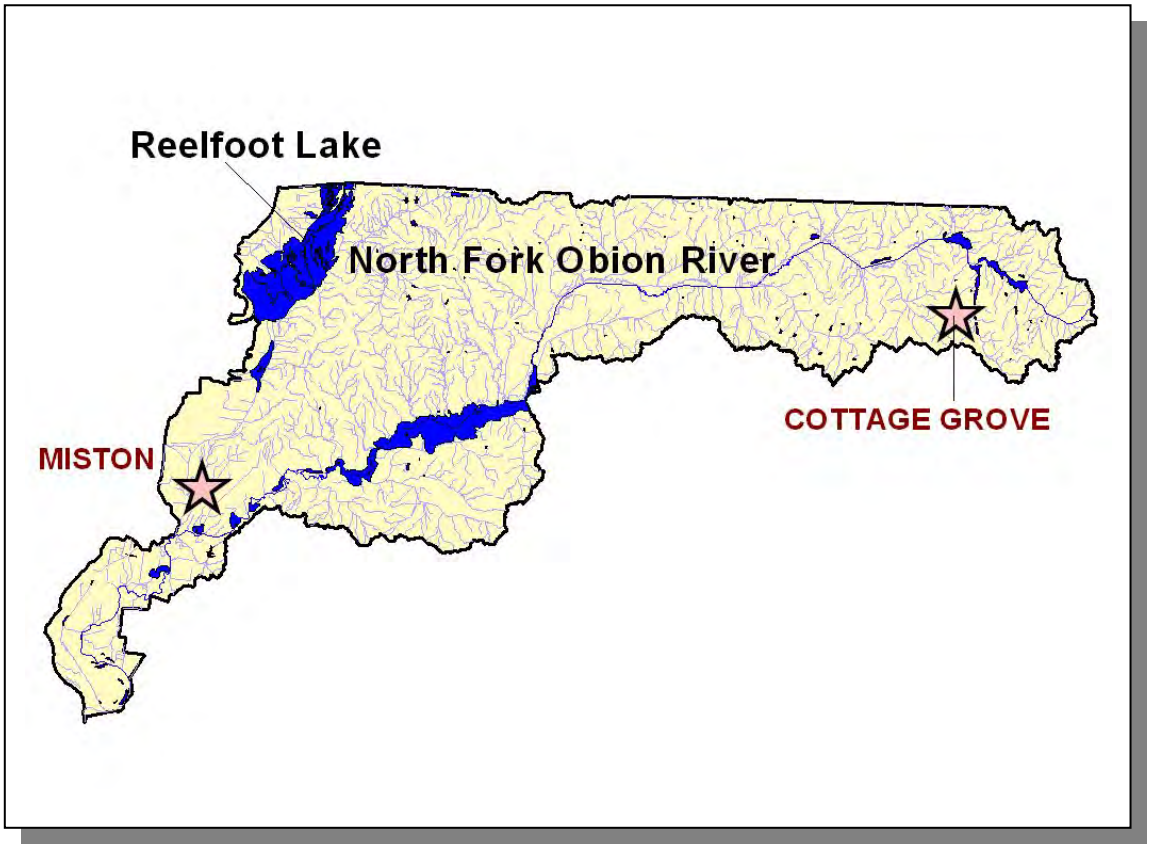


Figure 2-4. Hydrology in the Tennessee Portion of the Obion River (North Fork) Watershed. *There are 1,741.1 stream miles and 15,500 lake acres recorded in River Reach File 3 in the Tennessee Portion of the Obion River (North Fork) Watershed. Location of the North Fork Obion River and Reelfoot Lake, and the cities of Cottage Grove and Miston are shown for reference.*

2.3.B. Dams. There are 57 dams inventoried by TDEC Division of Water Supply in the Tennessee portion of the Obion River (North Fork) Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.

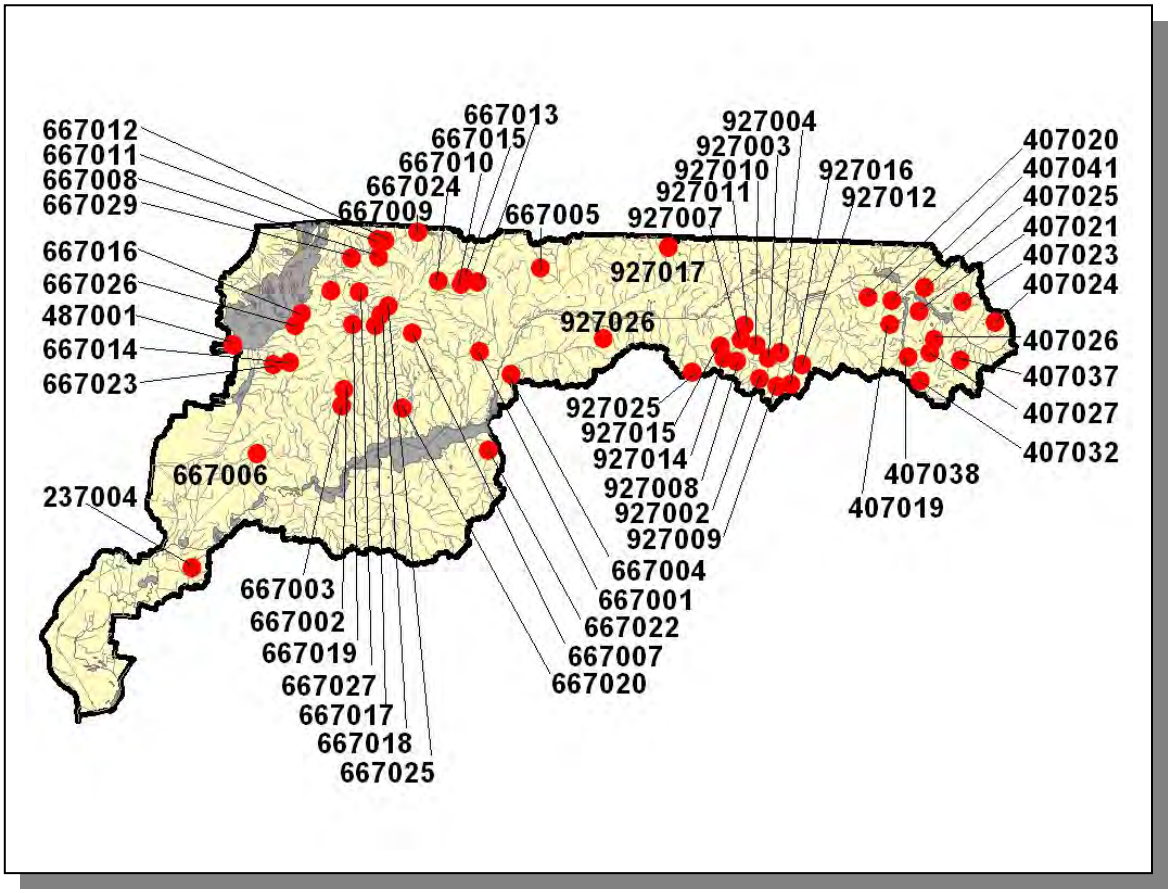


Figure 2-5. Location of Inventoried Dams in the Tennessee Portion of the Obion River (North Fork) Lake Watershed. *More information, including identification of inventoried dams labeled, is provided in Appendix II and at http://gwidc.memphis.edu/website/dams/viewer.htm.*

2.4. LAND USE. Land Use/Land Cover information was provided by EPA Region 4 and was interpreted from 2001 Multi-Resolution Land Cover (MRLC) satellite imagery.

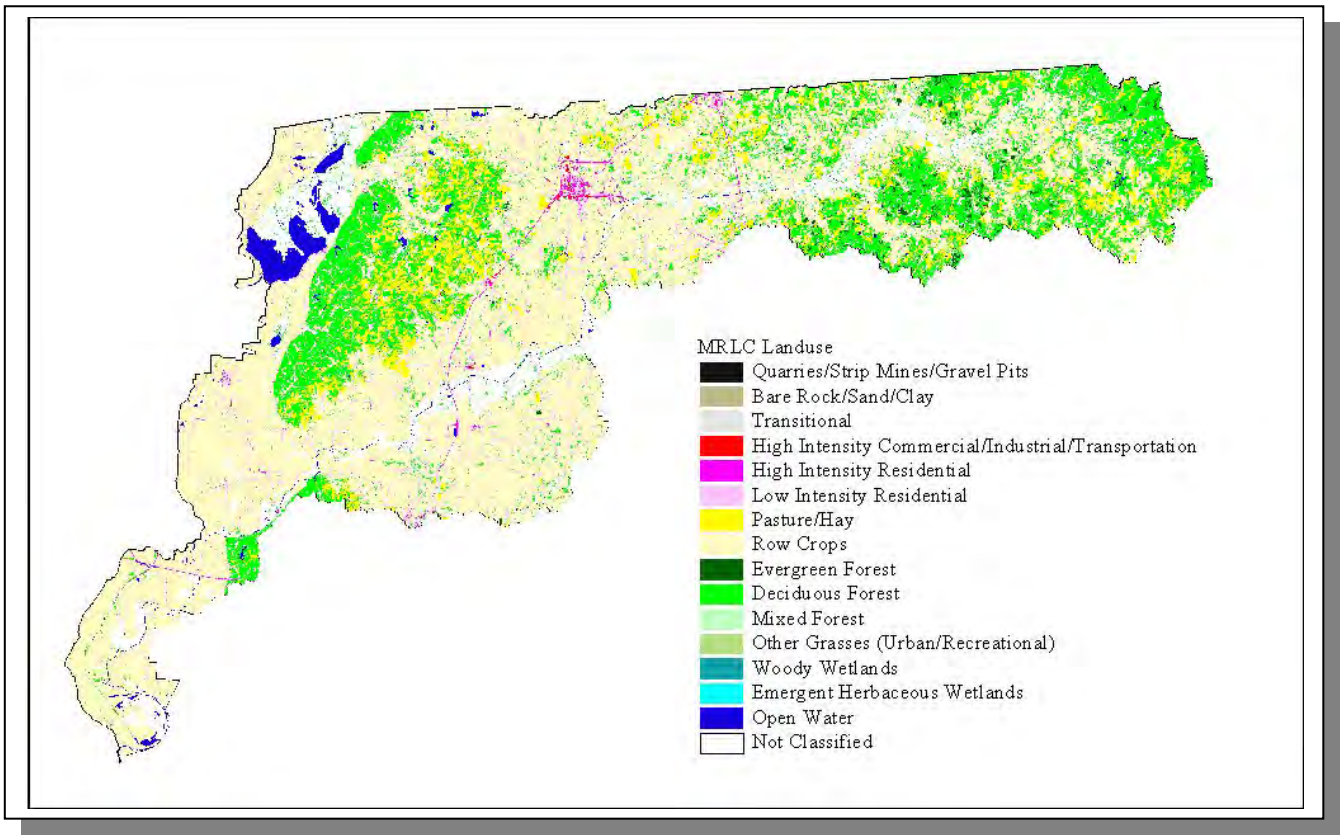


Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery.

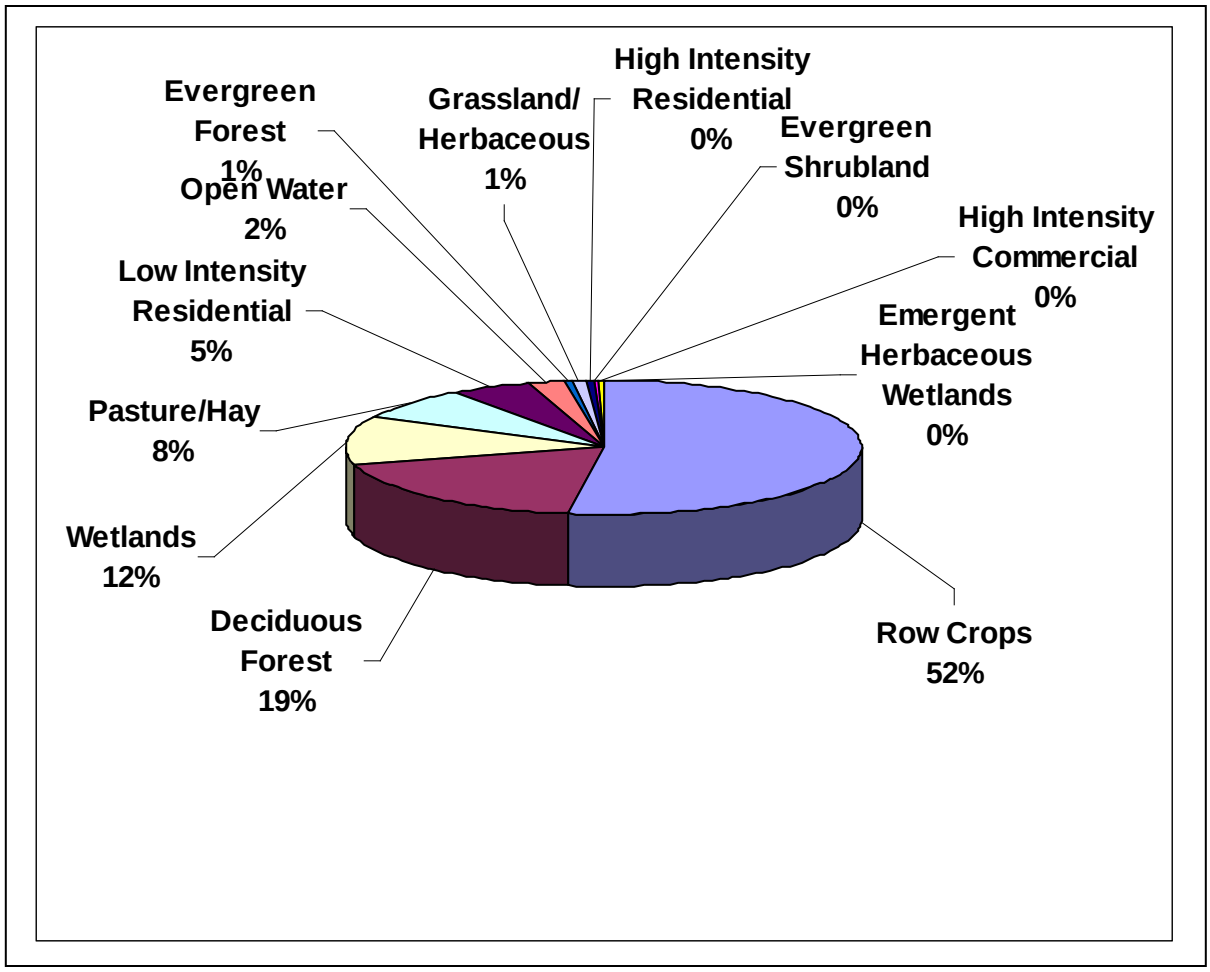


Figure 2-7. Land Use Distribution in the Tennessee Portion of the Obion River (North Fork) Watershed. *More information is provided in Appendix II.*

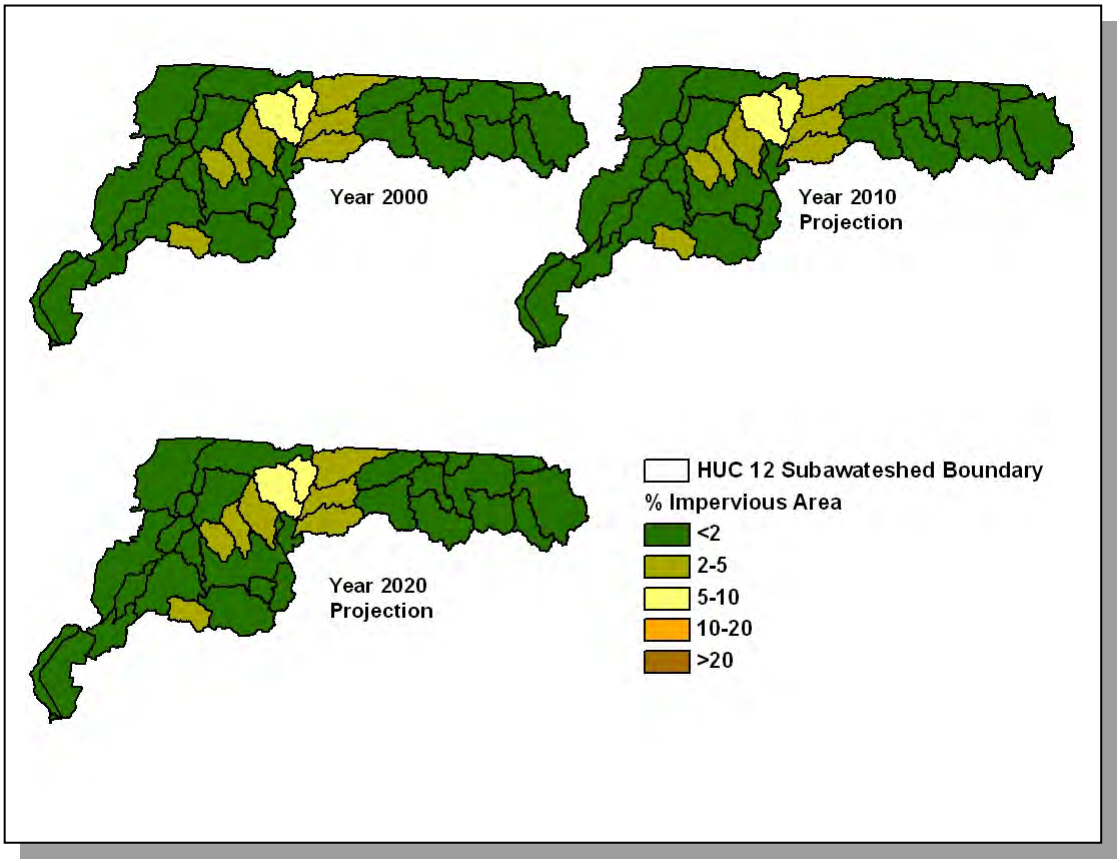


Figure 2-8. Illustration of Total Impervious Area in the Tennessee Portion of the Obion River (North Fork) Watershed. *All HUC-12 subwatersheds are shown. Current estimates and projected total impervious cover calculated by HUC-12 are provided by EPA Region 4. More information can be found at: http://www.epa.gov/ATHENS/research/impervious/.*

2.5. ECOREGIONS AND REFERENCE STREAMS. Ecoregions are relatively homogeneous areas of similar geography, topography, climate and soils that support similar plant and animal life. Ecoregions serve as a spatial framework for the assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregion studies can aid the selection of regional stream reference sites, identifying high quality waters, and developing ecoregion-specific chemical and biological water quality criteria.

There are eight Level III Ecoregions and twenty-five Level IV subecoregions in Tennessee. The Obion (North Fork) River Watershed lies within 3 Level III ecoregions (Southeastern Plains, Mississippi Alluvial Plain, and Mississippi Valley Loess Plains) and contains 4 Level IV subecoregions:

- The **Southeastern Plains and Hills (65e)** contain several north-south trending bands of sand and clay formations. Tertiary-age sand, clay, and lignite are to the west, and Cretaceous-age fine sand, fossiliferous micaceous sand, and silty clays are to the east. With elevations reaching over 650 feet, and more rolling topography and more relief than the Loess Plains (74b) to the west, streams have increased gradient, generally sandy substrates, and distinctive faunal characteristics for west Tennessee. The natural vegetation type is oak-hickory forest, grading into oak-hickory-pine to the south.

- The **Northern Mississippi Alluvial Plain (73a)** within Tennessee is a relatively flat region of Quaternary alluvial deposits of sand, silt, clay, and gravel. It is bounded distinctly on the east by the Bluff Hills (74a), and on the west by the Mississippi River. Average elevations are 200-300 feet with little relief. Most of the region is in cropland, with some areas of deciduous forest. Soybeans, cotton, corn, sorghum, and vegetables are the main crops. The natural vegetation consists of Southern floodplain forest (oak, tupelo, bald cypress). The two main distinctions in the Tennessee portion of the ecoregion are between areas of loamy, silty, and sandy soils with better drainage, and areas of more clayey soils of poor drainage that may contain wooded swamp-land and oxbow lakes. Waterfowl, raptors, and migratory songbirds are relatively abundant in the region.

- The **Bluff Hills (74a)** consist of sand, clay, silt, and lignite, and are capped by loess greater than 60 feet deep. The disjunct region in Tennessee encompasses those thick loess areas that are generally the steepest, most dissected, and forested. The carved loess has a mosaic of microenvironments, including dry slopes and ridges, moist slopes, ravines, bottomland areas, and small cypress swamps. While oak-hickory is the general forest type, some of the undisturbed bluff vegetation is rich in mesophytes, such as beech and sugar maple, with similarities to hardwood forests of eastern Tennessee. Smaller streams of the Bluff Hills have localized reaches of increased gradient and small areas of gravel substrate that create aquatic habitats that are distinct from those of the Loess Plains (74b) to the east. Unique, isolated fish assemblages more typical of upland habitats can be found in these stream reaches. Gravels are also exposed in places at the base of the bluffs.

- The **Loess Plains (74b)** are gently rolling, irregular plains, 250-500 feet in elevation, with loess up to 50 feet thick. The region is a productive agricultural area of soybeans, cotton, corn, milo, and sorghum crops, along with livestock and poultry. Soil erosion can be a problem on the steeper, upland Alfisol soils; bottom soils are mostly silty Entisols. Oak-hickory and southern floodplain forests are the natural vegetation types, although most of the forest cover has been removed for cropland. Some less-disturbed bottomland forest and cypress-gum swamp habitats still remain. Several large river systems with wide floodplains, the Obion, Forked Deer, Hatchie, Loosahatchie, and Wolf, cross the region. Streams are low-gradient and murky with silt and sand bottoms, and most have been channelized.

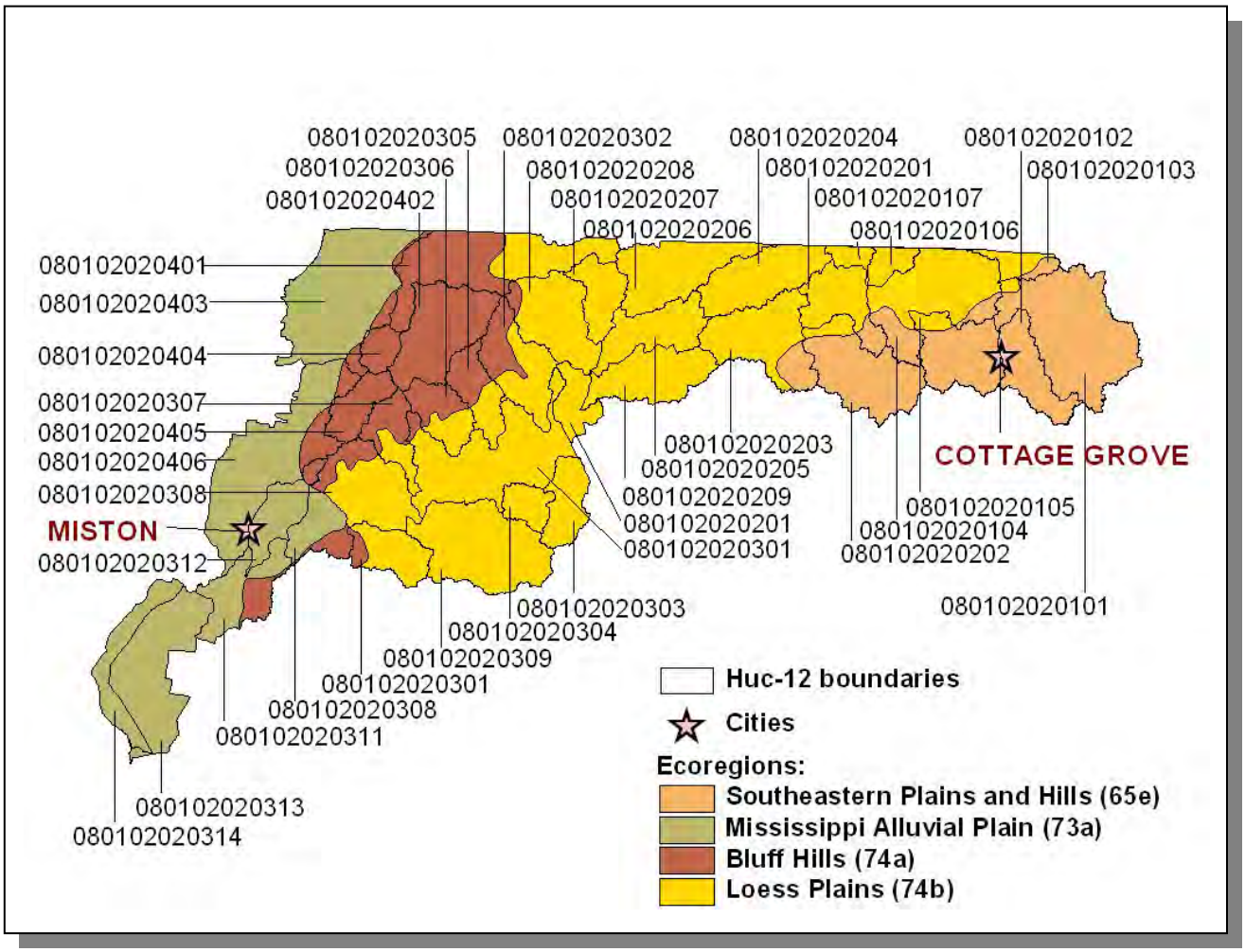


Figure 2-9. Level IV Ecoregions in the Tennessee Portion of the Obion (North Fork) River Watershed. *HUC-12 subwatershed boundaries and locations of Miston and Cottage Grove are shown for reference.*

Each Level IV Ecoregion has at least one reference stream associated with it. A reference stream represents a least impacted condition within that ecoregion and may not be representative of a pristine condition.

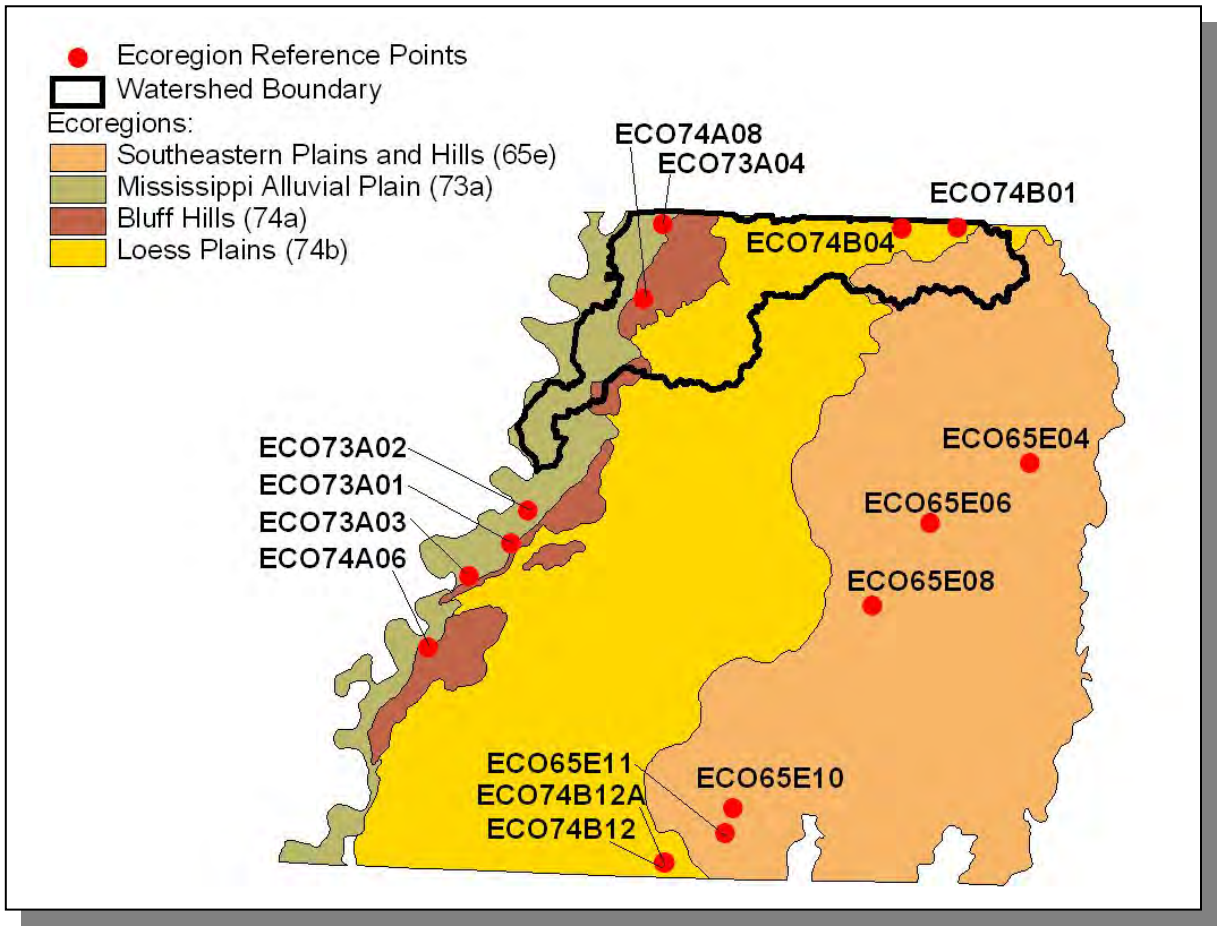


Figure 2-10. Ecoregion Monitoring Sites in Level IV Ecoregions 65e, 73a, 74a, 74b. *The Tennessee Portion of the Obion River (North Fork) Watershed is shown for reference. More information, including which ecoregion reference sites were inactive or dropped prior to 01/01/2006, is provided in Appendix II.*

2.6. NATURAL RESOURCES.

2.6.A. Designated State Natural Area. The Natural Areas Program was established in 1971 with the passage of the Natural Areas Preservation Act. TDEC/Division of Natural Areas administers the State Natural Areas program. Further information may be found at http://www.state.tn.us/environment/na/.

The Obion River (North Fork) Watershed has one Designated State Natural Area:

> **Reelfoot Lake** is an 18,000-acre natural area located in Lake and Obion Counties in northwest Tennessee. Reelfoot Lake was created by a series of violent New Madrid fault zone earthquakes in the winter of 1811-1812. The lake and surrounding forests attract a large diversity of wintering and breeding populations of waterfowl, and boasts of a significant population of wintering bald eagles. Reelfoot is also recognized by the United States Department of Interior as a National Natural Landmark. It is one of only fourteen National Natural Landmarks in Tennessee. These landmarks are recognized as the country's best remaining examples of major biotic communities and geologic features.

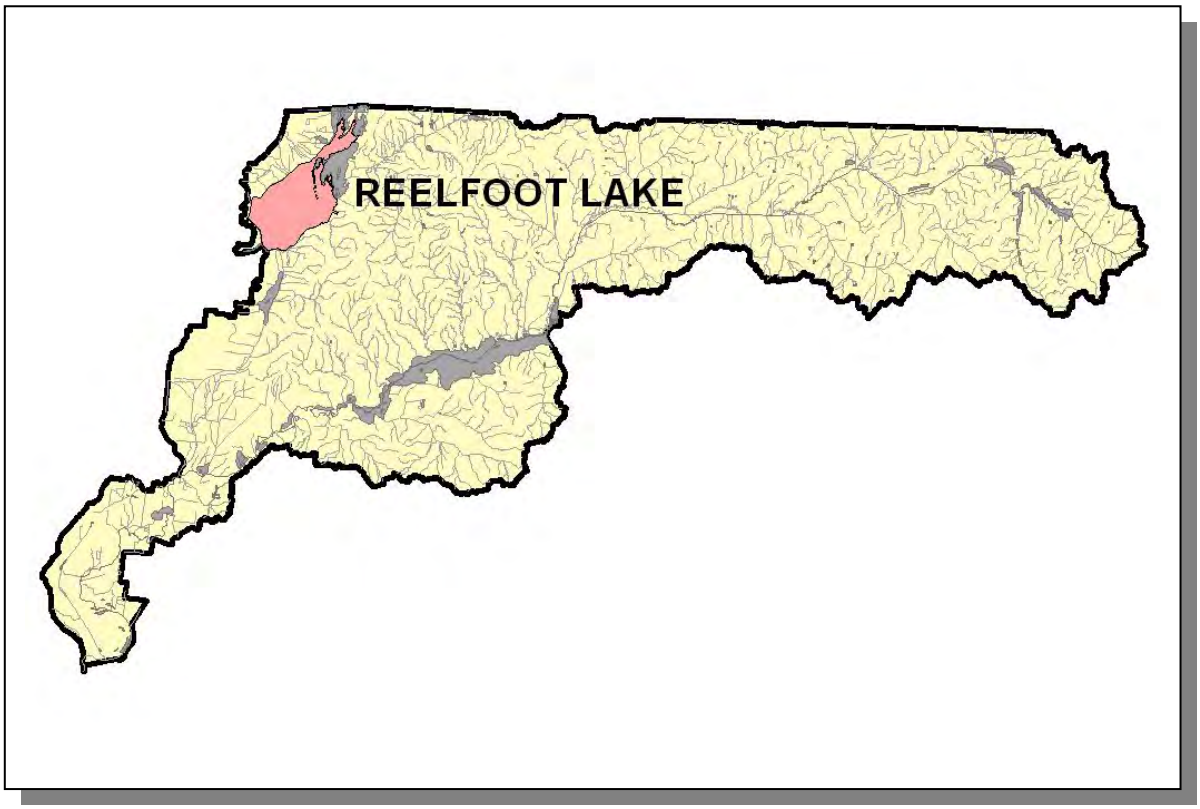


Figure 2-11. There is One Designated State Natural Area in the Tennessee Portion of the Obion River (North Fork) Watershed.

2.6.B. Rare Plants and Animals. The Heritage Program in the TDEC Division of Natural Areas maintains a database of rare species that is shared by partners at The Nature Conservancy, Tennessee Wildlife Resources Agency, the US Fish and Wildlife Service, and the Tennessee Valley Authority. The information is used to: 1) track the occurrence of rare species in order to accomplish the goals of site conservation planning and protection of biological diversity, 2) identify the need for, and status of, recovery plans, and 3) conduct environmental reviews in compliance with the federal Endangered Species Act.

GROUPING	NUMBER OF RARE SPECIES
Snails	1
Birds	13
Fish	5
Mammals	5
Reptiles	1
Plants	20
Total	**45**

Table 2-3. There are 44 Known Rare Plant and Animal Species in the Tennessee Portion of the Obion River (North Fork) Watershed.

In the Tennessee Portion of the Obion River (North Fork) Watershed, there are five known rare fish species, one known rare snail species, and one known rare reptile species.

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
Scaphirhynchus albus	Pallid Sturgeon	LE	E
Etheostoma pyrrhogaster	Firebelly Darter		D
Fundulus chrysotus	Golden Topminnow		D
Lepisosteus spatula	Alligator Gar		D
Noturus stigmosus	Northern Madtom		D
Macroclemys temminckii	Alligator Snapping Turtle		D
Triodopsis multilineata	Striped Whitelip		

Table 2-4. Rare Aquatic Species in the Tennessee Portion of the Obion River (North Fork) River Watershed. *Federal Status: LE, Listed Endangered by the U.S. Fish and Wildlife Service. State Status: LT, Listed Threatened by the Tennessee Wildlife Resources Agency; E, Listed Endangered by the Tennessee Wildlife Resources Agency; D, Deemed in Need of Management by the Tennessee Wildlife Resources Agency. More information may be found at http://www.state.tn.us/environment/na/.*

2.6.C. Wetlands. The Division of Natural Areas maintains a database of wetland records in Tennessee. These records are a compilation of field data from wetland sites inventoried by various state and federal agencies. Maintaining this database is part of Tennessee's Wetland Strategy, which is described at:

http://www.state.tn.us/environment/na/wetlands/

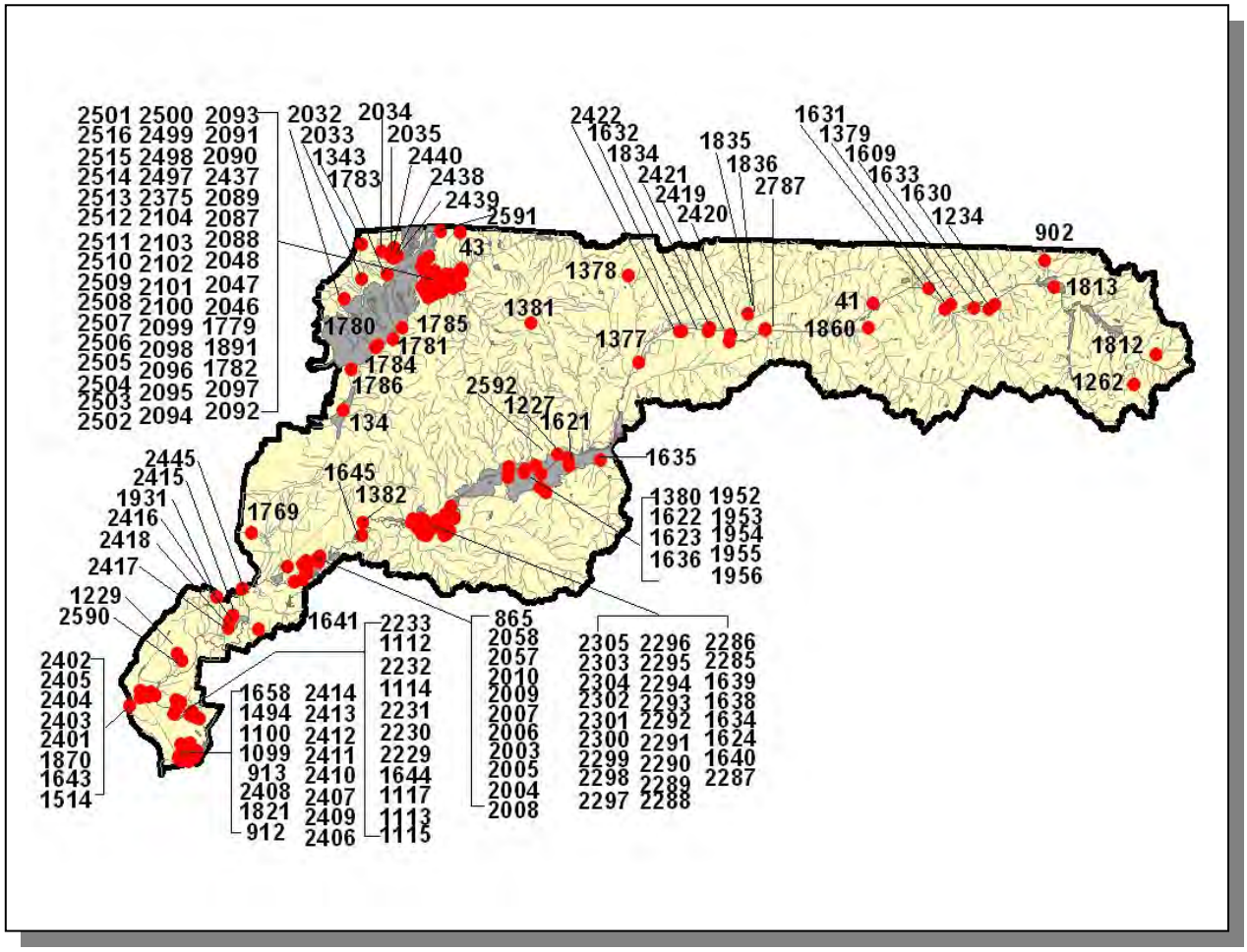


Figure 2-12. Location of Wetland Sites in TDEC Division of Natural Areas Database in Tennessee Portion of the Obion River (North Fork) Watershed. ***This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands.*** *There may be additional wetland sites in the watershed. More information, including identification of wetland sites labeled, is provided in Appendix II.*

2.7. CULTURAL RESOURCES.

2.7.A Nationwide Rivers Inventory. The Nationwide Rivers Inventory, required under the Federal Wild and Scenic Rivers Act of 1968, is a listing of free-flowing rivers that are believed to possess one or more outstanding natural or cultural values. Exceptional scenery, fishing or boating, unusual geologic formations, rare plant and animal life, cultural or historic artifacts that are judged to be of more than local or regional significance are the values that qualify a river segment for listing. The Tennessee Department of Environment and Conservation and the Rivers and Trails Conservation Assistance branch of the National Park Service jointly compile the Nationwide Rivers Inventory from time to time (most recently in 1997). Under a 1980 directive from the President's Council on Environmental Quality, all Federal agencies must seek to avoid or mitigate actions that would have an adverse effect on Nationwide Rivers Inventory segments.

The most recent version of the Nationwide Rivers Inventory lists a portion of one river in the Obion River (North Fork) Watershed:

Obion River (RM 0 to RM 59) is a pastoral stream with variety of flora and fauna.

RIVER	SCENIC	RECREATION	GEOLOGIC	FISH	WILDLIFE	HISTORIC	CULTURAL
Obion River	X	X		X	X		

Table 2-5. Attributes of Streams Listed in the Nationwide Rivers Inventory.

Additional information may be found online at http://www.ncrc.nps.gov/rtca/nri/

2.7.C. Public Lands. Some sites representative of the cultural heritage in the Tennessee portion of the Nolichucky River Watershed are under state or federal protection:

- Bogota WMA is a 2,373-acre parcel of land managed by the Tennessee Wildlife Resources Agency (TWRA). More information may be found at: http://www.state.tn.us/twra/gis/wmapdf/Bogota.pdf
- Ernest Rice WMA is a 2,123-acre tract of land managed by TWRA. More information may be found at: http://www.state.tn.us/twra/gis/wmapdf/ErnestRice.pdf
- George L. Yarbro WMA is managed by TWRA.
- Gooch WMA comprise two tracts of land totaling 8,620 acres and are managed by TWRA. More information may be found at: http://www.state.tn.us/twra/gis/wmapdf/Gooch.pdf
- Lake Isom National Wildlife Refuge is a 1,850-acre refuge located in Obion County and managed by the U.S. Fish and Wildlife Service. More information may be found at: http://www.fws.gov/reelfoot/isom.html

- Moss Island WMA is a 3,359-acre tract of land managed by TWRA. More information may be found at:
  http://www.state.tn.us/twra/gis/wmapdf/MossIsland.pdf

- Reelfoot Lake WMA and Black Bayou Wildlife Refuge comprise 1,050 acres and is managed by the TWRA. More information may be found at: http://www.state.tn.us/twra/gis/wmapdf/Reelfoot.pdf

- Reelfoot National Wildlife Refuge is a 10,428-acre refuge located in Obion County and managed by the U.S. Fish and Wildlife Service. More information may be found at:
  http://www.fws.gov/southeast/pubs/facts/rlfpdf.pdf

- Soil Conservation lakes are managed by the TWRA and used to reduce the rate of sedimentation into Reelfoot Lake. More information may be found at: http://www.epa.gov/owow/info/NewsNotes/issue04/nps04agr.html

- Whites Lake refuge consists of 615 acres of land managed by TWRA and Ducks Unlimited, Inc. More information may be found at: http://www.ducks.org/Tennessee/TennesseeProjects/1582/WhiteLakeRefugeWetlandsRestoration.html

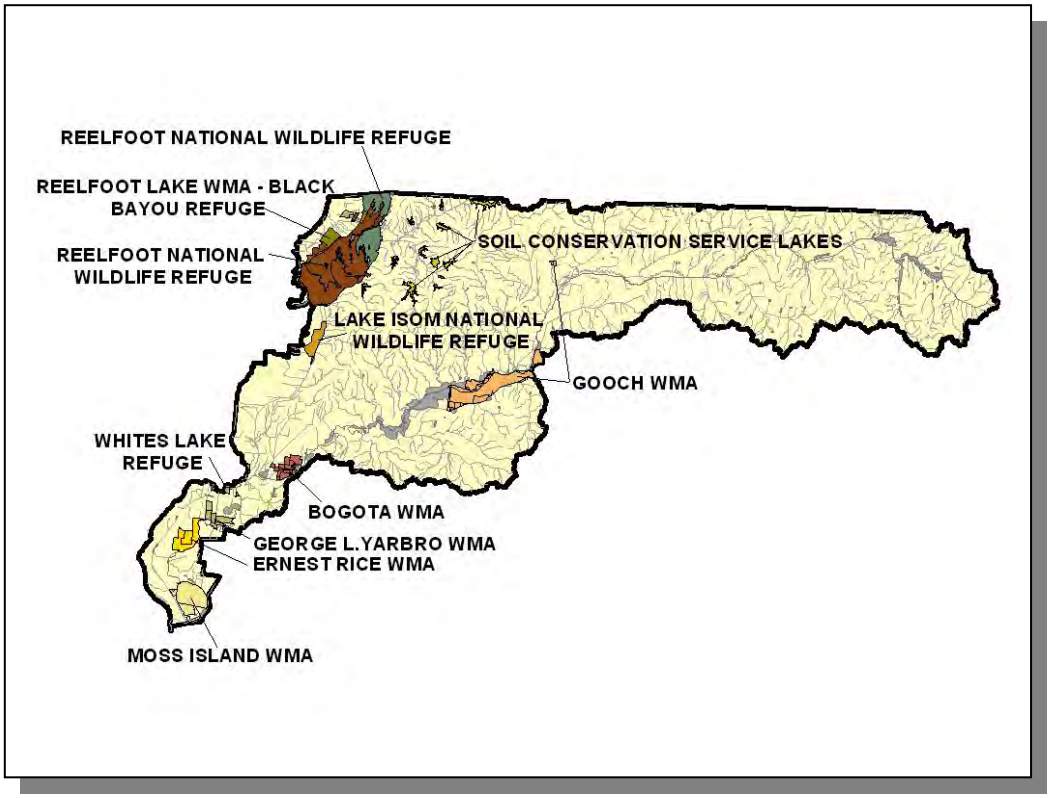


Figure 2-13. Public Lands in the Obion River (North Fork) Watershed. *Data are from Tennessee Wildlife Resources Agency. WMA, Wildlife Management Area.*

2.8. TENNESSEE RIVERS ASSESSMENT PROJECT. The Tennessee Rivers Assessment is part of a national program operating under the guidance of the National Park Service's Rivers and Trails Conservation Assistance Program. The Assessment is an inventory of river resources, and should not be confused with "Assessment" as defined by the Environmental Protection Agency. A more complete description can be found in the Tennessee Rivers Assessment Summary Report, which is available from the Department of Environment and Conservation and on the web at:

http://www.state.tn.us/environment/wpc/publications/riv/

STREAM	NSQ	RB	RF	STREAM	NSQ	RB	RF
Bayou Du Chien	2			North Reelfoot Creek	4		3
Biffle Creek	4			Obion River	4	2,3	
Big Ronaldson Slough	1			Obion River Drainage Canal	4	3	
Blackamore Creek	4		4	PawPaw Creek			
Burnt Mill Hollow Creek	3			Powell Creek	4		3
Cane Creek	4			Pursley Creek			
Clear Creek	4			Reeds Creek	4		
Clover Creek	4		2	Reelfoot Creek	3		
Cool Springs Branch Reeds Creek	3			Richland Creek	4		4
Cypress Creek North	3		2	Running Reelfoot Bayou	4	3	
Cypress Creek South	4		4	Running Reelfoot Ditch	4		
Davidson Creek	4		2	South Reelfoot Creek	4		
Grass Creek	4			Spring Hill Creek	4		
Harris Fork Creek	4			Terrapin Creek	3		
Hoosier Creek	3			Troy Creek	4		
Hurricane Creek	4		3	Walnut Fork North Fork Obion River	3		
Mill creek	3,4			Zion Creek	3		
North Fork Obion River	2,3,4	3					

Table 2-6. Tennessee Rivers Assessment Project Stream Scoring in the North Fork Obion River Watershed.

Categories: NSQ, Natural and Scenic Qualities
RB, Recreational Boating
RF, Recreational Fishing

Scores: 1. Statewide or greater Significance; Excellent Fishery
2. Regional Significance; Good Fishery
3. Local Significance; Fair Fishery
4. Not a significant Resource; Not Assessed

CHAPTER 3

WATER QUALITY ASSESSMENT OF THE OBION RIVER (NORTH FORK) WATERSHED.

3.1. BACKGROUND. Section 305(b) of The Clean Water Act requires states to report the status of water quality every two years. Historically, Tennessee's methodologies, protocols, frequencies and locations of monitoring varied depending upon whether sites were ambient, ecoregion, or intensive survey. Alternatively, in areas where no direct sampling data existed, water quality may have been assessed by evaluation or by the knowledge and experience of the area by professional staff.

In 1996, Tennessee began the watershed approach to water quality protection. In the Watershed Approach, resources—both human and fiscal—are better used by assessing water quality more intensively on a watershed-by-watershed basis. In this approach, water quality is assessed in year three of the watershed cycle, following one to two years of data collection. More information about the Watershed Approach may be found in Chapter 1 and at http://www.state.tn.us/environment/wpc/watershed/

The assessment information is used in the 305(b) Report (The Status of Water Quality in Tennessee) and the 303(d) list as required by the Clean Water Act.

The 305(b) Report documents the condition of the State's waters. Its function is to provide information used for water quality based decisions, evaluate progress, and measure success.

Tennessee uses the 305(b) Report to meet four goals (from 2008 305(b) Report):

1. Describe the water quality assessment process.

2. Categorize waters in the State by placing them in the assessment categories suggested by federal guidance.

3. Identify waterbodies that pose eminent human-health risks due to elevated bacteria levels or contamination of fish.

4. Provide detailed information on each watershed.

EPA aggregates the state use support information into a national assessment of the nation's water quality. This aggregated use support information can be viewed at EPA's "Surf Your Watershed" site at http://cfpub.epa.gov/surf/locate/index.cfm.

The 303(d) list is a compilation of the waters of Tennessee that fail to support some or all of their classified uses. The 303(d) list does not include streams determined to be fully supporting designated uses nor streams the Division of Water Pollution Control cannot assess due to lack of water quality information. Also absent are streams where a control strategy is already in the process of being implemented.

Once a stream is placed on the 303(d) list, it is considered a priority for water quality improvement efforts. These efforts not only include traditional regulatory approaches such as permit issuance, but also include efforts to control pollution sources that have historically been exempted from regulations, such as certain agricultural and forestry activities. If a stream is on the 303(d) list, the Division of Water Pollution Control cannot use its regulatory authority to allow additional sources of the same pollutant(s) for which it is listed.

States are required to develop Total Maximum Daily Loads (TMDLs) for 303(d)-listed waterbodies. The TMDL process establishes the maximum amount of a pollutant that a waterbody can assimilate without exceeding water quality standards and allocates this load among all contributing pollutant sources. The purpose of the TMDL is to establish water quality objectives required to reduce pollution from both point and nonpoint sources and to restore and maintain the quality of water resources.

The current 303(d) List is available on the TDEC homepage at:
http://tennessee.gov/environment/wpc/publications/303d2008.pdf

and information about Tennessee's TMDL program may be found at:
http://www.state.tn.us/environment/wpc/tmdl/.

This chapter provides a summary of water quality in the Tennessee portion of the Obion River (North Fork) Watershed, summarizes data collection and assessment results, and describes impaired waters.

3.2. DATA COLLECTION. The following figures and table represent data collected in the last 5-year cycle (July 1, 2000 through June 30, 2005). Water quality data are from one of four site types: (1) Ambient sites, (2) Ecoregion sites, (3) Watershed Screening sites, or (4) Tier Evaluation sites.

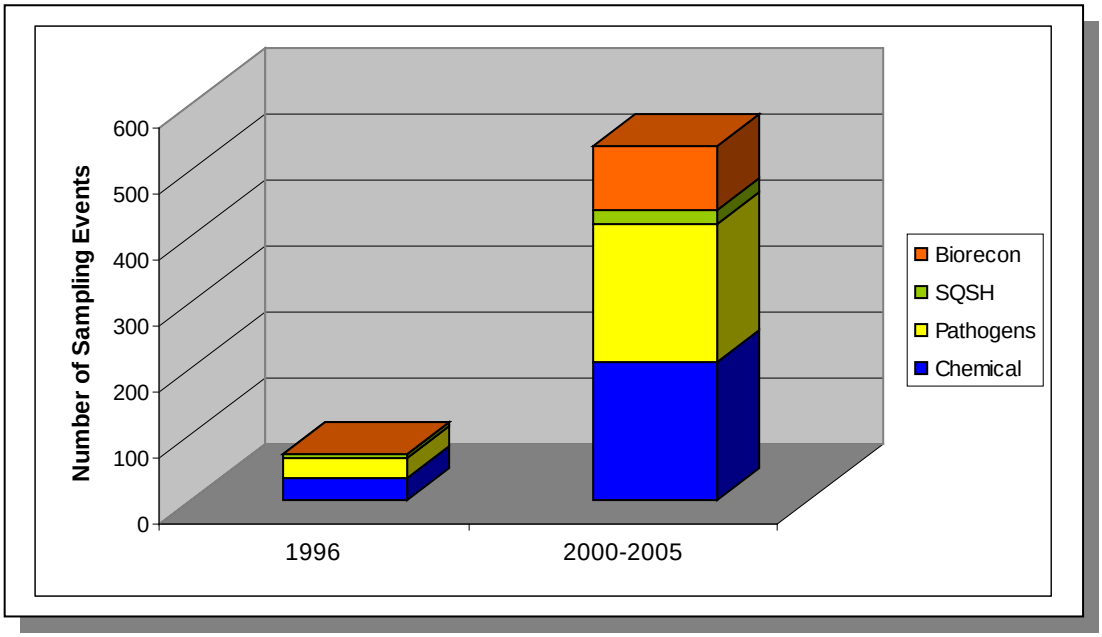


Figure 3-1. Number of Sampling Events Using the Traditional Approach (1996) and Watershed Approach (July 1, 2000 through June 30, 2005) in the Tennessee Portion of the Obion River (North Fork) Watershed.

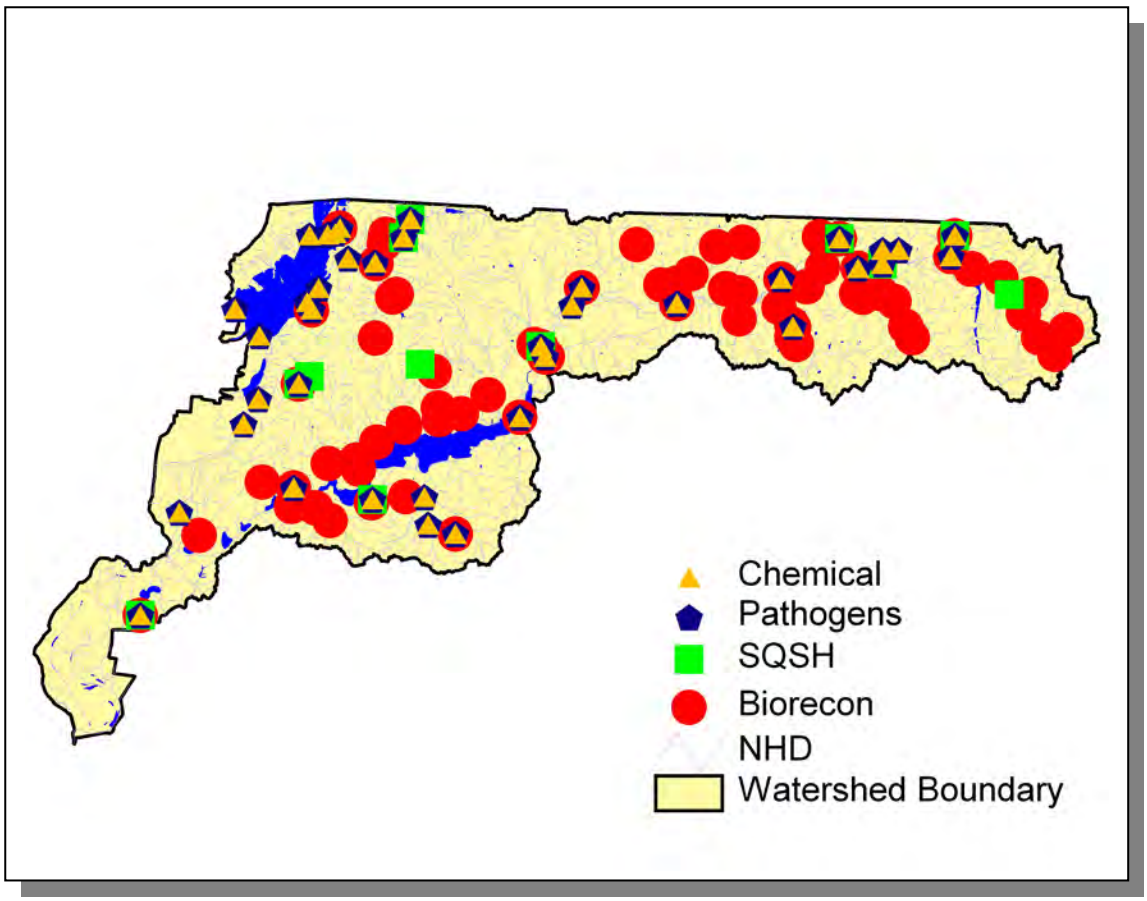


Figure 3-2. Location of Monitoring Sites in the Tennessee Portion of the Obion River (North Fork) Watershed (July 1, 2000 through June 30, 2005). *Pathogens include E. coli and fecal coliform; NHD, National Hydrography Dataset of Streams; SQSH, Semi-Quantitative Single Habitat Assessment.*

	1996	2000-2005
Chemical	32	209
Pathogens	32	209
SQSH	7	21
Biorecon	0	98
Total	**71**	**537**

Table 3-1. Number of Sampling Events in the Tennessee Portion of the Obion River (North Fork) Watershed in 1996 and in the last 5-Year Cycle (July 1, 2000 through June 30, 2005).

3.2.A. Ambient Monitoring Sites. These fixed-station chemical monitoring sites are sampled quarterly or monthly by the Environmental Field Office-Jackson staff (this is in addition to samples collected by water and wastewater treatment plant operators and MS4 permittees). Samples are analyzed by the Tennessee Department of Health, Division of Environmental Laboratory Services. Ambient monitoring data are used to assess water quality in major bodies of water where there are NPDES facilities and to identify trends in water quality. Water quality parameters traditionally measured at ambient sites in the Tennessee portion of the Obion River (North Fork) Watershed are provided in Appendix IV.

Data from ambient monitoring stations are entered into the STORET (Storage and Retrieval) system administered by EPA.

3.2.B. Ecoregion Sites. Ecoregions are relatively homogeneous areas of similar geography, topography, climate and soils that support similar plants and animals. The delineation phase of the Tennessee Ecoregion Project was completed in 1997 when the ecoregions and subecoregions were mapped and summarized (EPA/600/R-97/022). There are eight Level III Ecoregions and twenty-five Level IV subecoregions in Tennessee (see Chapter 2 for more details). The Tennessee portion of the Obion River (North Fork) Watershed lies within 3 Level III ecoregions (Southeastern Plains, Mississippi Alluvial Plain and Mississippi Valley Loess Plain) and contains 4 subecoregions (Level IV):

- Southeastern Plains and Hills (65e)
- Northern Mississippi Alluvial Plain (73a)
- Bluff Hills (74a)
- Loess Plain (4b)

Ecoregion reference sites are chemically monitored using methodology outlined in the Division's Chemical Standard Operating Procedure (Standard Operating Procedure for Modified Clean Technique Sampling Protocol). Macroinvertebrate samples are collected in spring and fall. These biological sample collections follow methodology outlined in the Tennessee Biological Standard Operating Procedures Manual. Volume 1: Macroinvertebrates and EPA's Revision to Rapid Bioassessment Protocols for use in Streams and Rivers.

Ecoregion stations are scheduled to be monitored during the watershed sampling time period.

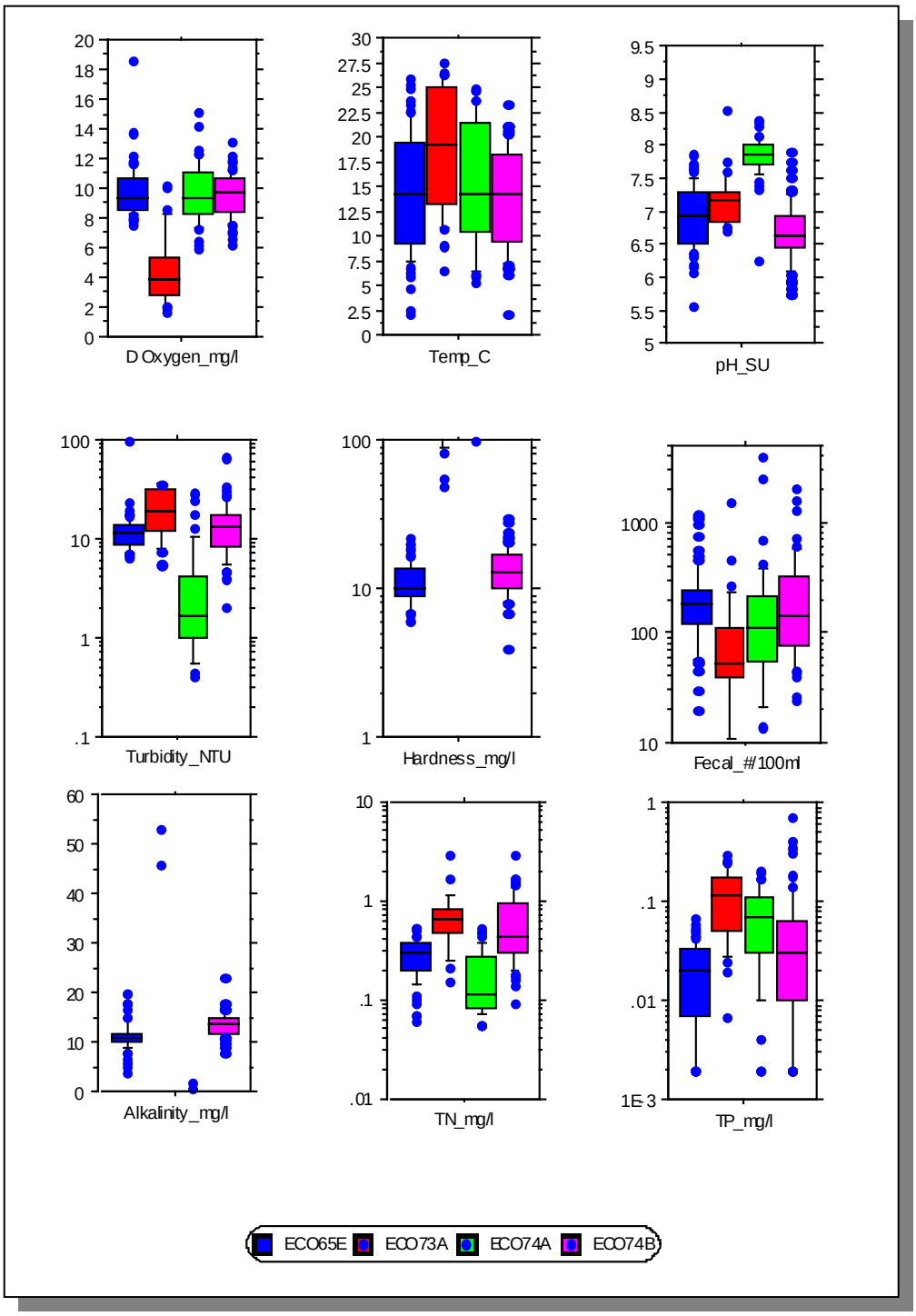


Figure 3-3. Select Chemical Data Collected in the Tennessee Portion of the Obion River (North Fork) Watershed Ecoregion Sites. *Boxes and bars illustrate 10th, 25th, median, 75th, and 90th percentiles. Extreme values are also shown as dots. Fecal, fecal coliform bacteria; TN, Total Nitrogen; TP, Total Phosphorus.*

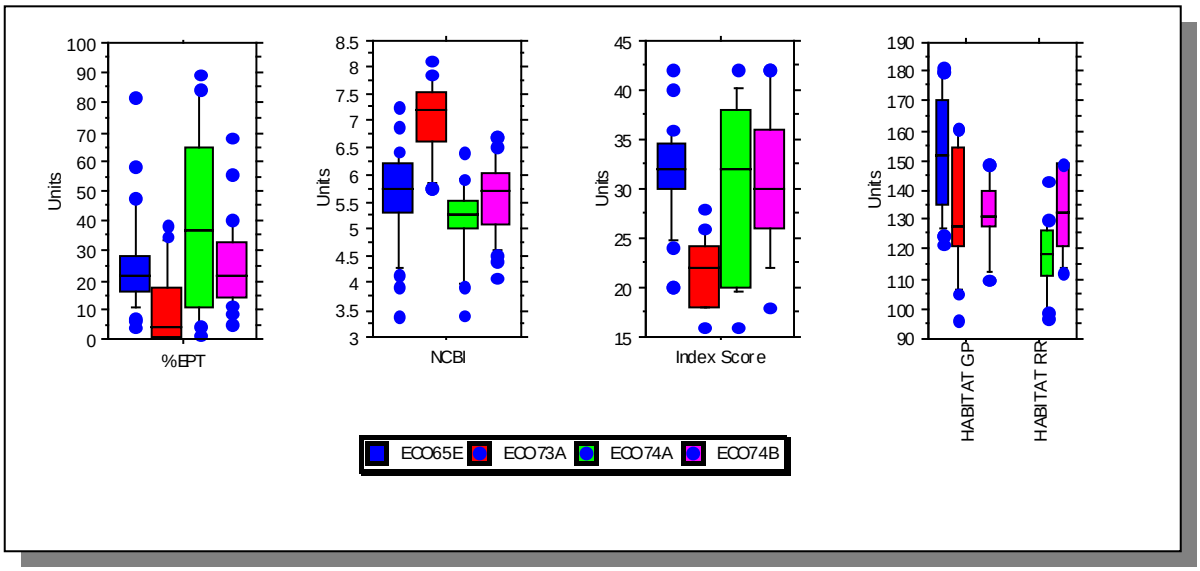


Figure 3-4. Benthic Macroinvertebrate and Habitat Scores for the Tennessee Portion of the Obion River (North Fork) Watershed Ecoregion Sites. *Boxes and bars illustrate 10th, 25th, median, 75th, and 90th percentiles. Extreme values are also shown as dots. NCBI, North Carolina Biotic Index. Index Score and Habitat Riffle/Run scoring system are described in TDEC's Quality System Standard Operating Procedure for Macroinvertebrate Surveys (2002).*

3.2.C. Watershed Screening Sites. Activities that take place at watershed sites are benthic macroinvertebrate stream surveys, physical habitat determinations and/or chemical monitoring. Following review of existing data, watershed sites are selected in Year 1 of the watershed approach when preliminary monitoring strategies are developed. Additional sites may be added in Year 2 when additional monitoring strategies are implemented.

A Biological Reconnaissance (BioRecon) is used as a screening tool to describe the condition of water quality, in general, by determining the absence or presence of clean water indicator organisms, such as EPT (Ephemeroptera [mayfly], Plecoptera [stonefly], Trichoptera [caddisfly]). Factors and resources used for selecting BioRecon sites are:

- The current 303(d) list,
- HUC-12 maps (every HUC-12 is considered for a BioRecon)
- Land Use/Land Cover maps
- Topographic maps
- Locations of NPDES facilities
- Sites of recent ARAP activities.

An intensive multiple or single habitat assessment involves the regular monitoring of a station over a fixed period of time. Intensive surveys (Rapid Bioassessment Protocols) are performed when BioRecon results warrant it.

3.2.D. Special Surveys. These investigations are performed when needed and include:

- ARAP in-stream investigation
- Time-of-travel dye study
- Sediment oxygen demand study
- Lake eutrophication study

3.3. STATUS OF WATER QUALITY. Use support determinations, which can be classified as monitored or evaluated, are based on:

- Data less than 5 years old (monitored)
- Data more than 5 years old (evaluated)
- Knowledge and experience of the area by technical staff (evaluated)
- Complaint investigation (monitored, if samples are collected)
- Other readily available Agencies' data (monitored)
- Readily available Volunteer Monitoring data (monitored, if certain quality assurance standards are met)

All readily available data are considered, including data from TDEC Environmental Field Offices, Tennessee Department of Health (Aquatic Biology Section of Laboratory Services), Tennessee Wildlife Resources Agency, National Park Service, Tennessee Valley Authority, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Geological Survey, U.S. Forest Service, universities and colleges, the regulated community, and the private sector.

Waterbodies are assessed by comparing monitored water conditions to water quality standards for the stream, river, or reservoir's designated uses. Data that meet quality control standards and collection techniques are used to generate assessments. After use support is determined, waterbodies are placed in one of the following five categories recommended by EPA.

CATEGORY ASSESSMENT	STREAM MILES	RESERVOIR ACRES
Total	1,744.4	15,550
Assessed	556.5	15,550
Category 1	100.0	0
Category 2	73.4	0
Category 3	1,187.9	0
Category 4	0.0	0
Category 5	383.1	15,550

Table 3.2. Use Support Categories (Stream Miles and/or Reservoir Acres) in the Tennessee Portion of the Obion River (North Fork) Watershed.

Use Support Categories: (from 2008 305(b) Report)

Category 1 waters are **fully supporting** of all designated uses. These streams, rivers, and reservoirs have been monitored and meet the most stringent water quality criteria for all designated uses for which they are classified. The biological integrity of Category 1 waters is comparable with reference streams in the same subecoregion and pathogen concentrations are at acceptable levels.

Category 2 waters are **fully supporting** of some designated uses, but have not been assessed for all uses. In many cases, these waterbodies have been monitored and are fully supporting of fish and aquatic life, but have not been assessed for recreational use.

Category 3 waters are **not assessed** due to insufficient or outdated data.

Category 4 waters are **impaired**, but a TMDL is not required. Category 4 has been further subdivided into three subcategories.

Category 4a impaired waters that have already had all necessary TMDLs approved by EPA.

Category 4b impaired waters do not require TMDL development since "other pollution control requirements required by local, State or Federal authority are expected to address all water-quality pollutants" (EPA, 2003). An example of a 4b stream might be where a discharge point will be moved in the near future to another waterbody with more assimilative capacity.

Category 4c impaired waters in which the impacts are not caused by a pollutant (e.g., certain habitat or flow alterations).

Category 5 waters have been monitored and found to not meet one or more water quality standards. These waters have been identified as **not supporting** their designated uses. Category 5 waterbodies are moderately to highly impaired by pollution and need to have TMDLs developed for the known impairments. These waters are included in the 303(d) List of impaired waters in Tennessee.

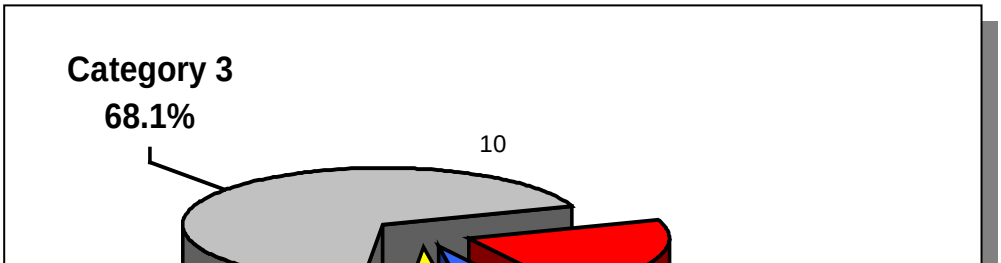


Figure 3-5. Water Quality Assessment of Streams in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment of 1,744.4 stream miles in the watershed.*

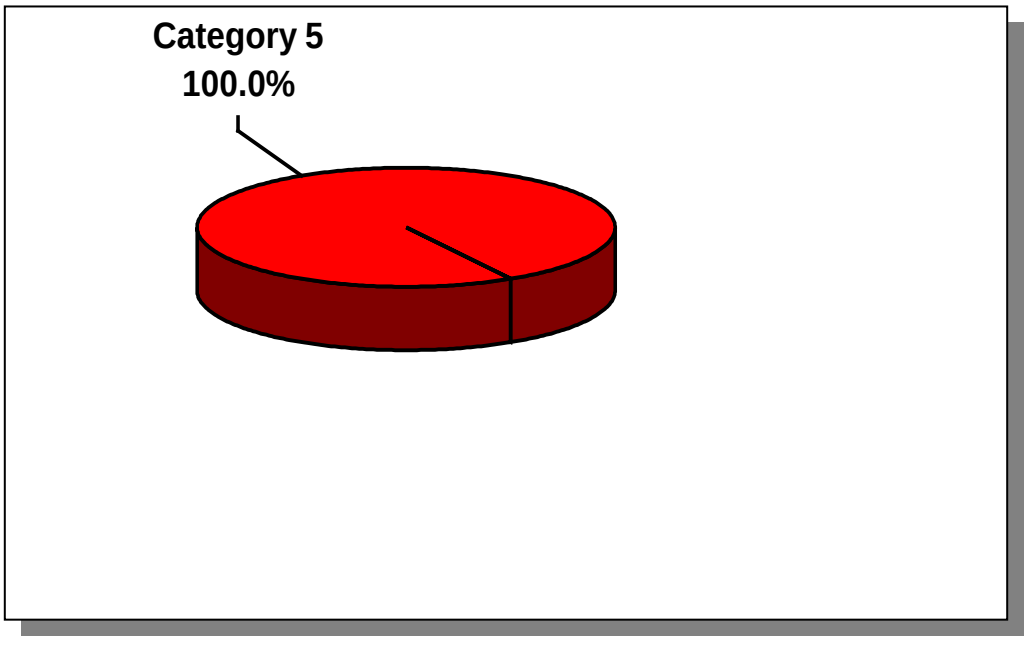


Figure 3-6. Water Quality Assessment of Lakes in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment of 15,550 lake acres in the watershed.*

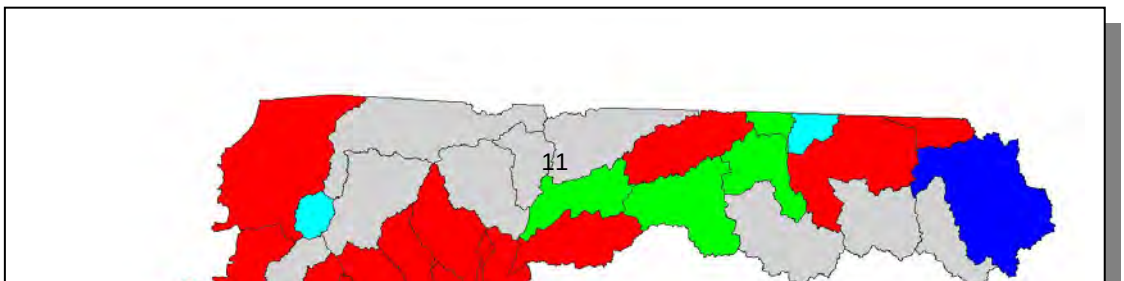


Figure 3-7. Percentage of Stream Miles Assessed for Support of Fish and Aquatic Life Designated Use in HUC-12 Subwatersheds.

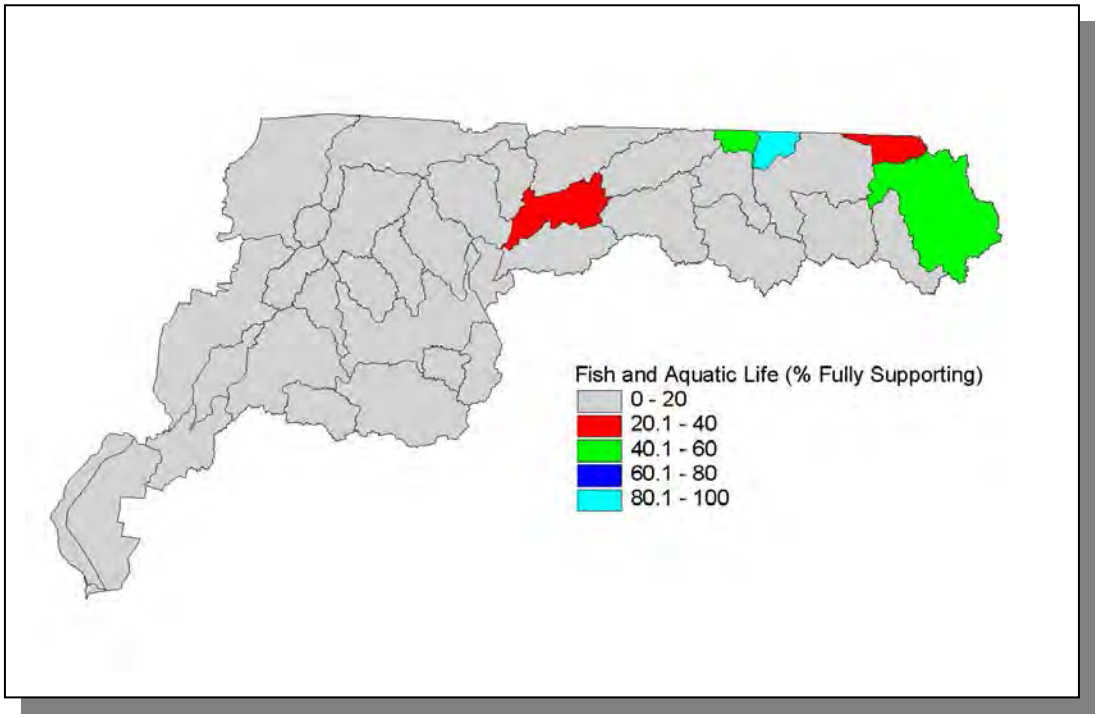


Figure 3-8. Percentage of Stream Miles Fully Supporting for Fish and Aquatic Life Designated Use in HUC-12 Subwatersheds.

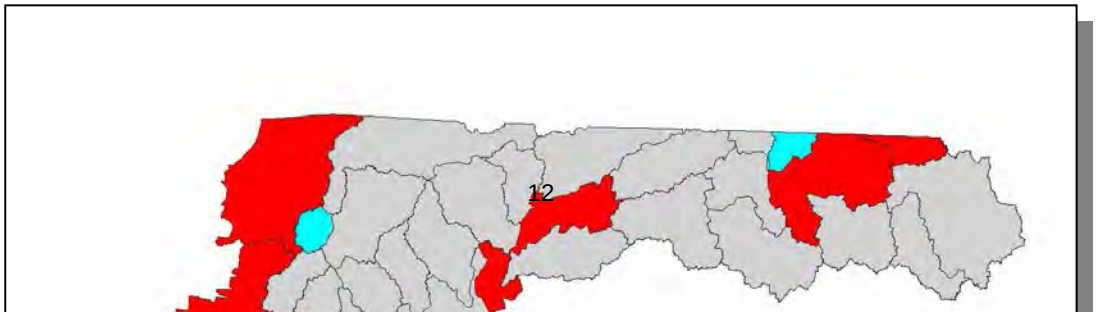


Figure 3-9. Percentage of Stream Miles Assessed for Support of Recreation Designated Use in HUC-12 Subwatersheds.

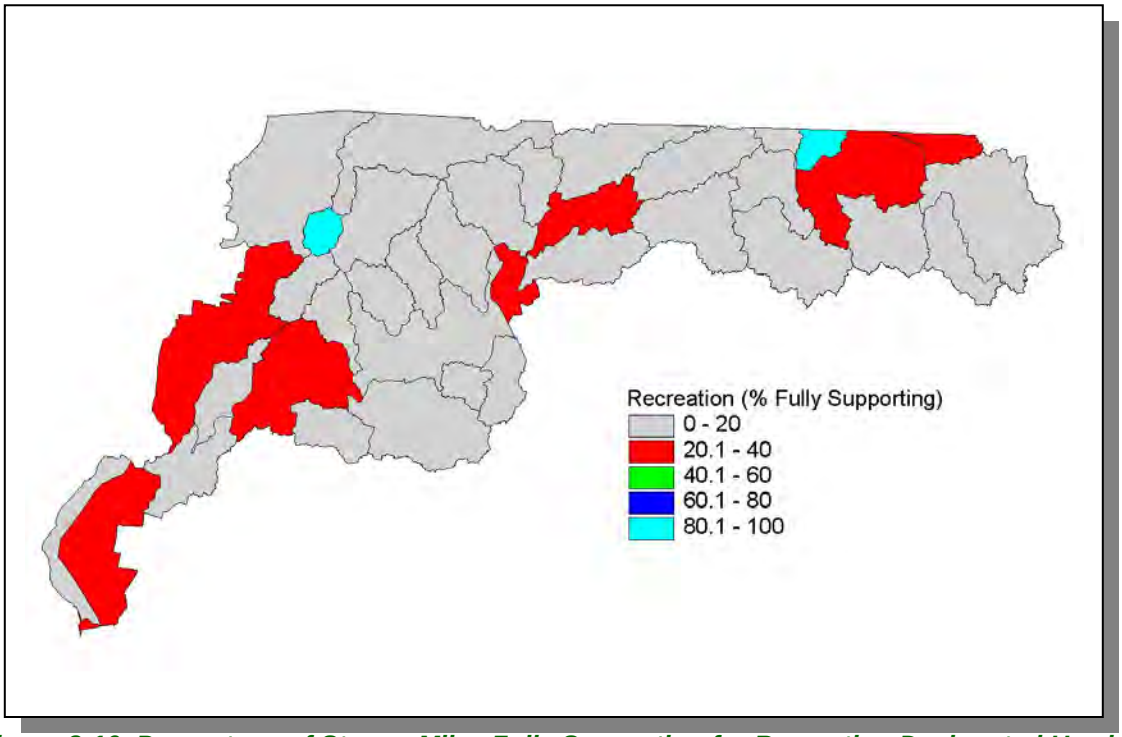


Figure 3-10. Percentage of Stream Miles Fully Supporting for Recreation Designated Use in HUC-12 Subwatersheds.

3.3.A. Assessment Summary.

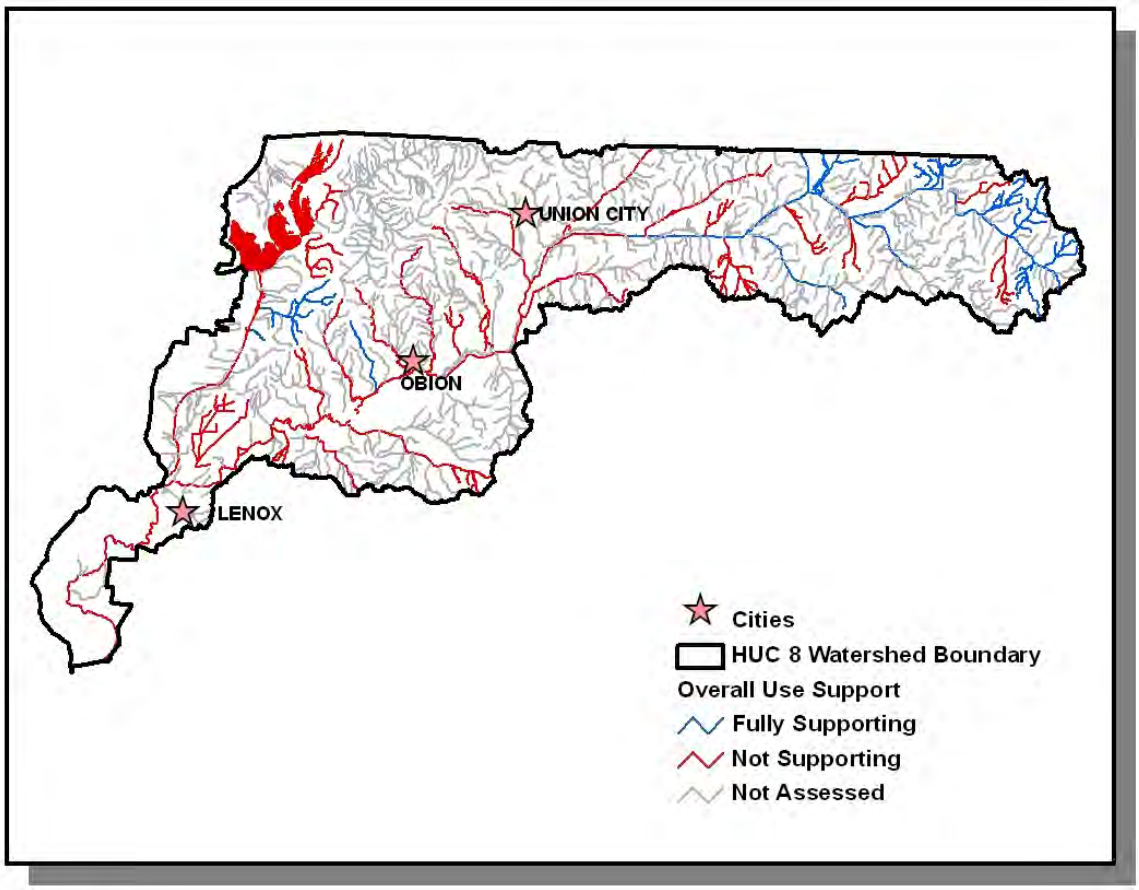


Figure 3-11. Overall Use Support Attainment in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of Lenox, Obion, and Union City are shown for reference. More information is provided in Appendix III.*

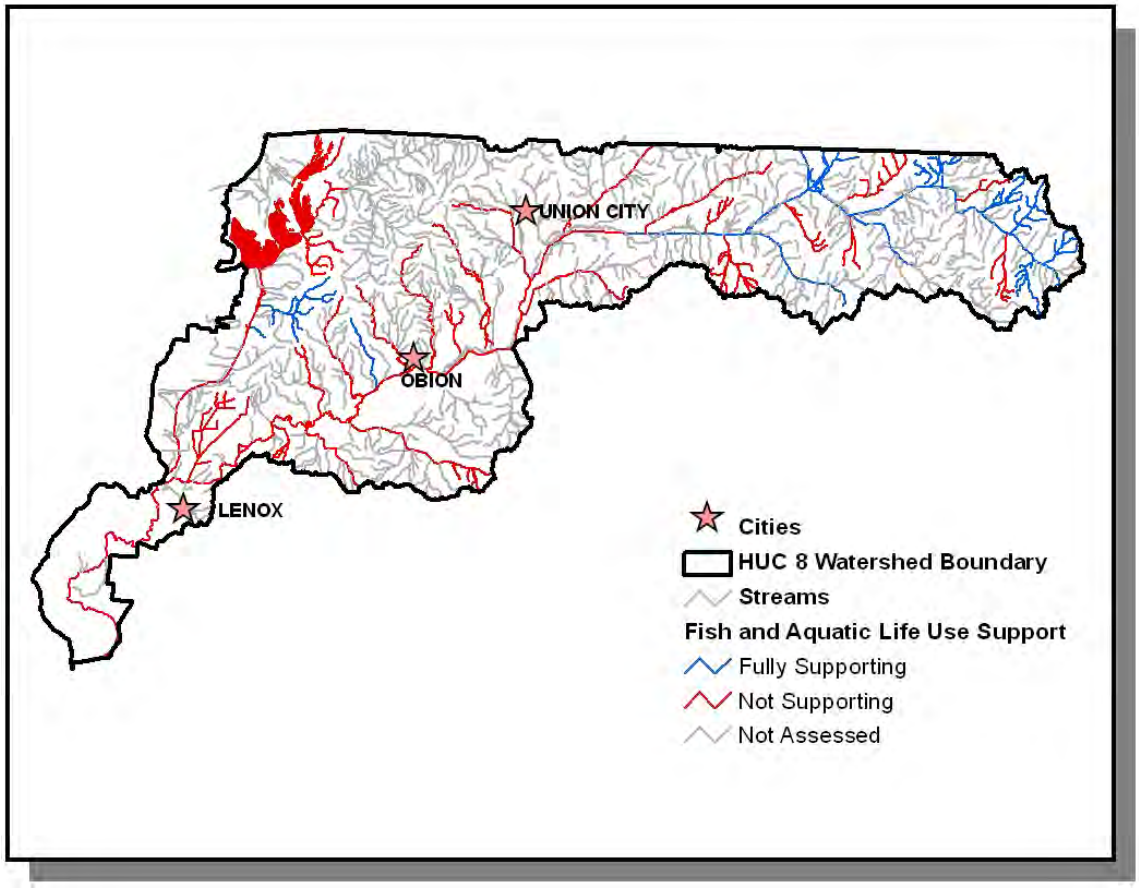


Figure 3-12. Fish and Aquatic Life Use Support Attainment in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of Lenox, Obion, and Union City are shown for reference. More information is provided in Appendix III.*

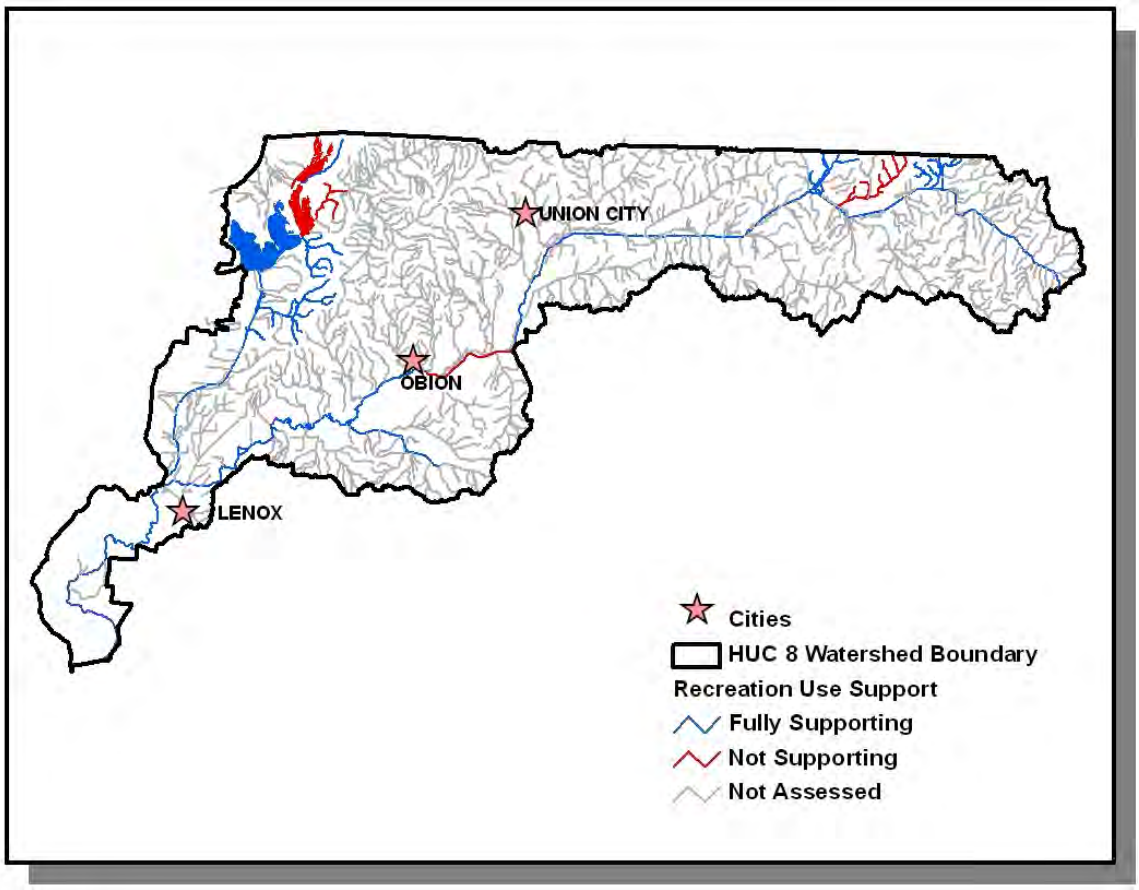


Figure 3-13. Recreation Use Support Attainment in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of Lenox, Obion, and Union City are shown for reference. More information is provided in Appendix III.*

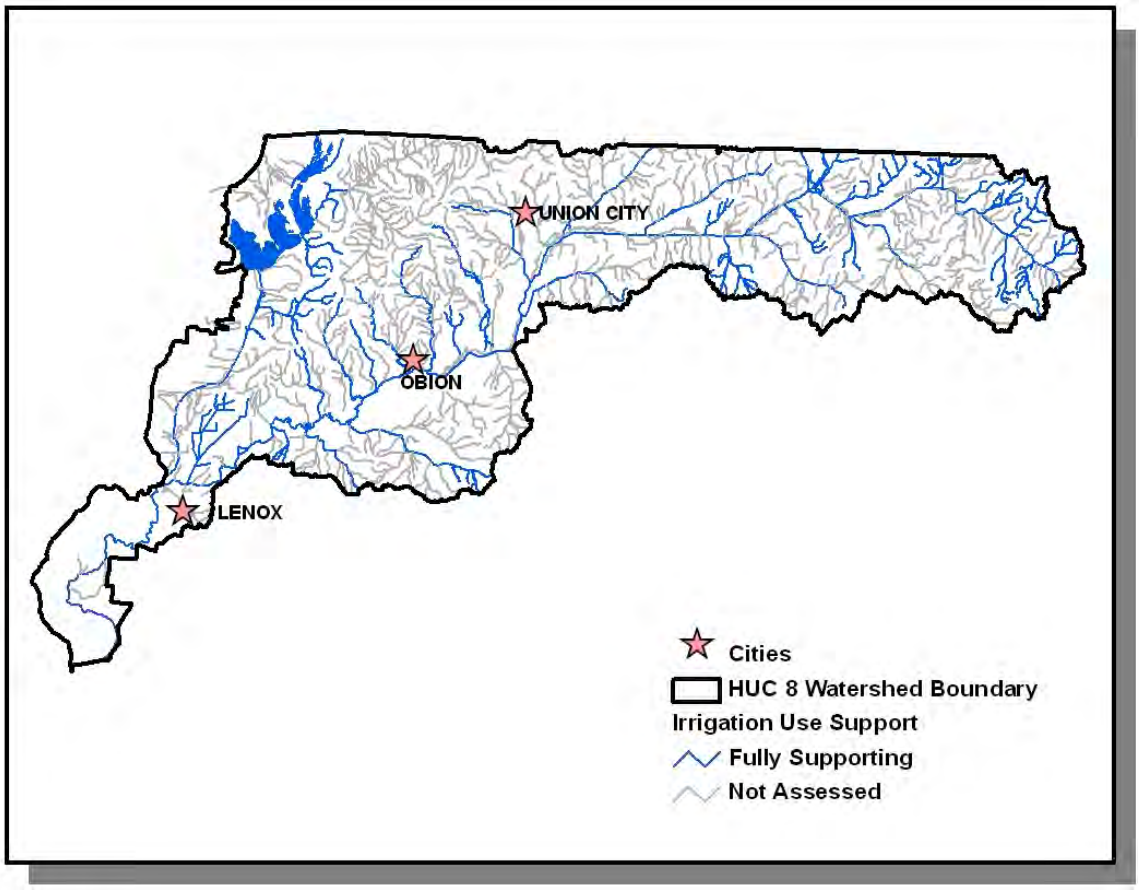


Figure 3-14. Irrigation Use Support Attainment in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of Lenox, Obion, and Union City are shown for reference. More information is provided in Appendix III.*

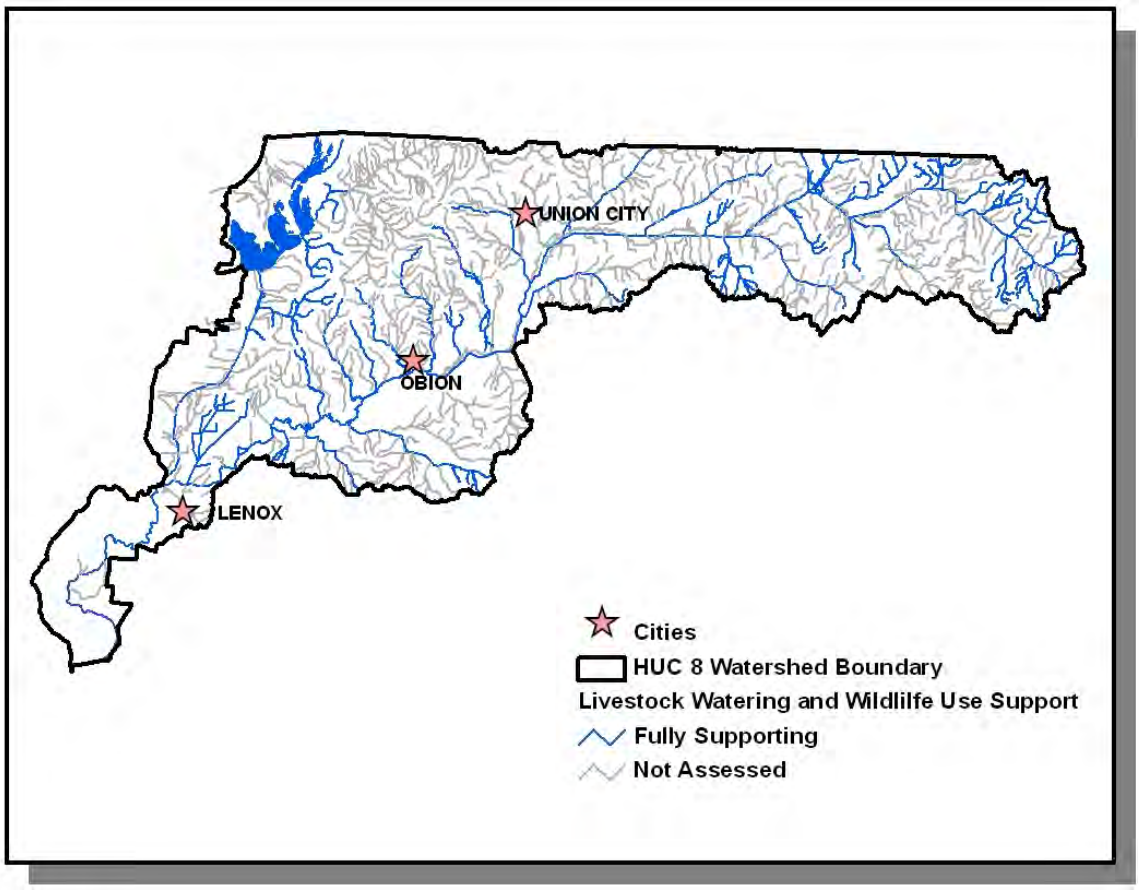


Figure 3-15. Livestock Watering and Wildlife Use Support Attainment in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of are shown for reference. More information is provided in Appendix III.*

3.3.B. Use Impairment Summary.

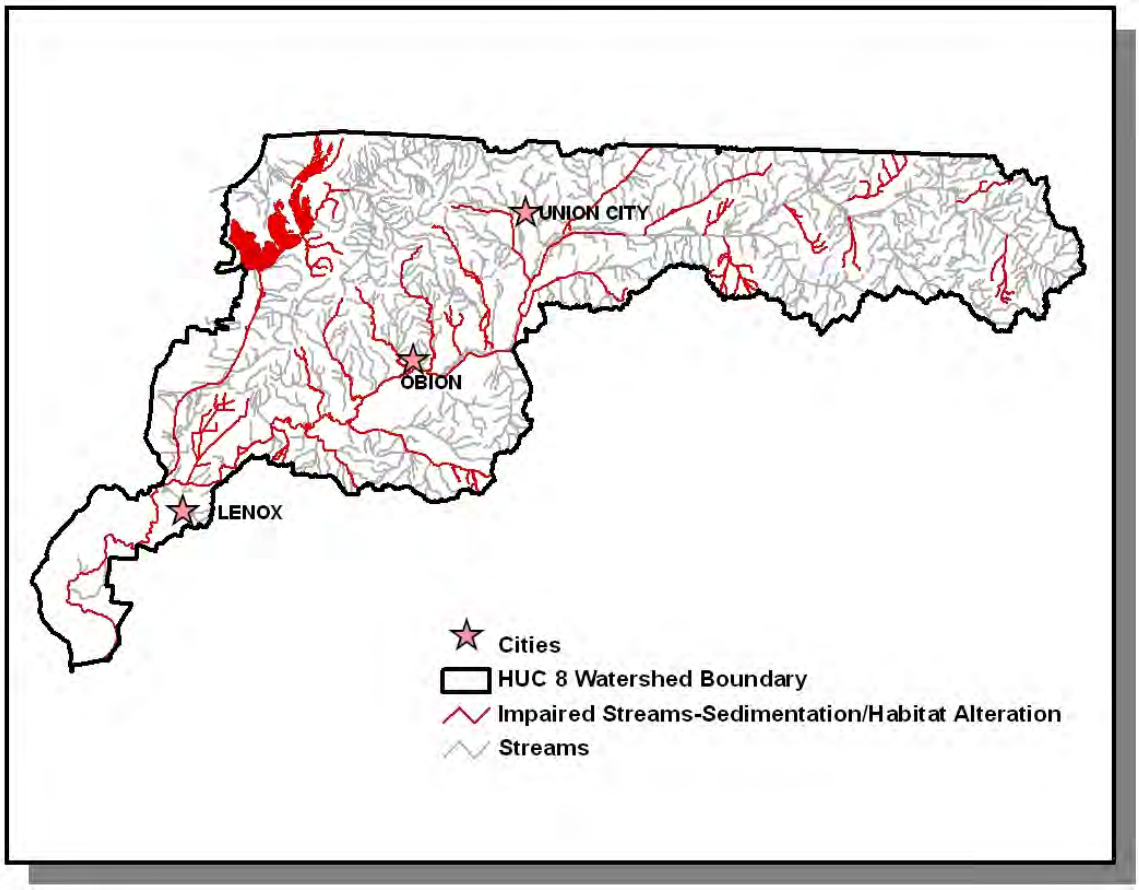


Figure 3-16. Impaired Streams Due to Sedimentation/Habitat Alteration in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Locations of Lenox, Obion, and Union City are shown for reference. More information is provided in Appendix III.*

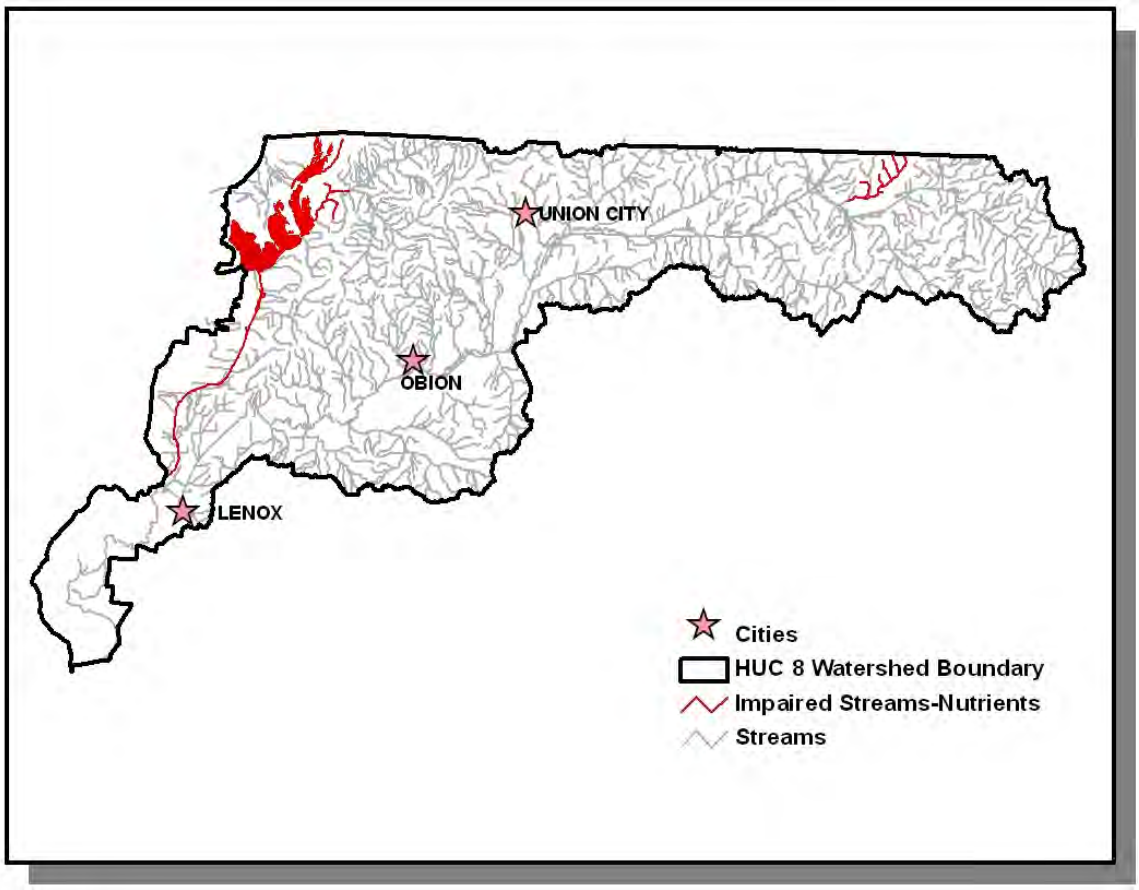


Figure 3-17. Impaired Streams Due to Nutrients in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Locations of Lenox, Obion, and Union City are shown for reference. More information is provided in Appendix III.*

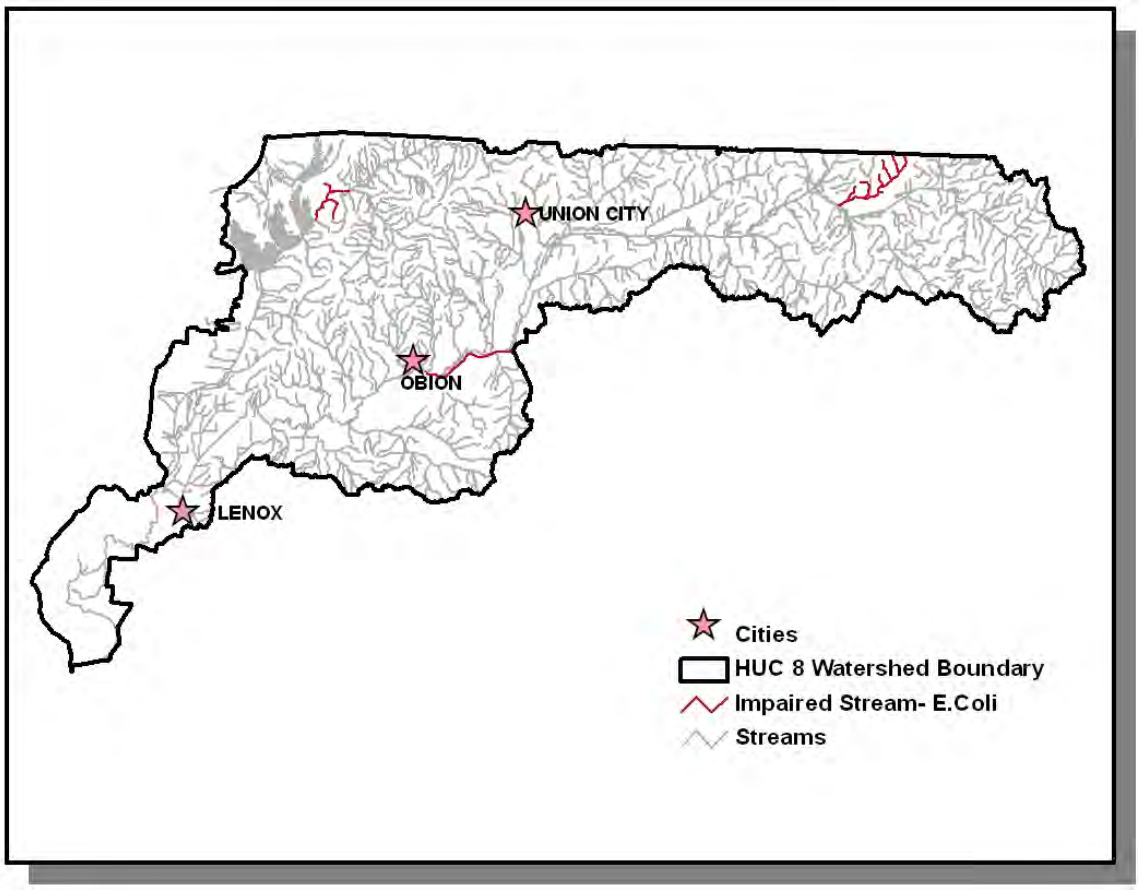


Figure 3-18. Impaired Streams Due to Escherichia coli in the Tennessee Portion of the Obion River (North Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Locations of Lenox, Obion, and Union City are shown for reference. More information is provided in Appendix III.*

The listing of impaired waters that do not support designated uses (the 303(d) list) is traditionally submitted to EPA every two years. A copy of the most recent 303(d) list may be downloaded from http://www.state.tn.us/environment/wpc/publications/.

Since the year 2002, the 303(d) list is compiled by using EPA's ADB (Assessment Database) software developed by RTI (Research Triangle Institute). The ADB allows for a more detailed segmentation of waterbodies. While this results in a more accurate description of the status of water quality, it makes it difficult when comparing water quality assessments with and without using this tool. A more meaningful comparison will be between assessments completed in Year 3 of each succeeding five-year cycle.

The ADB was used to create maps that illustrate water quality. These maps may be viewed at http://gis3.memphis.edu/wpc/.

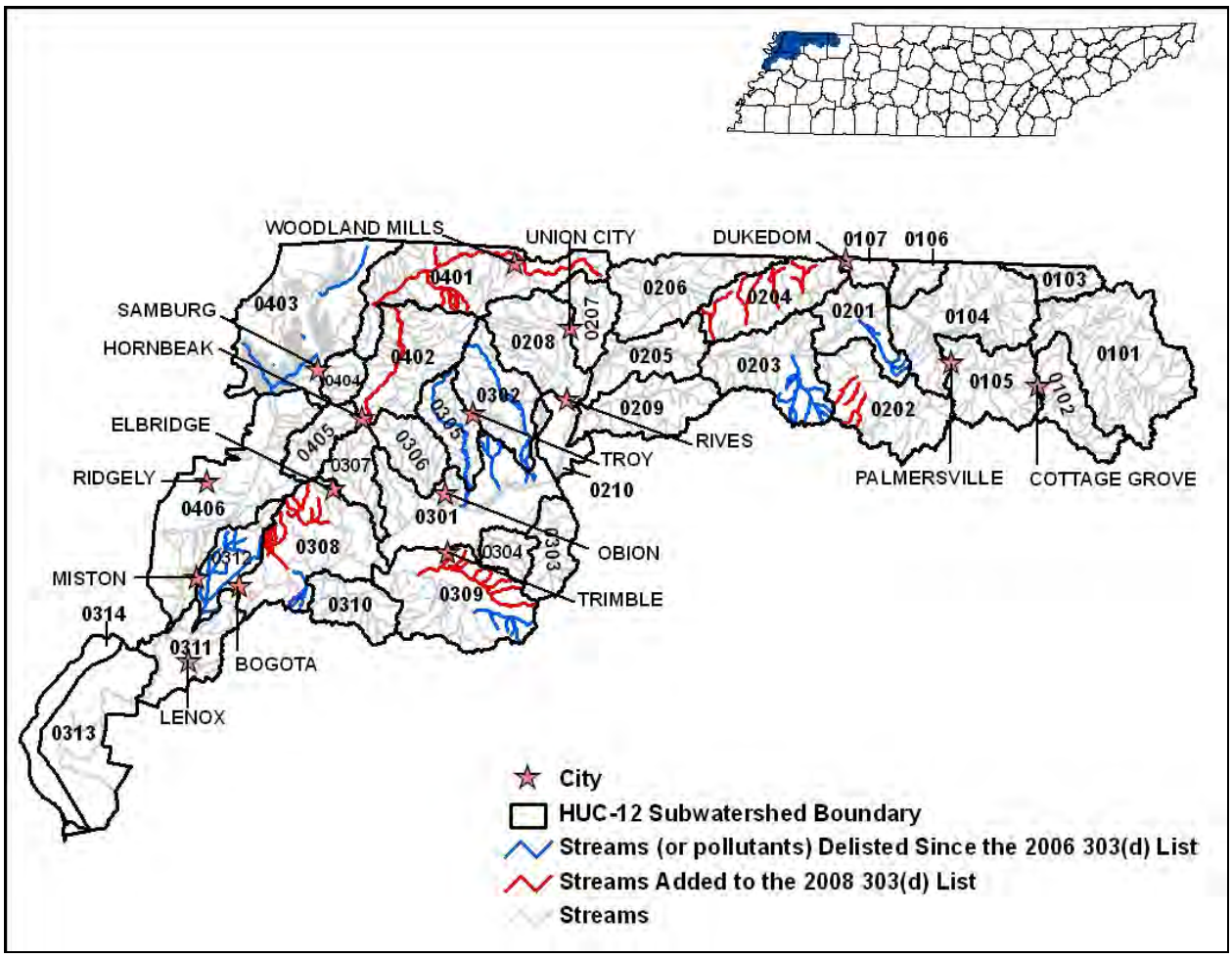


Figure 3-19. Changes to the 303(d) List of Impaired Waters in the Tennessee Portion of the Obion River (North Fork) Watershed Since Approval of the 2006 List by EPA. *More information is provided in Appendix III.*

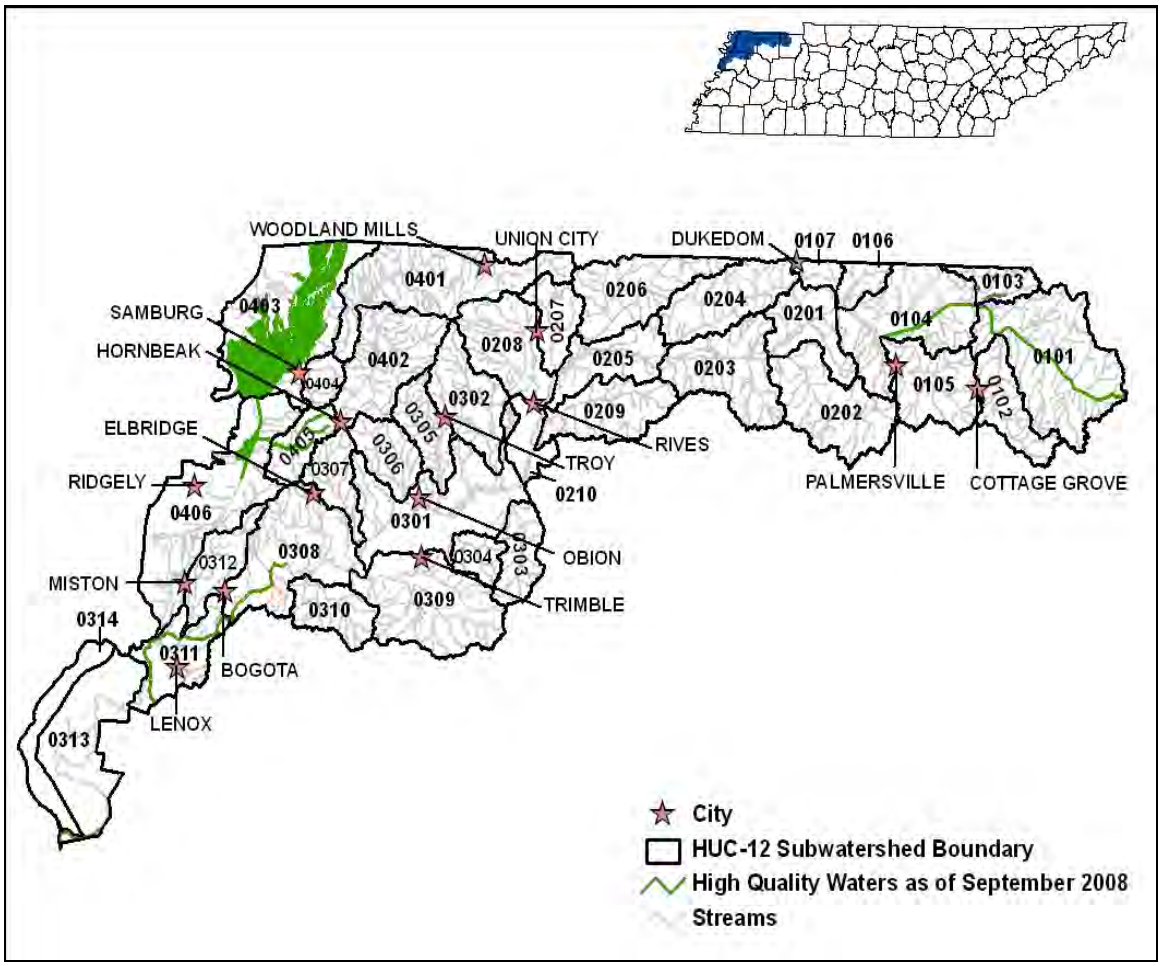


Figure 3-20. High Quality Waters Identified in the Tennessee Portion of the Obion River (North Fork) Watershed. *More information is provided in Appendix III.*

CHAPTER 4

POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE OBION RIVER (NORTH FORK) WATERSHED

4.1. BACKGROUND. This chapter is organized by HUC-12 subwatershed, and the description of each subwatershed is divided into four parts:

i. General description of the subwatershed
ii. Location of USGS (United States Geological Survey) gaging stations and STORET sites.
iii. Location of permitted activities
iv. Description of nonpoint source contributions

The HUC can range from 2 to 16 digits long, more digits indicating a smaller and smaller portion of the watershed is represented. The Tennessee Portion of the North Fork Obion River Watershed (HUC 08020202) has been delineated into thirty-seven HUC-12 subwatersheds.

Information for this chapter was obtained from databases maintained by the Division of Water Pollution Control or provided in the WCS (Watershed Characterization System) data set. The WCS used was version 2.0 (developed by Tetra Tech, Inc for EPA Region 4) released in 2003.

WCS integrates with ArcView® v3.x and Spatial Analyst® v1.1 to analyze user-delineated (sub)watersheds based on hydrologically connected water bodies. Reports are generated by integrating WCS with Microsoft® Word. Land Use/Land Cover information from 2001 MRLC (Multi-Resolution Land Cover) data are calculated based on the proportion of county-based land use/land cover in user-delineated (sub)watersheds. Nonpoint source data in WCS are based on agricultural census data collected 1992–1998; nonpoint source data were reviewed by Tennessee NRCS staff.

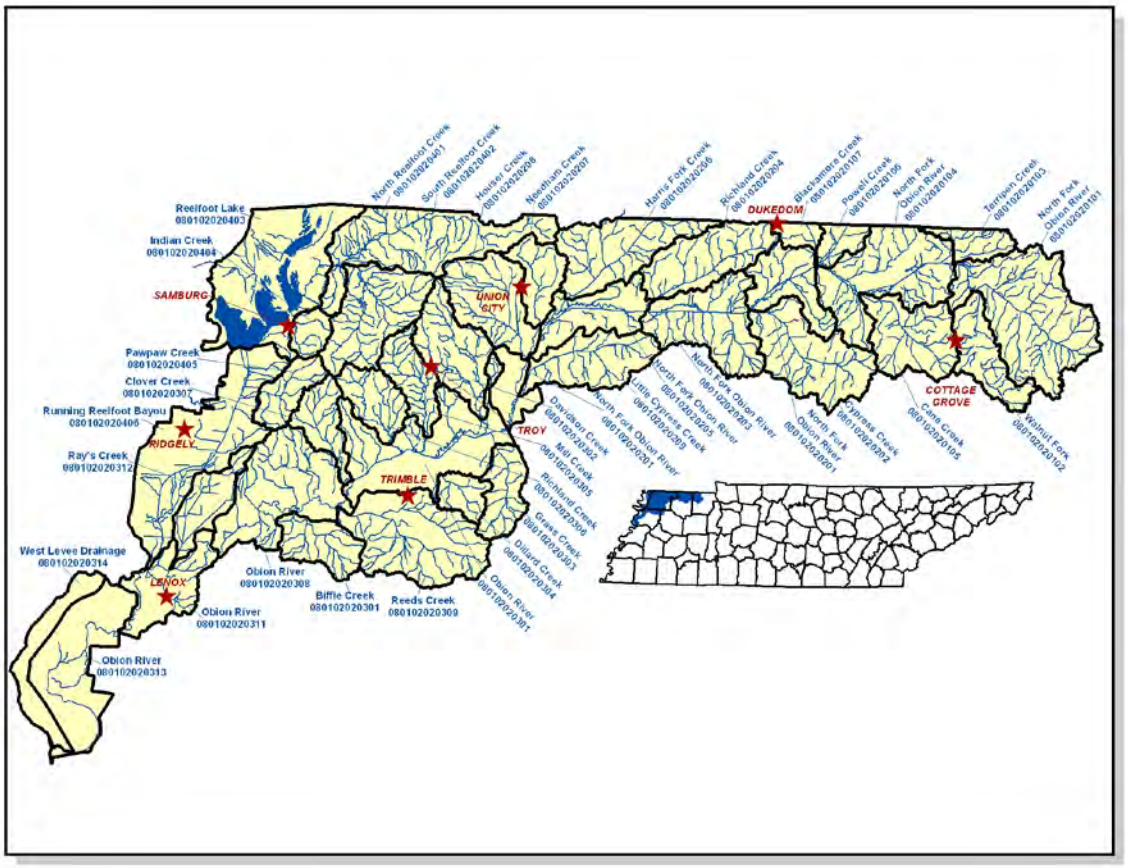


Figure 4-1. The Tennessee Portion of the North Fork Obion River Watershed is Composed of thirty seven USGS-Delineated Subwatersheds (12-Digit Subwatersheds).

4.2. CHARACTERIZATION OF HUC-12 SUBWATERSHEDS. The Watershed Characterization System (WCS) software and data sets provided by EPA Region IV were used to characterize each subwatershed in the North Fork Obion River Watershed.

HUC-8	HUC-10	HUC-12
08010102	0801020201	080102020101 (North Fork Obion River)
		080102020102 (Walnut Fork)
		080102020103 (Terripen Creek)
		080102020104 (North Fork Obion River)
		080102020105 (Cane Creek)
		080102020106 (Powell Creek)
		080102020107 (Blackamore Creek)
	0801020202	080102020201 (North Fork Obion River)
		080102020202 (Cypress Creek)
		080202020203 (North Fork Obion River)
		080202020204 (Richland Creek)
		080202020205 (North Fork Obion River)
		080202020206 (Harris Fork Creek)
		080202020207 (Needham Creek)
		080202020208 (Houser Creek)
		080202020209 (Little Cypress Creek)
		080202020210 (North Fork Obion River)
	0801020203	080202020301 (Obion River)
		080202020302 (Davidson Creek)
		080202020303 (Grass Creek)
		080202020304 (Dillard Creek)
		080202020305 (Mill Creek)
		080202020306 (Richland Creek)
		080202020307 (Clover Creek)
		080202020308 (Obion River)
		080202020309 (Reeds Creek)
		080202020310 (Biffle Creek)
		080202020311 (Obion River)
		080202020312 (Ray's Creek)
		080202020313 (Obion River)
		080202020314 (West Levee Drainage)
	0801020204	080202020401 (North Reelfoot Creek)
		080202020402 (South Reelfoot Creek)
		080202020403 (Reelfoot Lake)
		080202020404 (Indian Creek)
		080202020405 (Pawpaw Creek)
		080202020406 (Running Reelfoot Bayou)

Table 4-1. HUC-12 Drainage Areas are Nested Within HUC-10 Drainages. *NRCS worked with USGS to delineate the HUC-10 and HUC-12 drainage boundaries.*

4.2.A. 080102020101 (North Fork Obion River).

4.2.A.i. General Description.

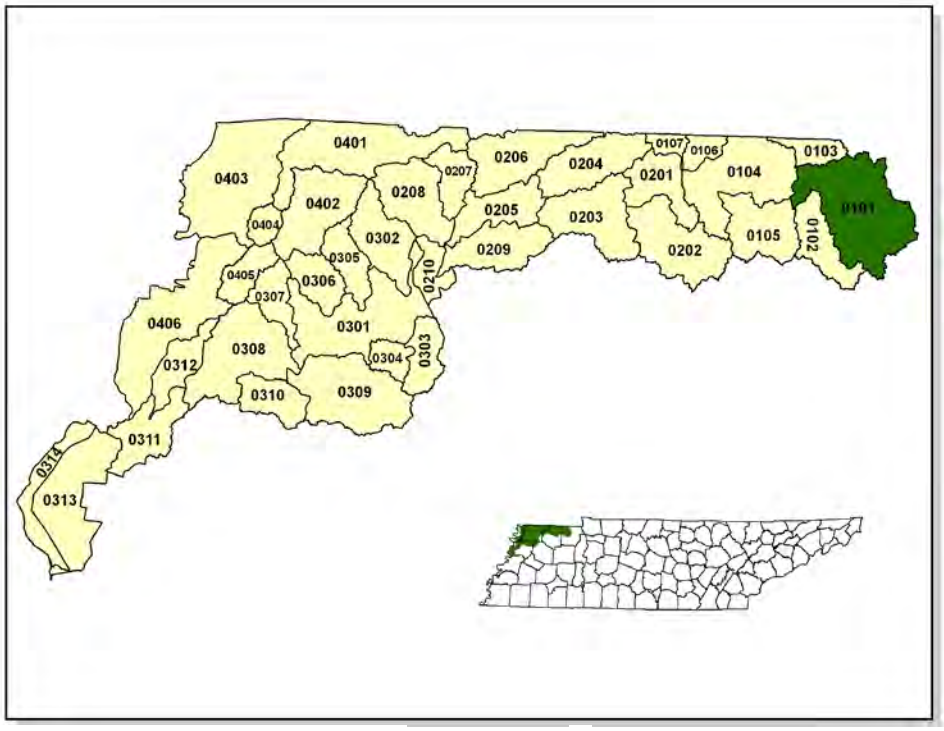


Figure 4-2. Location of Subwatershed 080102020101. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

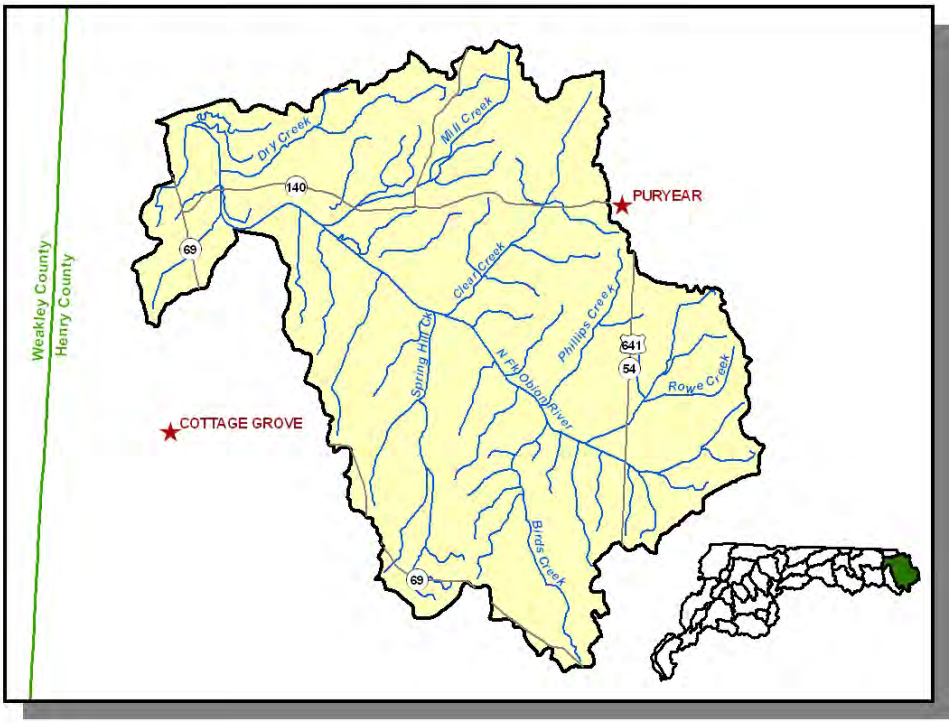


Figure 4-3. Locational Details of Subwatershed 080102020101.

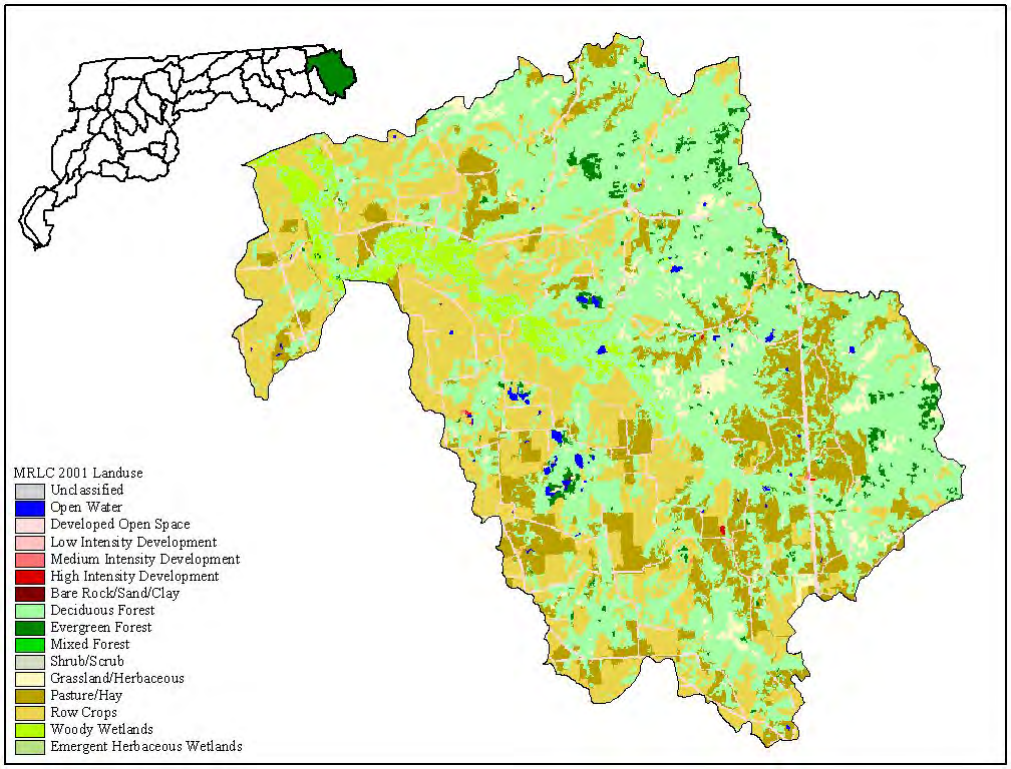


Figure 4-4. Illustration of Land Use Distribution in Subwatershed 080102020101.

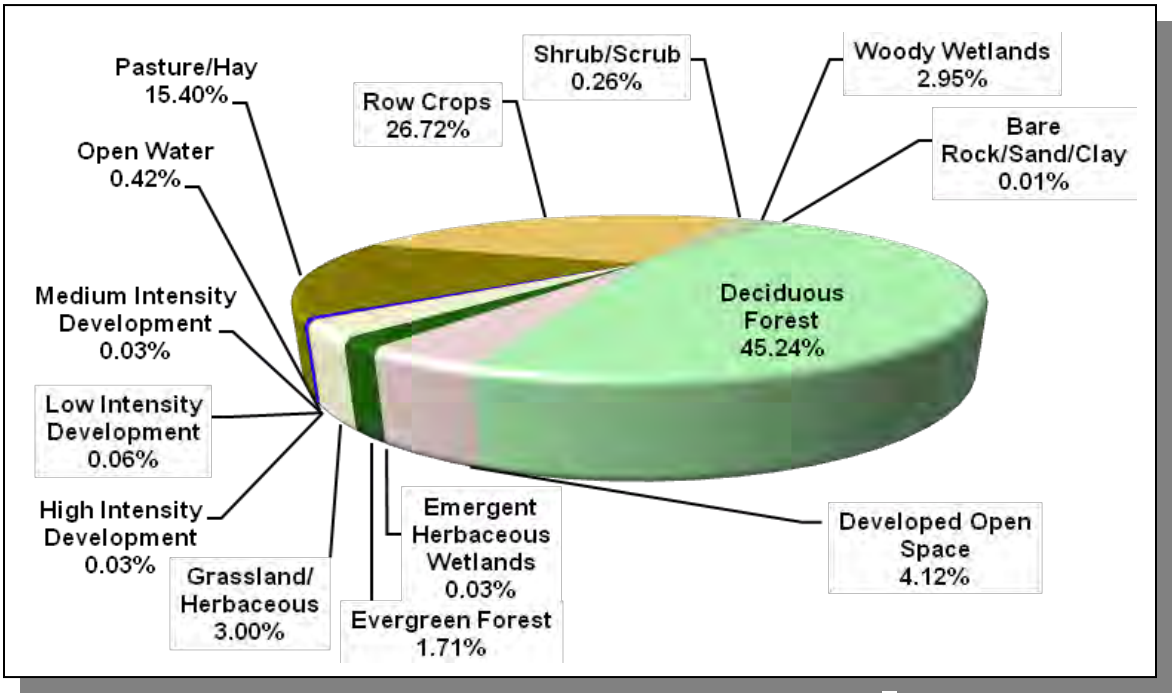


Figure 4-5. Land Use Distribution in Subwatershed 080102020101. *More information is provided in Appendix IV.*

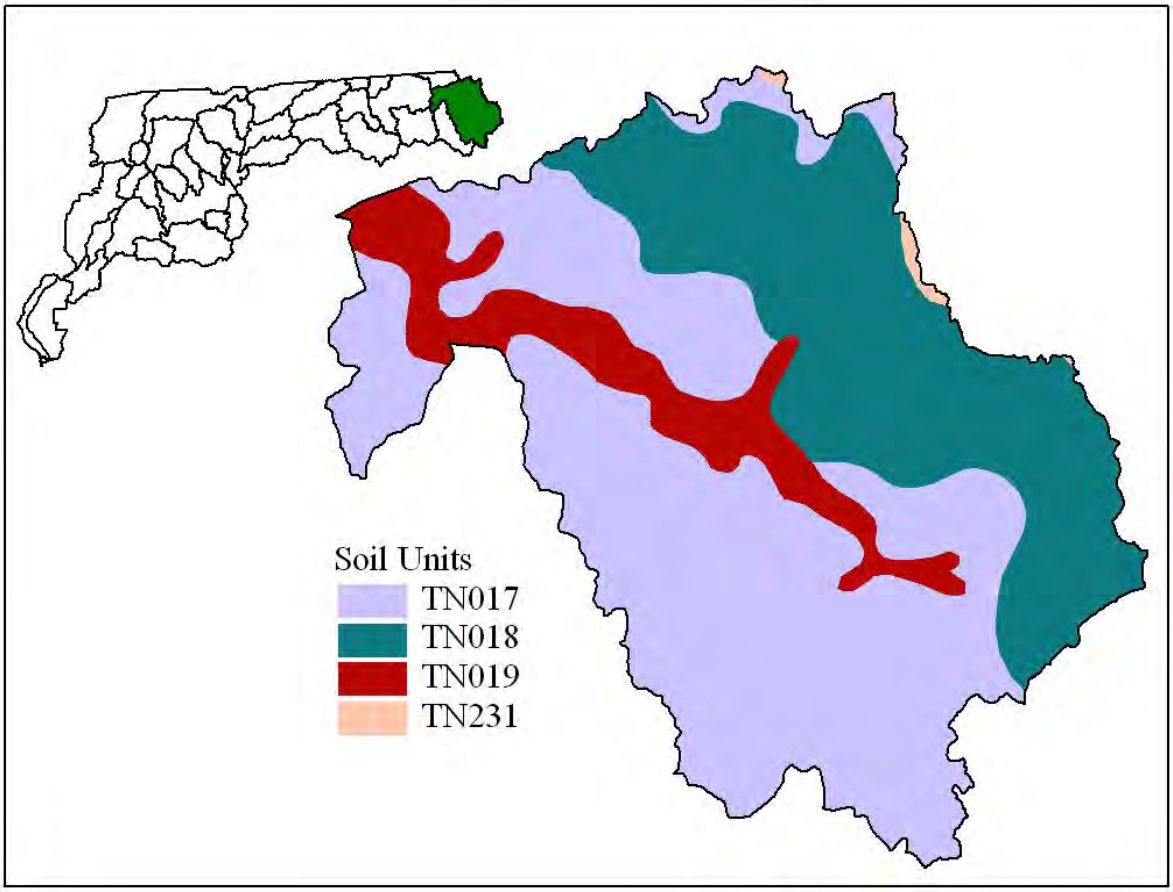


Figure 4-6. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020101.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN017	0.00	B	1.81	5.26	Silty Loam	0.45
TN018	4.00	B	2.62	5.10	Loam	0.38
TN019	62.00	C	1.54	4.76	Loam	0.26
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020101. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Henry	27,888	29,830	31,115	11.4	3,179	3,400	3,547	11.6

Table 4-3. Population Estimates in Subwatershed 080102020101.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Puryear	Henry	602	285	285	0	0

Table 4-4. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020101.

4.2.A.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020101.

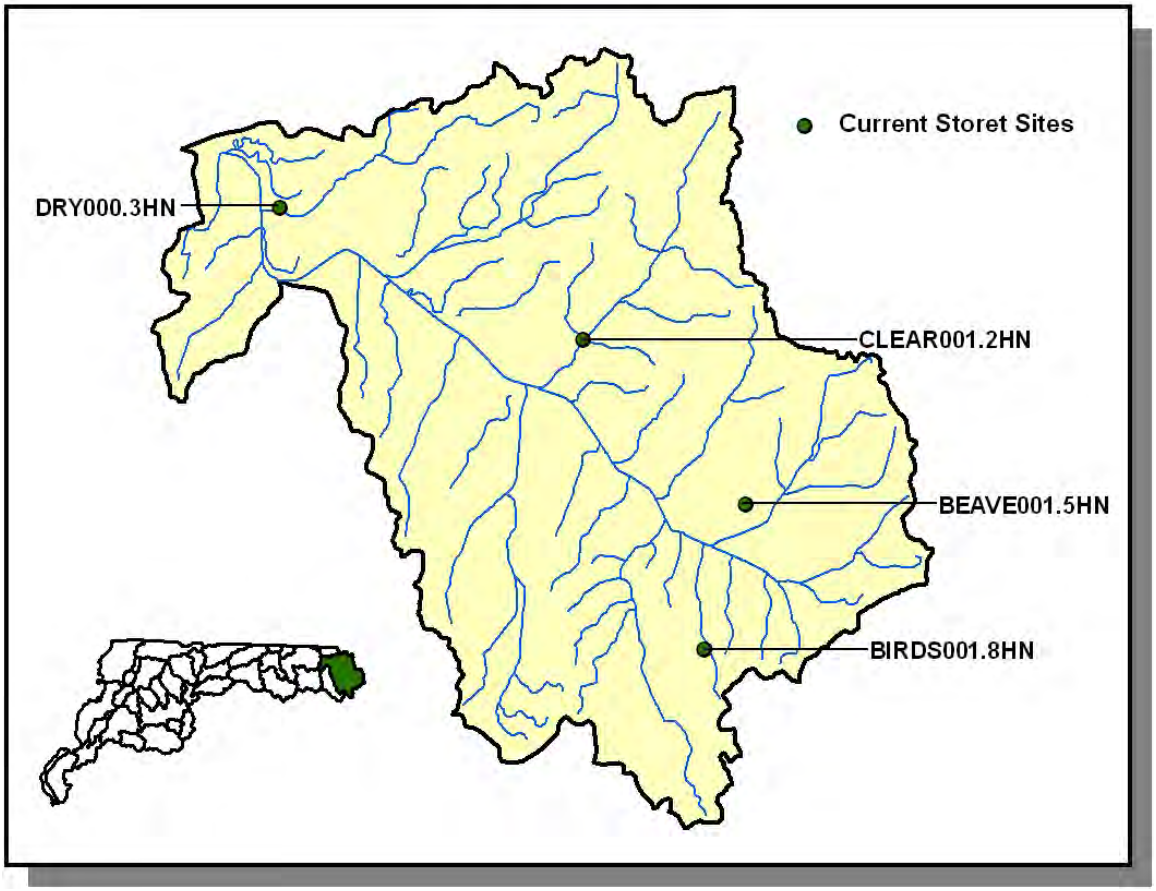


Figure 4-7. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020101. *More information, including site names and locations, is provided in Appendix IV.*

4.2.A.iii. Permitted Activities.

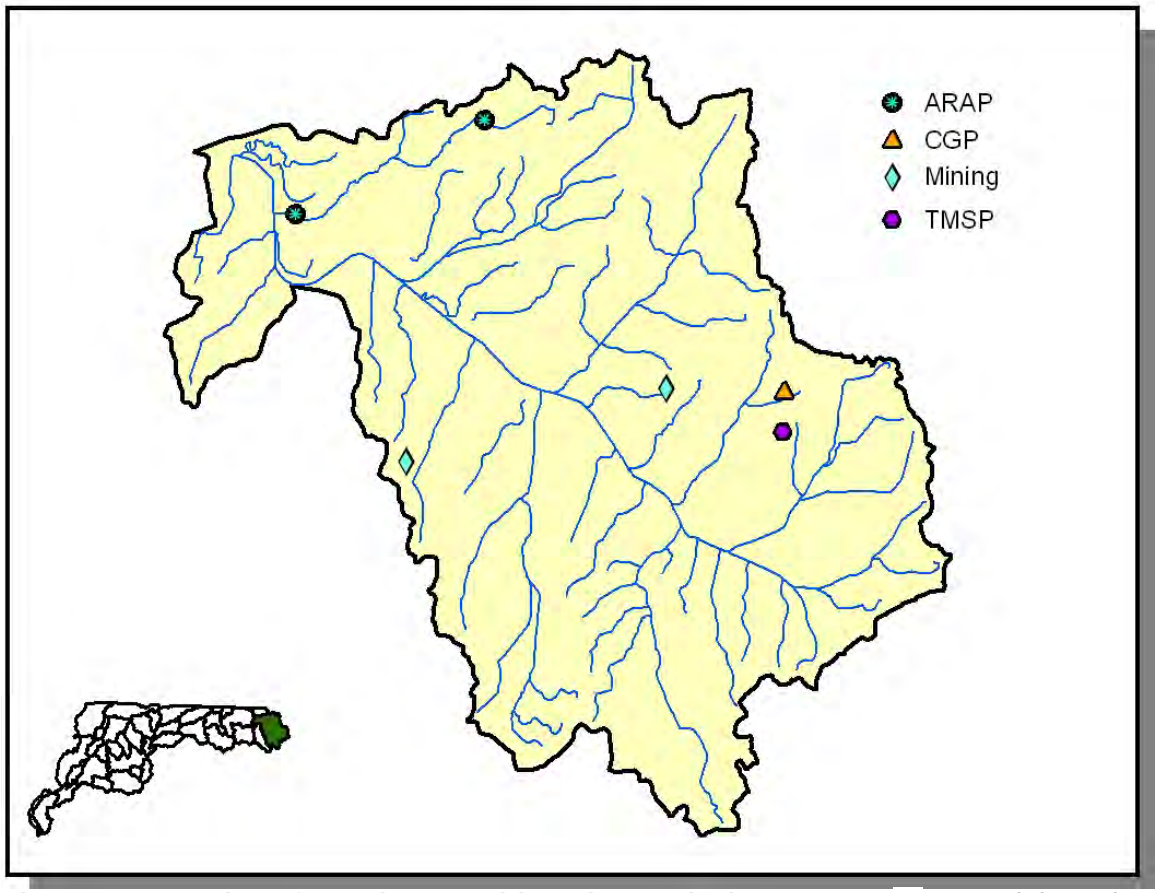


Figure 4-8. Location of Permits Issued in Subwatershed 080102020101. *More information, including the names of facilities, is provided in Appendix IV.*

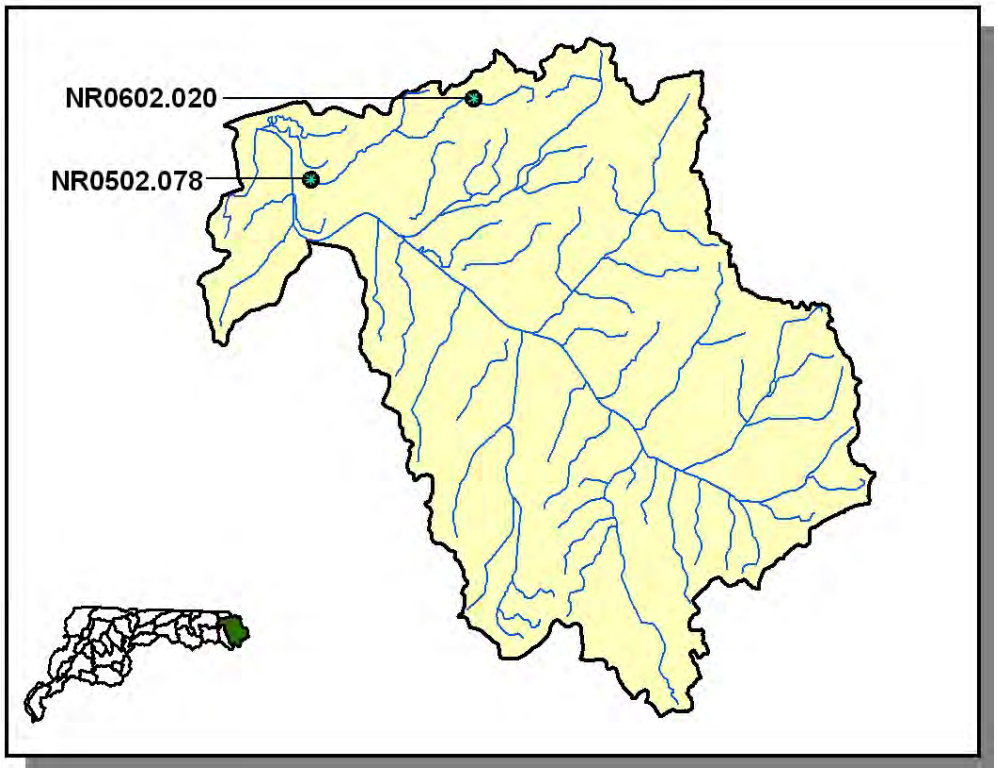


Figure 4-9. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020101. *More information is provided in Appendix IV.*

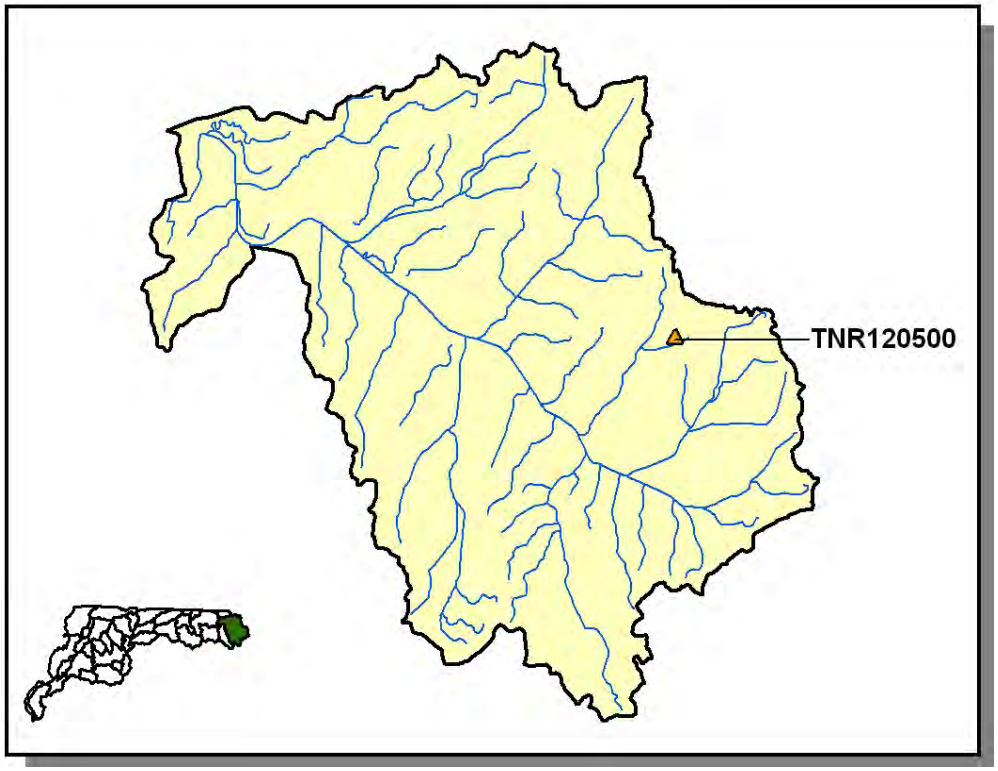


Figure 4-10. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020101. *More information is provided in Appendix IV.*

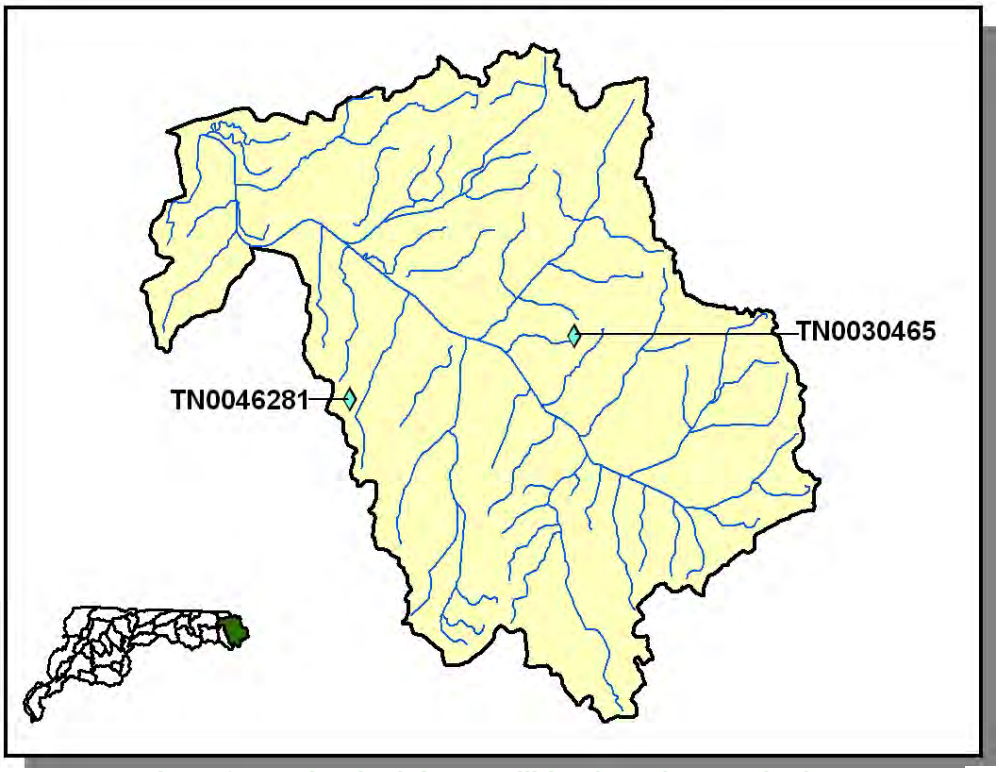


Figure 4-11. Location of Permitted Mining Facilities in Subwatershed 080102020101. *More information is provided in Appendix IV.*

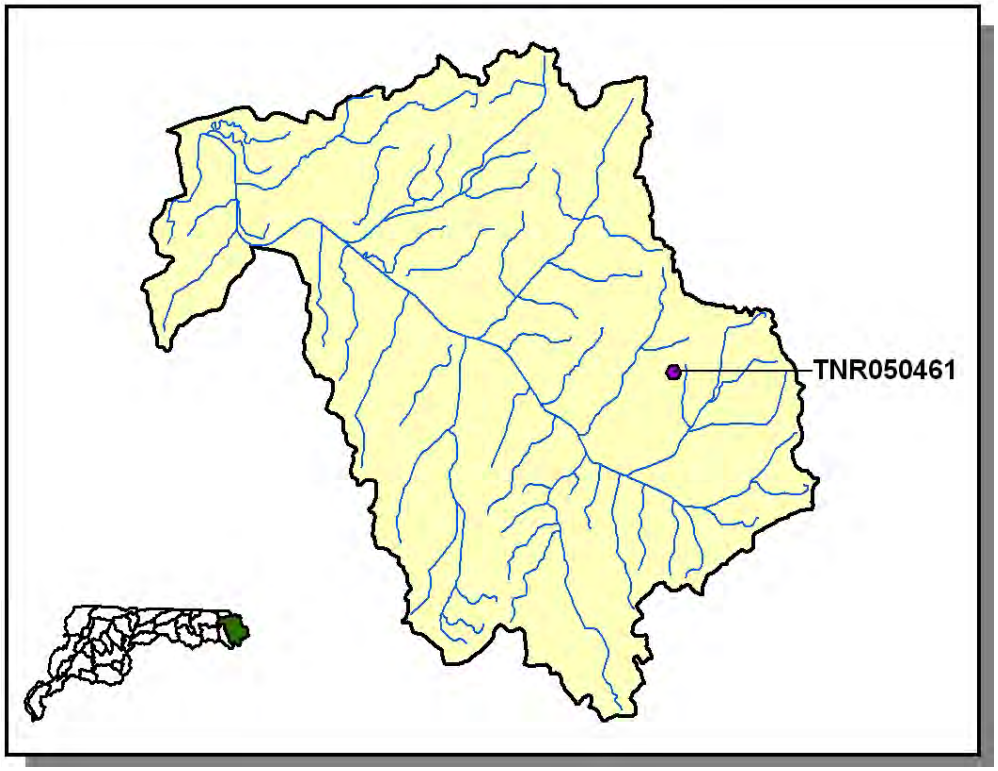


Figure 4-12. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020101. *More information is provided in Appendix IV.*

4.2.A.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Henry	8,920	20,299	1,793	29	36,205	89

Table 4-5. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Henry	176.1	176.1	1.9	7.1

Table 4-6. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other (Horticultural)	16.41
Corn (Row Crops)	7.72
Soybeans (Row Crops)	6.38
Wheat (Close Grown Cropland)	6.02
Other Cropland not Planted	2.61
Conservation Reserve Program Land	0.57
Grass Forbs Legumes Mixed (Pastureland)	0.52
Grass (Pastureland)	0.25
Grass (Hayland)	0.25
Legume Grass (Hayland)	0.11
Farmsteads and Ranch Headquarters	0.10

Table 4-7. Annual Estimated Total Soil Loss in Subwatershed 080102020101.

4.2.B. 080102020102 (Walnut Fork).

4.2.B.i. General Description.

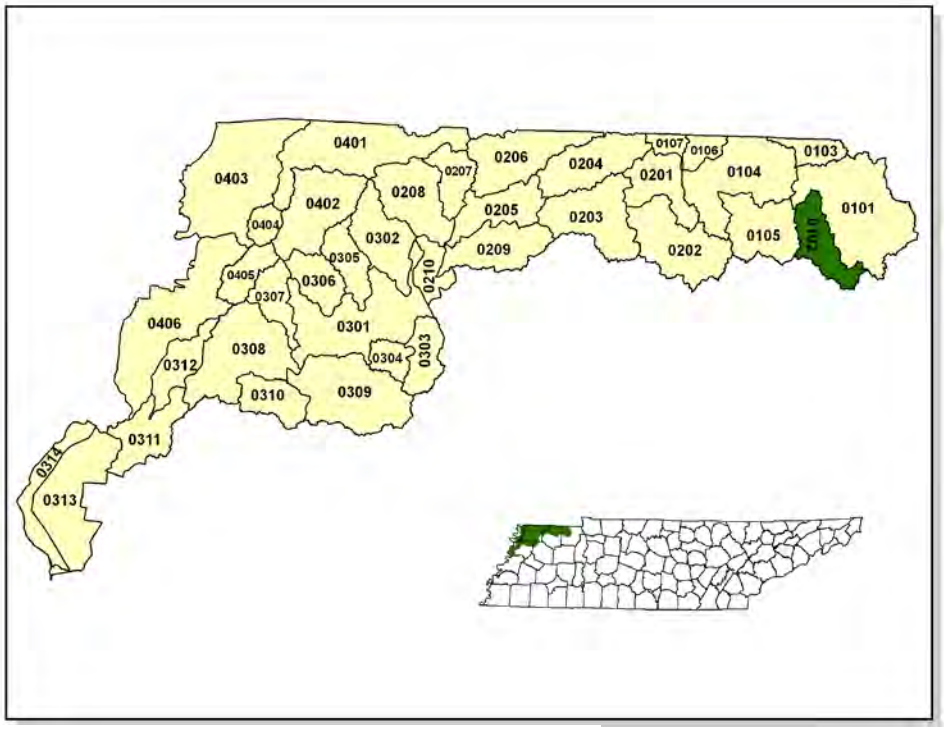


Figure 4-13. Location of Subwatershed 080102020102. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

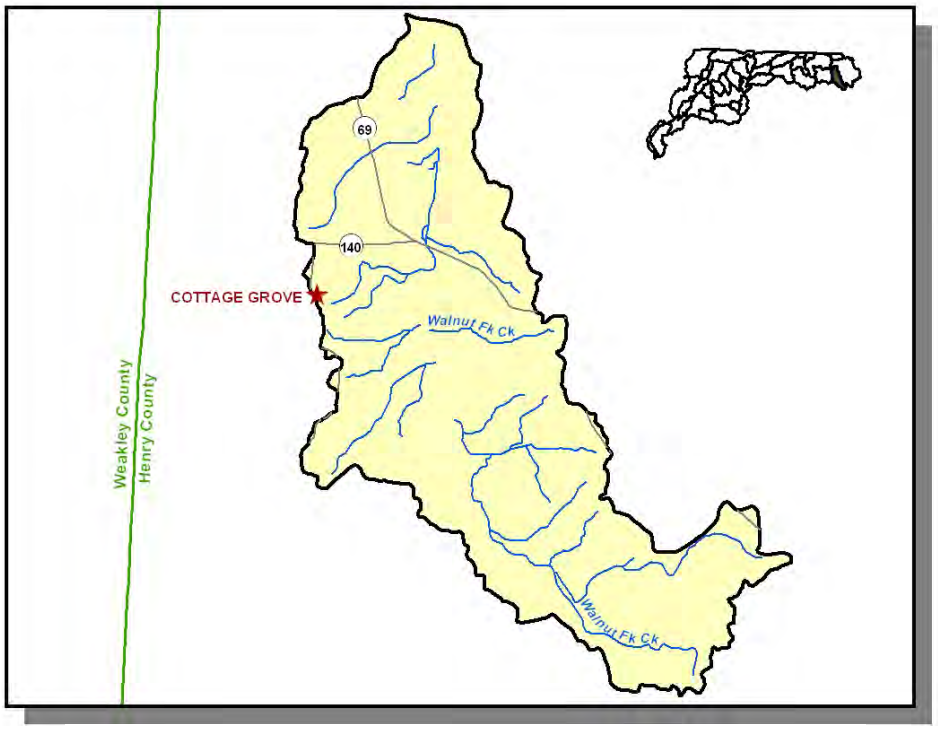


Figure 4-14. Locational Details of Subwatershed 080102020102.

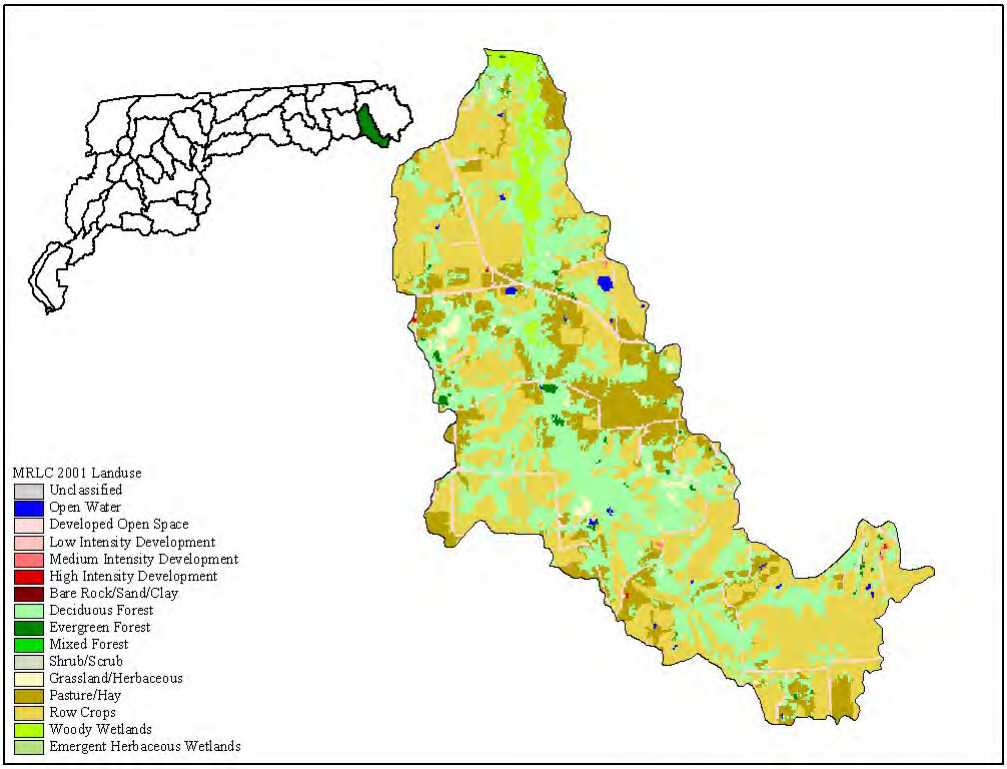


Figure 4-15. Illustration of Land Use Distribution in Subwatershed 080102020102.

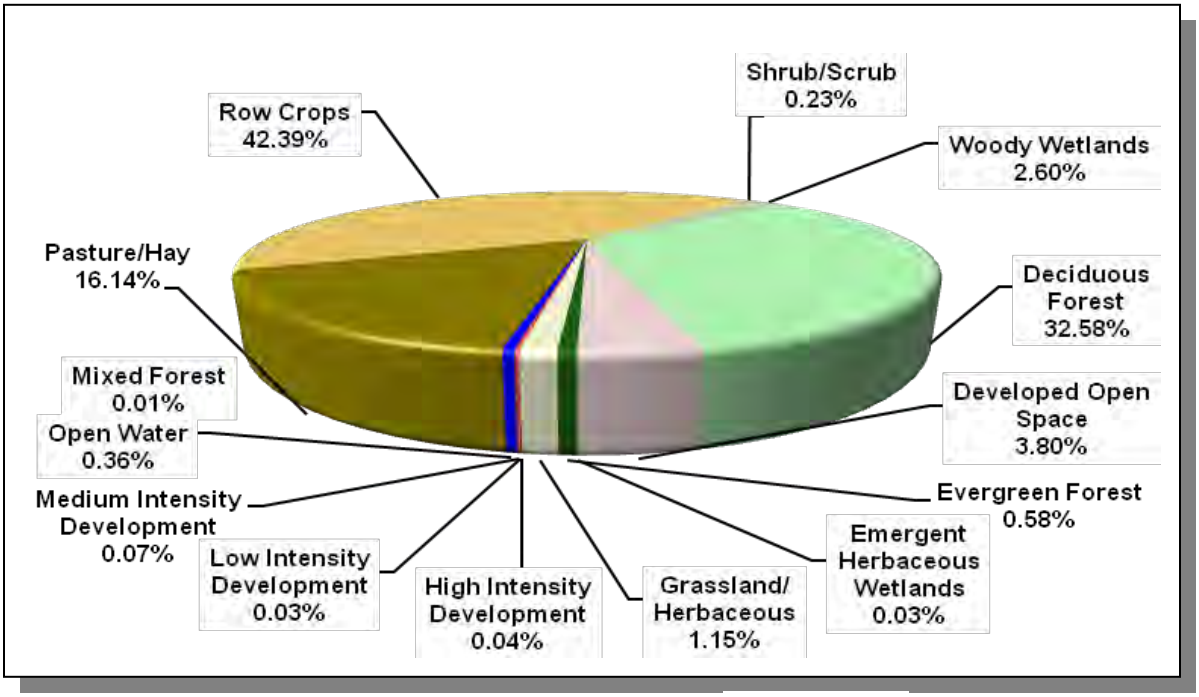


Figure 4-16. Land Use Distribution in Subwatershed 080102020102. *More information is provided in Appendix IV.*

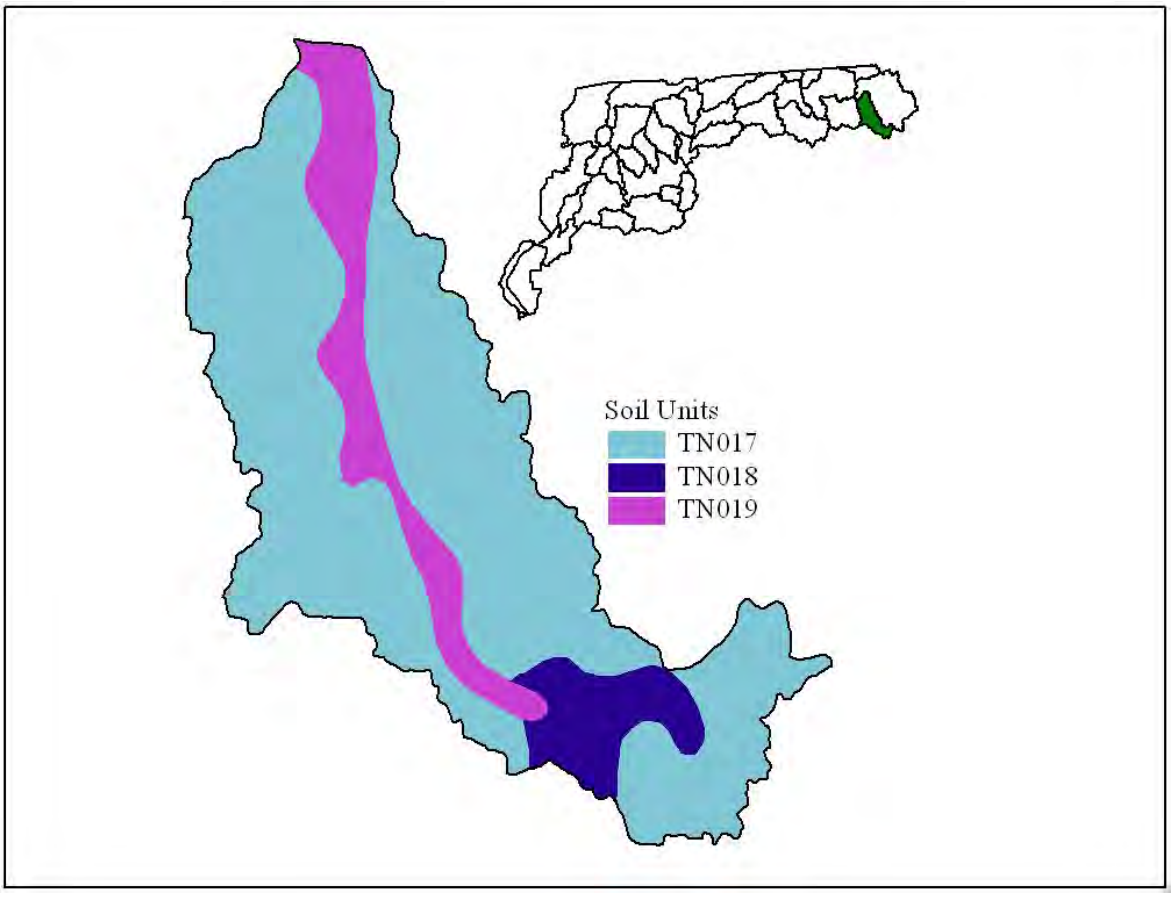


Figure 4-17. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020102.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN017	0.00	B	1.81	5.26	Silty Loam	0.45
TN018	4.00	B	2.62	5.10	Loam	0.38
TN019	62.00	C	1.54	4.76	Loam	0.26

Table 4-8. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020102.*The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Henry	27,888	29,830	31,115	3.82	1,065	1,139	1,188	11.50

Table 4-9. Population Estimates in Subwatershed 080102020102.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Cottage Grove	Henry	64	48	0	45	3

Table 4-10. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020102.

4.2.B.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102020102.

4.2.B.iii. Permitted Activities.

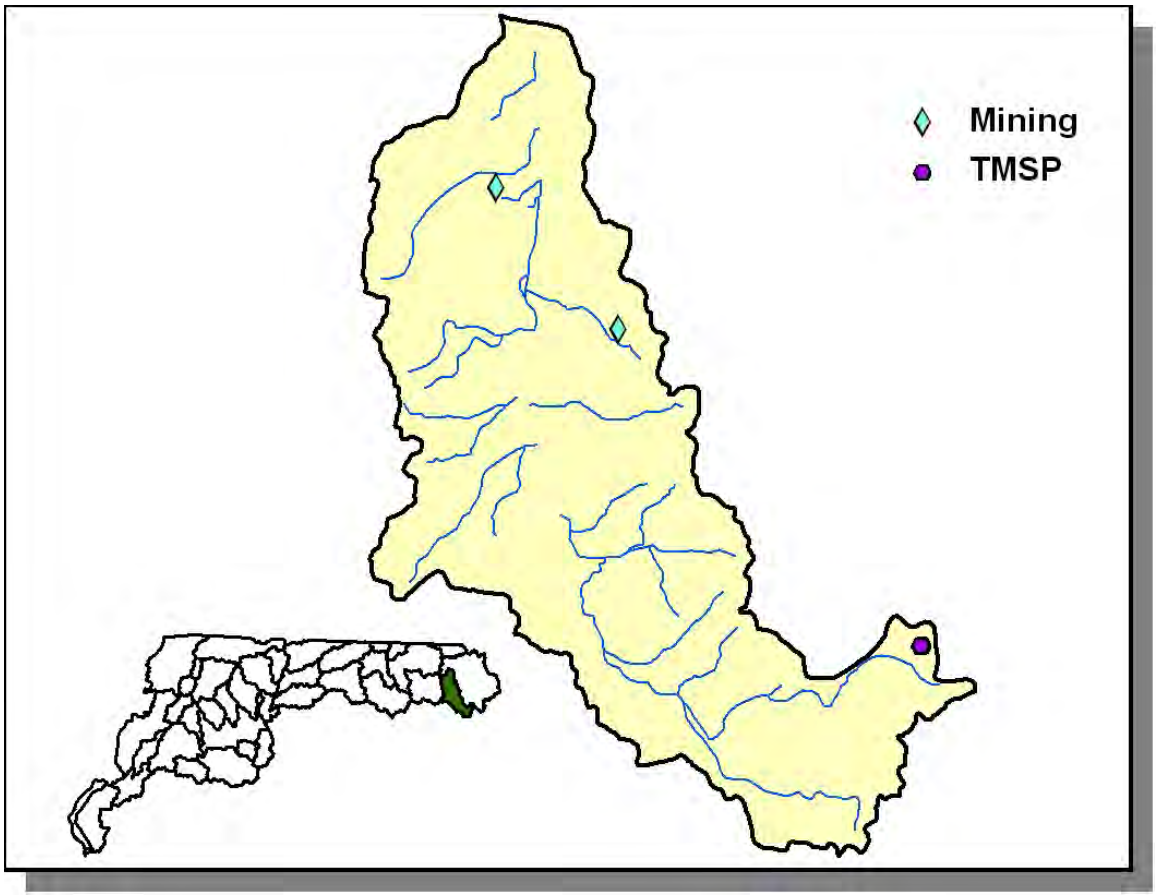


Figure 4-18. Location of Permits Issued in Subwatershed 080102020102. *More information, including the names of facilities, is provided in Appendix IV.*

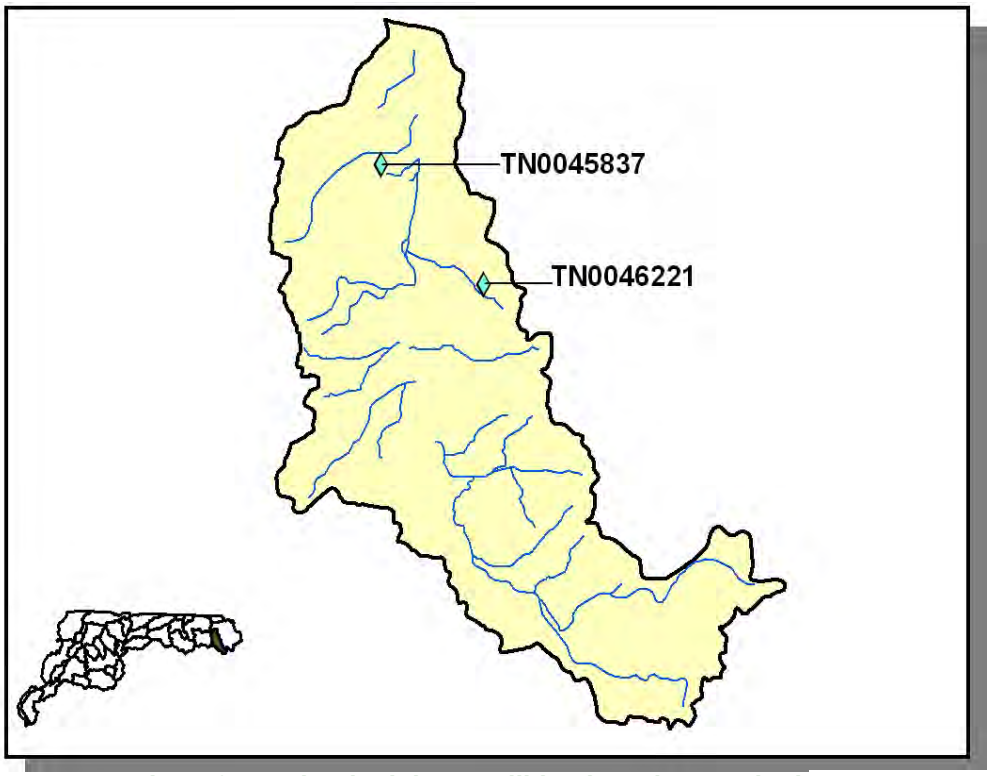


Figure 4-19. Location of Permitted Mining Facilities in Subwatershed 080102020102. *More information is provided in Appendix IV.*

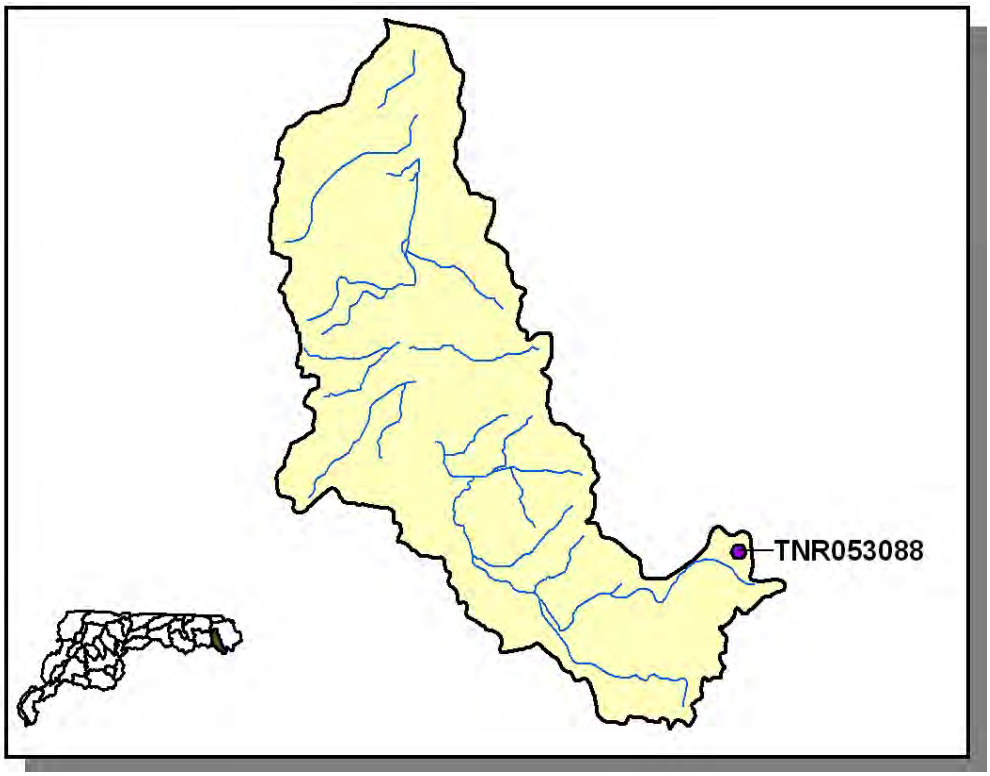


Figure 4-20. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020102. *More information is provided in Appendix IV.*

4.2.B.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Henry	8,920	20,299	1,793	29	36,205	89

Table 4-11. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Henry	176.1	176.1	1.9	7.1

Table 4-12. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other (Horticultural)	16.41
Corn (Row Crops)	7.72
Soybeans (Row Crops)	6.38
Wheat (Close Grown Cropland)	6.02
Other Cropland not Planted	2.61
Conservation Reserve Program Land	0.57
Grass Forbs Legumes Mixed (Pastureland)	0.52
Grass (Pastureland)	0.25
Grass (Hayland)	0.25
Legume Grass (Hayland)	0.11
Farmsteads and Ranch Headquarters	0.10

Table 4-13. Annual Estimated Total Soil Loss in Subwatershed 080102020102.

4.2.C. 080102020103 (Terripen Creek).

4.2.C.i. General Description.

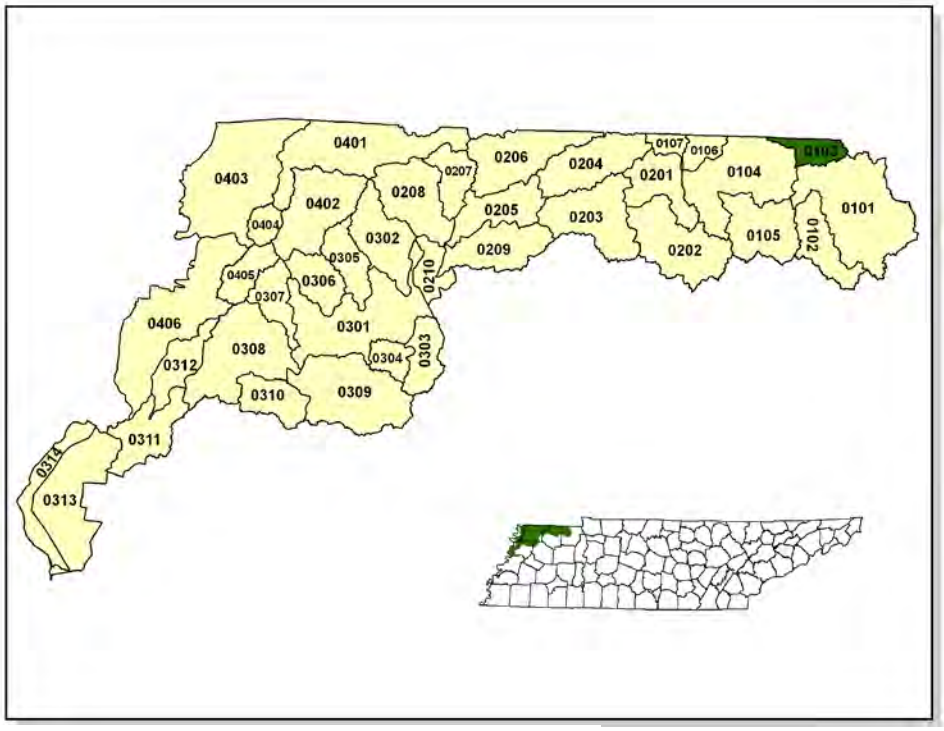


Figure 4-21. Location of Subwatershed 080102020103. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

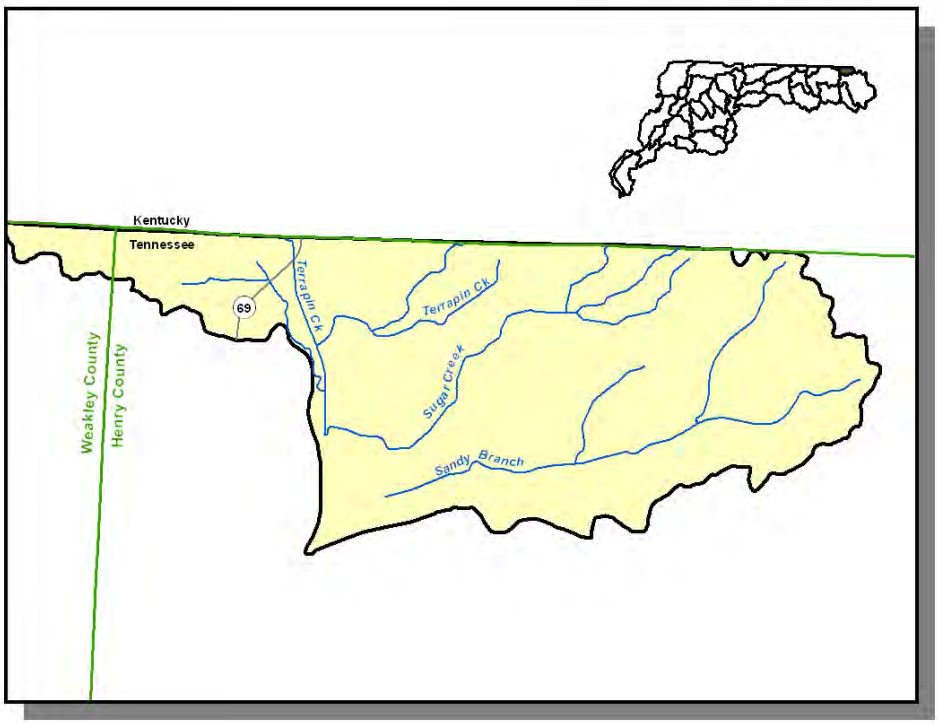


Figure 4-22. Locational Details of Subwatershed 080102020103.

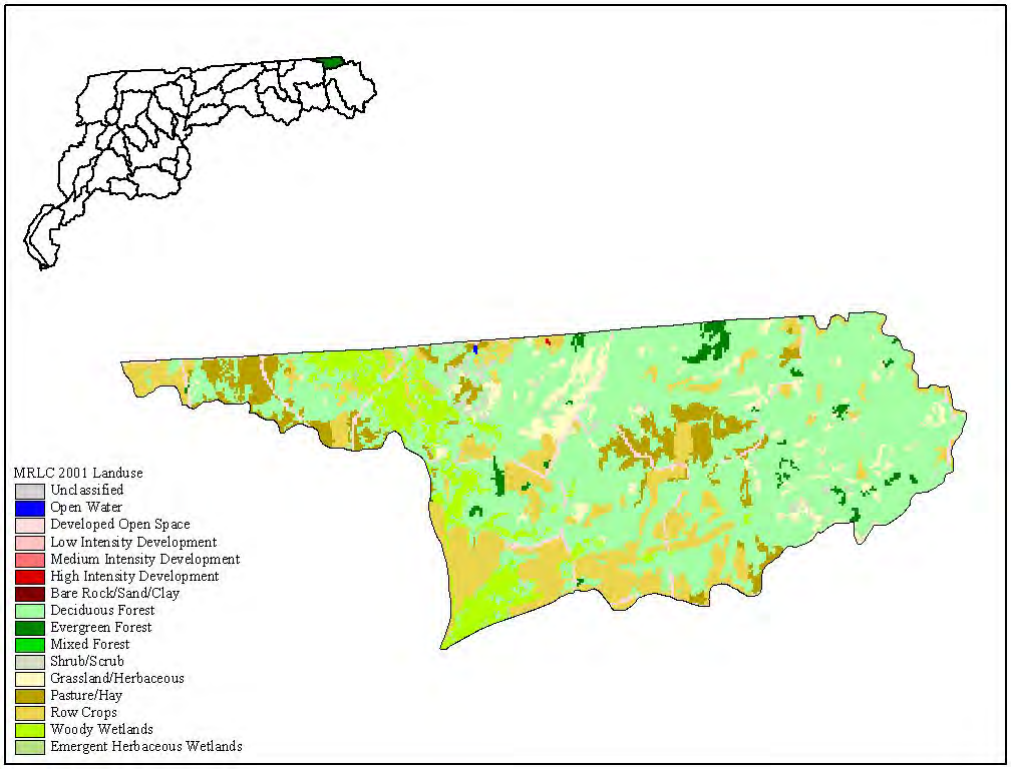


Figure 4-23. Illustration of Land Use Distribution in Subwatershed 080102020103.

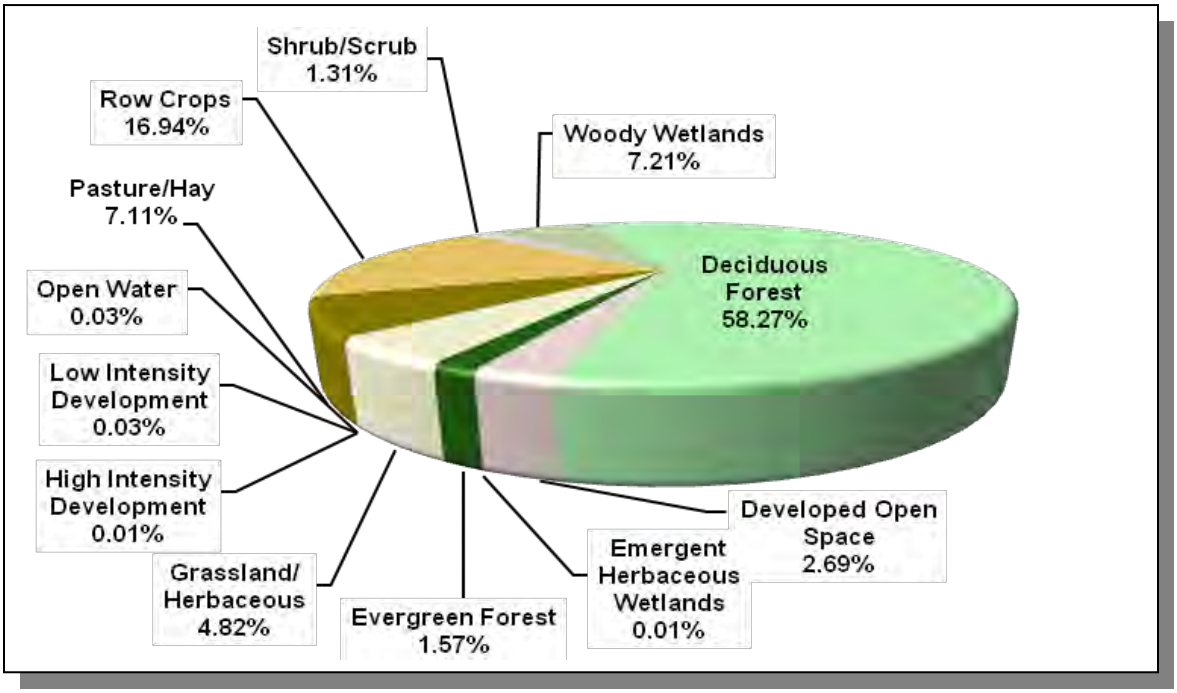


Figure 4-24. Land Use Distribution in Subwatershed 080102020103. *More information is provided in Appendix IV.*

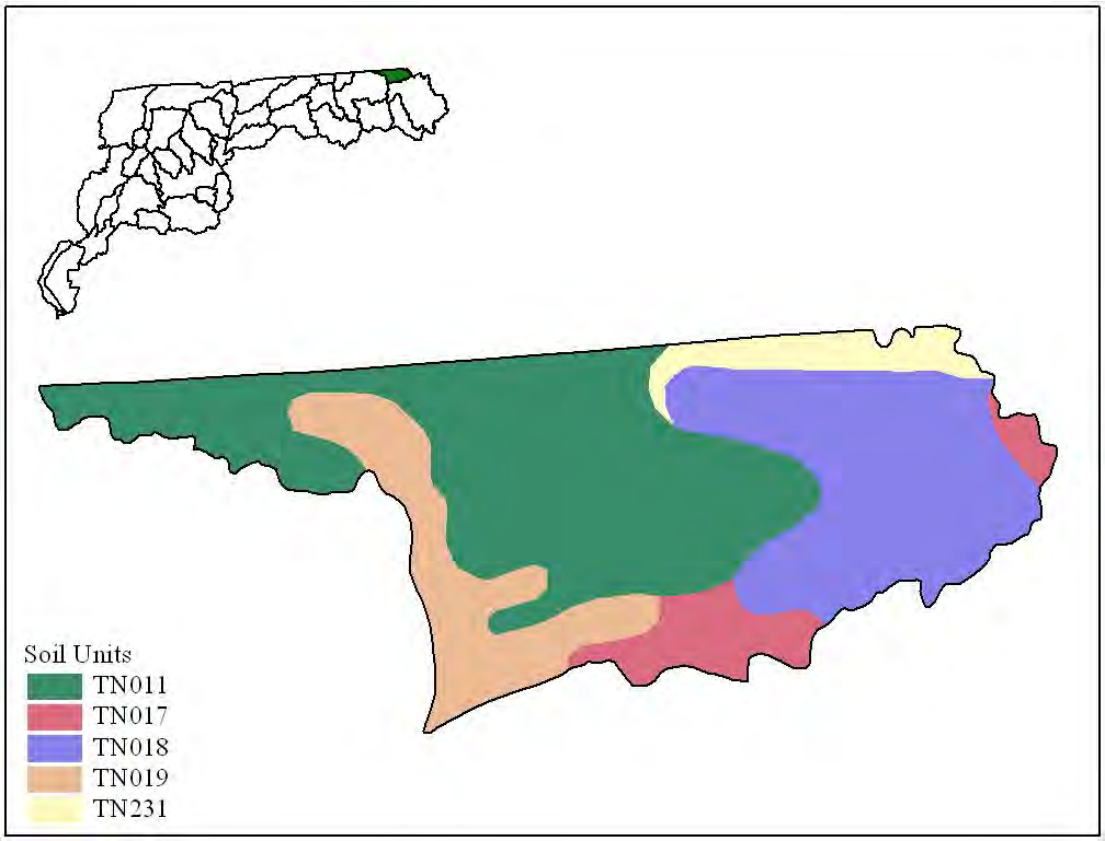


Figure 4-25. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020103.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN011	0.00	B	2.27	5.18	Silty Loam	0.40
TN017	0.00	B	1.81	5.26	Silty Loam	0.45
TN018	4.00	B	2.62	5.10	Loam	0.38
TN019	62.00	C	1.54	4.76	Loam	0.26
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-14. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020103. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Henry	27,888	29,830	31,115	1.72	481	514	536	11.40
Weakley	31,972	32,808	34,895	0.07	21	21	23	9.50
Totals	**59,860**	**62,638**	**66,010**		**502**	**535**	**559**	**11.40**

Table 4-15. Population Estimates in Subwatershed 080102020103.

4.2.C.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020103.

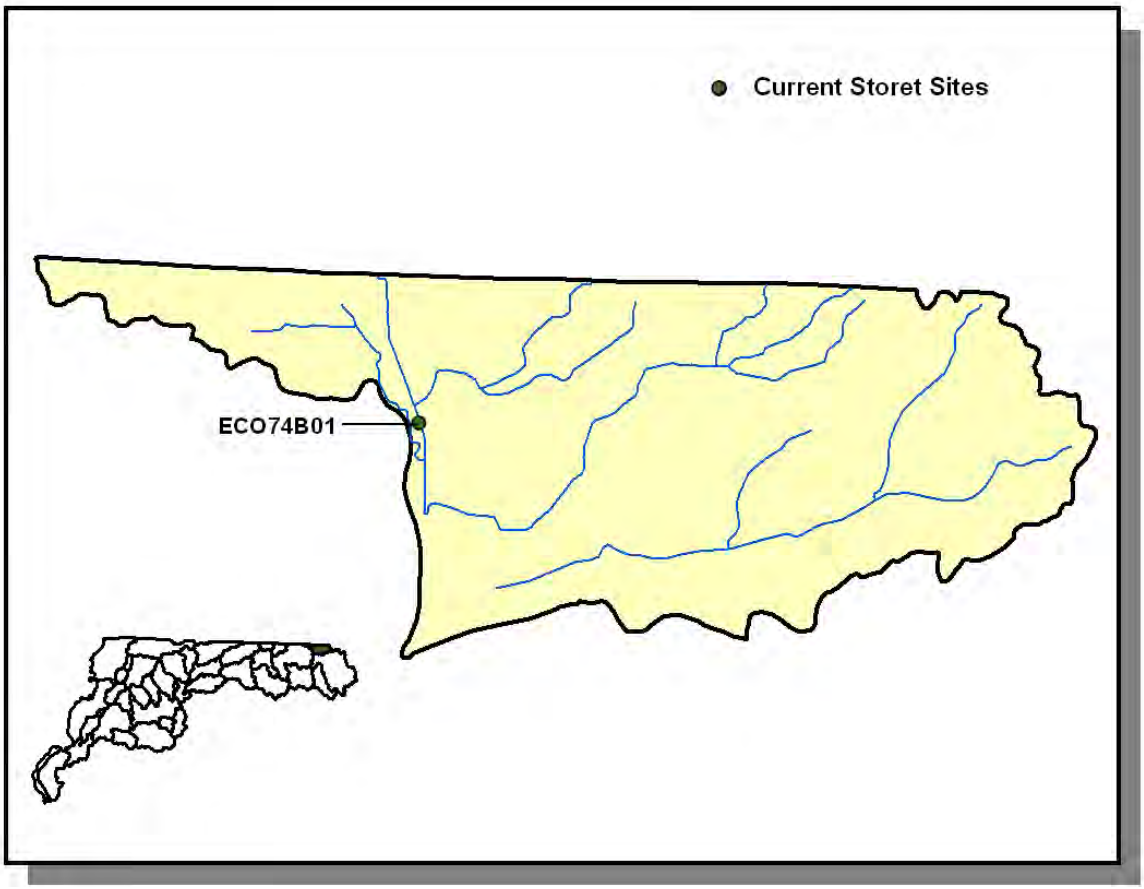


Figure 4-26. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020103. *More information, including site names and locations, is provided in Appendix IV.*

4.2.C.iii. Permitted Activities.

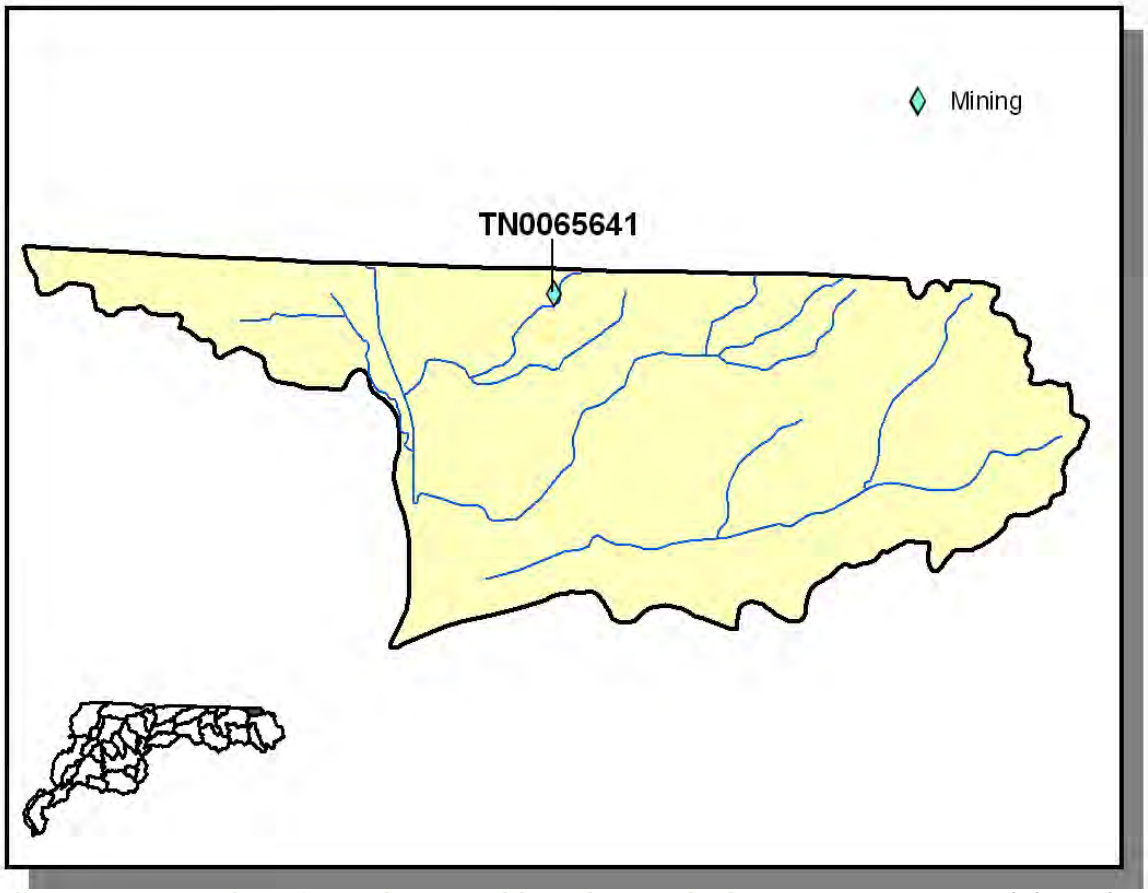


Figure 4-27. Location of Permits Issued in Subwatershed 080102020103. *More information, including the names of facilities, is provided in Appendix IV.*

4.2.C.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Henry	8,920	20,299	1,793	29	36,205	89
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-16. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Henry	176.1	176.1	1.9	7.1
Weakley	96.1	95.9	6.7	24.6

Table 4-17. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Other (Horticultural)	16.41
Corn (Row Crops)	7.72
Soybeans (Row Crops)	6.42
Wheat (Close Grown Cropland)	6.16
Other Cropland not Planted	2.67
Legume (Pastureland)	1.47
Conservation Reserve Program Land	0.56
Grass Forbs Legumes Mixed (Pastureland)	0.54
Legume (Hayland)	0.49
Grass (Hayland)	0.25
Grass (Pastureland)	0.24
Farmsteads and Ranch Headquarters	0.11
Legume Grass (Hayland)	0.11

Table 4-18. Annual Estimated Total Soil Loss in Subwatershed 080102020103.

4.2.D. 080102020104 (North Fork Obion River).

4.2.D.i. General Description.

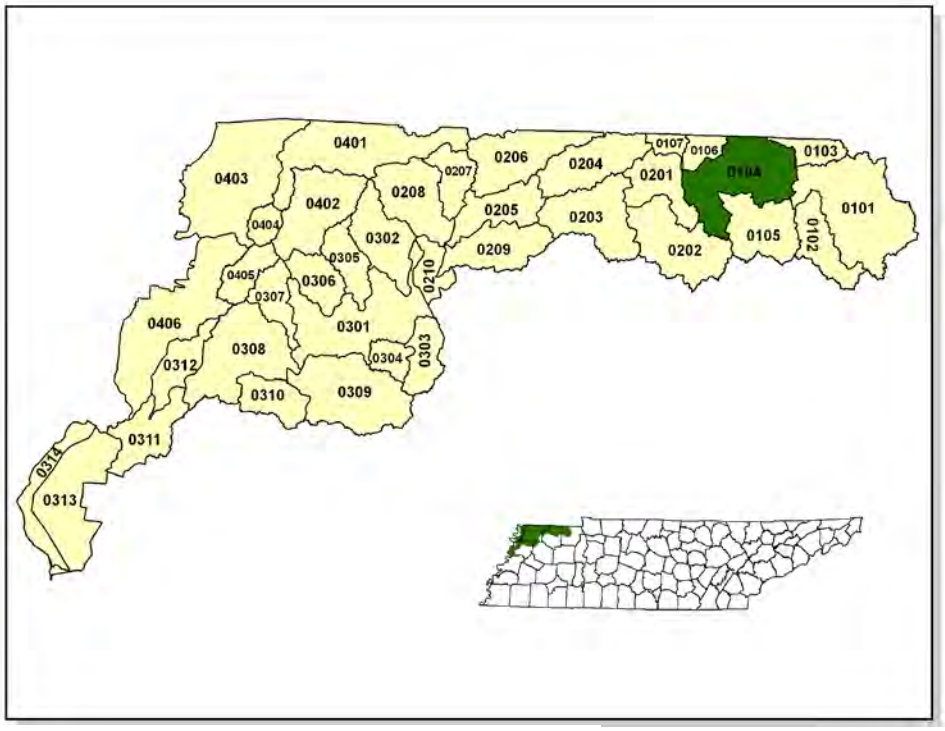


Figure 4-28. Location of Subwatershed 080102020104. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

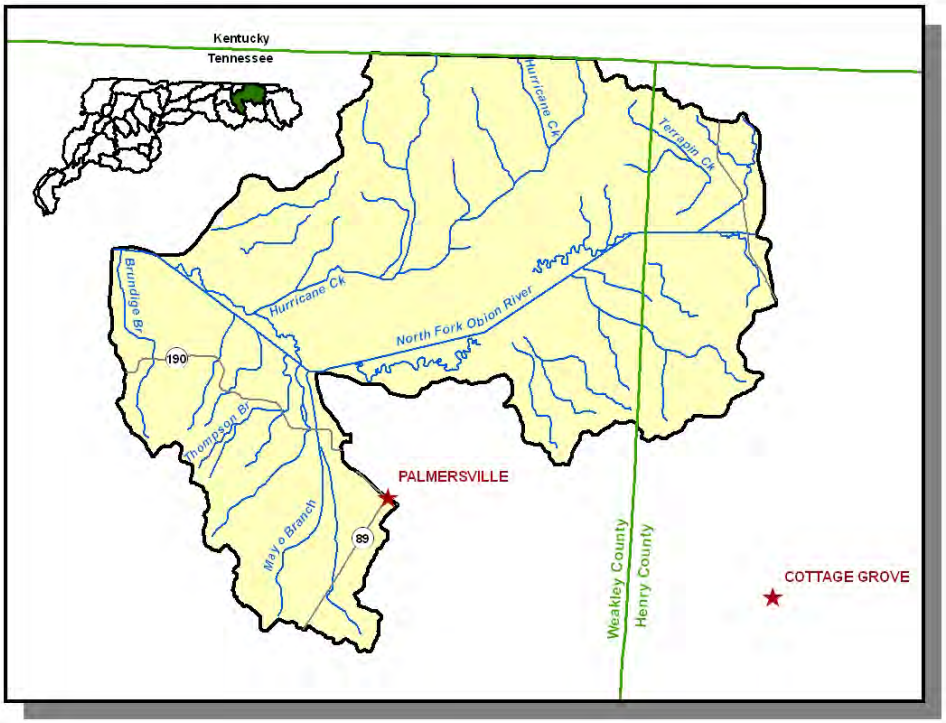


Figure 4-29. Locational Details of Subwatershed 080102020104.

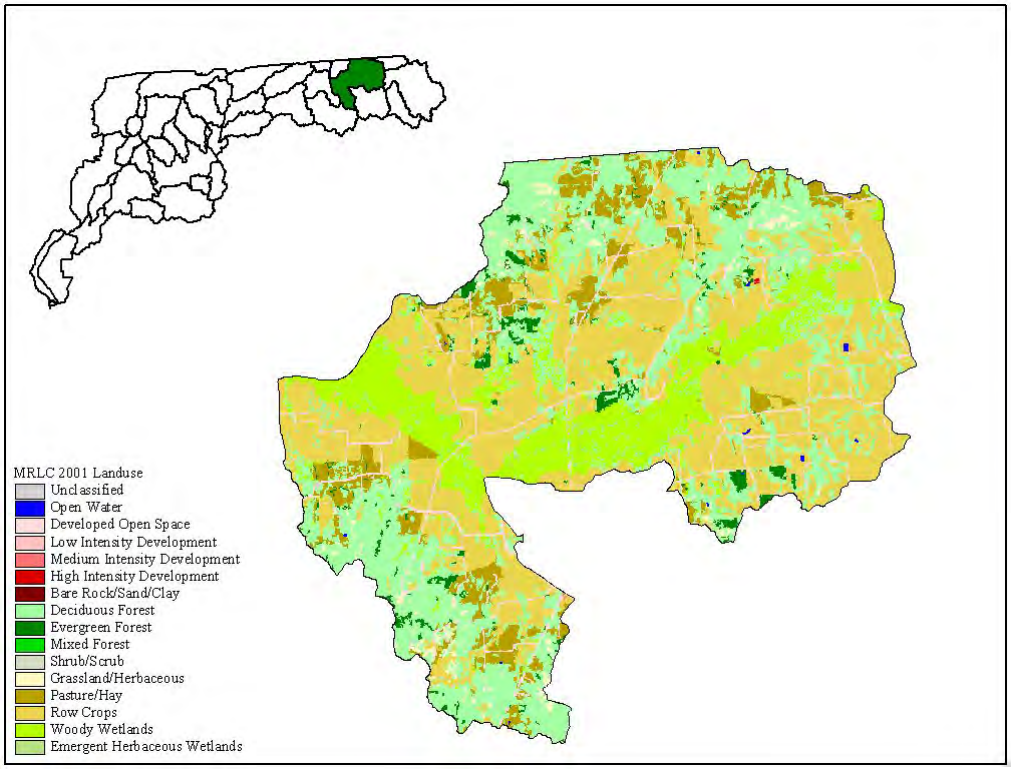


Figure 4-30. Illustration of Land Use Distribution in Subwatershed 080102020104.

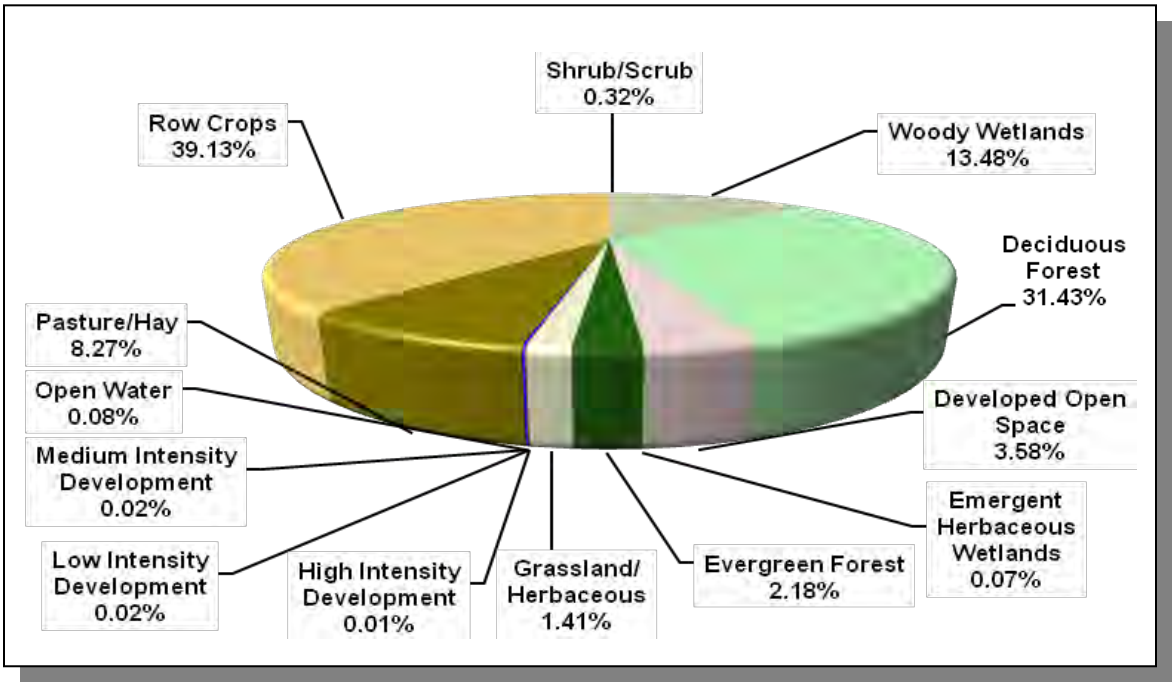


Figure 4-31. Land Use Distribution in Subwatershed 080102020104. *More information is provided in Appendix IV.*

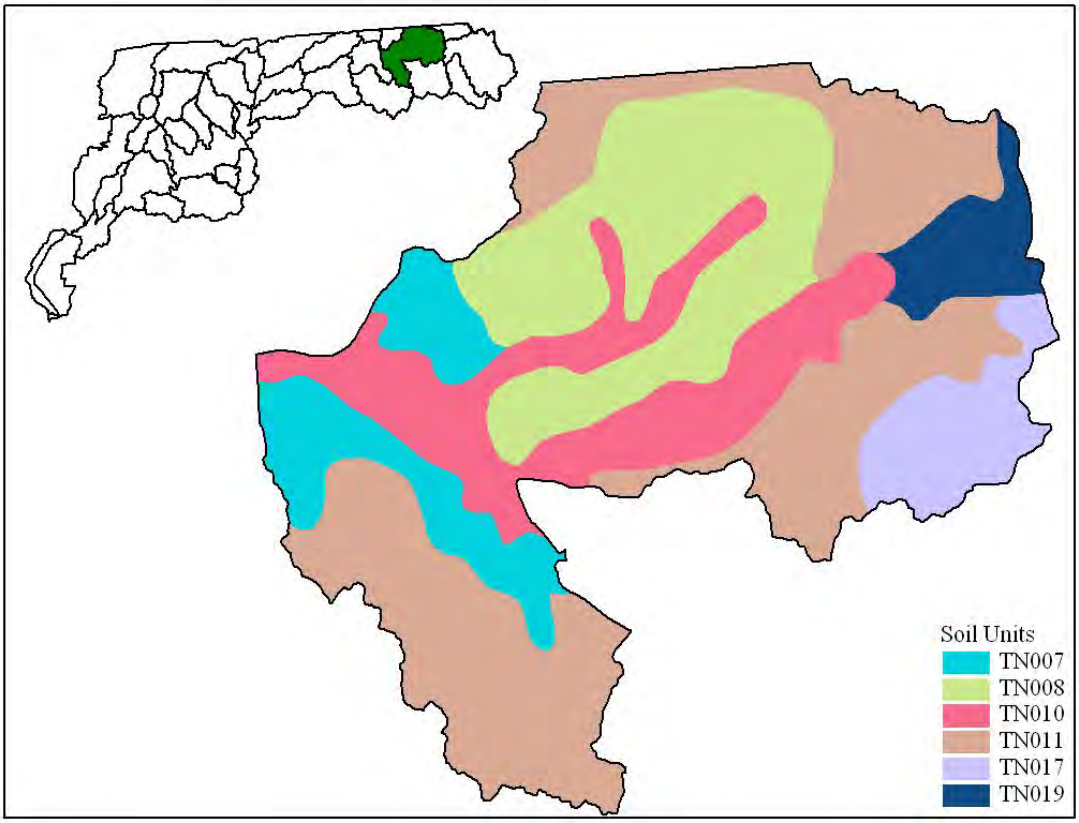


Figure 4-32. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020104.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN011	0.00	B	2.27	5.18	Silty Loam	0.40
TN017	0.00	B	1.81	5.26	Silty Loam	0.45
TN019	62.00	C	1.54	4.76	Loam	0.26

Table 4-19. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020104. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Henry	27,888	29,830	31,115	1.23	343	367	383	11.70
Weakley	31,972	32,808	34,895	7.76	2,481	2,546	2,708	9.10
Totals	**59,860**	**62,638**	**66,010**		**2,824**	**2,913**	**3,091**	**9.50**

Table 4-20. Population Estimates in Subwatershed 080102020104.

4.2.D.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020104.

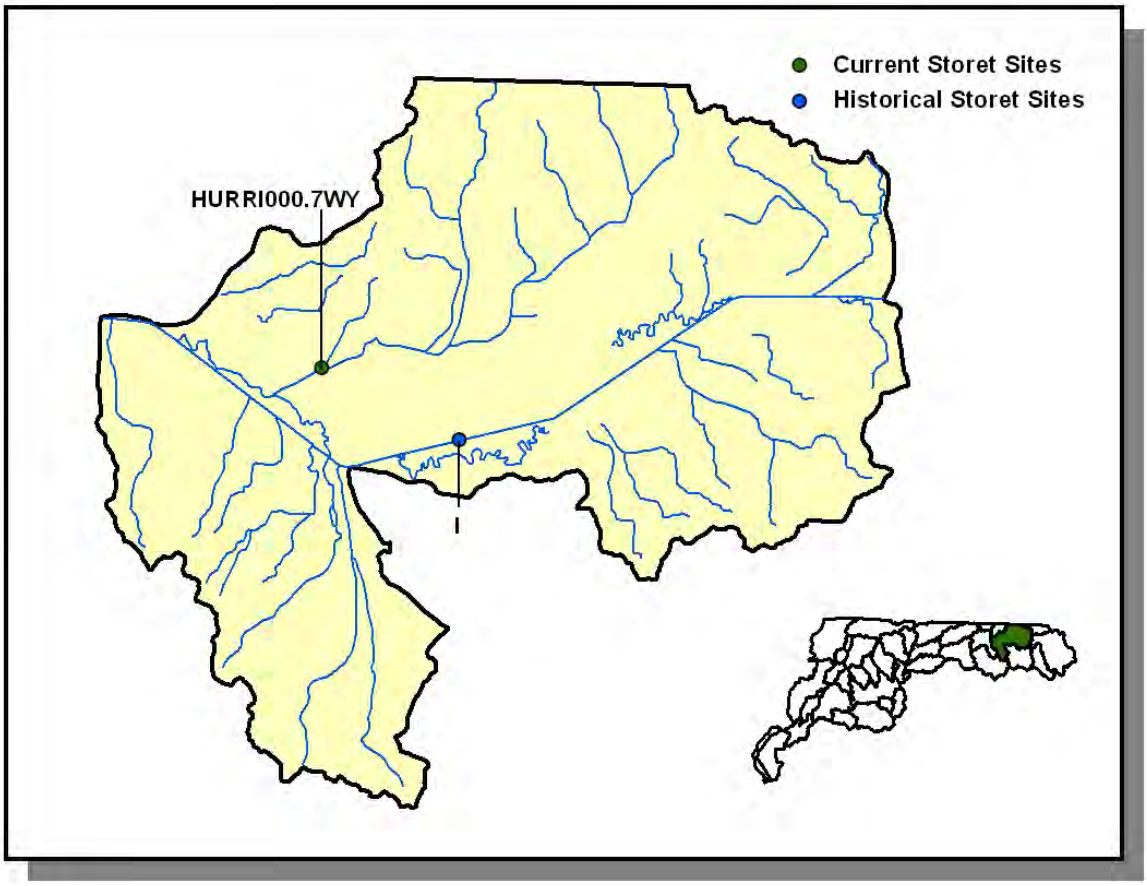


Figure 4-33. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020104. *More information, including site names and locations, is provided in Appendix IV.*

4.2.D.iii. Permitted Activities.

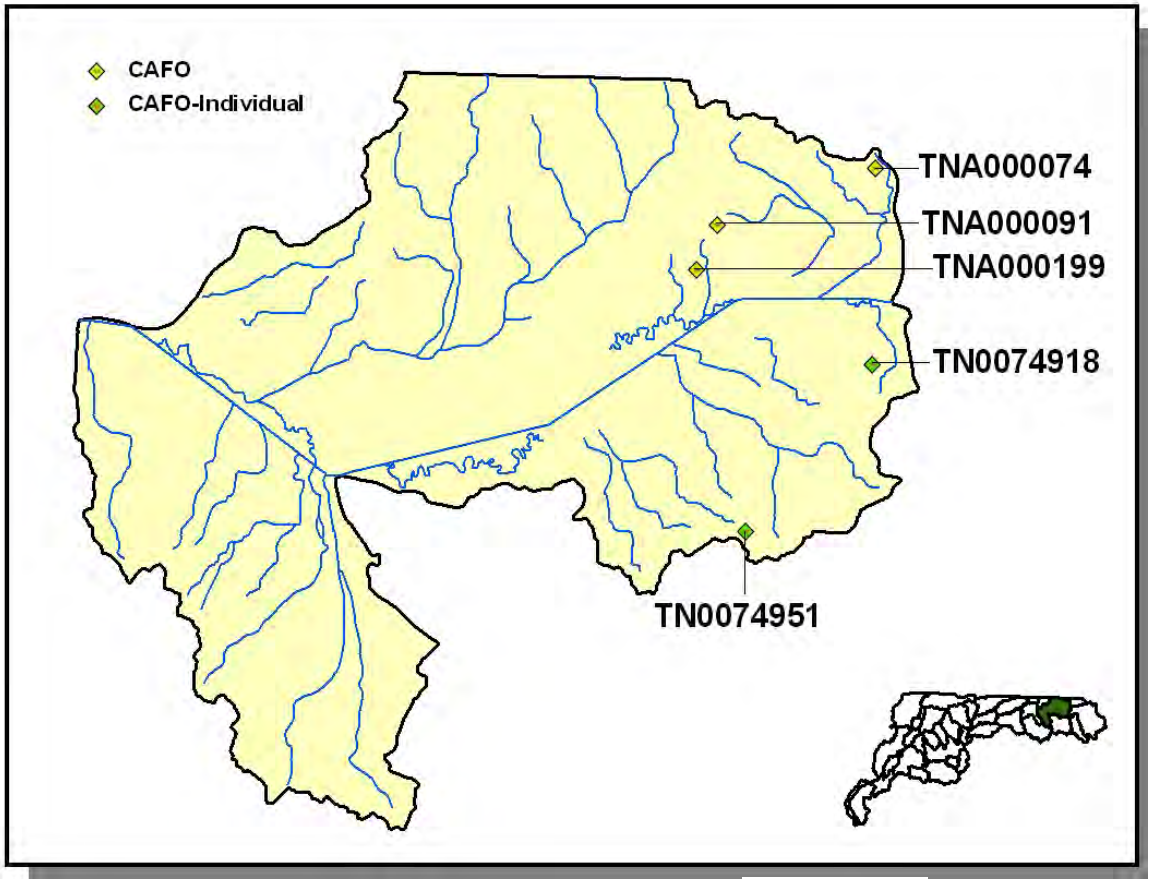


Figure 4-34. Location of Permits Issued in Subwatershed 080102020104. *More information, including the names of facilities, is provided in Appendix IV.*

4.2.D.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Henry	8,920	20,299	1,793	29	36,205	89
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-21. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Henry	176.1	176.1	1.9	7.1
Weakley	96.1	95.9	6.7	24.6

Table 4-22. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Other (Horticultural)	16.41
Wheat (Close Grown Cropland)	9.45
Corn (Row Crops)	7.59
Soybeans (Row Crops)	7.46
Other Cropland not Planted	4.23
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	1.03
Legume (Hayland)	0.49
Conservation Reserve Program Land	0.45
Farmsteads and Ranch Headquarters	0.39
Grass (Hayland)	0.23
Grass (Pastureland)	0.15
Legume Grass (Hayland)	0.11

Table 4-23. Annual Estimated Total Soil Loss in Subwatershed 080102020104.

4.2.E. 080102020105 (Cane Creek).

4.2.E.i. General Description.

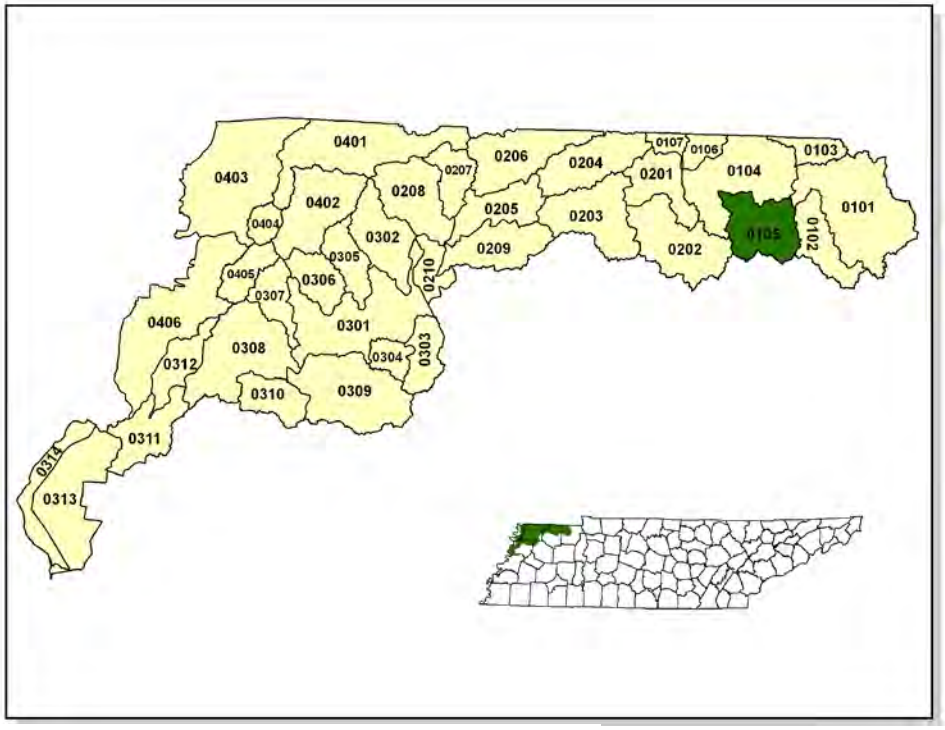


Figure 4-35. Location of Subwatershed 080102020105. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

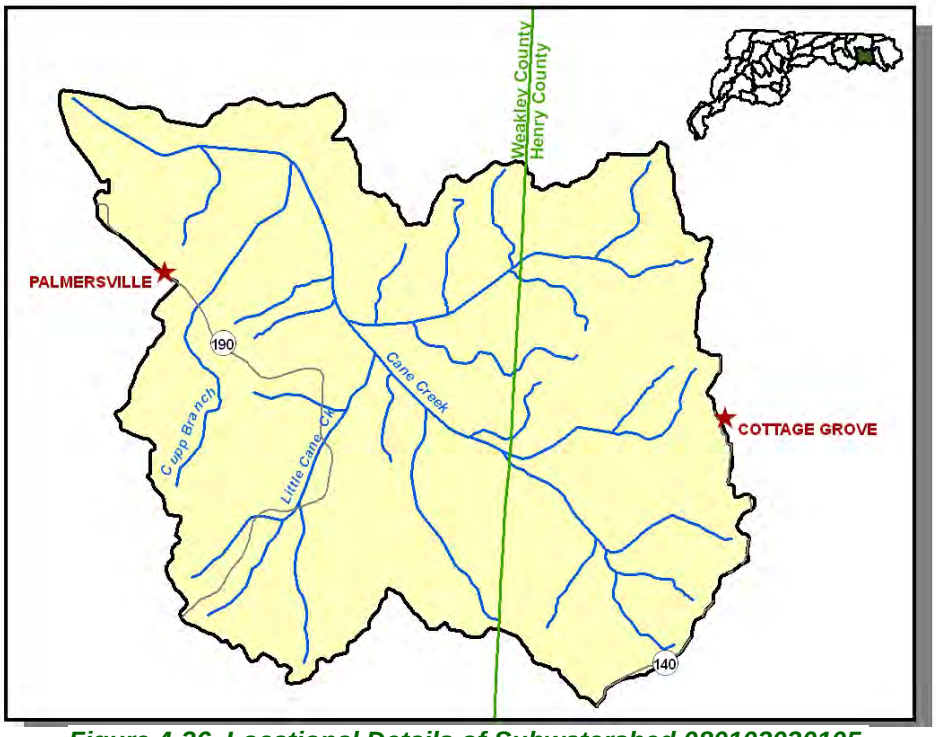


Figure 4-36. Locational Details of Subwatershed 080102020105.

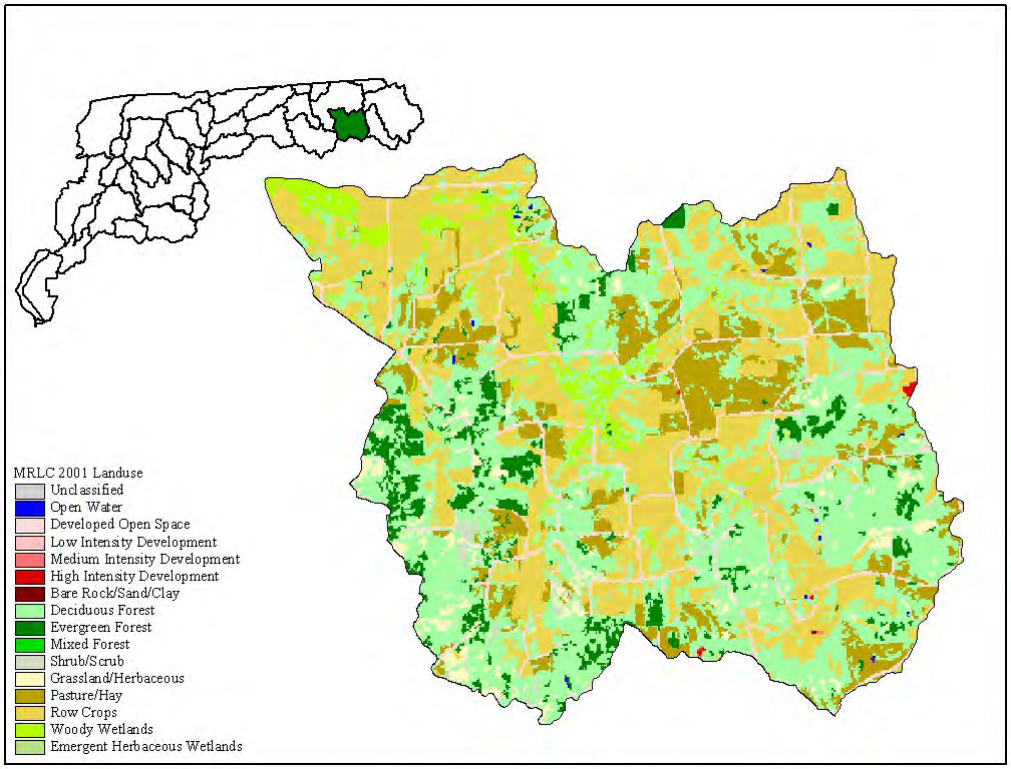


Figure 4-37. Illustration of Land Use Distribution in Subwatershed 080102020105.

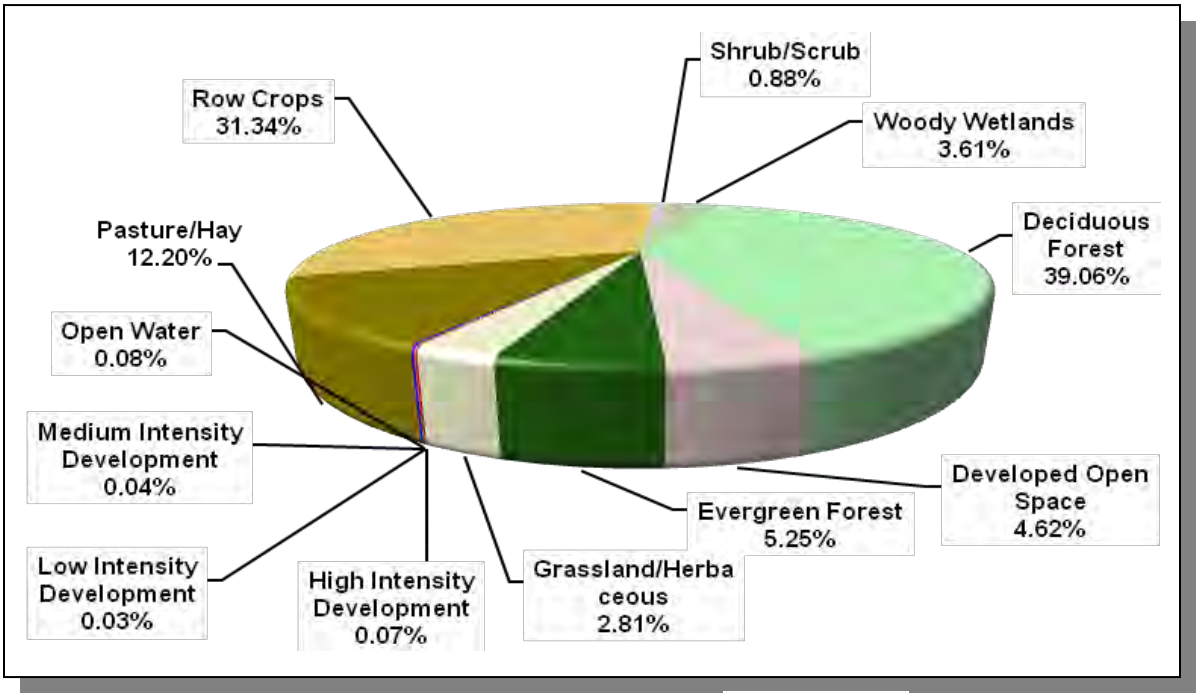


Figure 4-38. Land Use Distribution in Subwatershed 080102020105. *More information is provided in Appendix IV.*

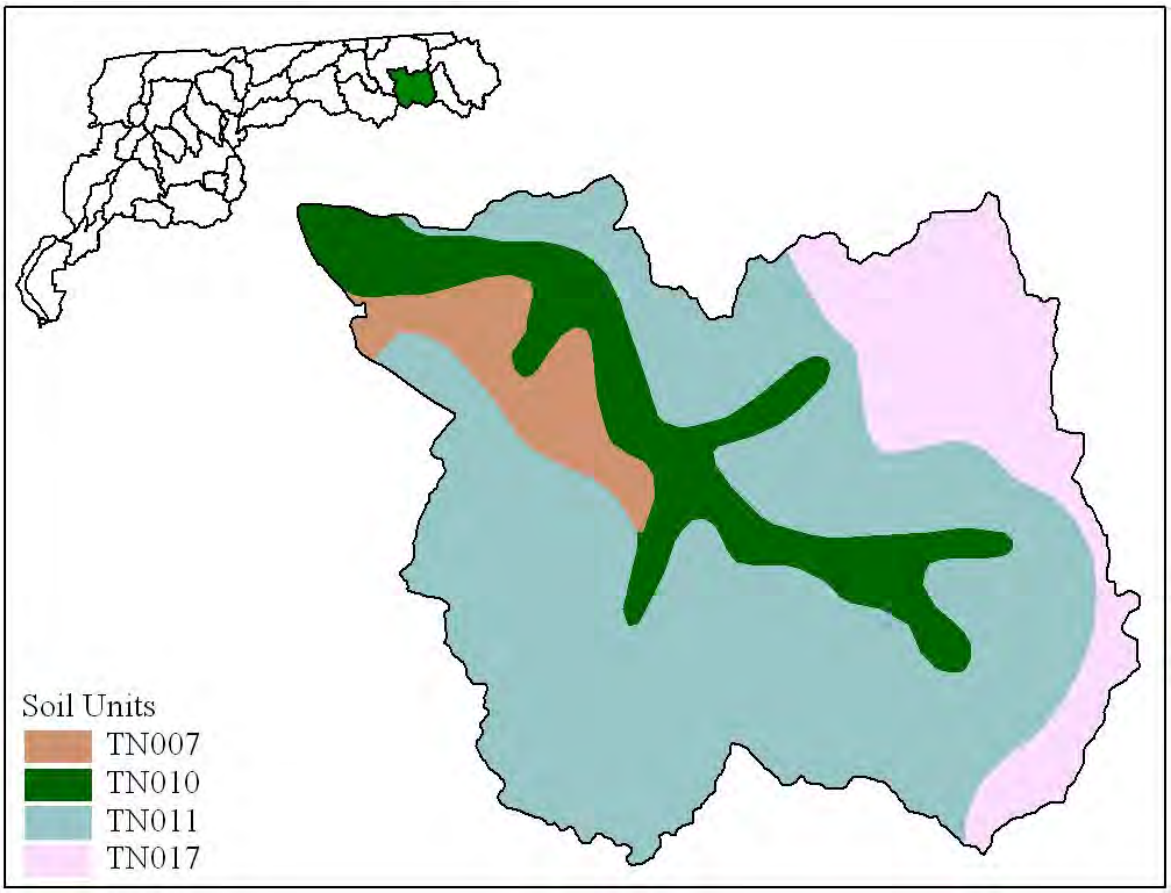


Figure 4-39. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020105.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN011	0.00	B	2.27	5.18	Silty Loam	0.40
TN017	0.00	B	1.81	5.26	Silty Loam	0.45

Table 4-24. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020105.*The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Henry	27,888	29,830	31,115	1.75	488	522	545	11.70
Weakley	31,972	32,808	34,895	3.71	1,185	1,216	1,293	9.10
Totals	**59,860**	**62,638**	**66,010**		**1,673**	**1,738**	**1,838**	**9.90**

Table 4-25. Population Estimates in Subwatershed 080102020105.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Cottage Grove	Henry	64	48	0	45	3

Table 4-26. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020105.

4.2.E.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020105.

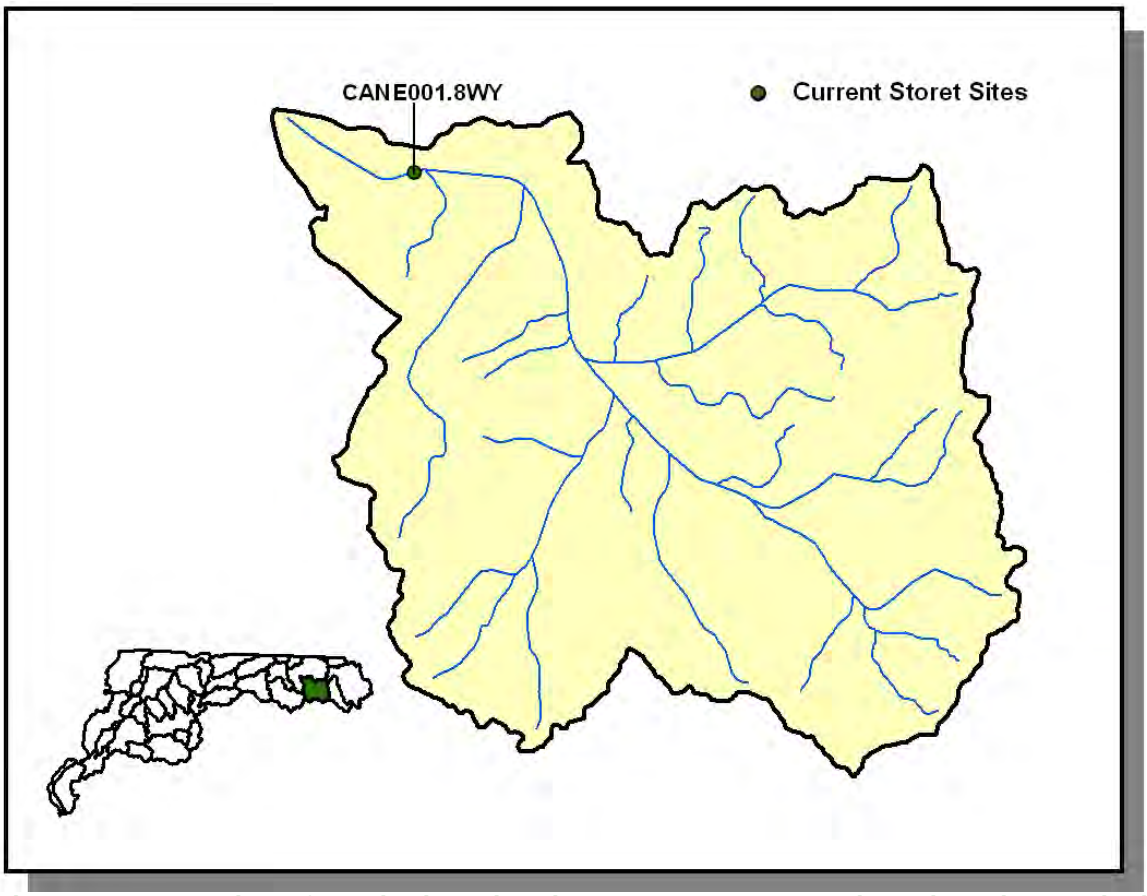


Figure 4-40. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020105. *More information, including site names and locations, is provided in Appendix IV.*

4.2.E.iii. Permitted Activities.

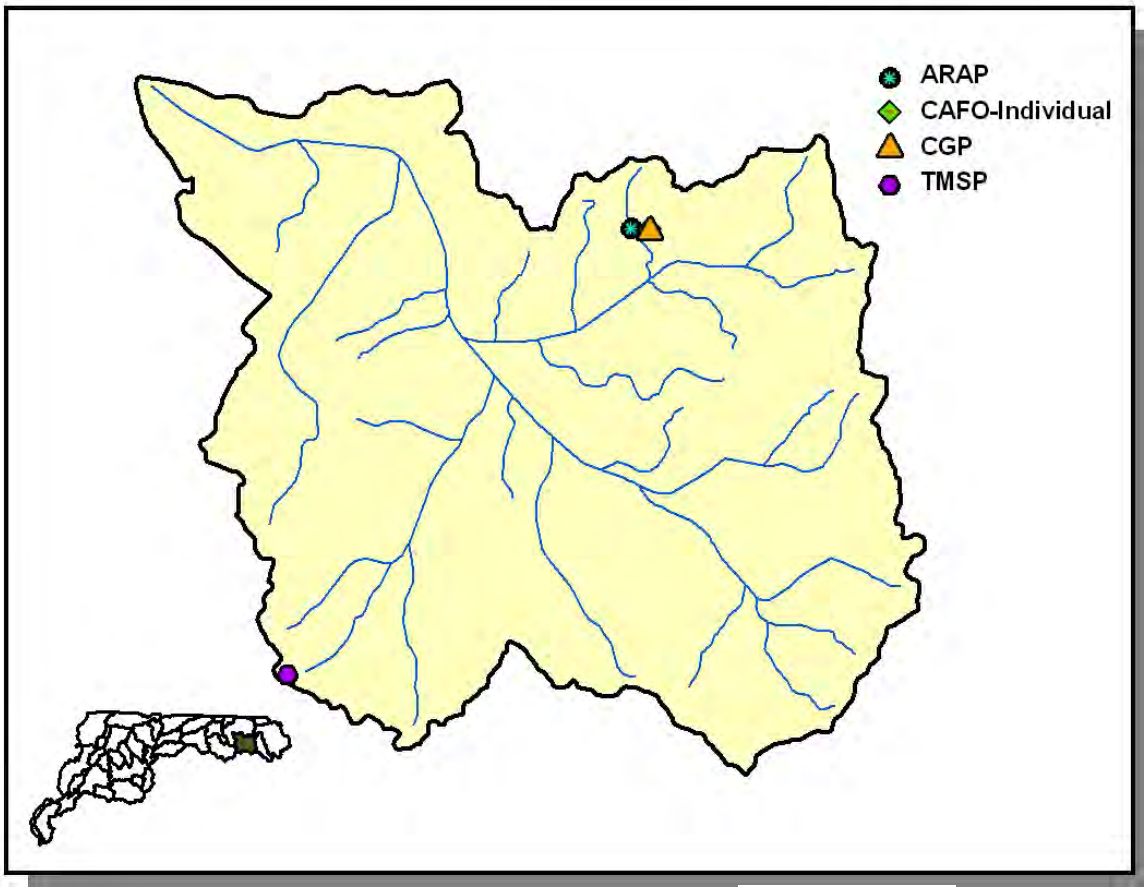


Figure 4-41. Location of Permits Issued in Subwatershed 080102020105. *More information, including the names of facilities, is provided in Appendix IV.*

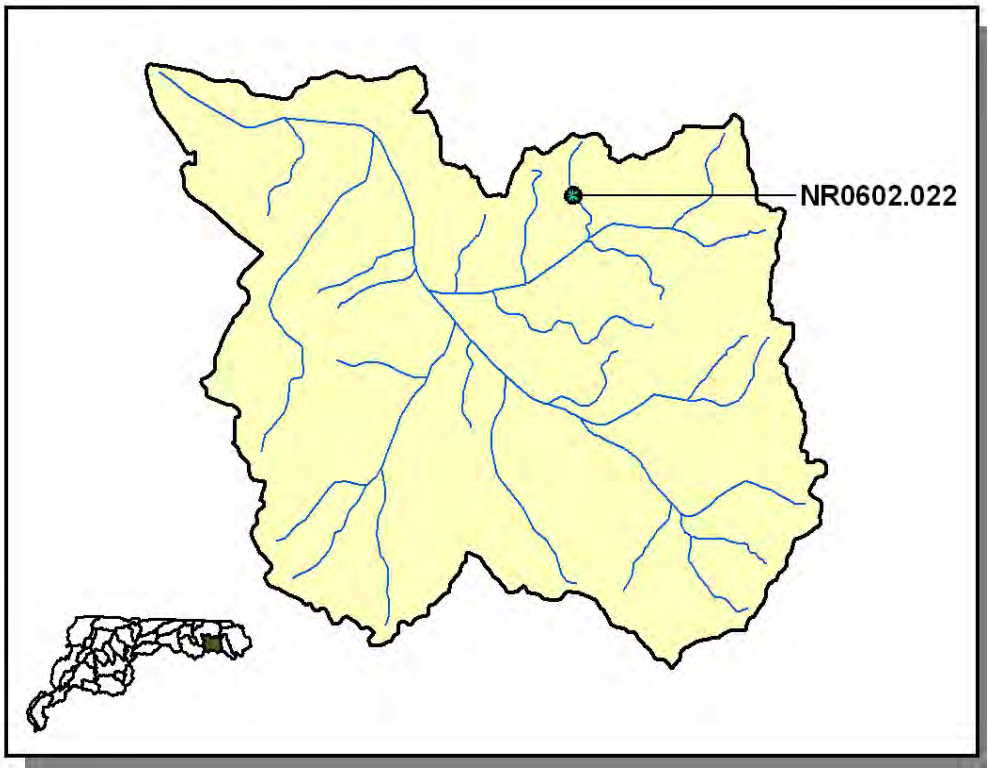


Figure 4-42. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020105. *More information is provided in Appendix IV.*

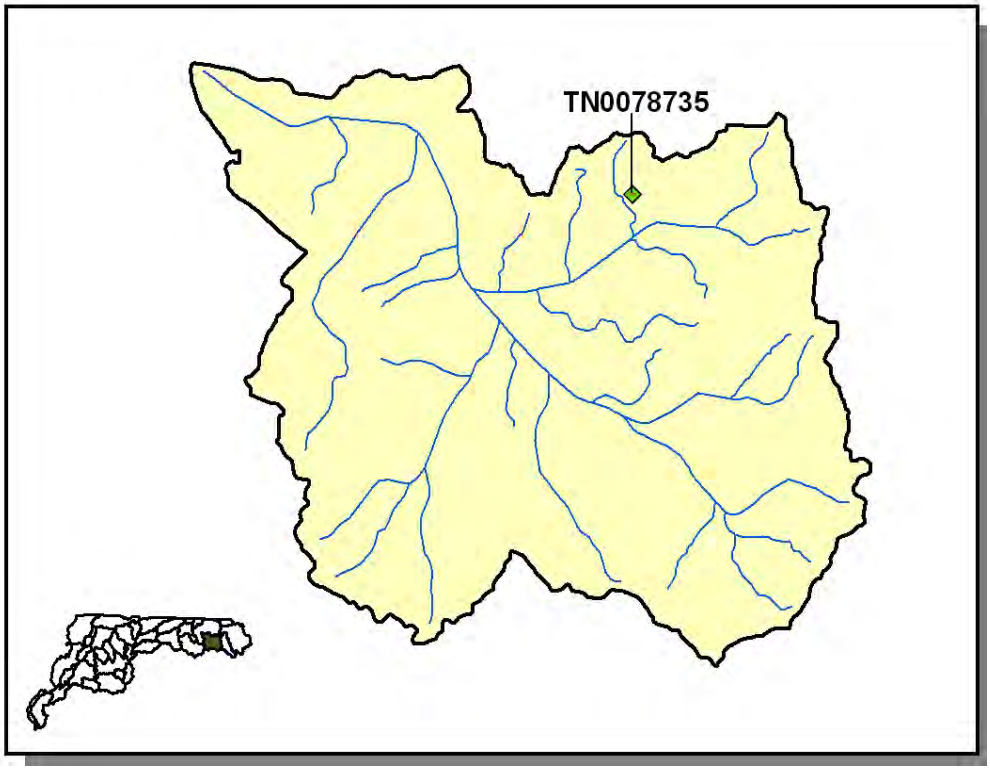


Figure 4-43. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102020105. *More information, including the names of facilities, is provided in Appendix IV.*

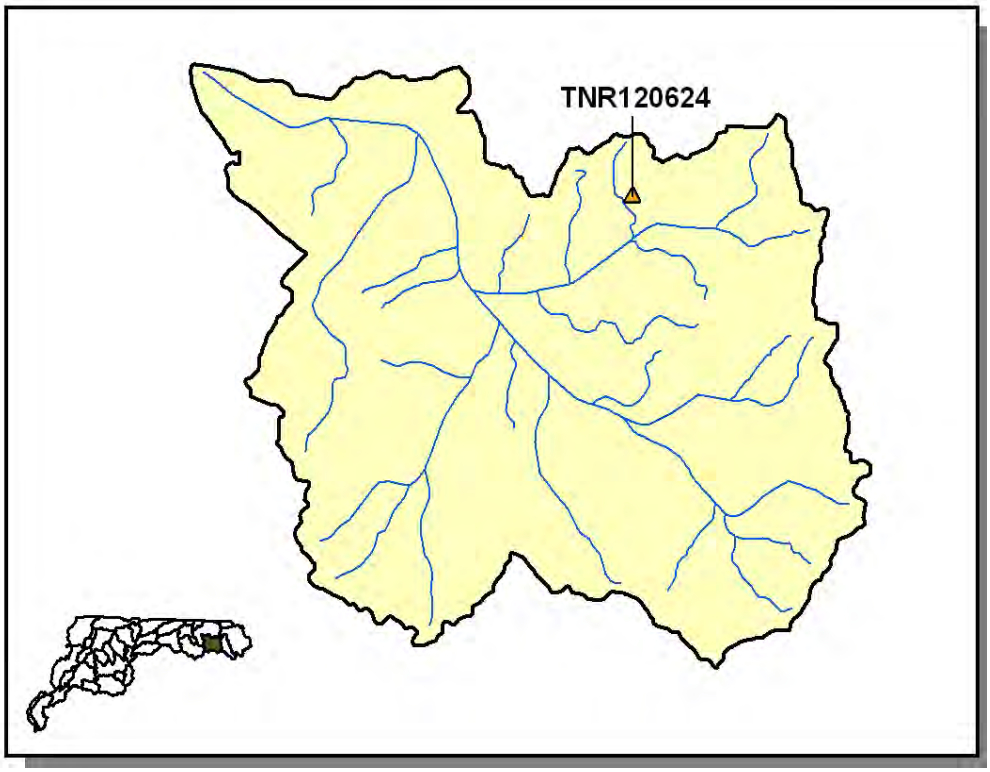


Figure 4-44. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020105. *More information is provided in Appendix IV.*

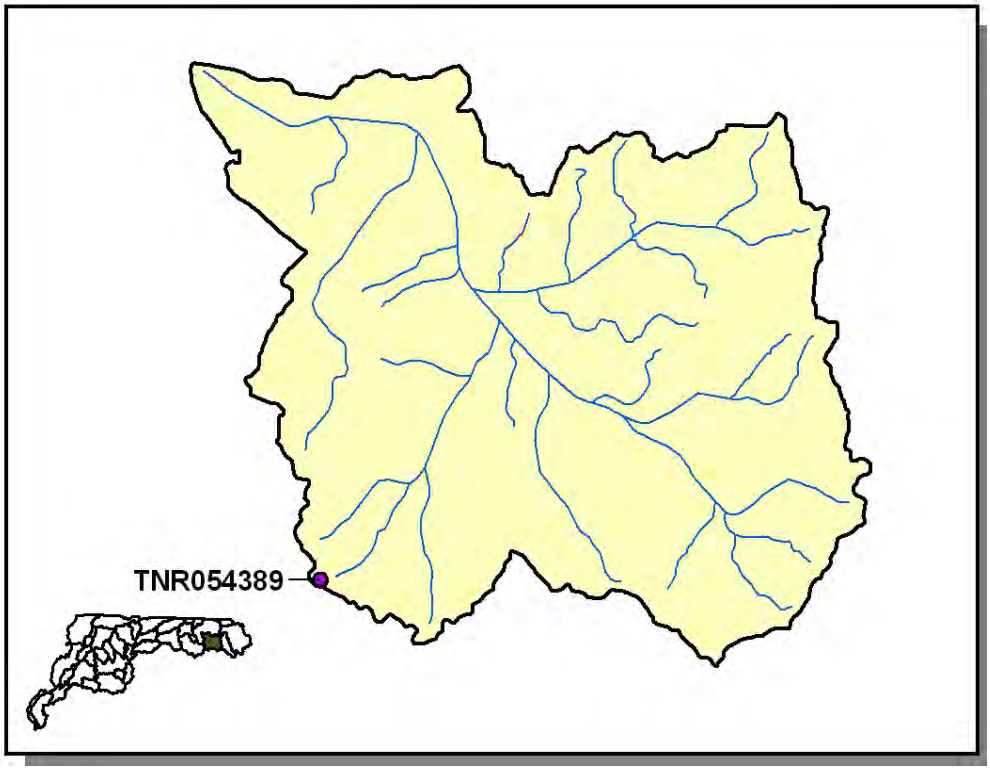


Figure 4-45. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020105. *More information is provided in Appendix IV.*

4.2.E.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Henry	8,920	20,299	1,793	29	36,205	89
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-27. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Henry	176.1	176.1	1.9	7.1
Weakley	96.1	95.9	6.7	24.6

Table 4-28. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Other (Horticultural)	16.41
Wheat (Close Grown Cropland)	8.70
Corn (Row Crops)	7.62
Soybeans (Row Crops)	7.22
Other Cropland not Planted	3.87
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	0.92
Legume (Hayland)	0.49
Conservation Reserve Program Land	0.47
Farmsteads and Ranch Headquarters	0.33
Grass (Hayland)	0.24
Grass (Pastureland)	0.17
Legume Grass (Hayland)	0.11

Table 4-29. Annual Estimated Total Soil Loss in Subwatershed 080102020105.

4.2.F. 080102020106 (Powell Creek).

4.2.F.i. General Description.

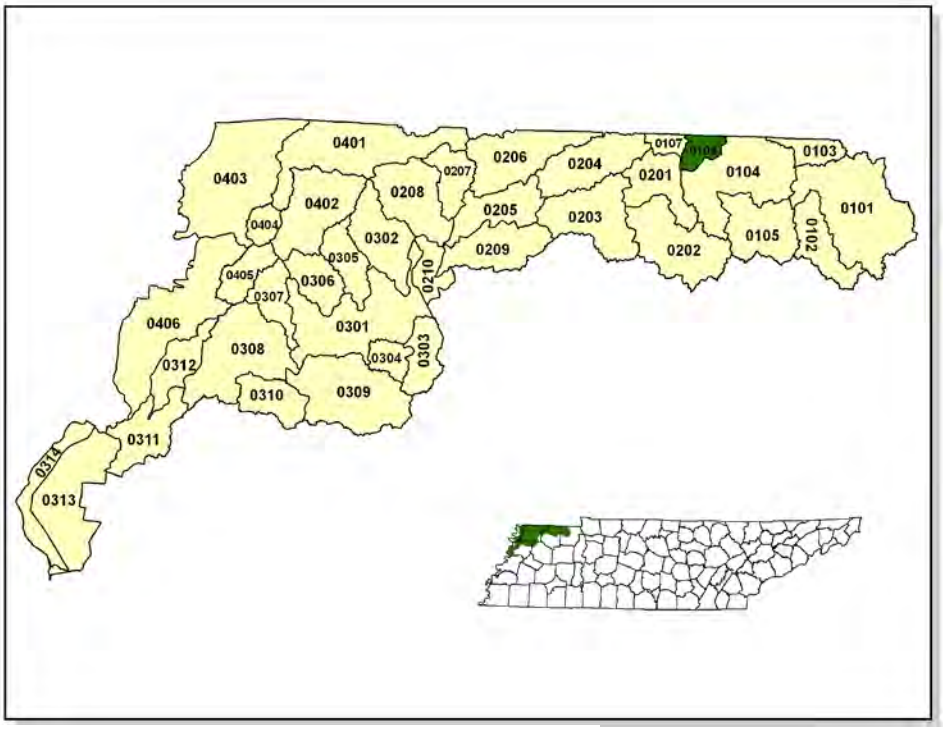


Figure 4-46. Location of Subwatershed 080102020106. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

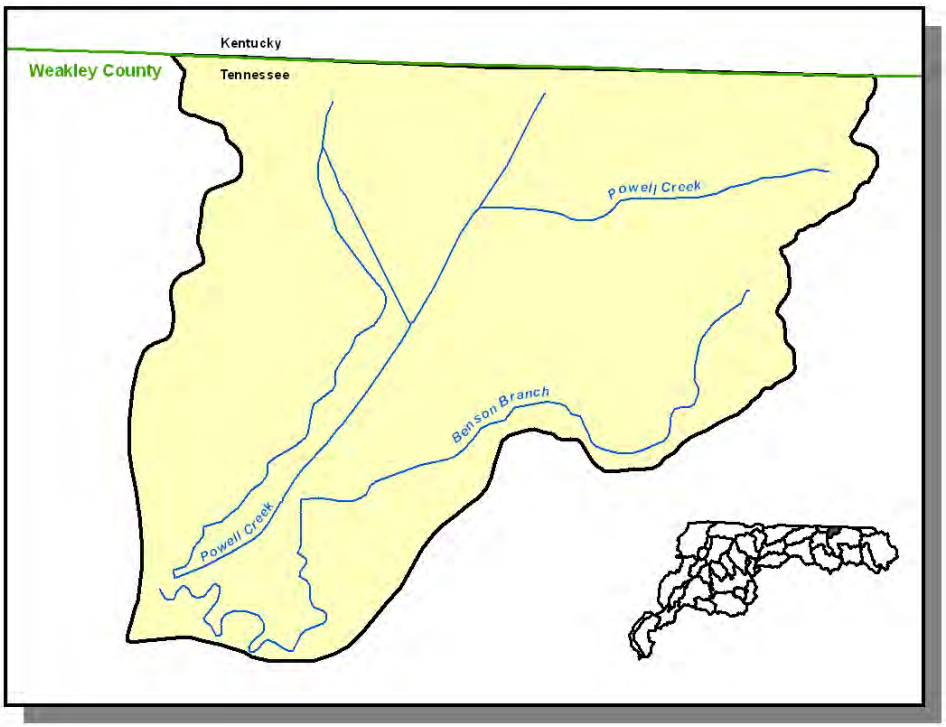


Figure 4-47. Locational Details of Subwatershed 080102020106.

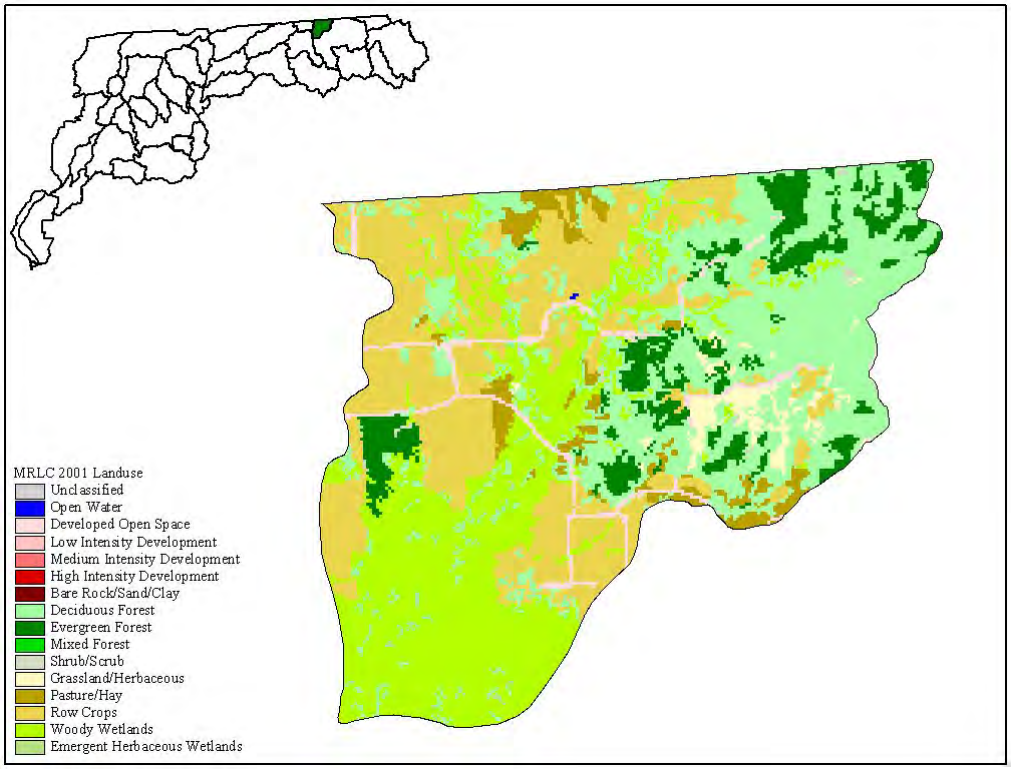


Figure 4-48. Illustration of Land Use Distribution in Subwatershed 080102020106.

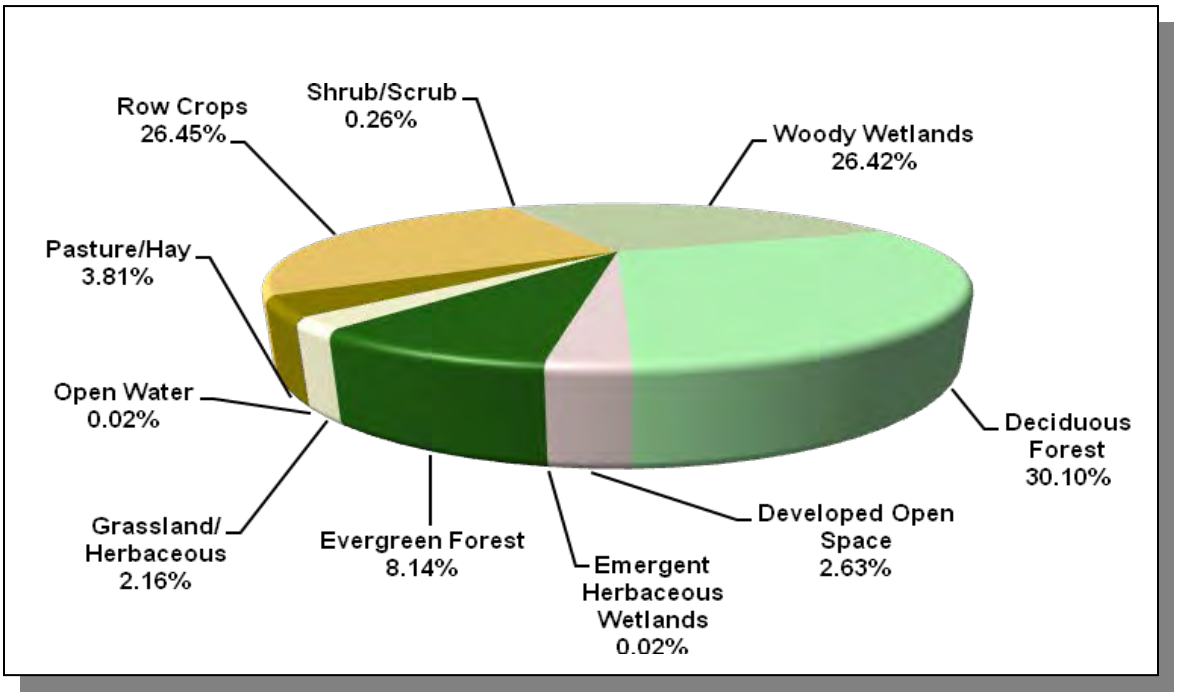


Figure 4-49. Land Use Distribution in Subwatershed 080102020106. *More information is provided in Appendix IV.*

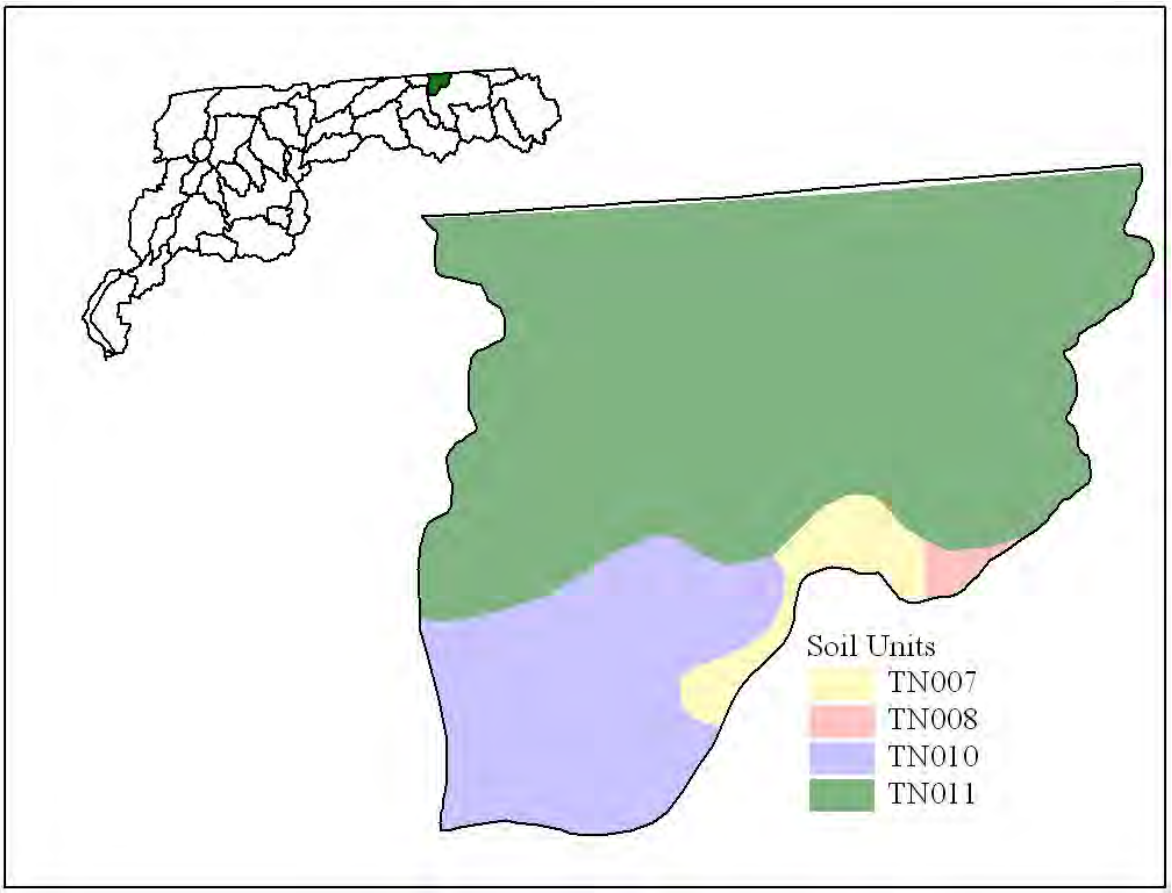


Figure 4-50. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020106.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN011	0.00	B	2.27	5.18	Silty Loam	0.40

Table 4-30. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020106. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Weakley	31,972	32,808	34,895	1.47	471	483	514	9.10

Table 4-31. Population Estimates in Subwatershed 080102020106.

4.2.F.ii. USGS Gaging Stations and STORET Sites.

There are no USGS gaging stations located in subwatershed 080102020106.

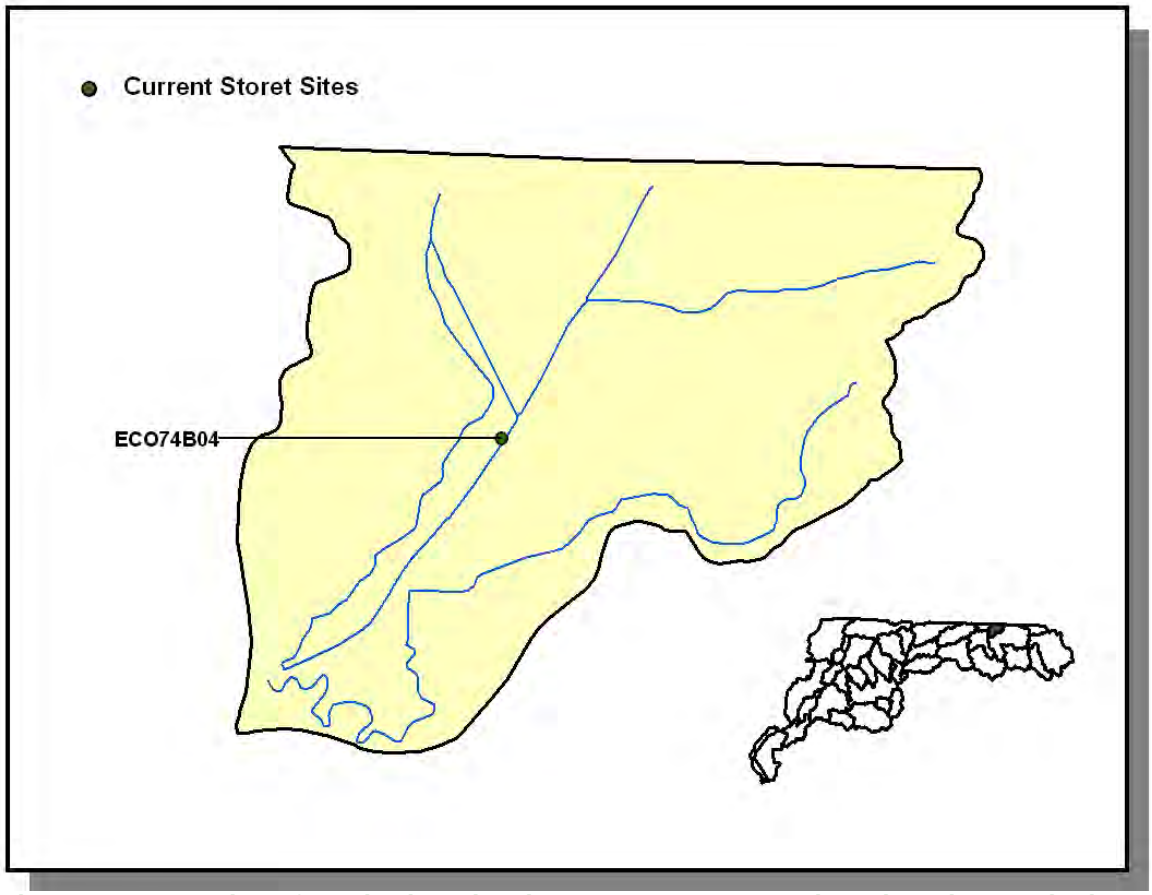


Figure 4-51. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020106. *More information, including site names and locations, is provided in Appendix IV.*

4.2.F.iii. Permitted Activities.

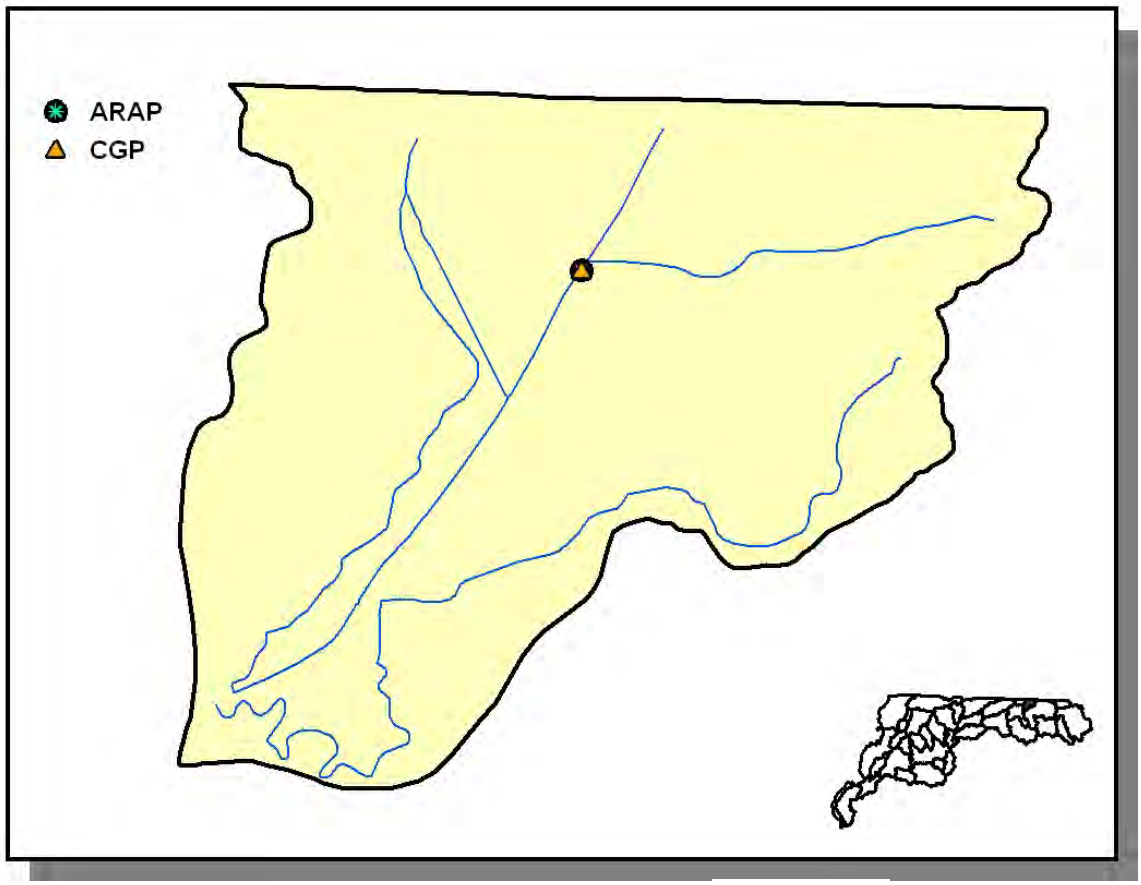


Figure 4-52. Location of Permits Issued in Subwatershed 080102020106. *More information, including the names of facilities, is provided in Appendix IV.*

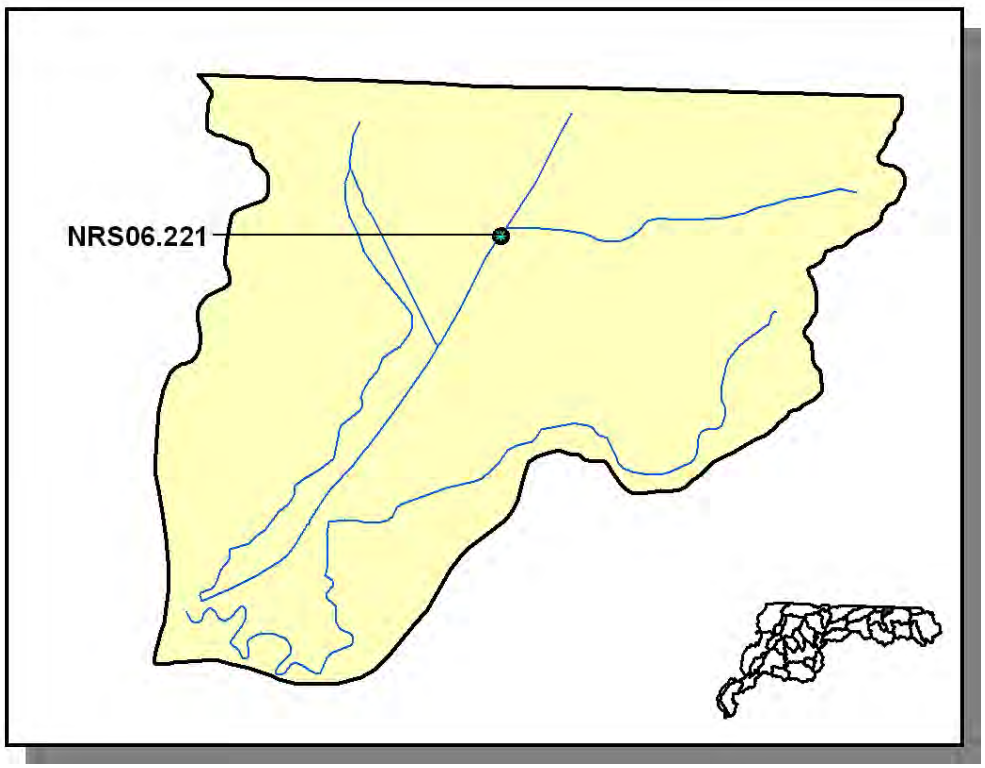


Figure 4-53. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020106. *More information is provided in Appendix IV.*

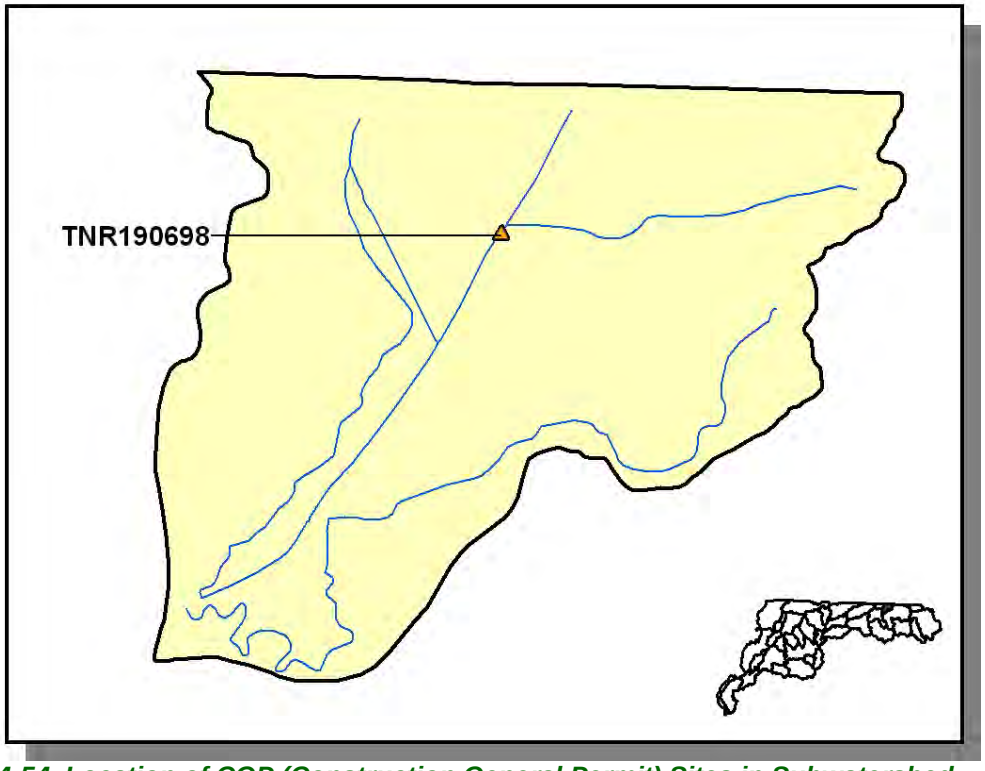


Figure 4-54. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020106. *More information is provided in Appendix IV.*

4.2.F.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-32. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Weakley	96.1	95.9	6.7	24.6

Table 4-33. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	10.01
Soybeans (Row Crops)	7.63
Corn (Row Crops)	7.56
Other Cropland not Planted	4.50
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	1.11
Legume (Hayland)	0.49
Farmsteads and Ranch Headquarters	0.44
Conservation Reserve Program Land	0.43
Grass (Hayland)	0.23
Grass (Pastureland)	0.13

Table 4-34. Annual Estimated Total Soil Loss in Subwatershed 080102020106.

4.2.G. 080102020107 (Blackamore Creek).

4.2.G.i. General Description.

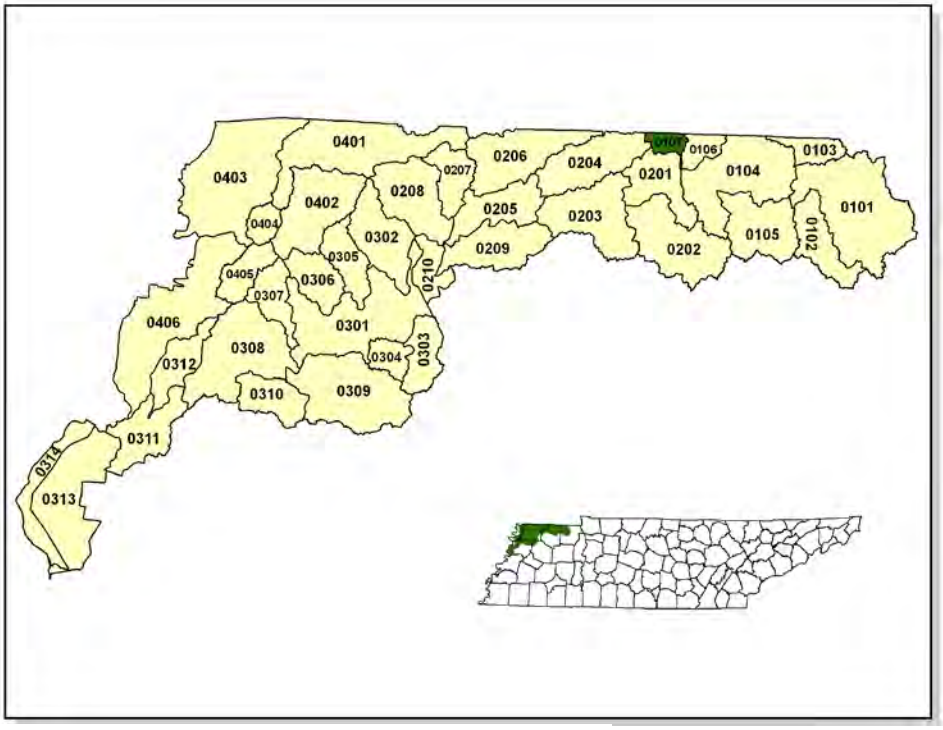


Figure 4-55. Location of Subwatershed 080102020107. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

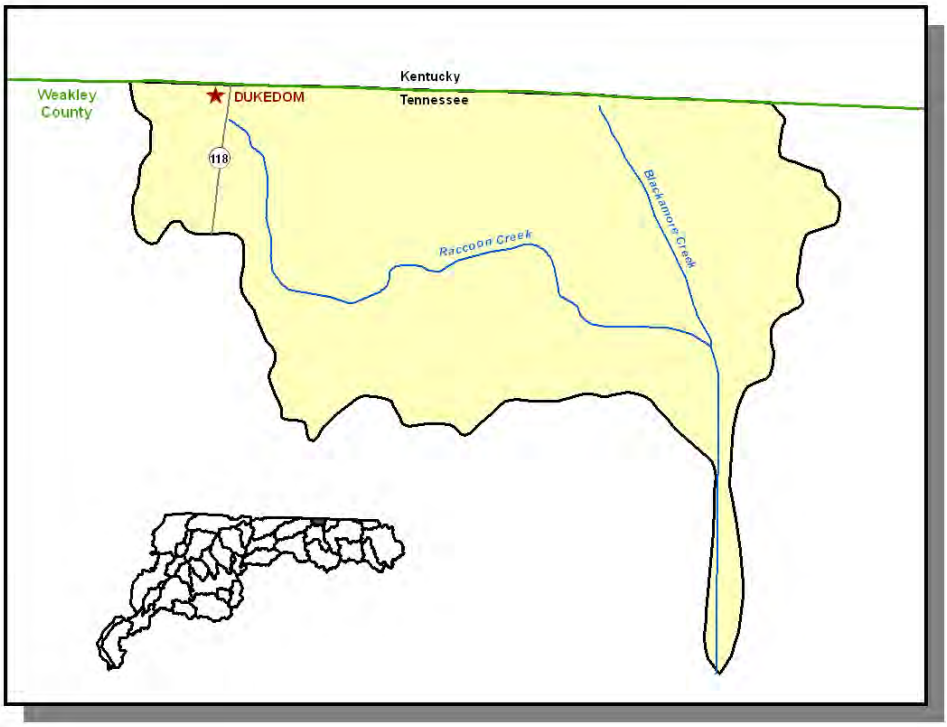


Figure 4-56. Locational Details of Subwatershed 080102020107.

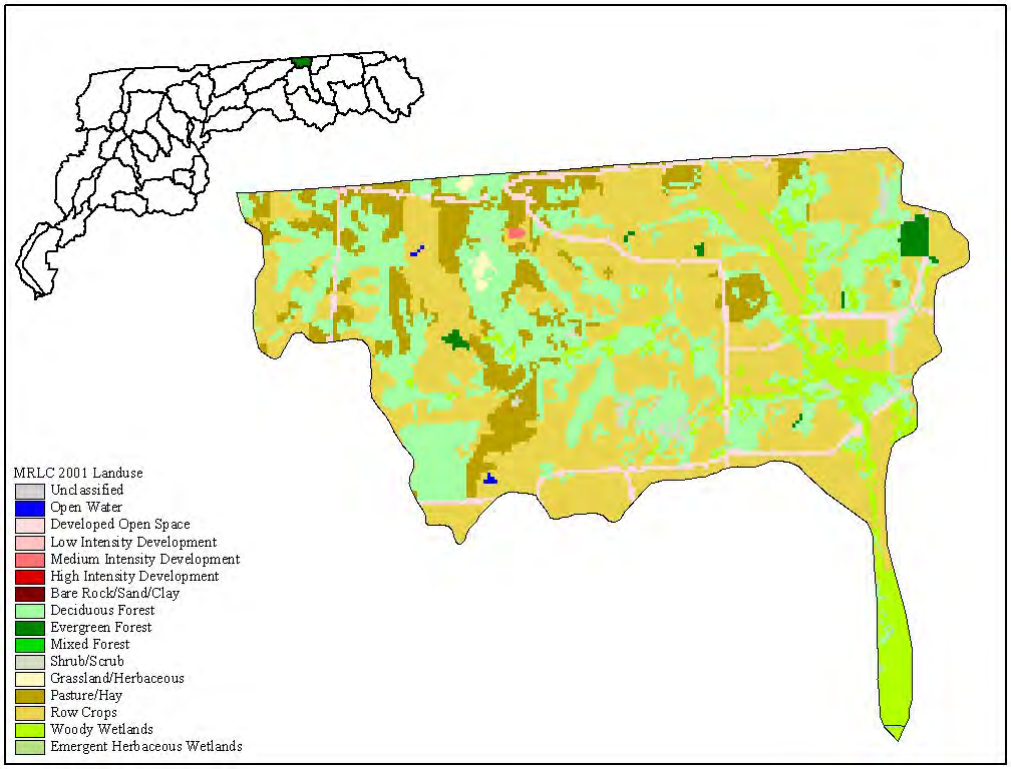


Figure 4-57. Illustration of Land Use Distribution in Subwatershed 080102020107.

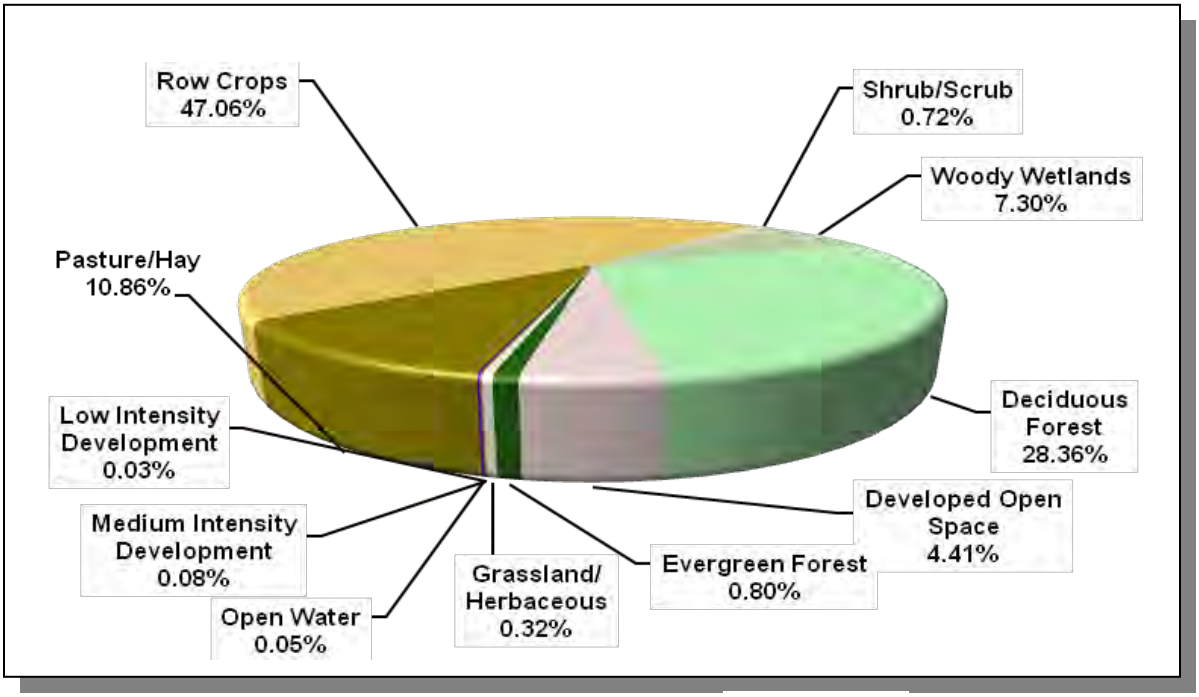


Figure 4-58. Land Use Distribution in Subwatershed 080102020107. *More information is provided in Appendix IV.*

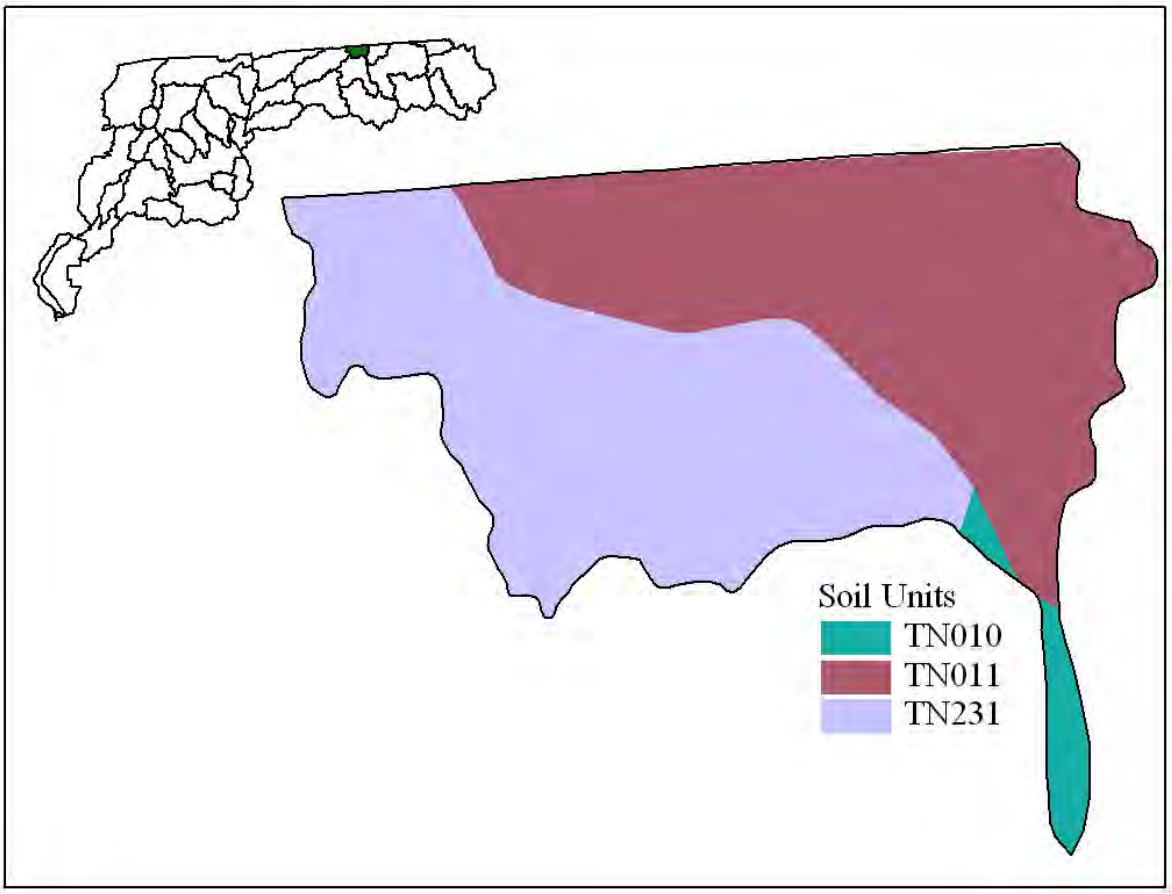


Figure 4-59. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020107.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN011	0.00	B	2.27	5.18	Silty Loam	0.40
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-35. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020107. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Weakley	31,972	32,808	34,895	1.02	326	334	355	8.90

Table 4-36. Population Estimates in Subwatershed 080102020107.

4.2.G.ii. USGS Gaging Stations and STORET Sites.

There are no USGS gaging stations located in subwatershed 080102020107.

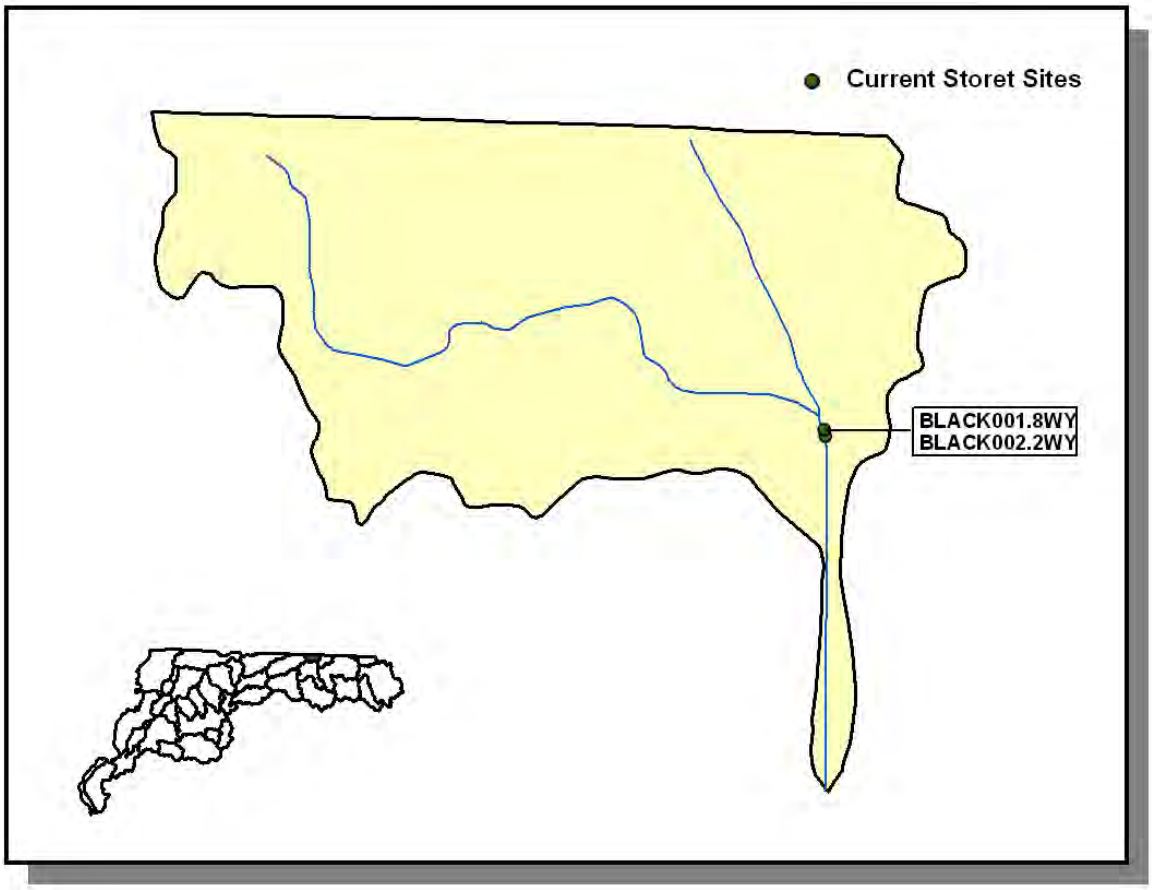


Figure 4-60. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020107. *More information, including site names and locations, is provided in Appendix IV.*

4.2.G.iii. Permitted Activities.

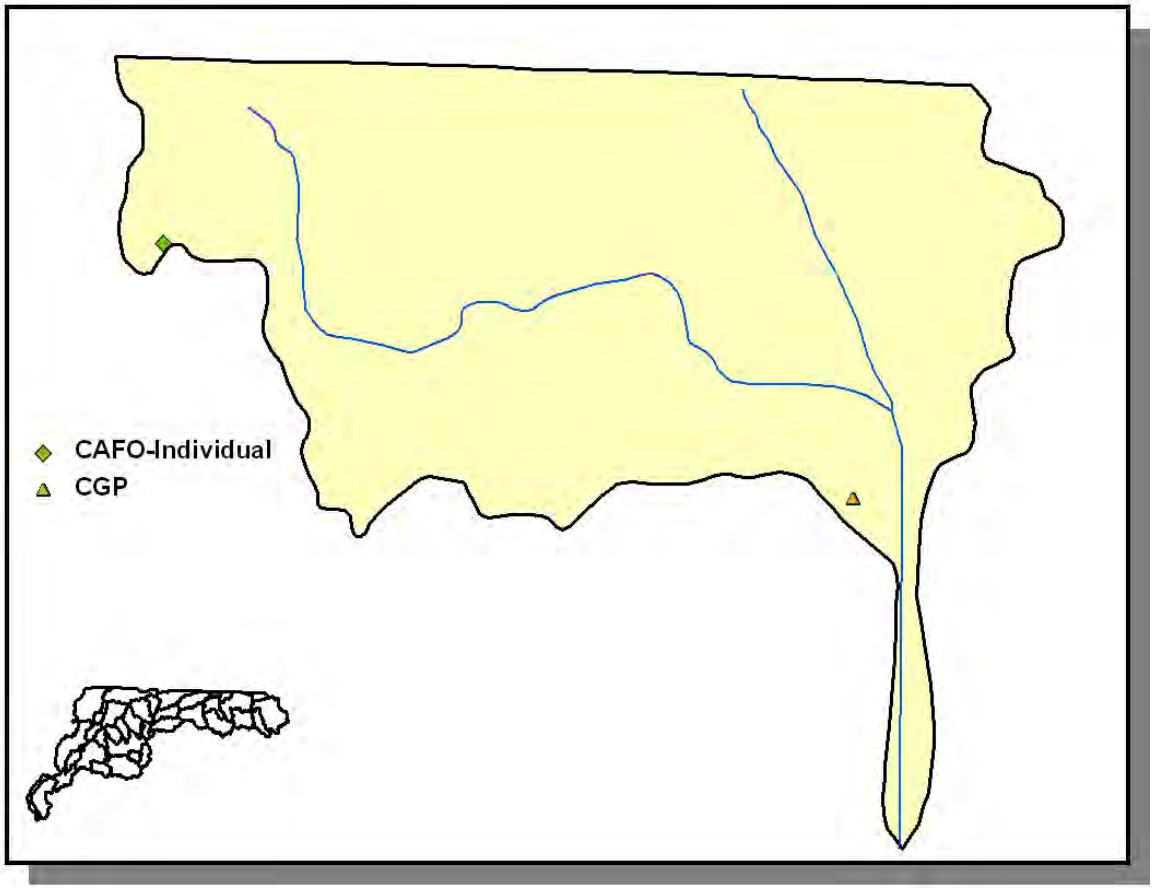


Figure 4-61. Location of Permits Issued in Subwatershed 080102020107. *More information, including the names of facilities, is provided in Appendix IV.*

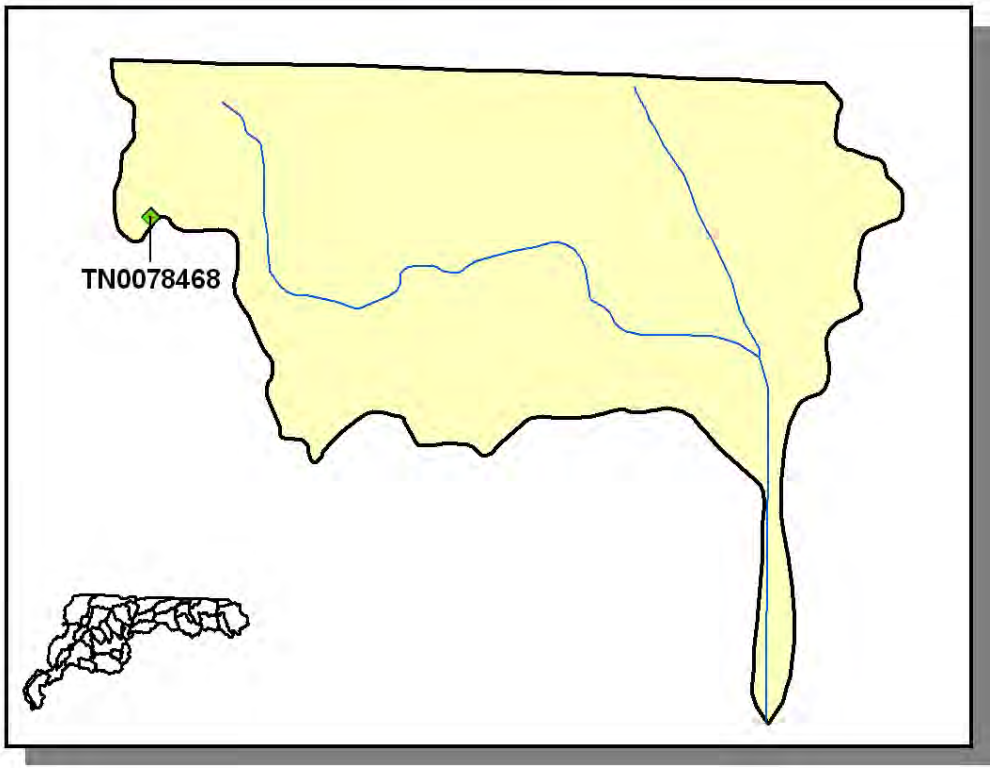


Figure 4-62. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102020107. *More information, including the names of facilities, is provided in Appendix IV.*

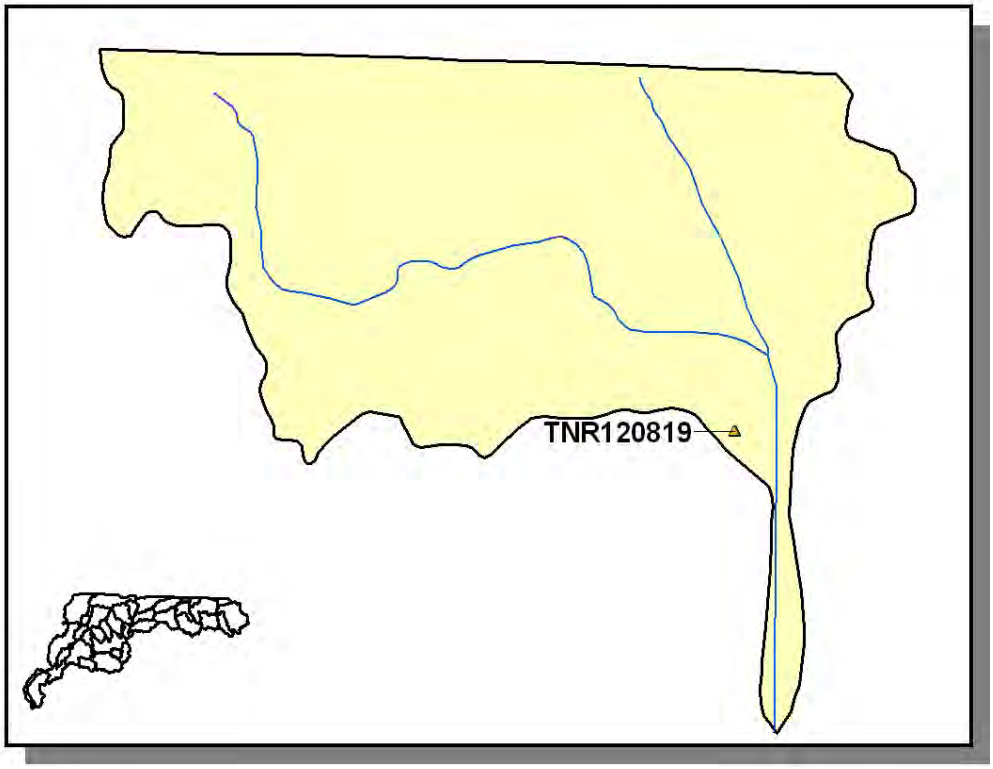


Figure 4-63. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020107. *More information is provided in Appendix IV.*

4.2.G.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-37. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Weakley	96.1	95.9	6.7	24.6

Table 4-38. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	10.01
Soybeans (Row Crops)	7.63
Corn (Row Crops)	7.56
Other Cropland not Planted	4.50
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	1.11
Legume (Hayland)	0.49
Farmsteads and Ranch Headquarters	0.44
Conservation Reserve Program Land	0.43
Grass (Hayland)	0.23
Grass (Pastureland)	0.13

Table 4-39. Annual Estimated Total Soil Loss in Subwatershed 080102020107

4.2.H. 080102020201 (North Fork Obion River).

4.2.H.i. General Description.

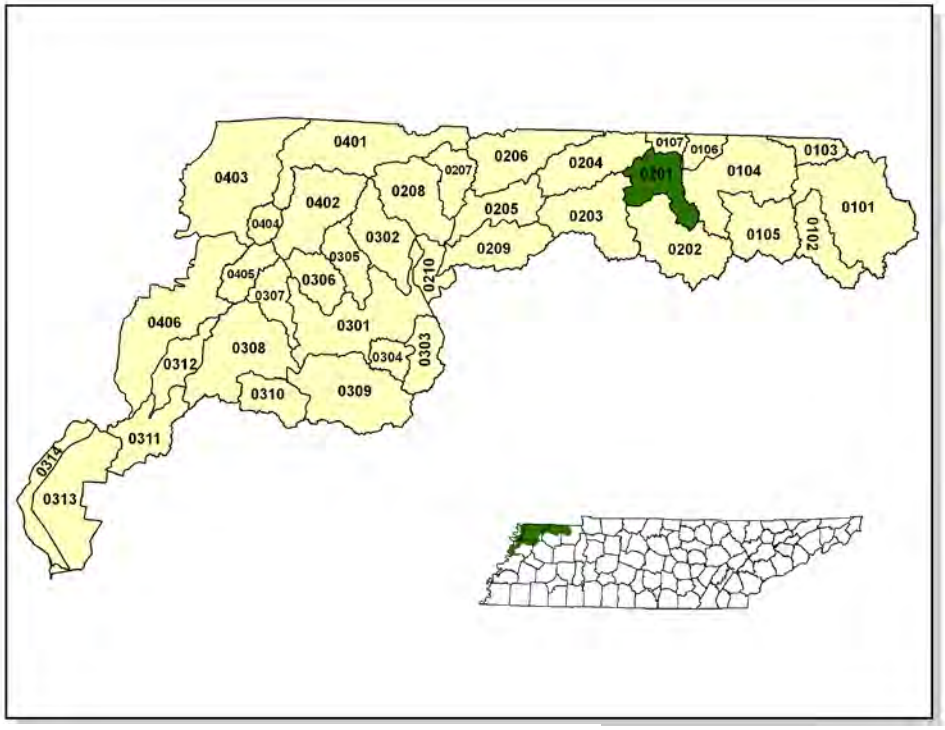


Figure 4-64. Location of Subwatershed 080102020201. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

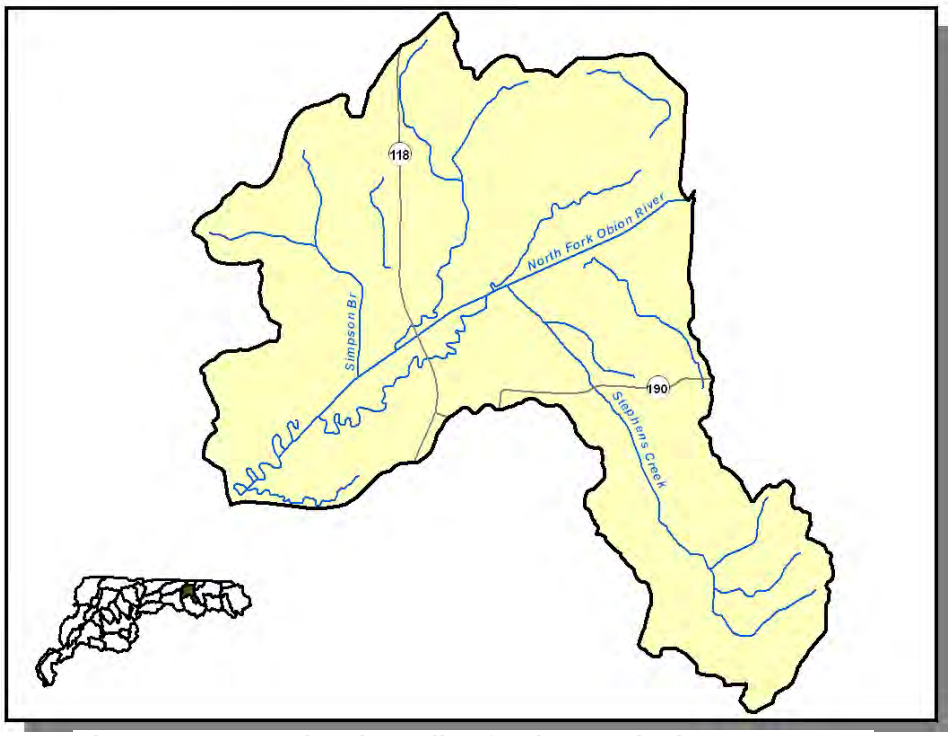


Figure 4-65. Locational Details of Subwatershed 080102020201.

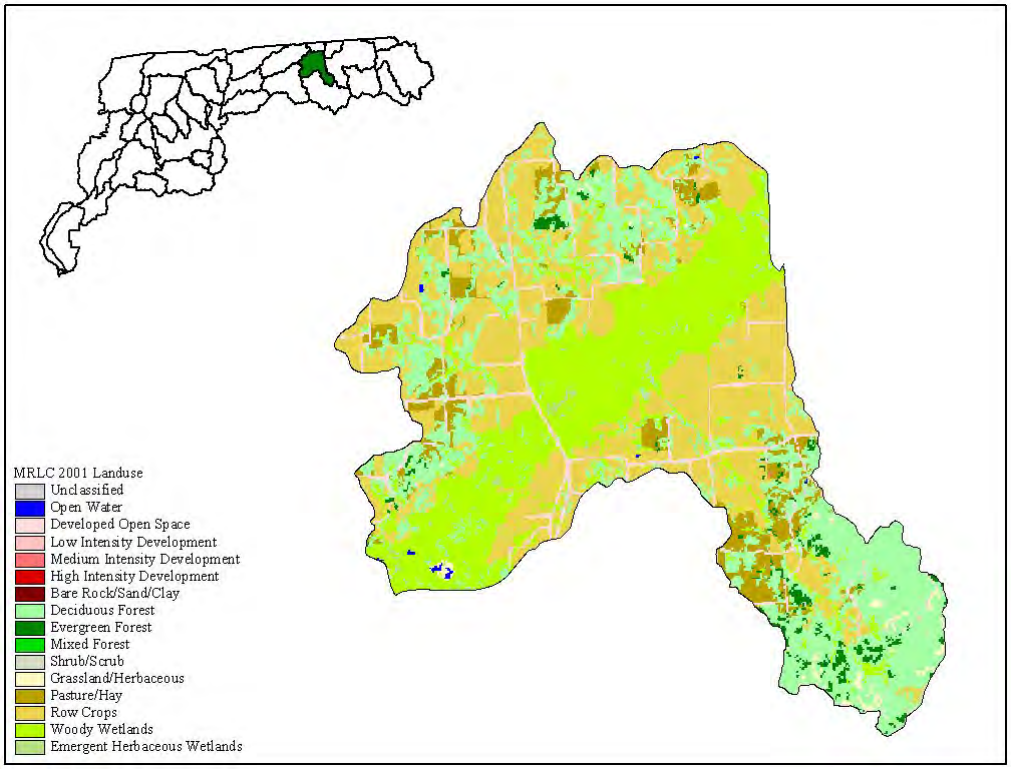


Figure 4-66. Illustration of Land Use Distribution in Subwatershed 080102020201.

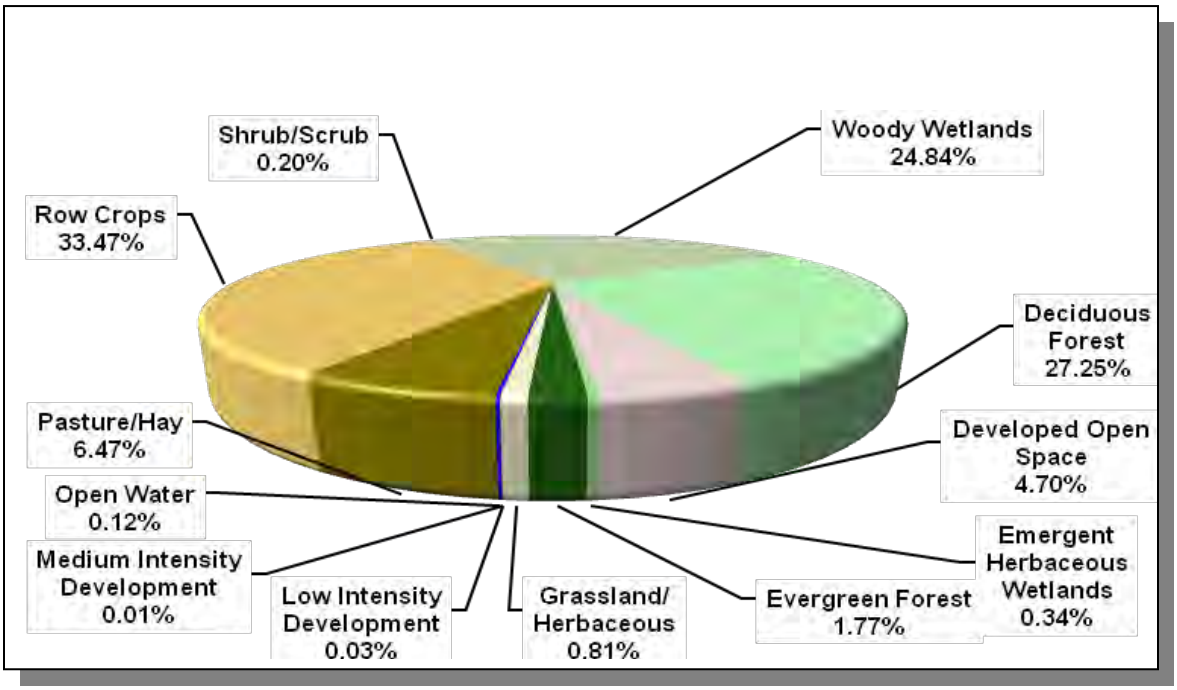


Figure 4-67. Land Use Distribution in Subwatershed 080102020201. *More information is provided in Appendix IV.*

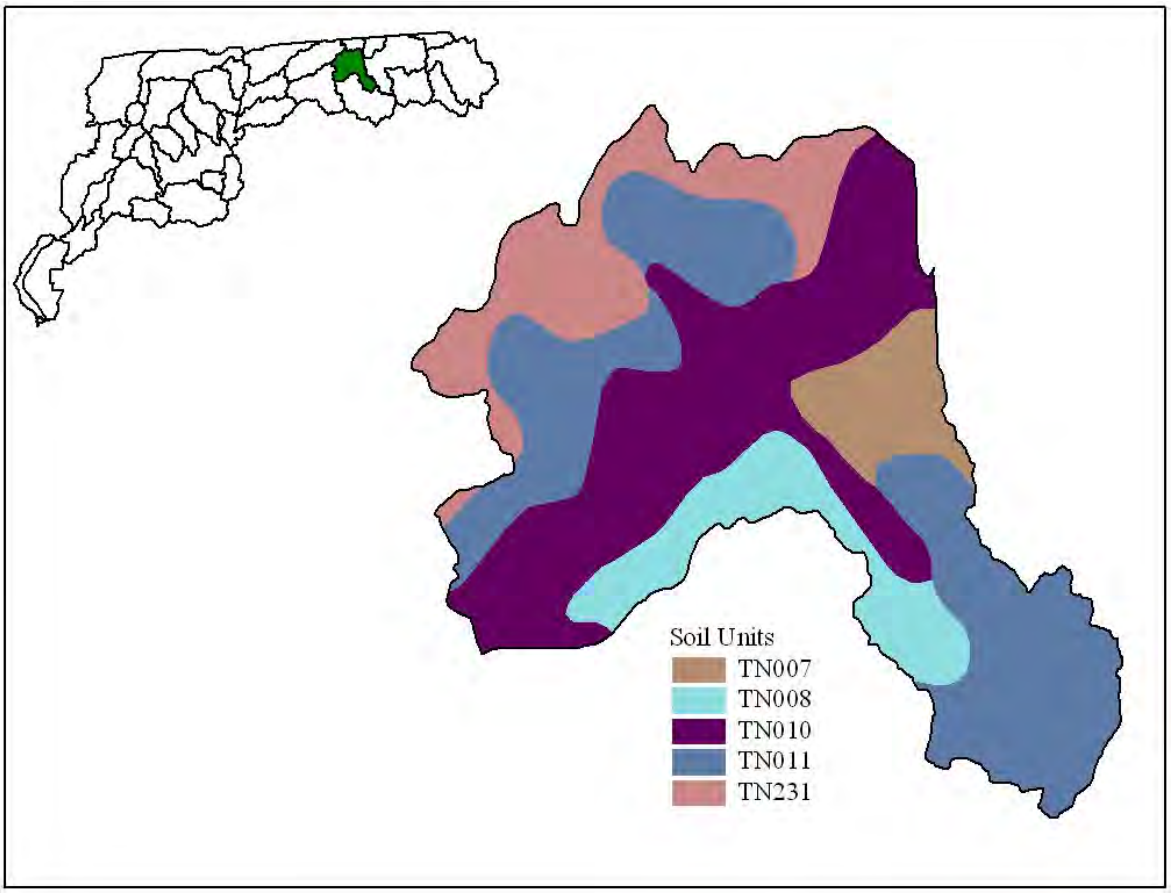


Figure 4-68. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020201.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN011	0.00	B	2.27	5.18	Silty Loam	0.40
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-40. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020201. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Weakley	31,972	32,808	34,895	4.18	1,336	1,371	1,458	9.10

Table 4-41. Population Estimates in Subwatershed 080102020201.

4.2.H.ii. USGS Gaging Stations and STORET Sites.

There are no USGS gaging stations or STORET sites located in subwatershed 080102020201.

4.2.H.iii. Permitted Activities.

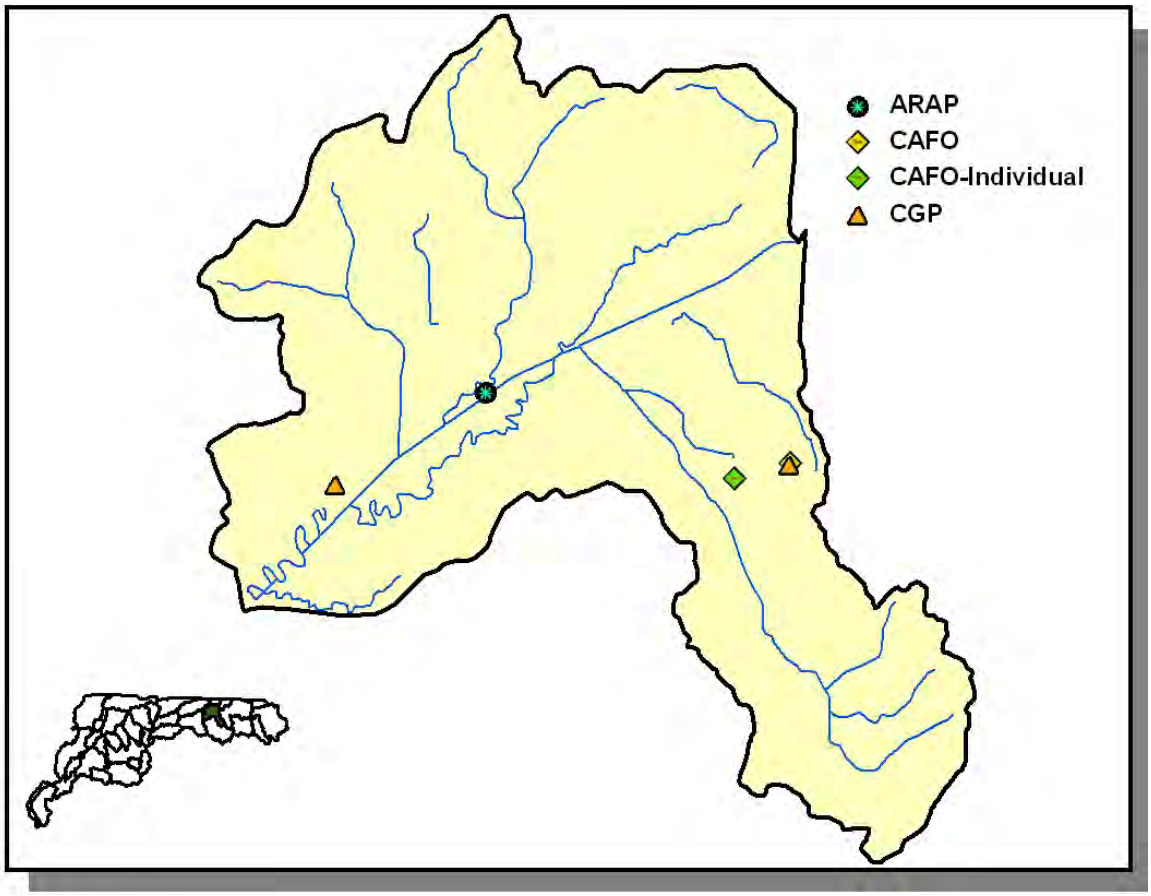


Figure 4-69. Location of Permits Issued in Subwatershed 080102020201. *More information, including the names of facilities, is provided in Appendix IV.*

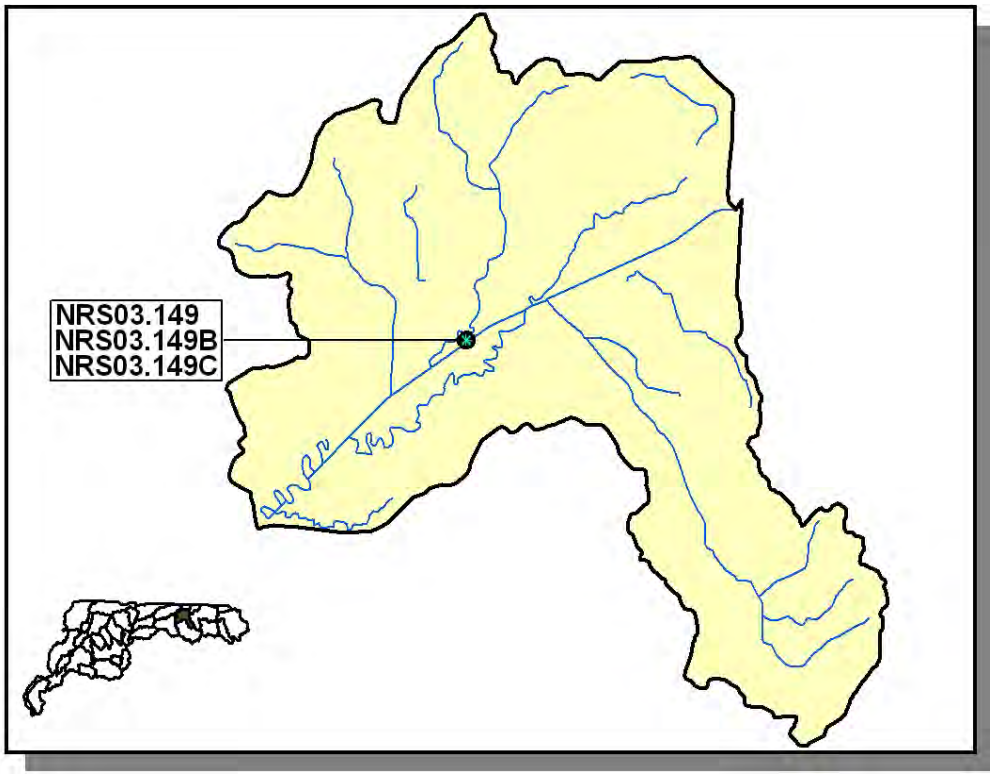


Figure 4-70. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020201. *More information is provided in Appendix IV.*

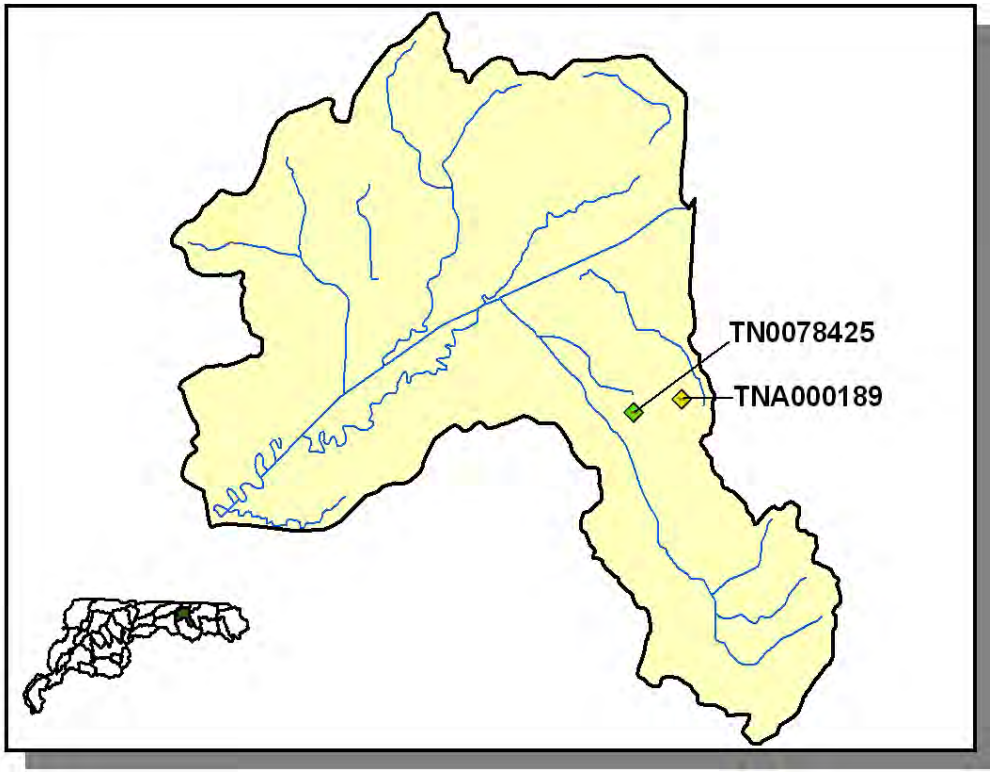


Figure 4-71. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102020201. *More information, including the names of facilities, is provided in Appendix IV.*

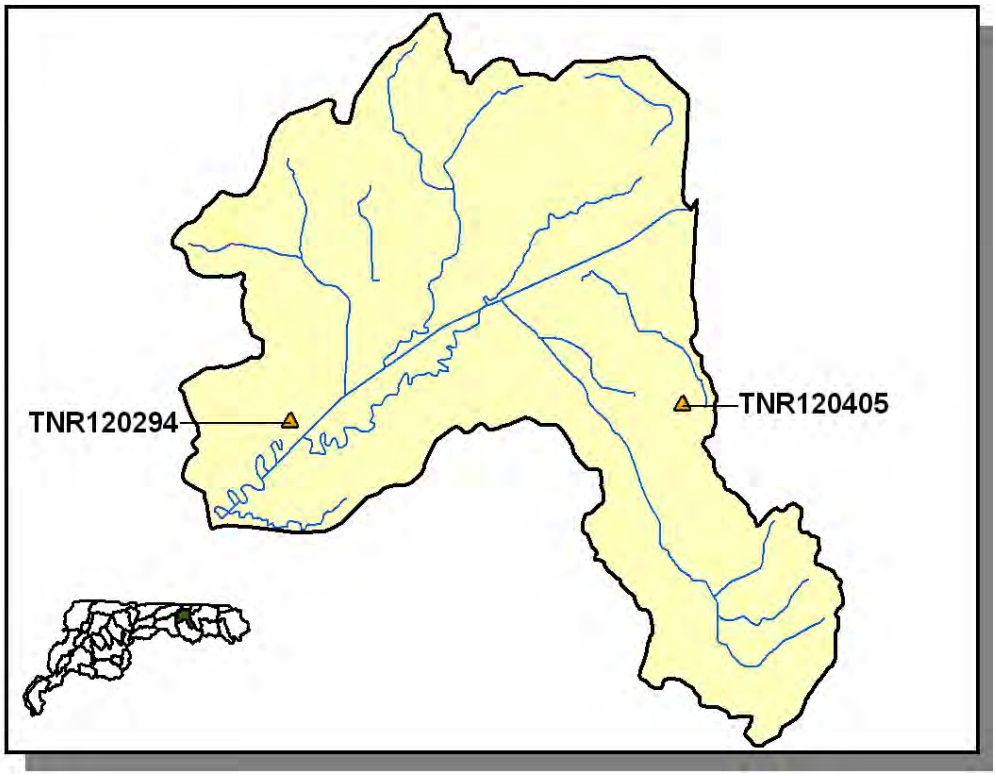


Figure 4-72. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020201. *More information is provided in Appendix IV.*

4.2.H.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-42. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Weakley	96.1	95.9	6.7	24.6

Table 4-43. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	10.01
Soybeans (Row Crops)	7.63
Corn (Row Crops)	7.56
Other Cropland not Planted	4.50
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	1.11
Legume (Hayland)	0.49
Farmsteads and Ranch Headquarters	0.44
Conservation Reserve Program Land	0.43
Grass (Hayland)	0.23
Grass (Pastureland)	0.13

Table 4-44. Annual Estimated Total Soil Loss in Subwatershed 080102020201.

4.2.I. 080102020202 (Cypress Creek).

4.2.I.i. General Description.

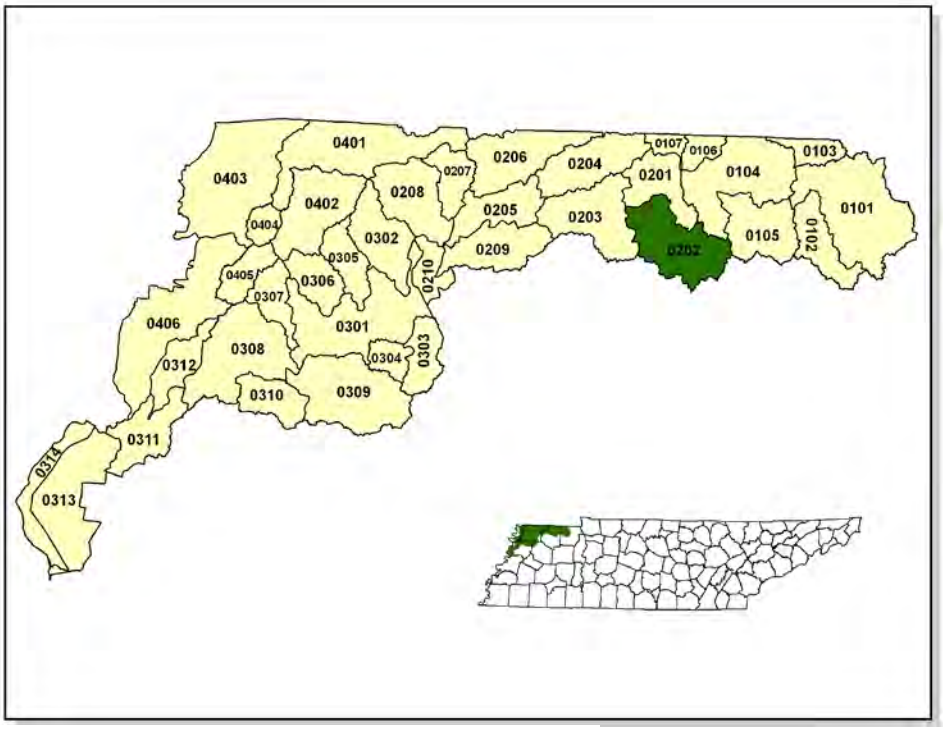


Figure 4-73. Location of Subwatershed 080102020202. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

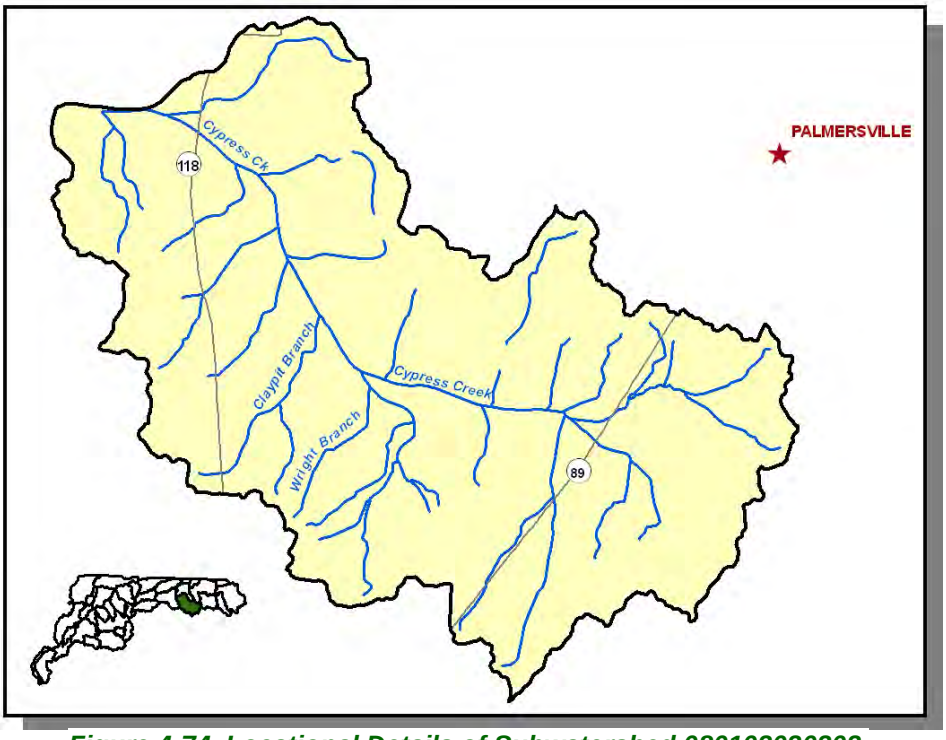


Figure 4-74. Locational Details of Subwatershed 080102020202.

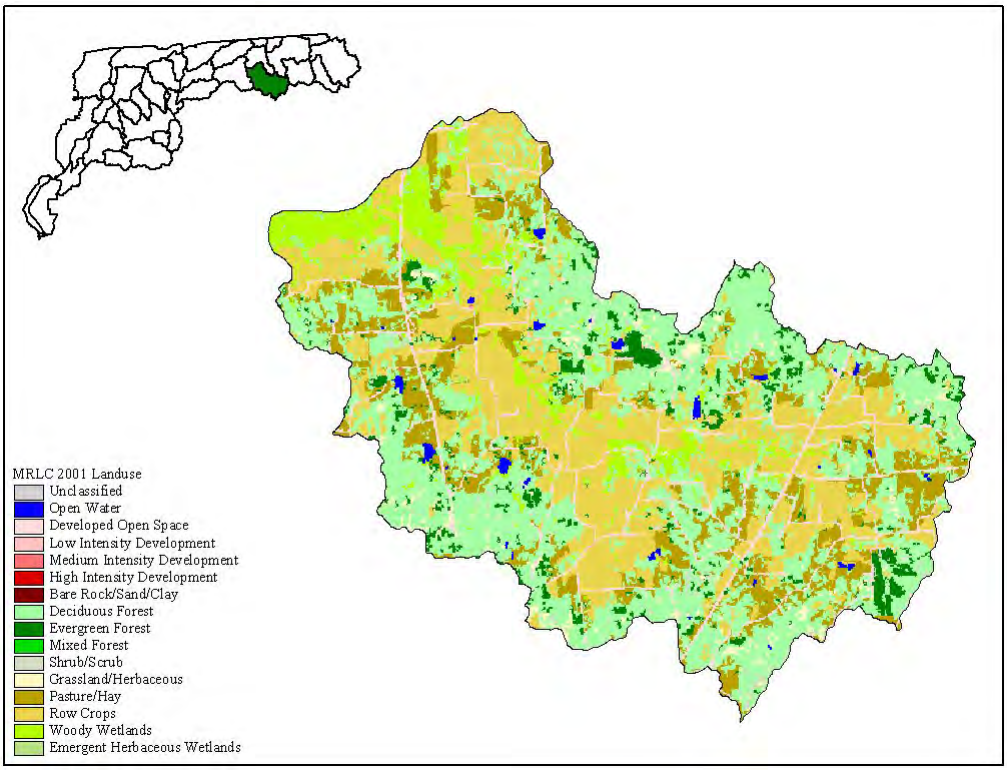


Figure 4-75. Illustration of Land Use Distribution in Subwatershed 080102020202.

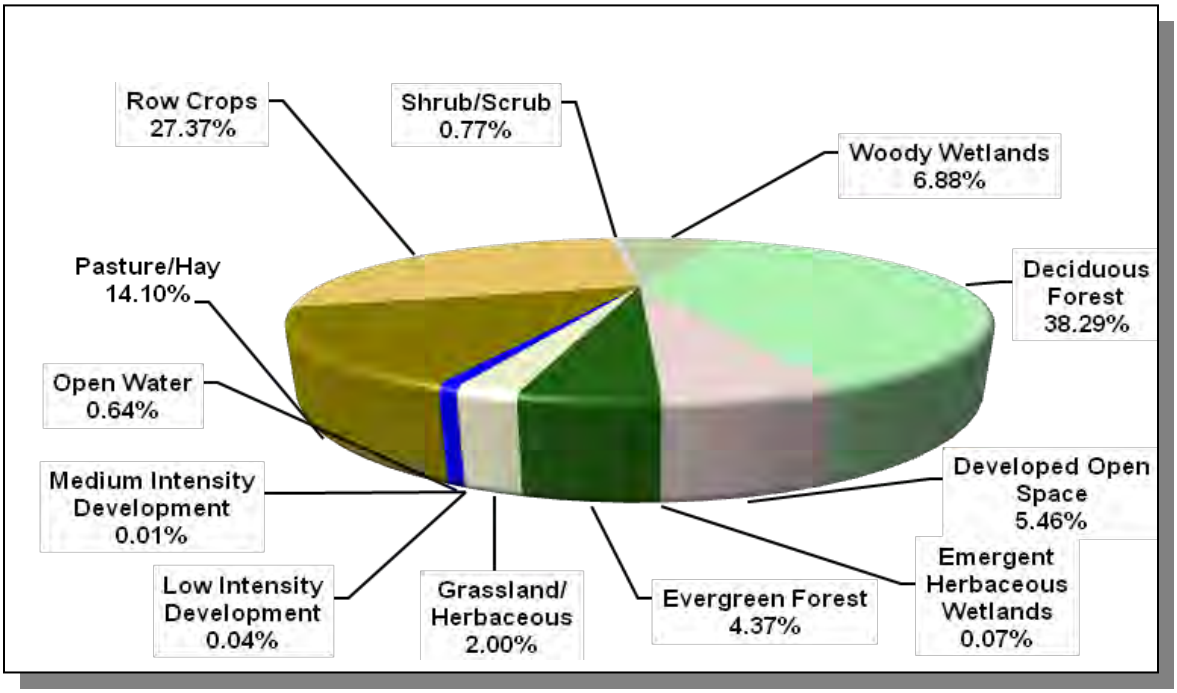


Figure 4-76. Land Use Distribution in Subwatershed 080102020202. *More information is provided in Appendix IV.*

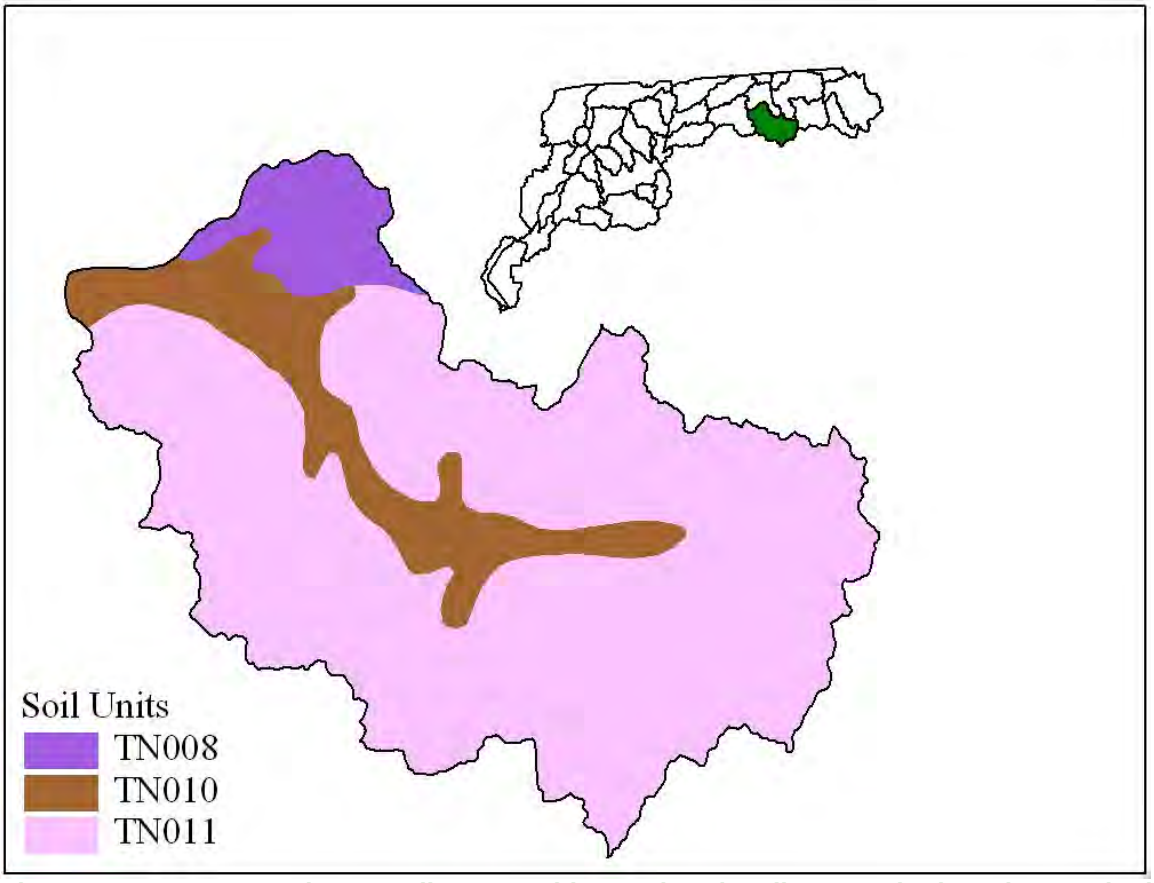


Figure 4-77. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020202.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN011	0.00	B	2.27	5.18	Silty Loam	0.40

Table 4-45. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020202. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Weakley	31,972	32,808	34,895	7.25	2,317	2,378	2,529	9.10

Table 4-46. Population Estimates in Subwatershed 080102020202.

4.2.I.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020202.

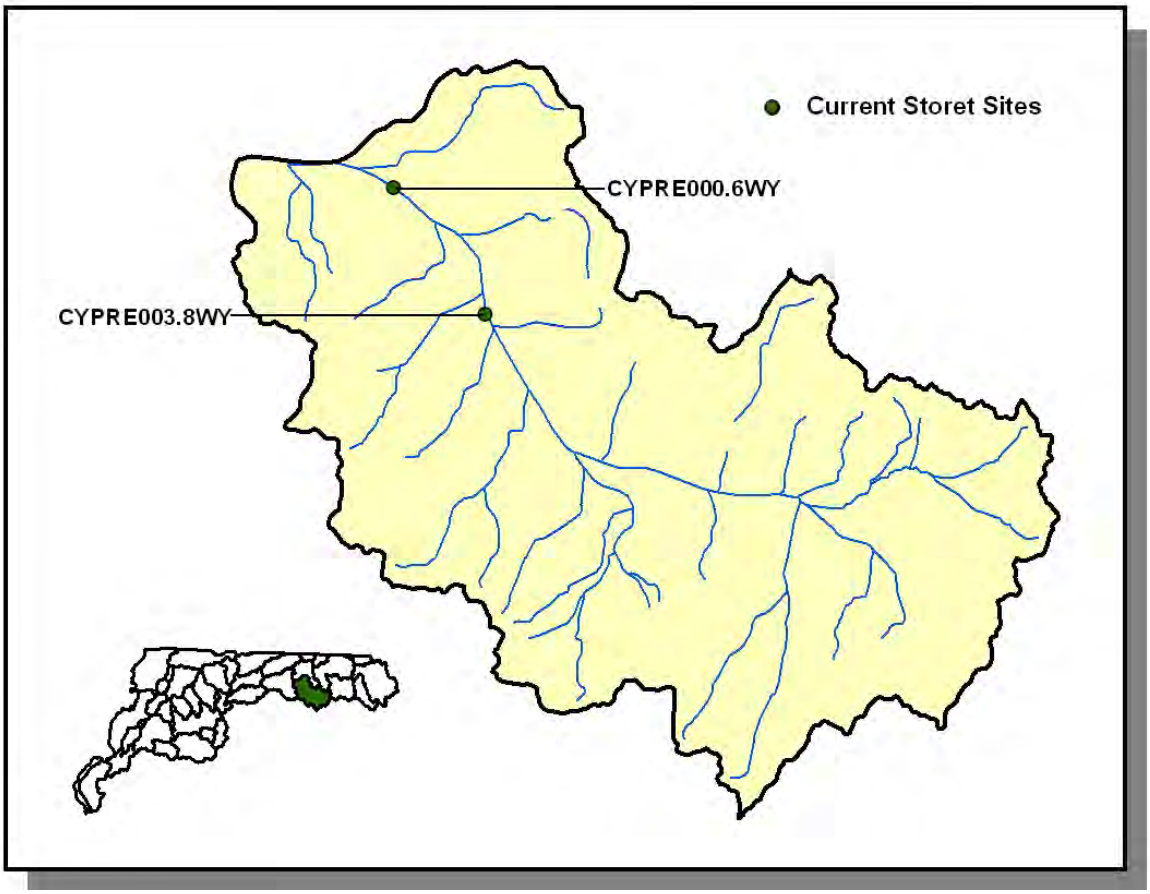


Figure 4-78. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020202. *More information, including site names and locations, is provided in Appendix IV.*

4.2.I.iii. Permitted Activities.

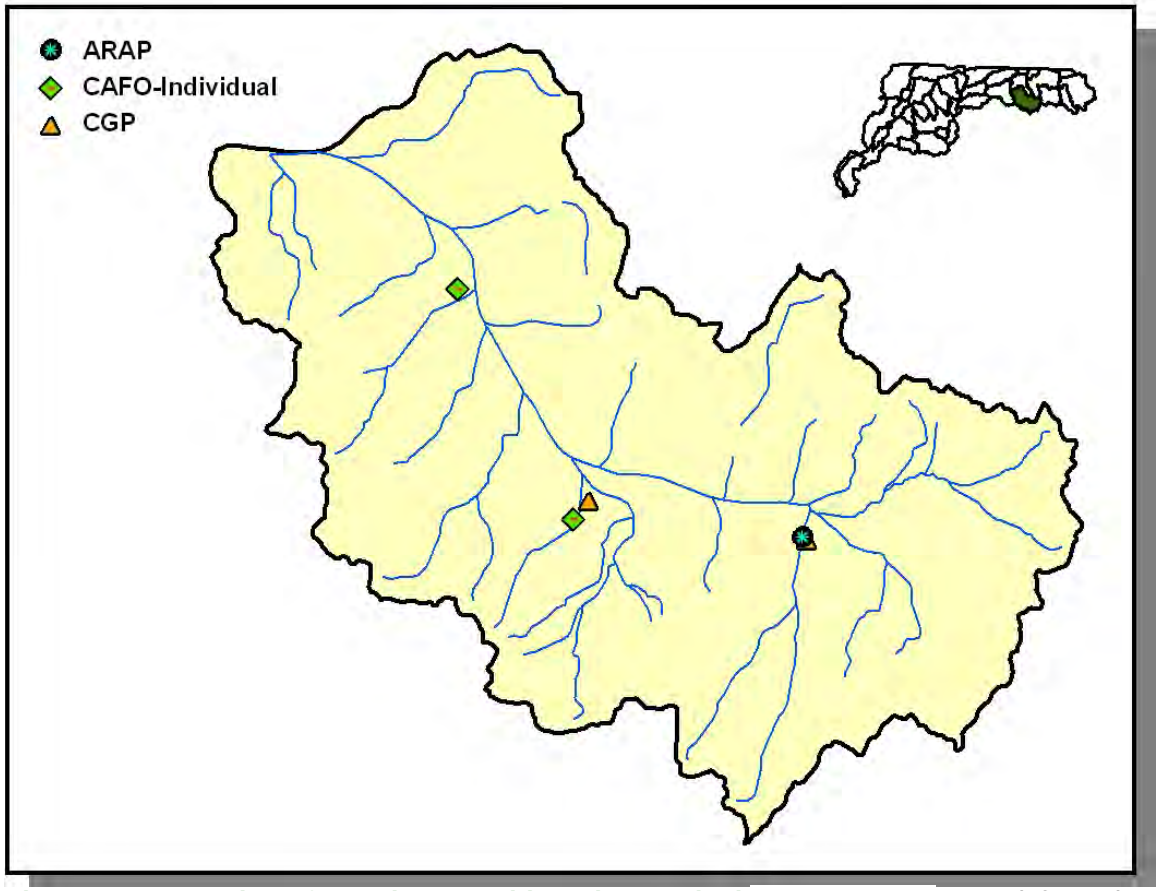


Figure 4-79. Location of Permits Issued in Subwatershed 080102020202. *More information, including the names of facilities, is provided in Appendix IV.*

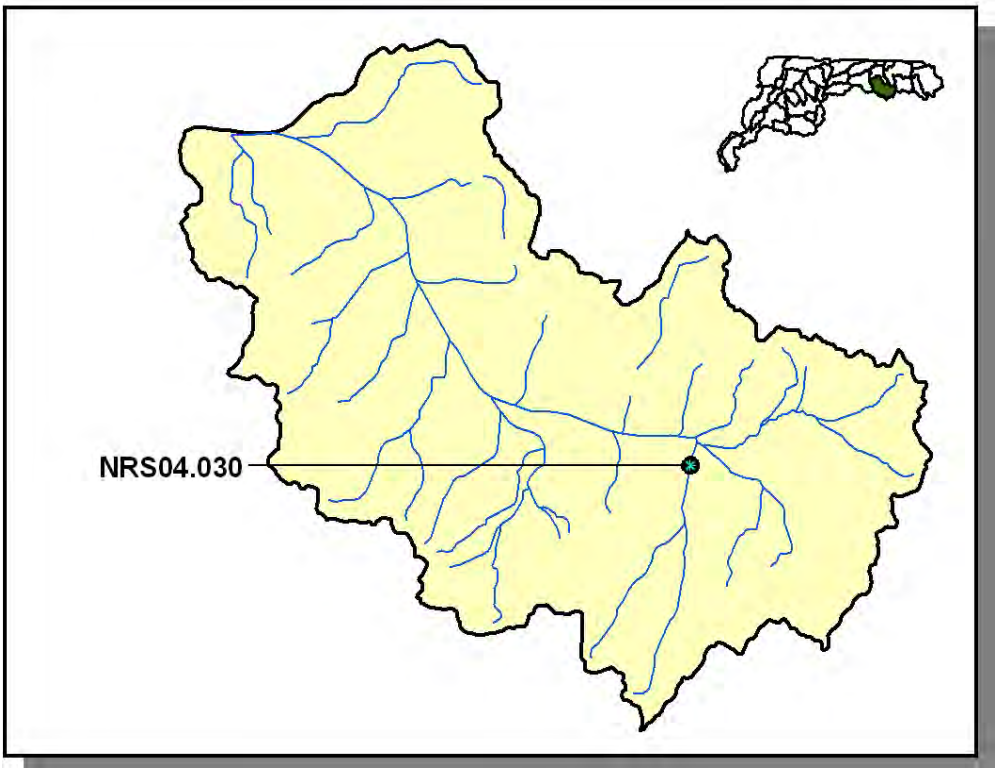


Figure 4-80. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020202. *More information is provided in Appendix IV.*

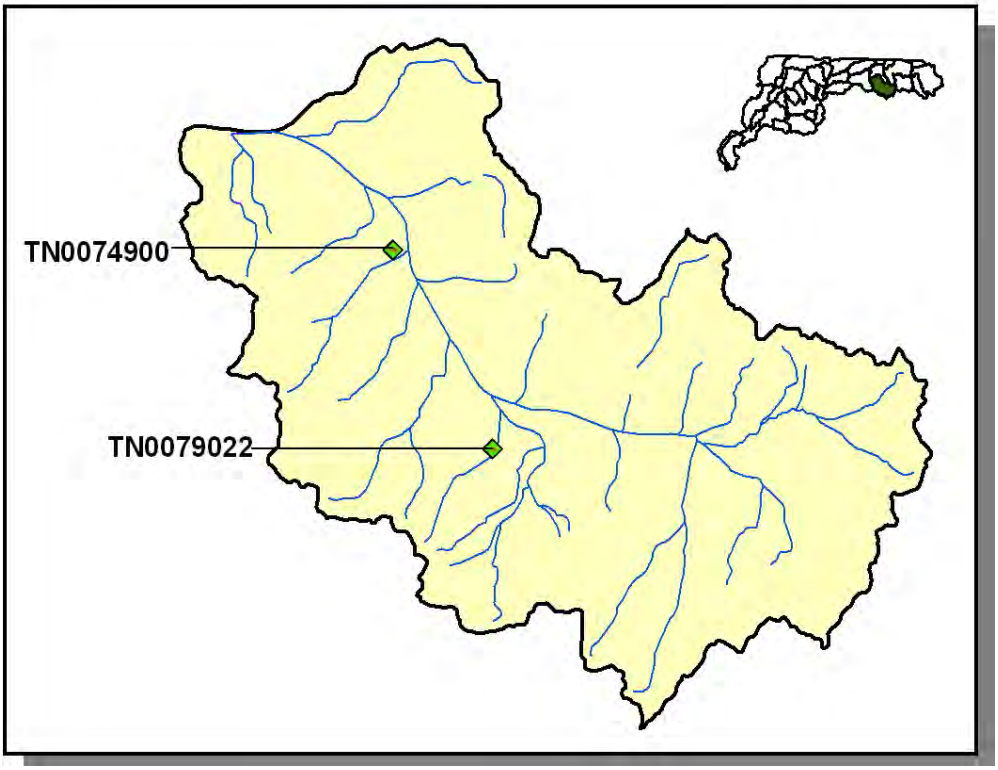


Figure 4-81. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102020202. *More information, including the names of facilities, is provided in Appendix IV.*

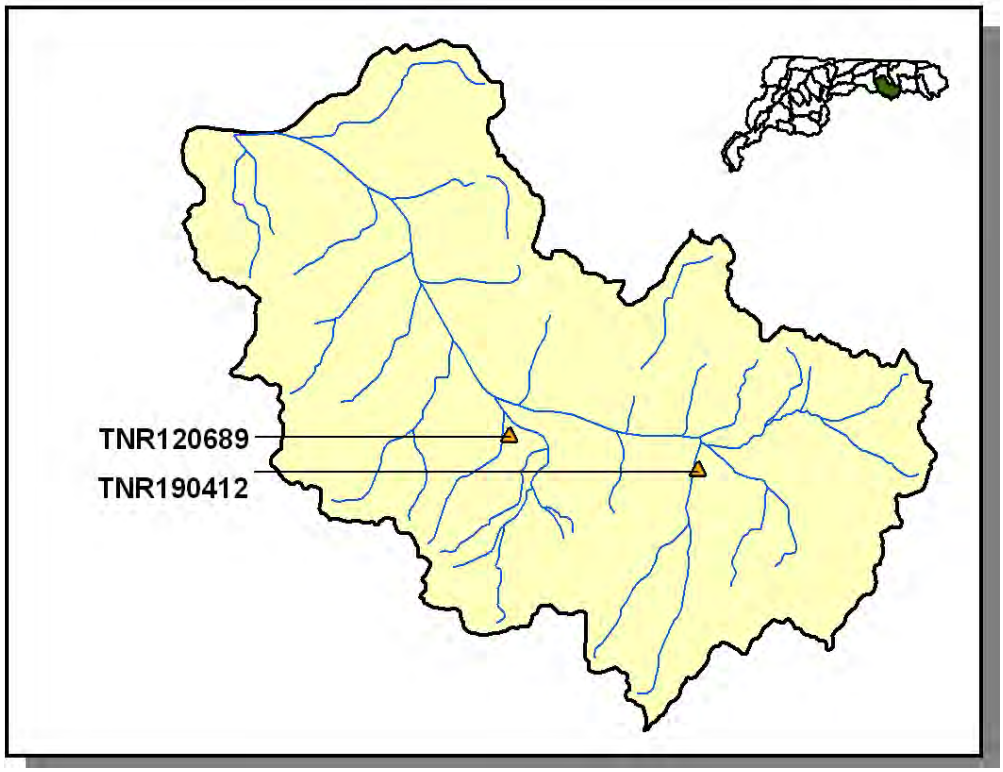


Figure 4-82. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020202. *More information is provided in Appendix IV.*

4.2.I.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-47. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Weakley	96.1	95.9	6.7	24.6

Table 4-48. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	10.01
Soybeans (Row Crops)	7.63
Corn (Row Crops)	7.56
Other Cropland not Planted	4.50
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	1.11
Legume (Hayland)	0.49
Farmsteads and Ranch Headquarters	0.44
Conservation Reserve Program Land	0.43
Grass (Hayland)	0.23
Grass (Pastureland)	0.13

Table 4-49. Annual Estimated Total Soil Loss in Subwatershed 080102020202.

4.2.J. 080102020203 (North Fork Obion River).

4.2.J.i. General Description.

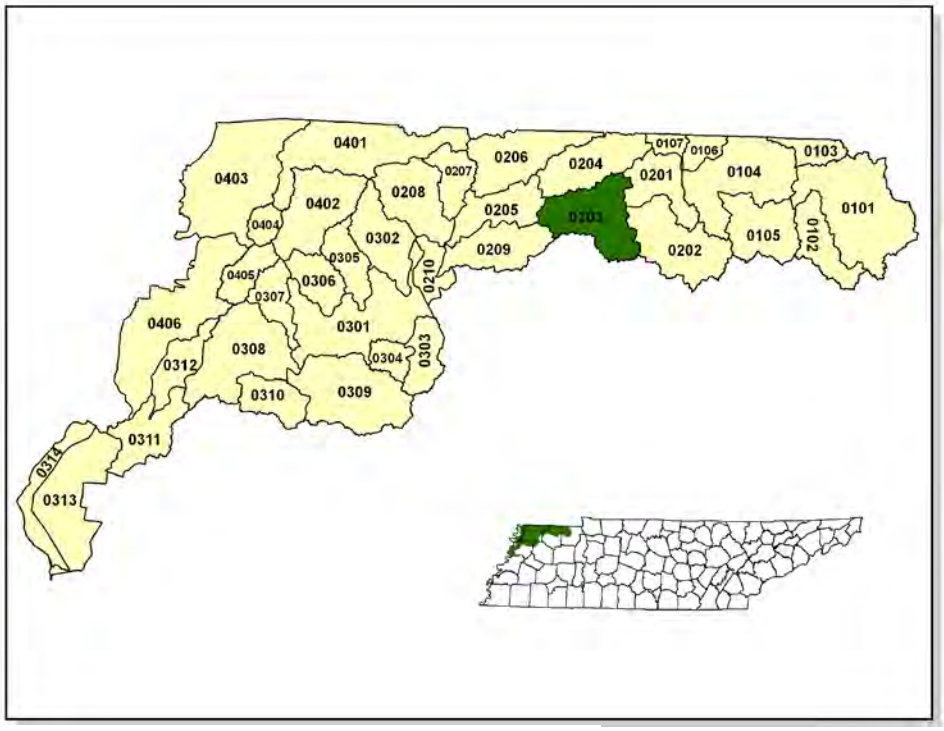


Figure 4-83. Location of Subwatershed 080102020203. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

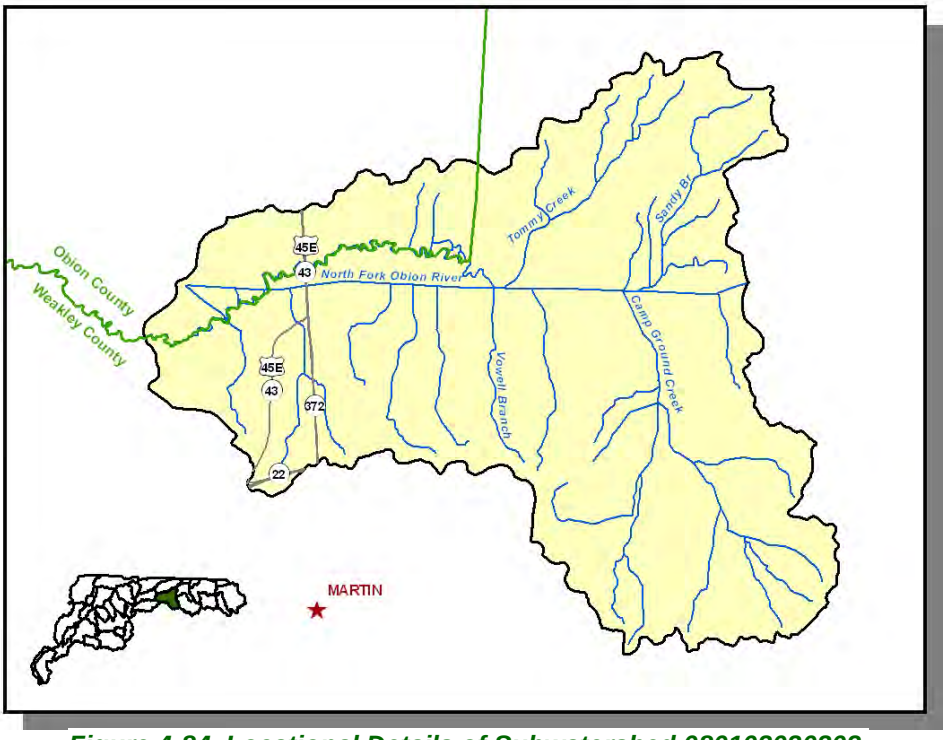


Figure 4-84. Locational Details of Subwatershed 080102020203.

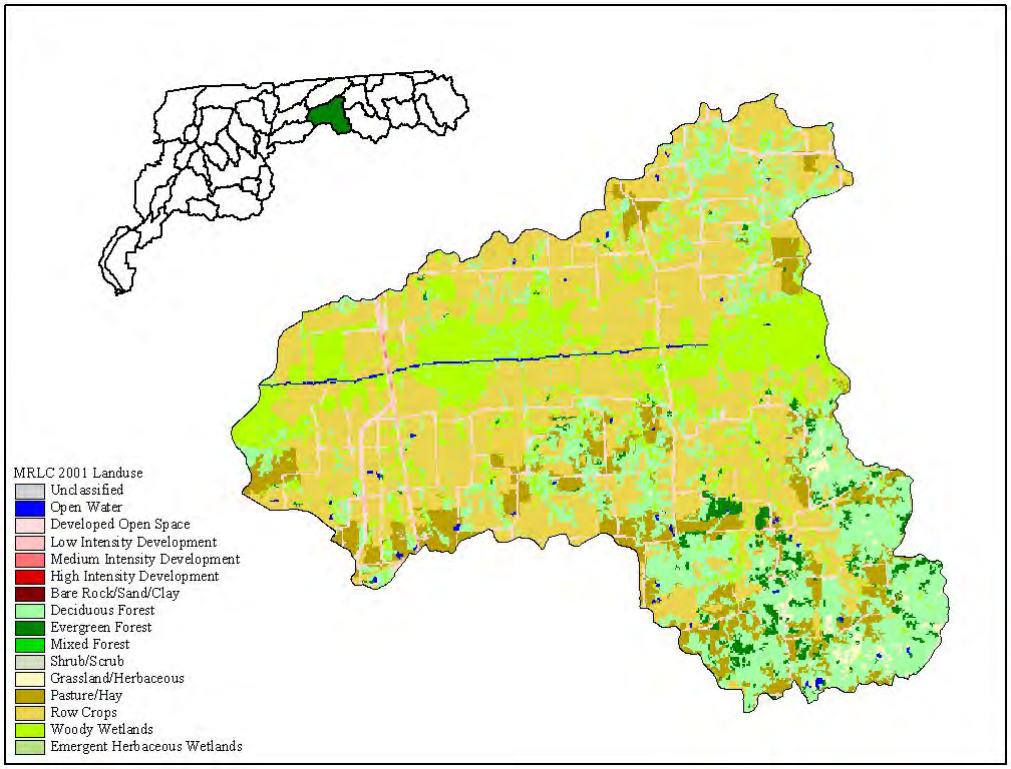


Figure 4-85. Illustration of Land Use Distribution in Subwatershed 080102020203.

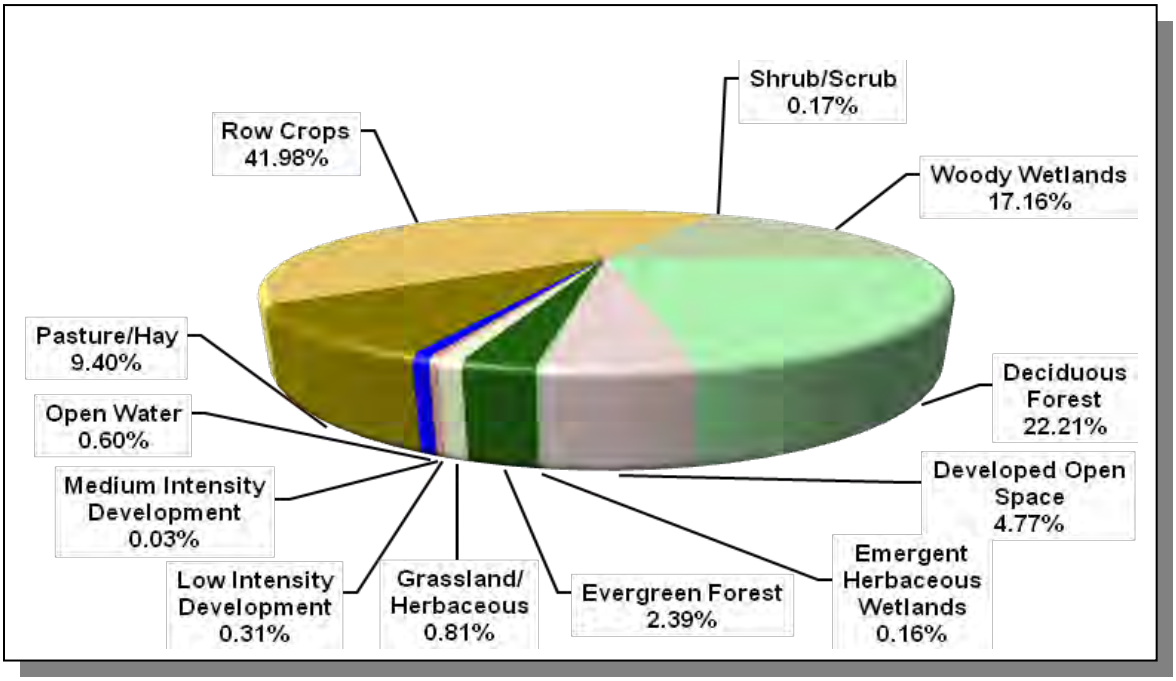


Figure 4-86. Land Use Distribution in Subwatershed 080102020203. *More information is provided in Appendix IV.*

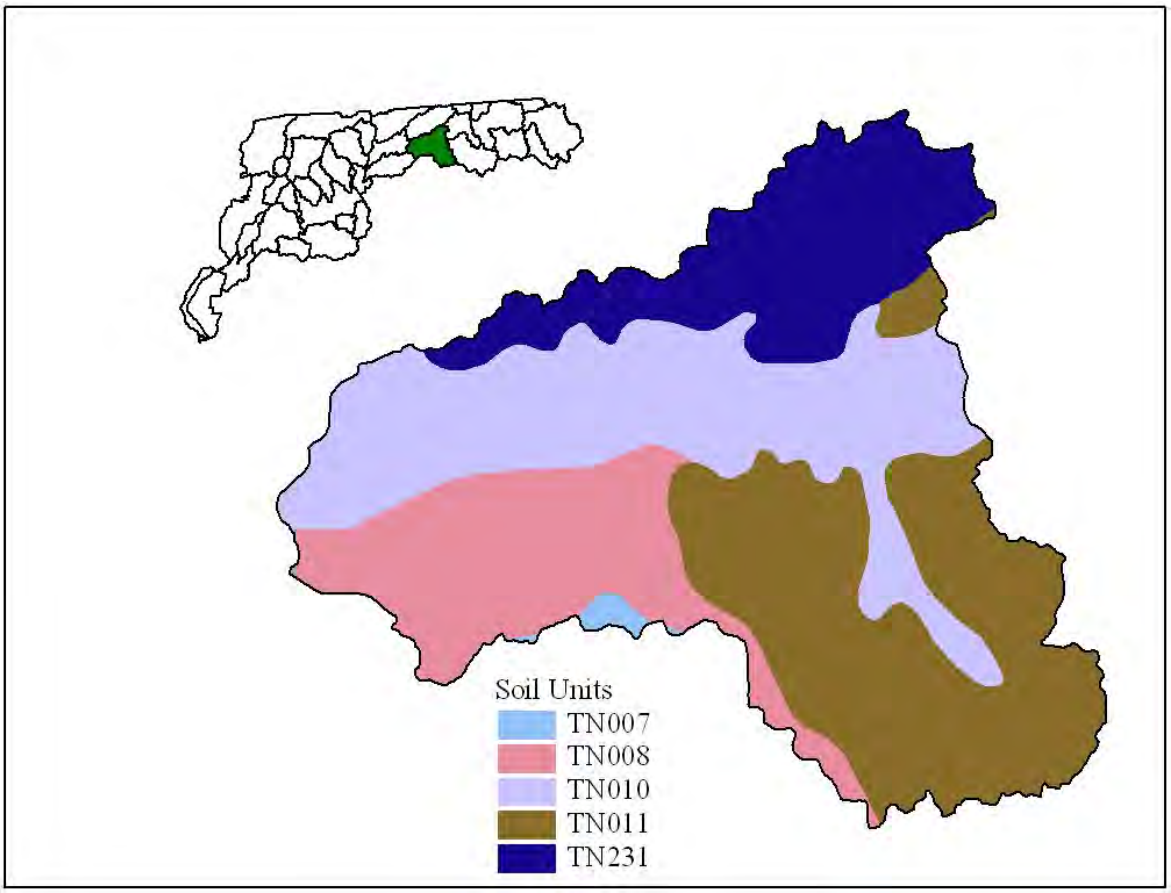


Figure 4-87. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020203.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN011	0.00	B	2.27	5.18	Silty Loam	0.40
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-50. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020203. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	1.02	324	327	331	2.20
Weakley	31,972	32,808	34,895	5.88	1,880	1,929	2,051	9.10
Totals	**63,689**	**64,877**	**67,345**		**2,204**	**2,256**	**2,382**	**8.10**

Table 4-51. Population Estimates in Subwatershed 080102020203.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Martin	Weakley	8600	3104	3039	65	0

Table 4-52. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020203.

4.2.J.ii. USGS Gaging Stations and STORET Sites.

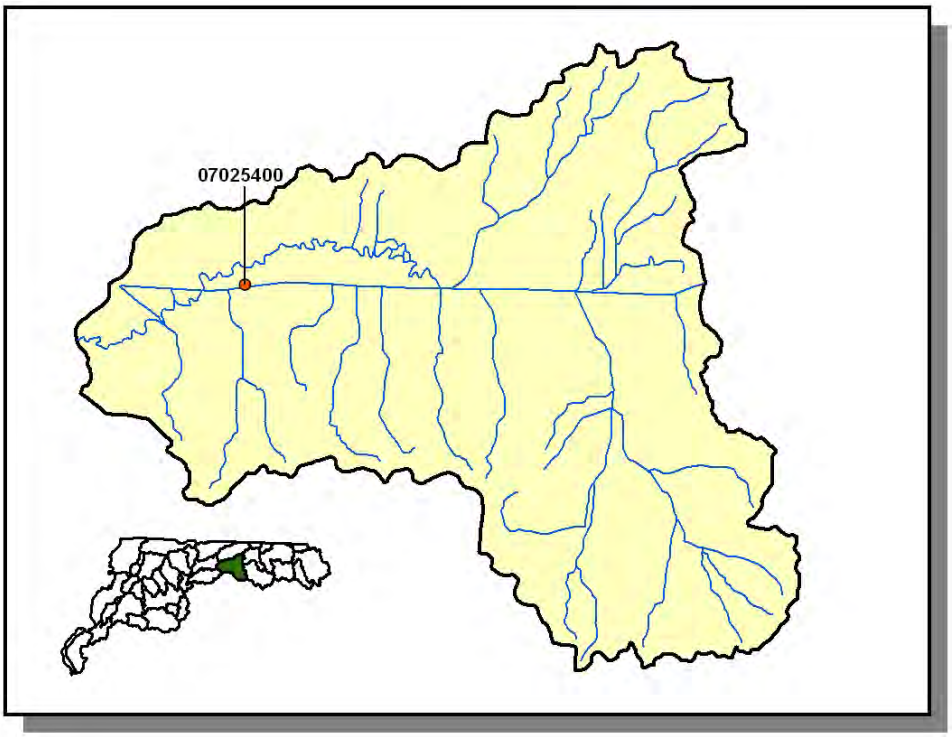


Figure 4-88. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102020203. *More information is provided in Appendix IV.*

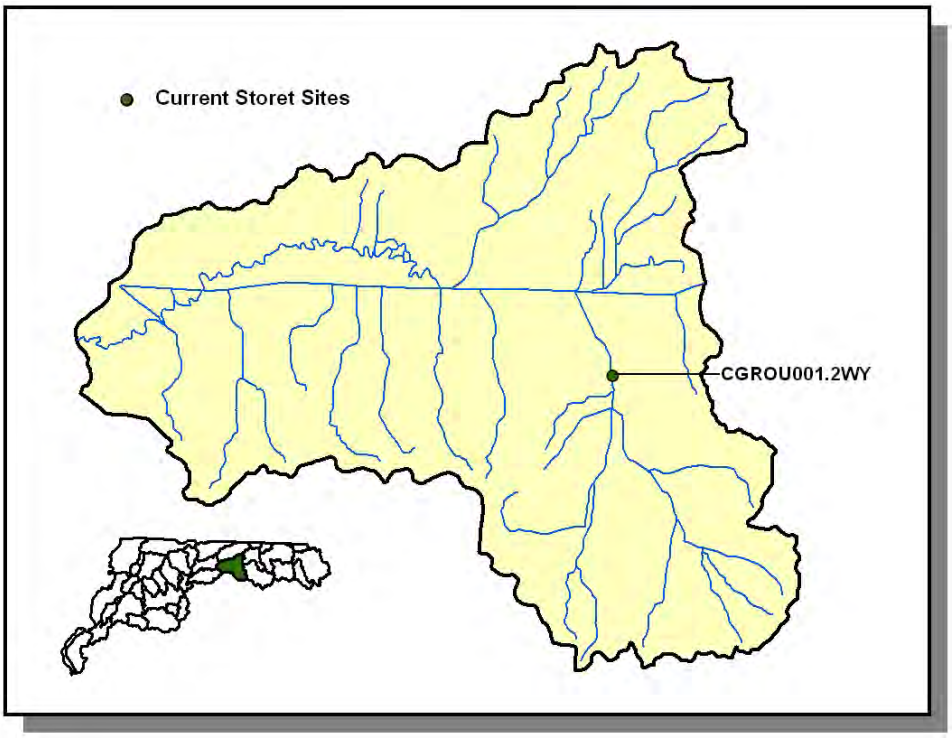


Figure 4-89. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020203. *More information, including site names and locations, is provided in Appendix IV.*

4.2.J.iii. Permitted Activities.

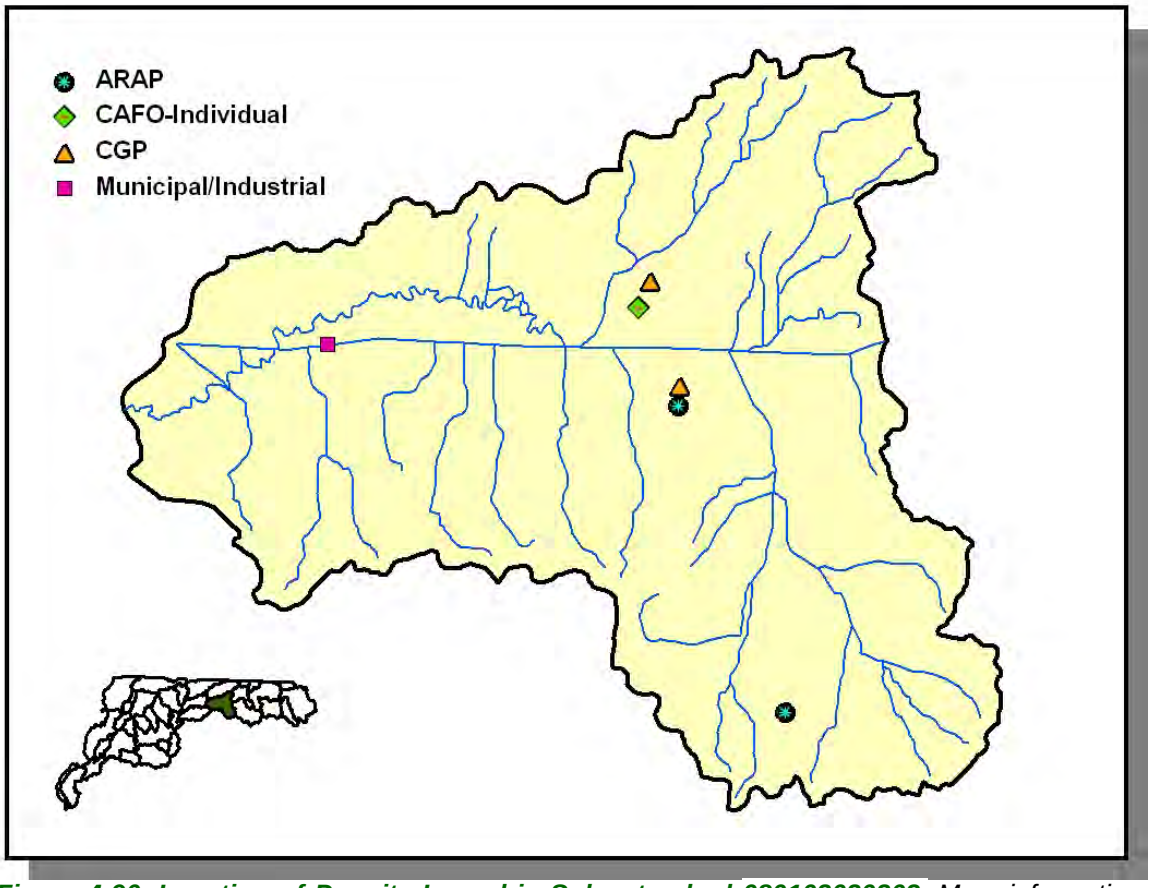


Figure 4-90. Location of Permits Issued in Subwatershed 080102020203. *More information, including the names of facilities, is provided in Appendix IV.*

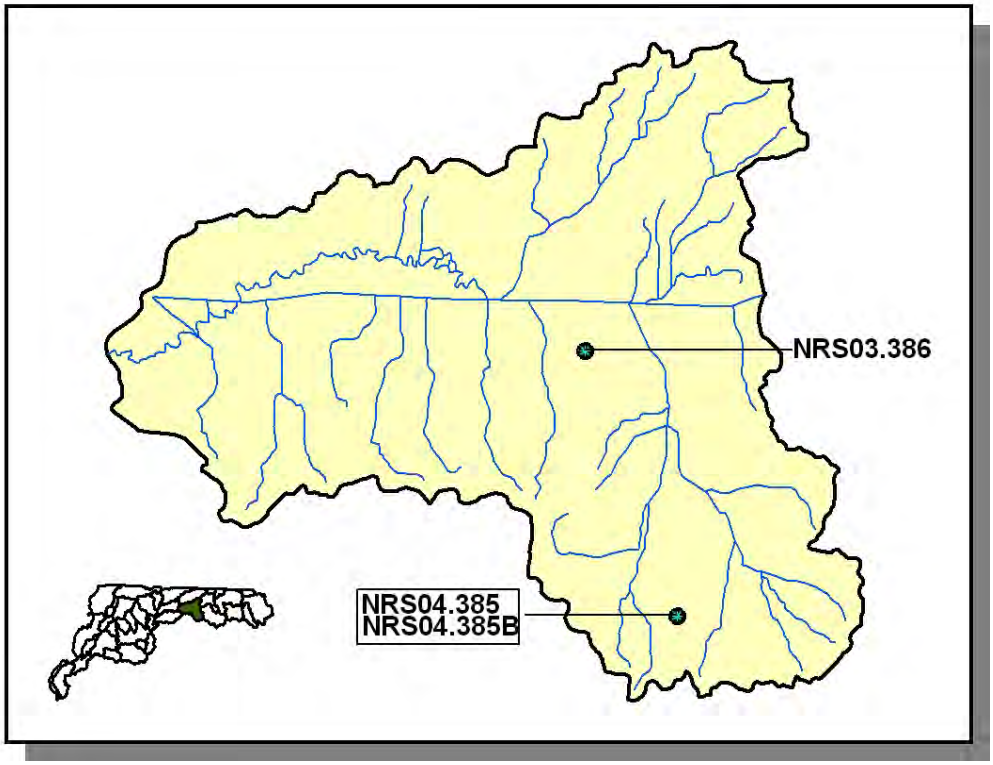


Figure 4-91. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020203. *More information is provided in Appendix IV.*

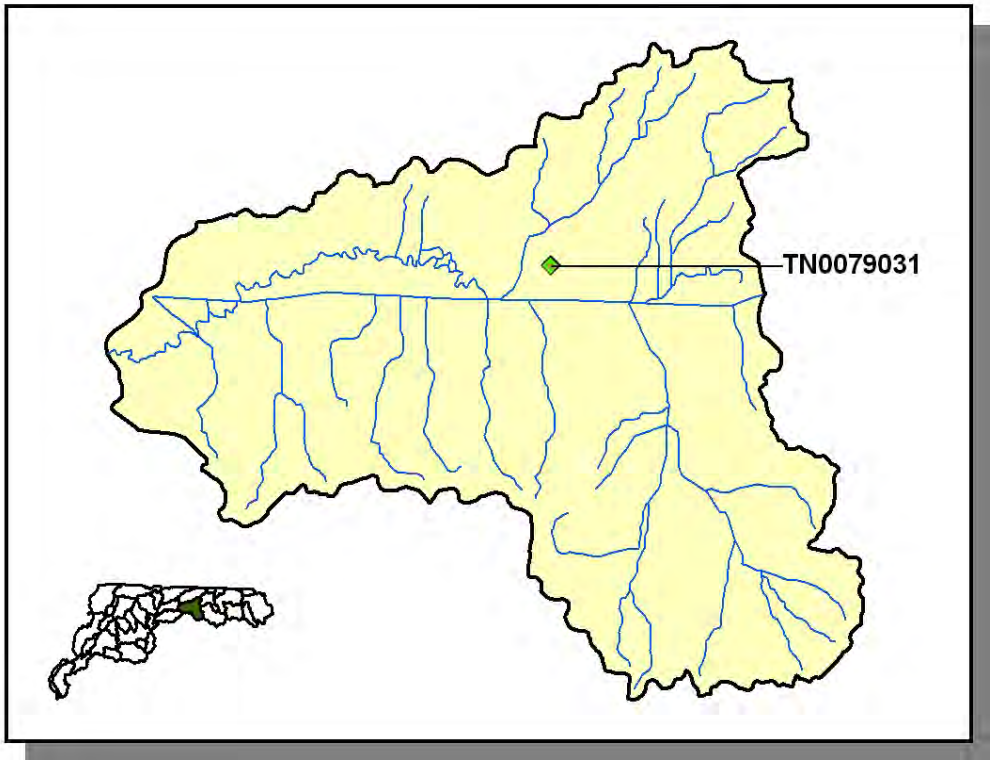


Figure 4-92. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102020203. *More information, including the names of facilities, is provided in Appendix IV.*

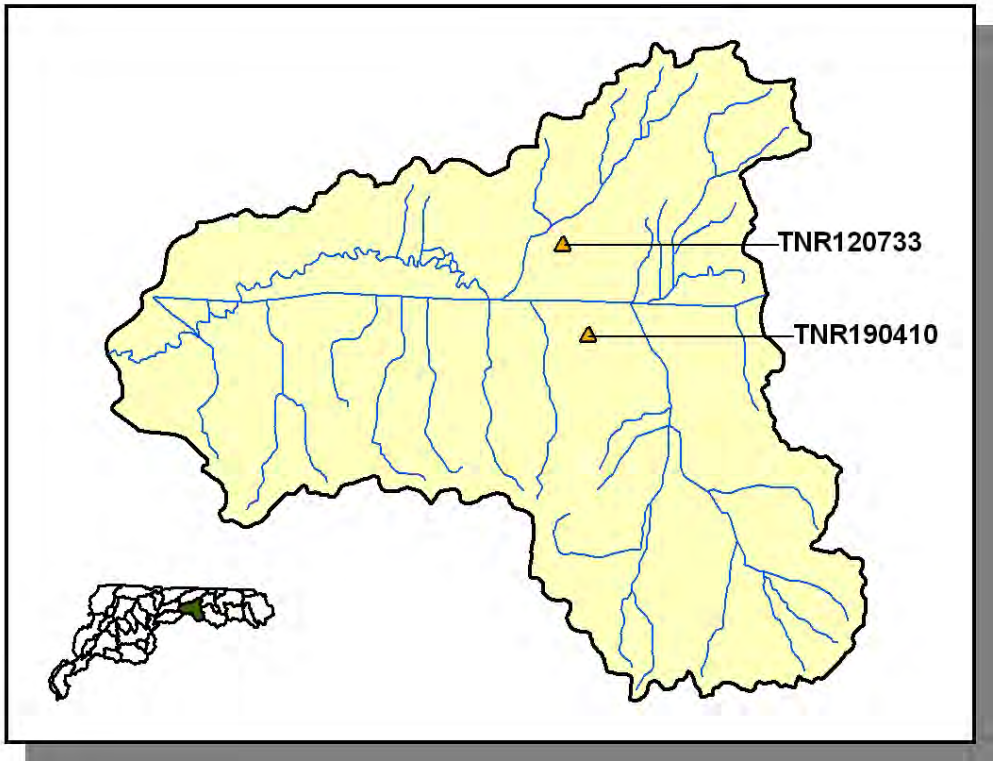


Figure 4-93. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020203. *More information is provided in Appendix IV.*

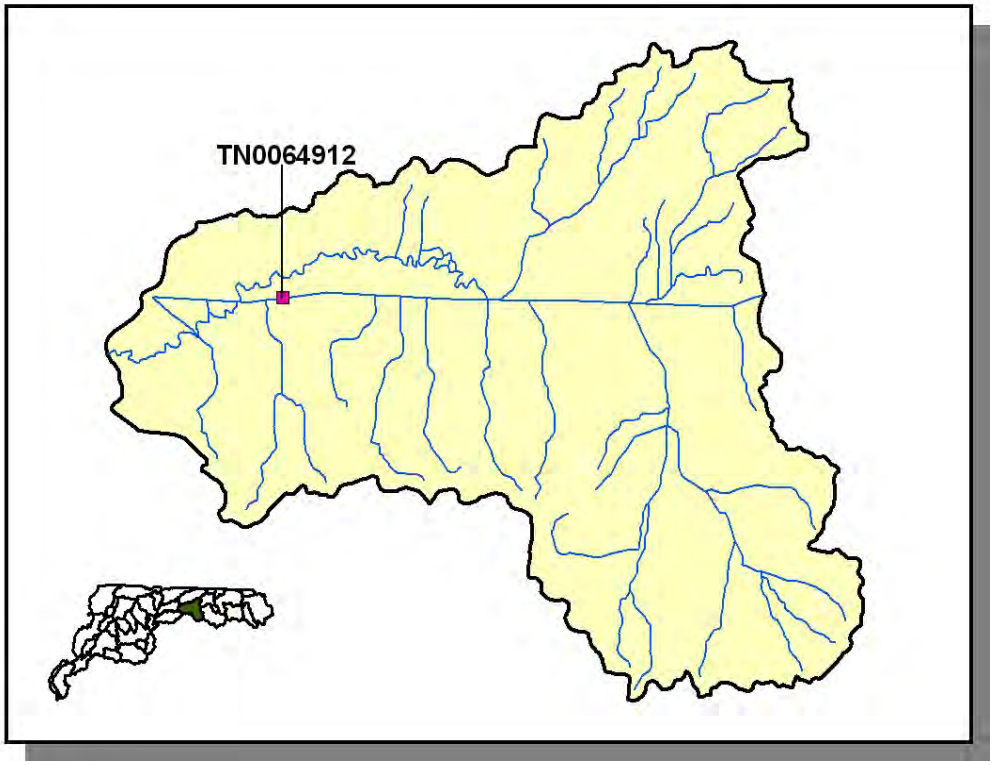


Figure 4-94. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102020203. *More information, including the name of the facility is provided in Appendix IV.*

4.2.J.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-53. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8
Weakley	96.1	95.9	6.7	24.6

Table 4-54. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	9.98
Soybeans (Row Crops)	7.70
Corn (Row Crops)	7.10
Other Cropland not Planted	5.92
Cotton (Row Crops)	5.74
Sorghum (Row Crops)	2.76
Legume (Pastureland)	1.27
Grass Forbs Legumes Mixed (Pastureland)	1.07
Conservation Reserve Program Land	0.64
Legume (Hayland)	0.49
Farmsteads and Ranch Headquarters	0.40
Grass (Hayland)	0.27
Grass (Pastureland)	0.21

Table 4-55. Annual Estimated Total Soil Loss in Subwatershed 080102020203.

4.2.K. 080102020204 (Richland Creek).

4.2.K.i. General Description.

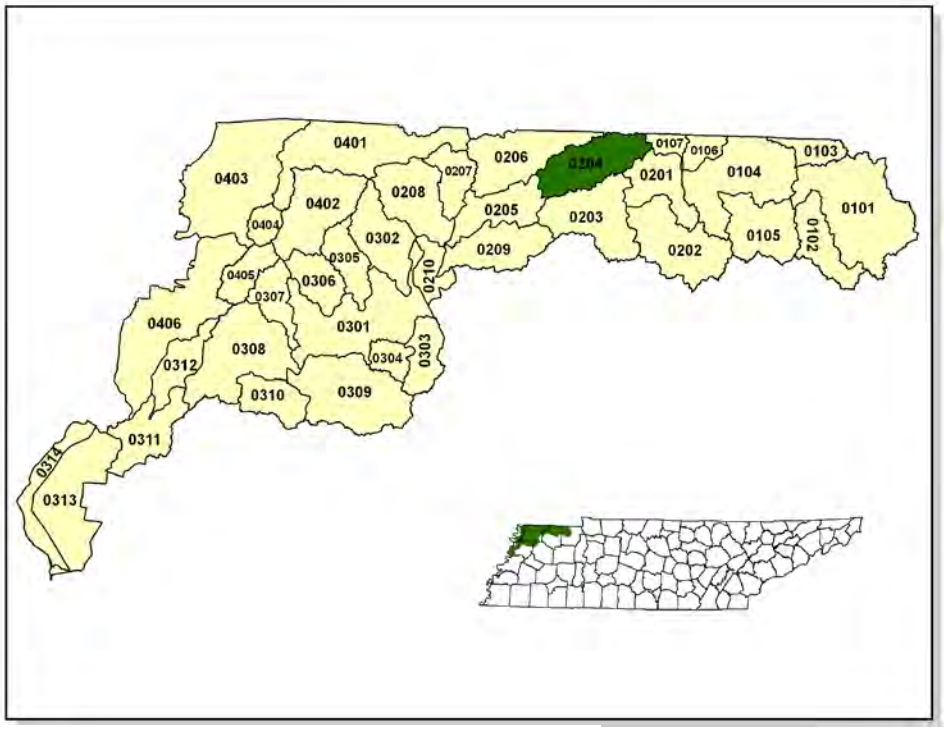


Figure 4-95. Location of Subwatershed 080102020204. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

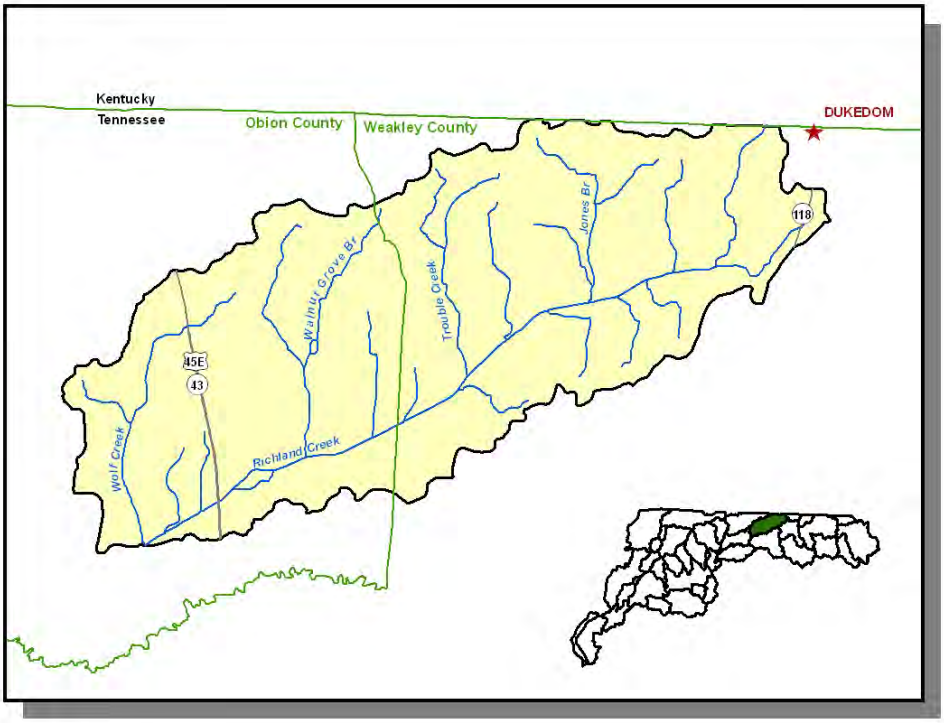


Figure 4-96. Locational Details of Subwatershed 080102020204.

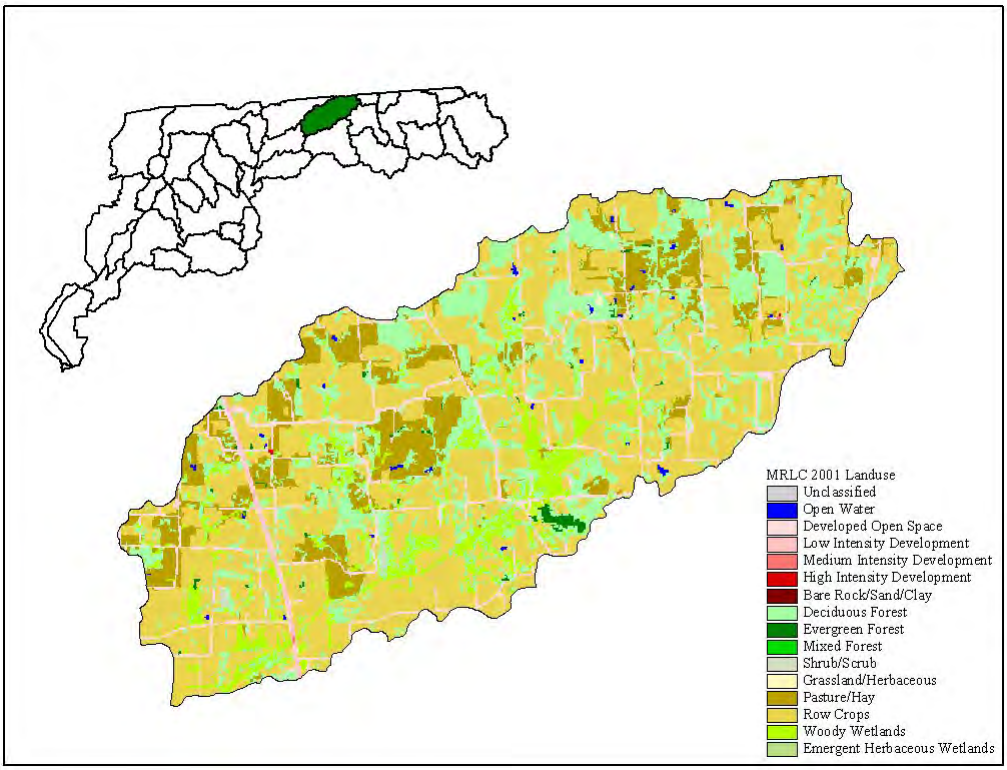


Figure 4-97. Illustration of Land Use Distribution in Subwatershed 080102020204.

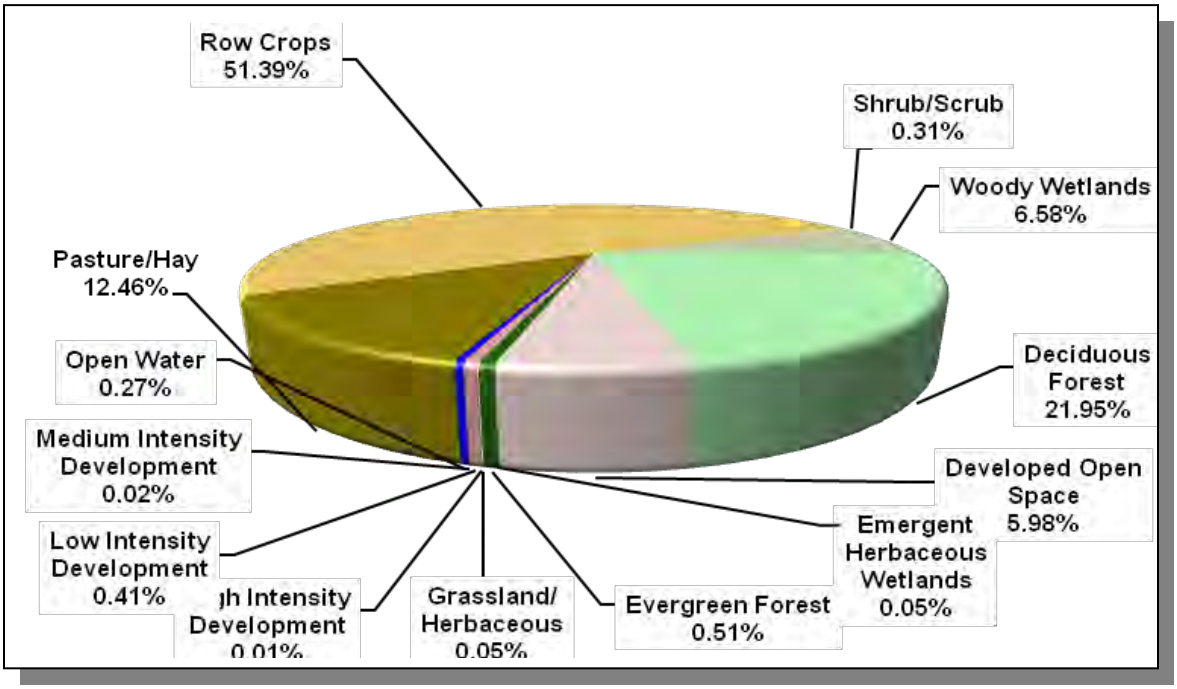


Figure 4-98. Land Use Distribution in Subwatershed 080102020204. *More information is provided in Appendix IV.*

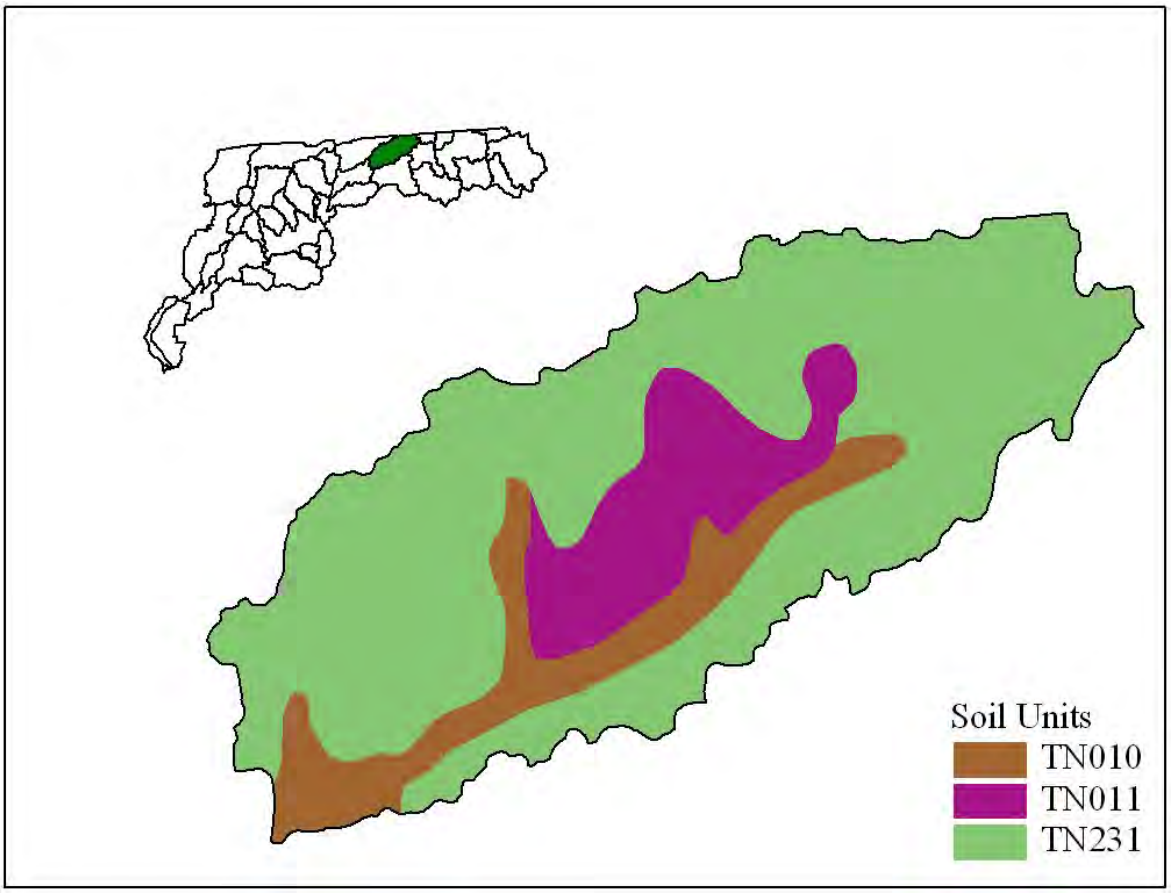


Figure 4-99. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020204.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN011	0.00	B	2.27	5.18	Silty Loam	0.40
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-56. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020204. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	2.81	890	900	911	2.40
Weakley	31,972	32,808	34,895	2.97	950	975	1,037	9.20
Totals	**63,689**	**64,877**	**67,345**		**1,840**	**1,875**	**1,948**	**5.90**

Table 4-57. Population Estimates in Subwatershed 080102020204.

4.2.K.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102020204.

4.2.K.iii. Permitted Activities.

There are no permitted activities located in subwatershed 080102020204 as of June 30th, 2007.

4.2.K.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-58. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8
Weakley	96.1	95.9	6.7	24.6

Table 4-59. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	9.90
Other Cropland not Planted	9.19
Soybeans (Row Crops)	7.84
Corn (Row Crops)	6.03
Cotton (Row Crops)	5.74
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.15
Grass Forbs Legumes Mixed (Pastureland)	0.99
Legume (Pastureland)	0.80
Legume (Hayland)	0.49
Grass (Pastureland)	0.40
Grass (Hayland)	0.35
Farmsteads and Ranch Headquarters	0.30

Table 4-60. Annual Estimated Total Soil Loss in Subwatershed 080102020204.

4.2.L. 080102020205 (North Fork Obion River).

4.2.L.i. General Description.

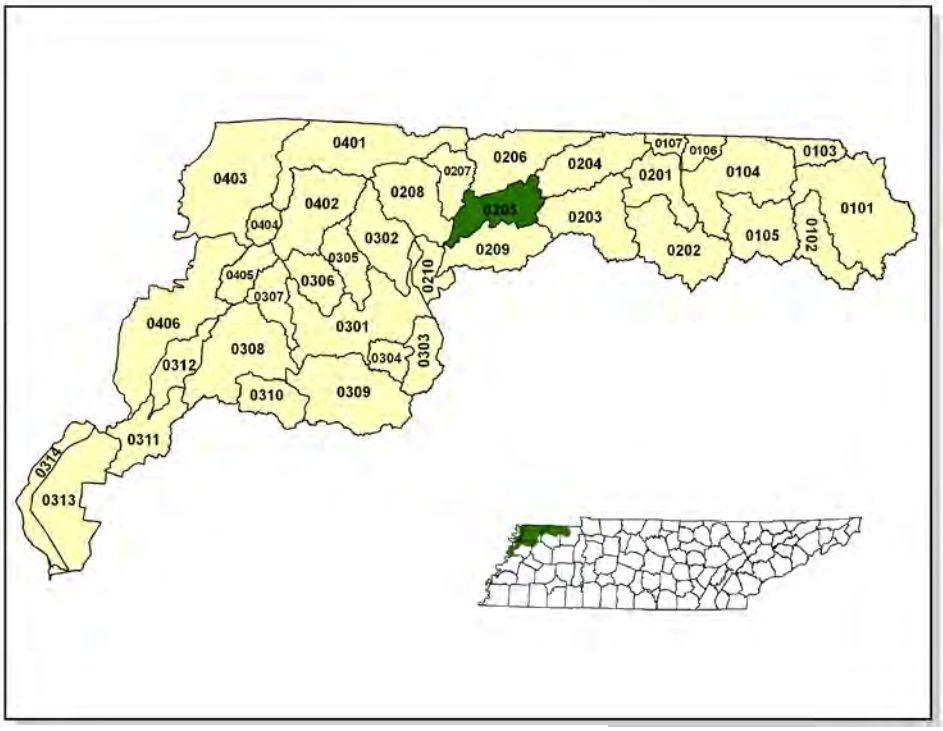


Figure 4-100. Location of Subwatershed 080102020205. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

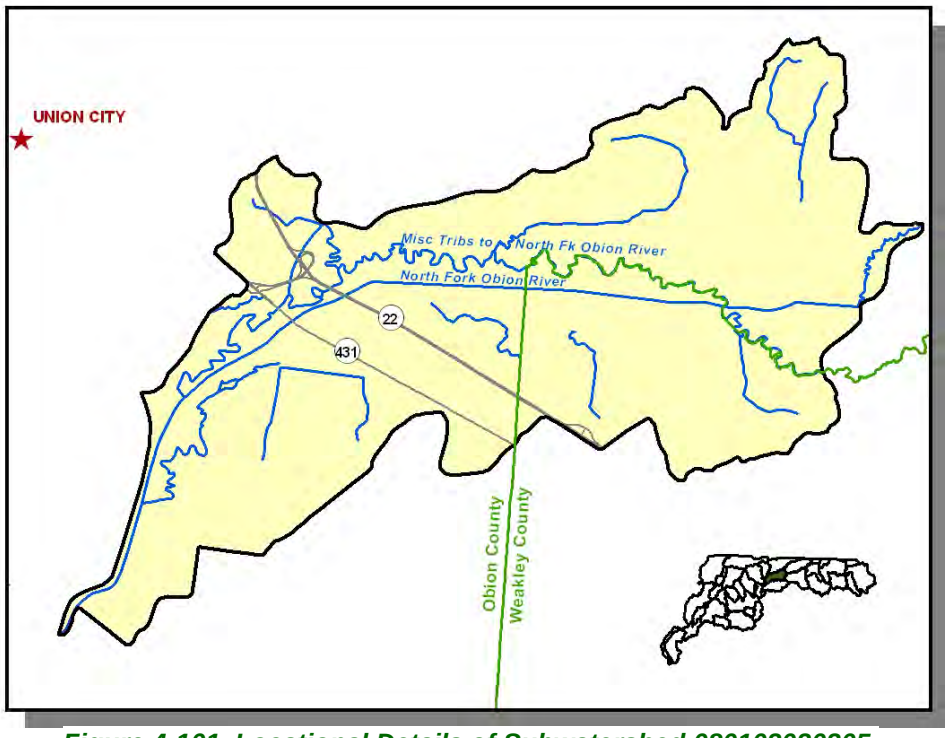


Figure 4-101. Locational Details of Subwatershed 080102020205.

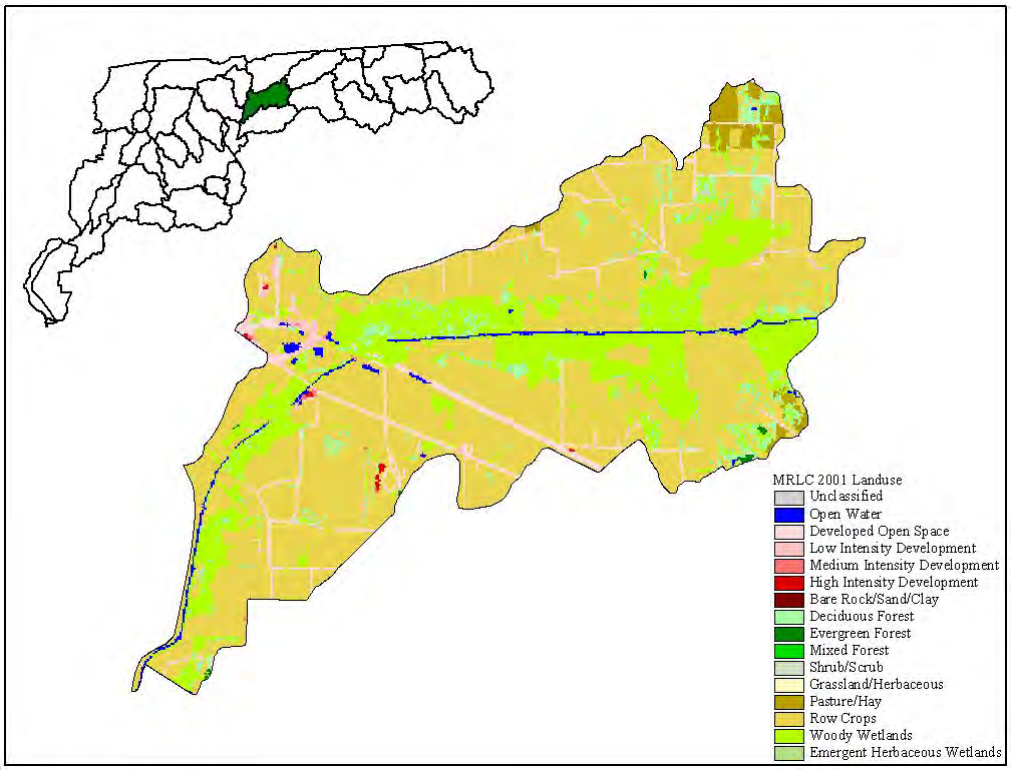


Figure 4-102. Illustration of Land Use Distribution in Subwatershed 080102020205.

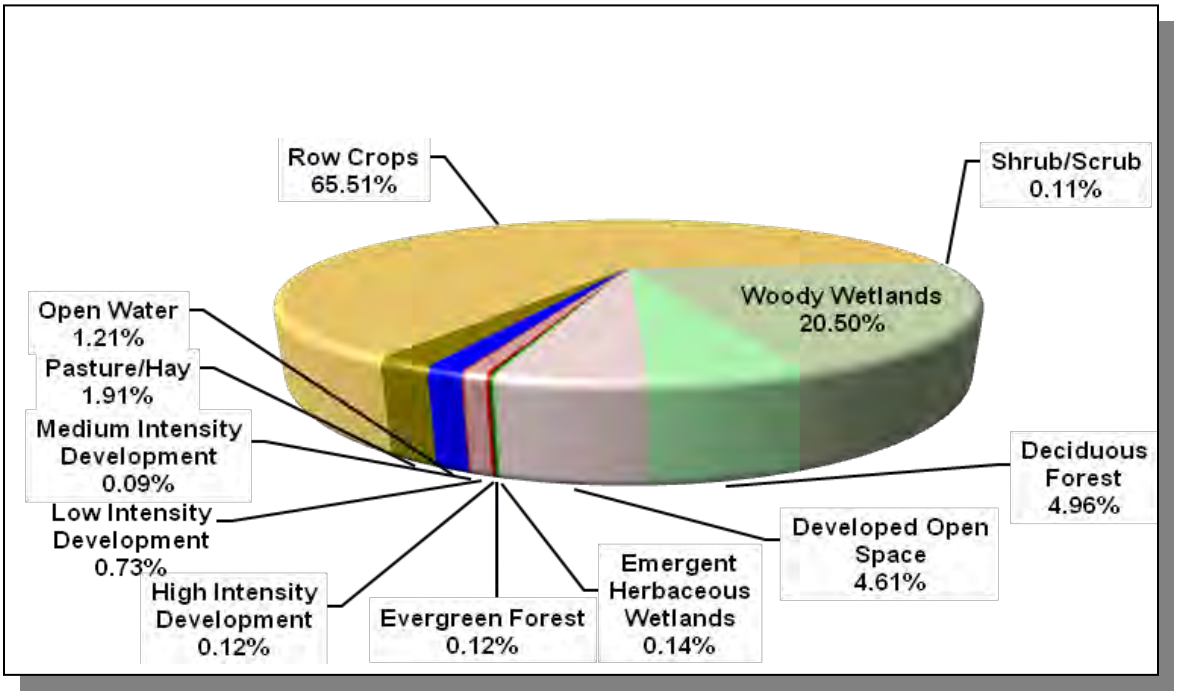


Figure 4-103. Land Use Distribution in Subwatershed 080102020205. *More information is provided in Appendix IV.*

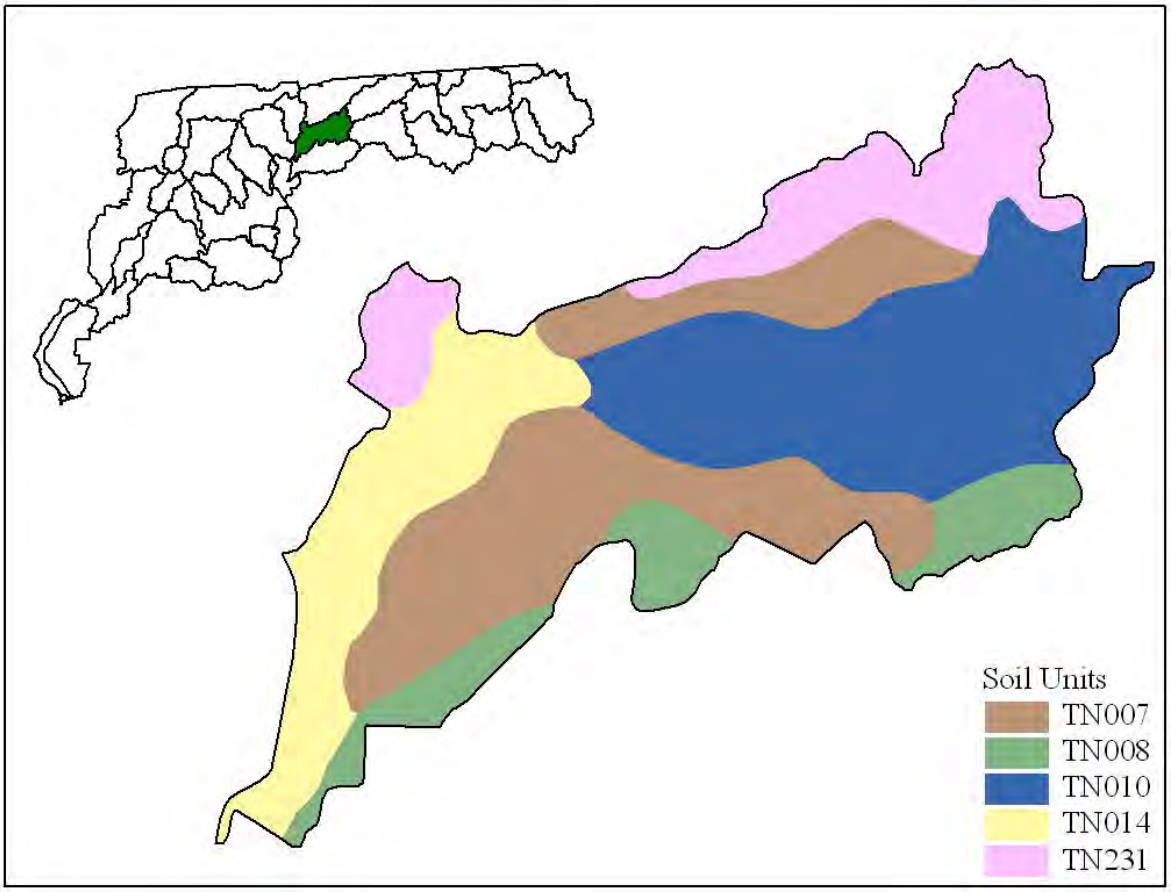


Figure 4-104. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020205.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN014	30.00	C	1.30	5.12	Silty Loam	0.47
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-61. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020205. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	3.81	1,208	1,221	1,236	2.30
Weakley	31,972	32,808	34,895	0.71	226	232	247	9.30
Totals	**63,689**	**64,877**	**67,345**		**1,434**	**1,453**	**1,483**	**3.40**

Table 4-62. Population Estimates in Subwatershed 080102020205.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Union City	Obion	10,512	4,608	4,572	36	0

Table 4-63. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020205.

4.2.L.ii. USGS Gaging Stations and STORET Sites.

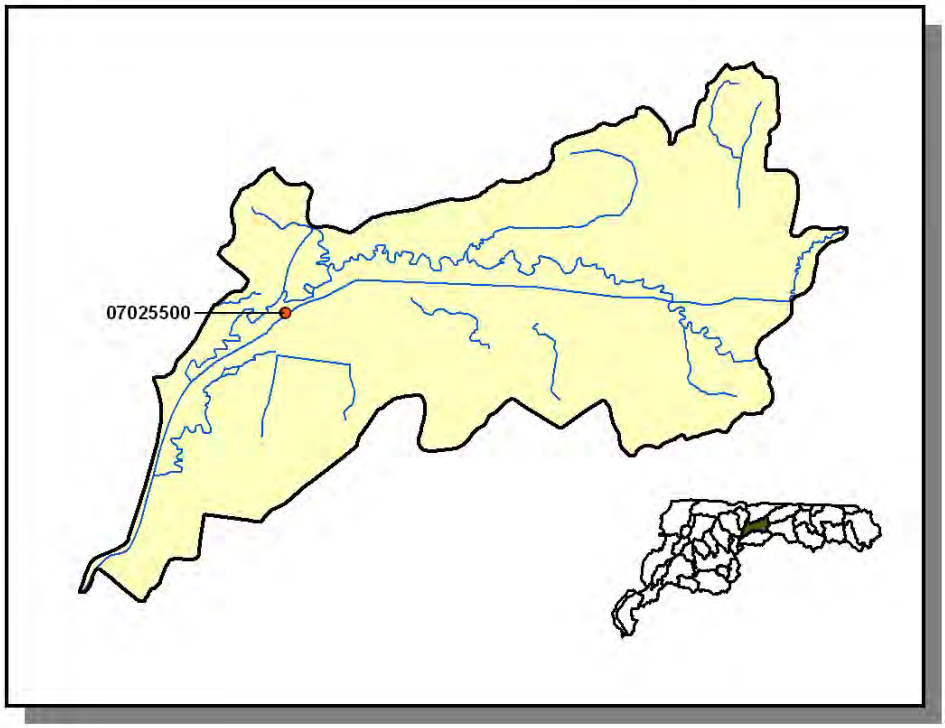


Figure 4-105. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102020205. *More information is provided in Appendix IV.*

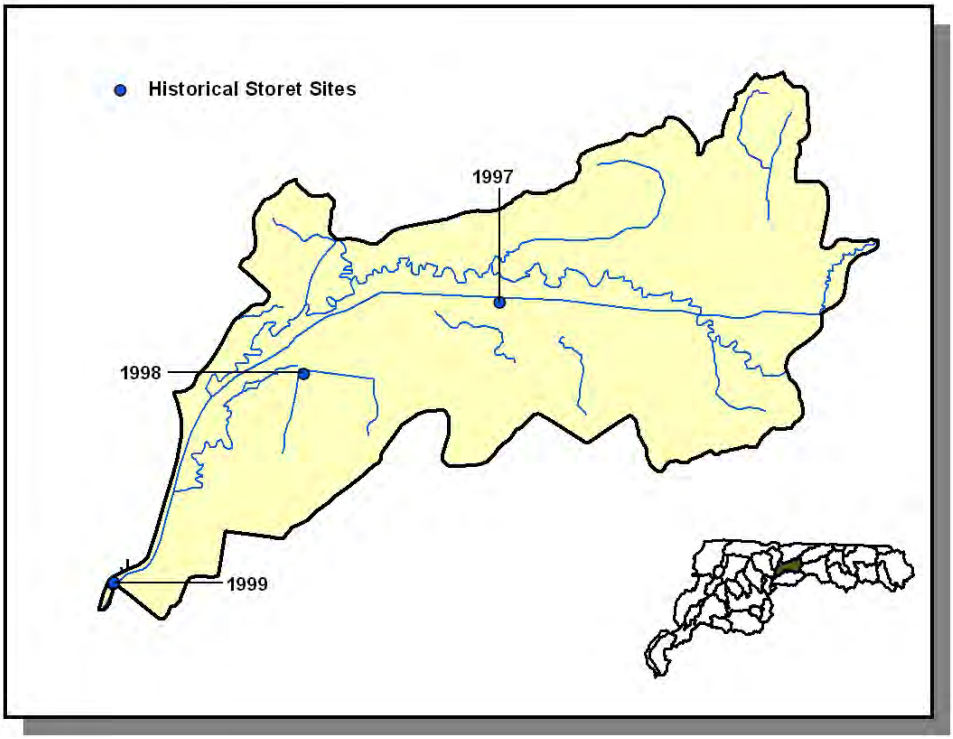


Figure 4-106. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020205. *More information, including site names and locations, is provided in Appendix IV.*

4.2.L.iii. Permitted Activities.

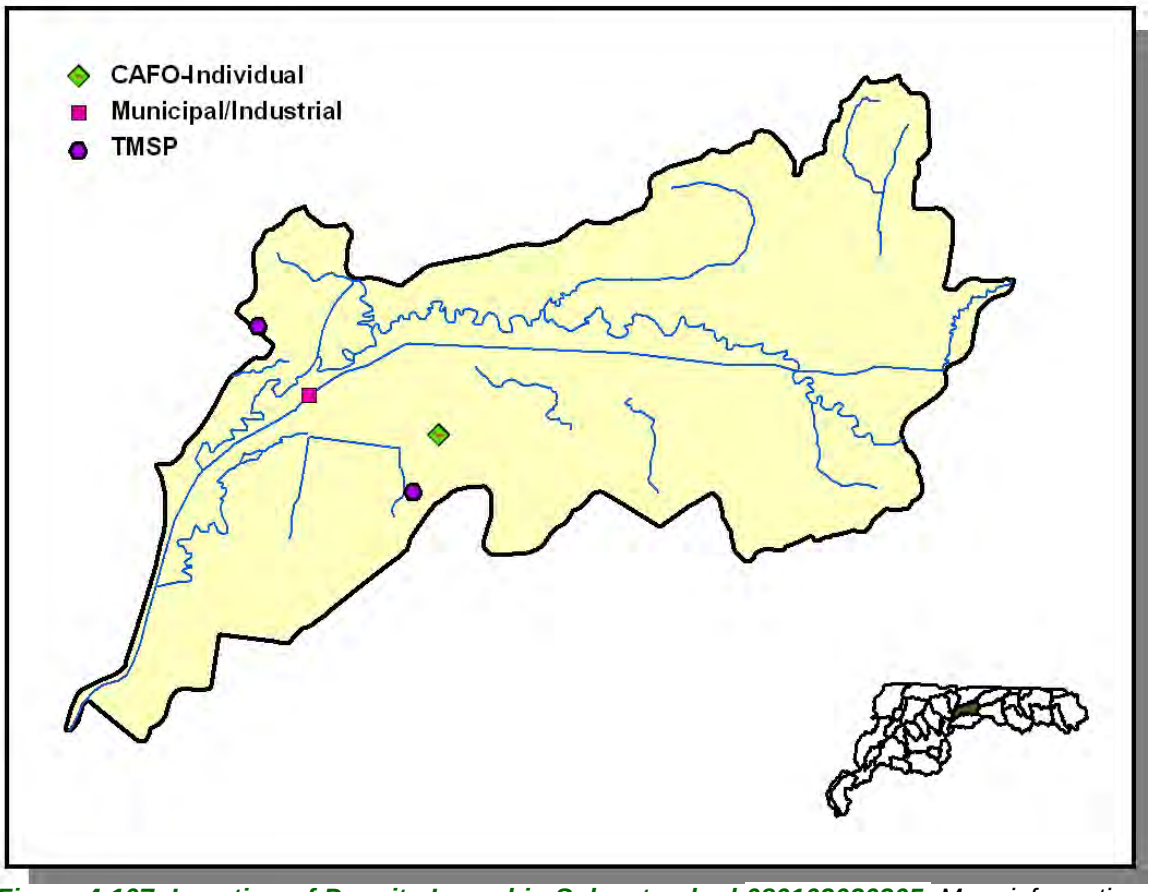


Figure 4-107. Location of Permits Issued in Subwatershed 080102020205. *More information, including the names of facilities, is provided in Appendix IV.*

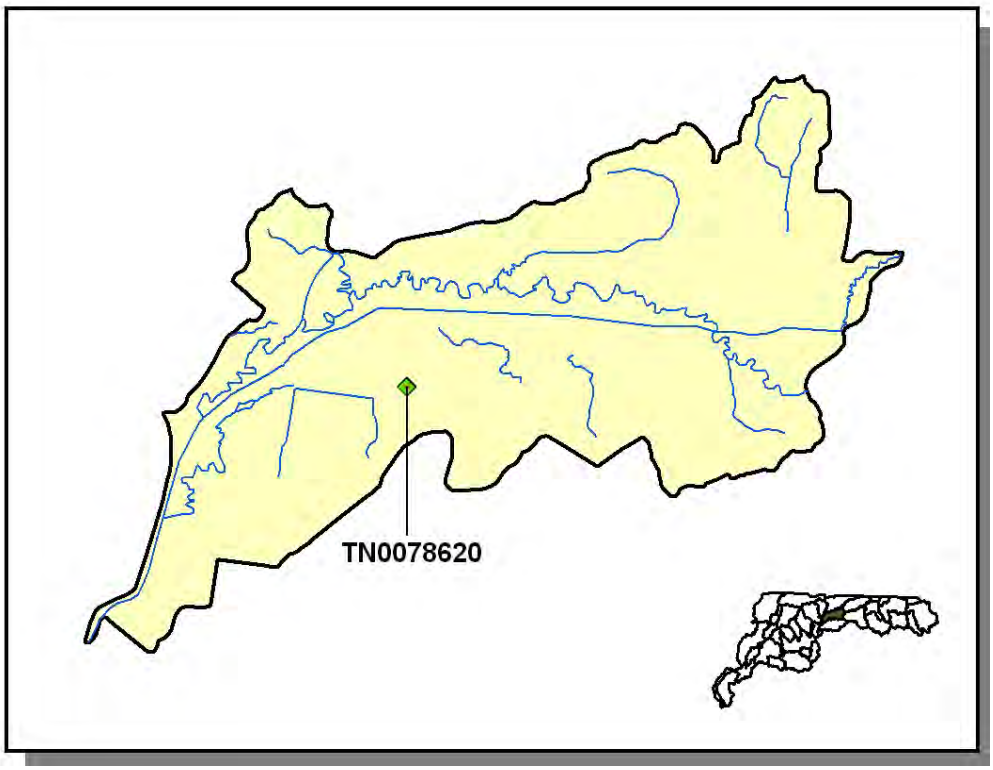


Figure 4-108. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102020205. *More information, including the names of facilities, is provided in Appendix IV.*

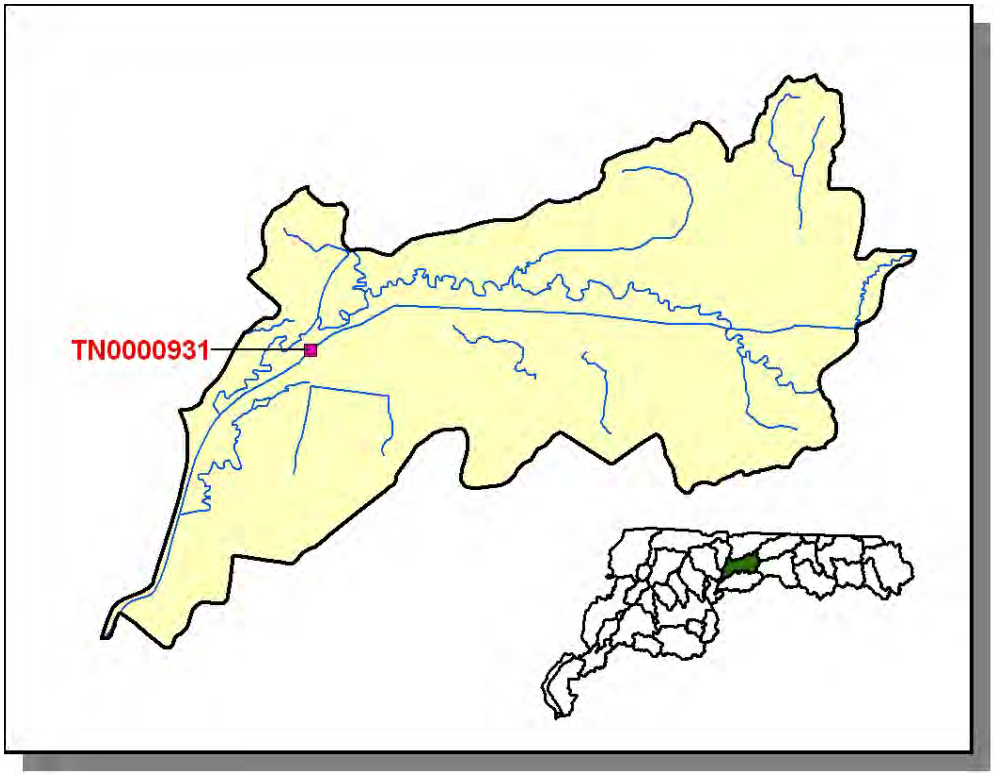


Figure 4-109. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102020205. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	1Q10	7Q10	30Q2	DISCHARGE FLOW
TN0000931	57.1	59.0	73.1	0.1555

Table 4-64. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020205. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	AMMONIA AS N (TOTAL)	NITROGEN INORGANIC TOTAL	FLOW	BOD_5	OIL AND GREASE	TSS	pH
TN0000931	X	X	X	X	X	X	X

Table 4-65. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020205. *BOD_5, Biochemical Oxygen Demand (5-day); Total Suspended Solids.*

PERMIT #	E. *coli*	FECAL COLIFORM
TN0000931	X	X

Table 4-66. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020205.

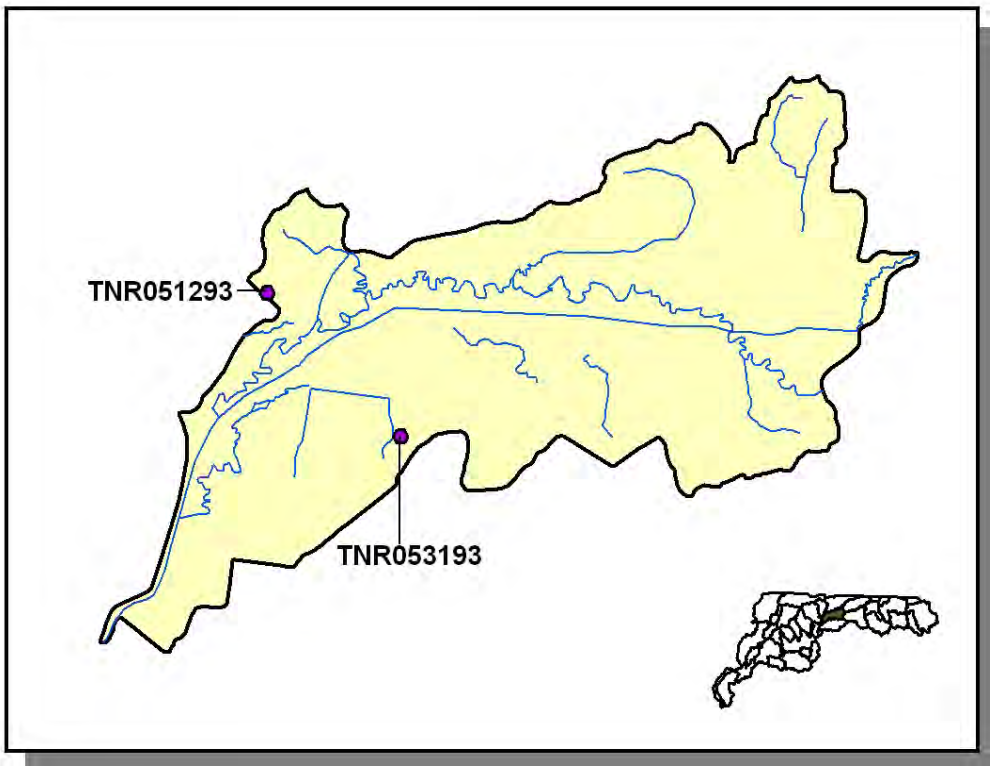


Figure 4-110. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020205. *More information is provided in Appendix IV.*

4.2.L.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-67. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8
Weakley	96.1	95.9	6.7	24.6

Table 4-68. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Other Cropland not Planted	12.69
Wheat (Close Grown Cropland)	9.82
Soybeans (Row Crops)	7.99
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.88
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.68
Grass Forbs Legumes Mixed (Pastureland)	0.90
Grass (Pastureland)	0.59
Legume (Hayland)	0.49
Grass (Hayland)	0.44
Legume (Pastureland)	0.29
Farmsteads and Ranch Headquarters	0.21

Table 4-69. Annual Estimated Total Soil Loss in Subwatershed 080102020205.

4.2.M. 080102020206 (Harris Fork Creek).

4.2.M.i. General Description.

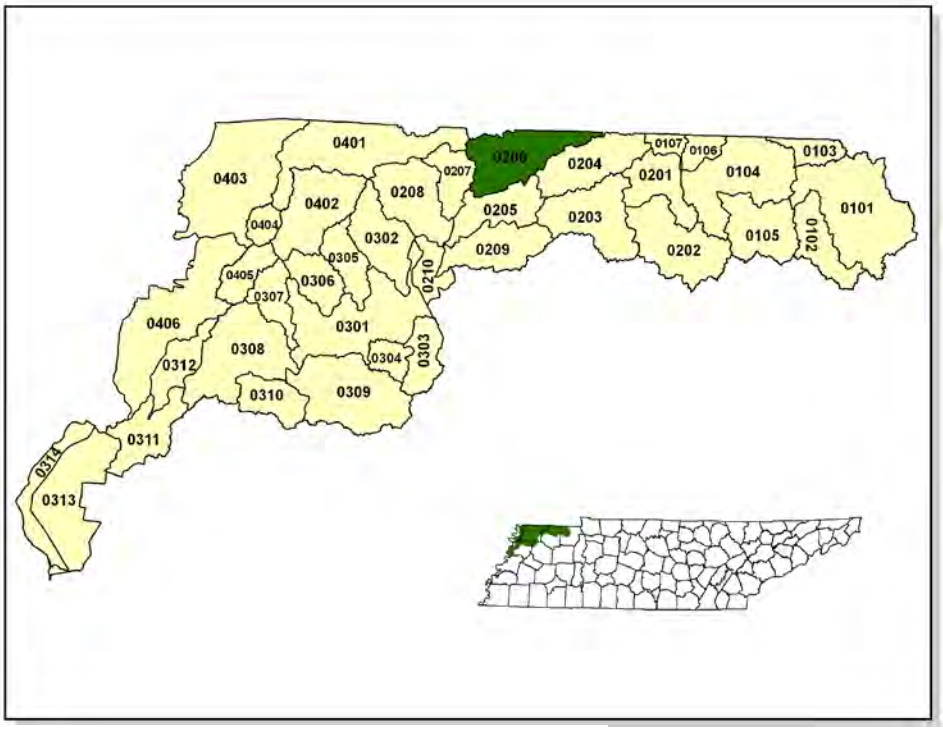


Figure 4-111. Location of Subwatershed 080102020206. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

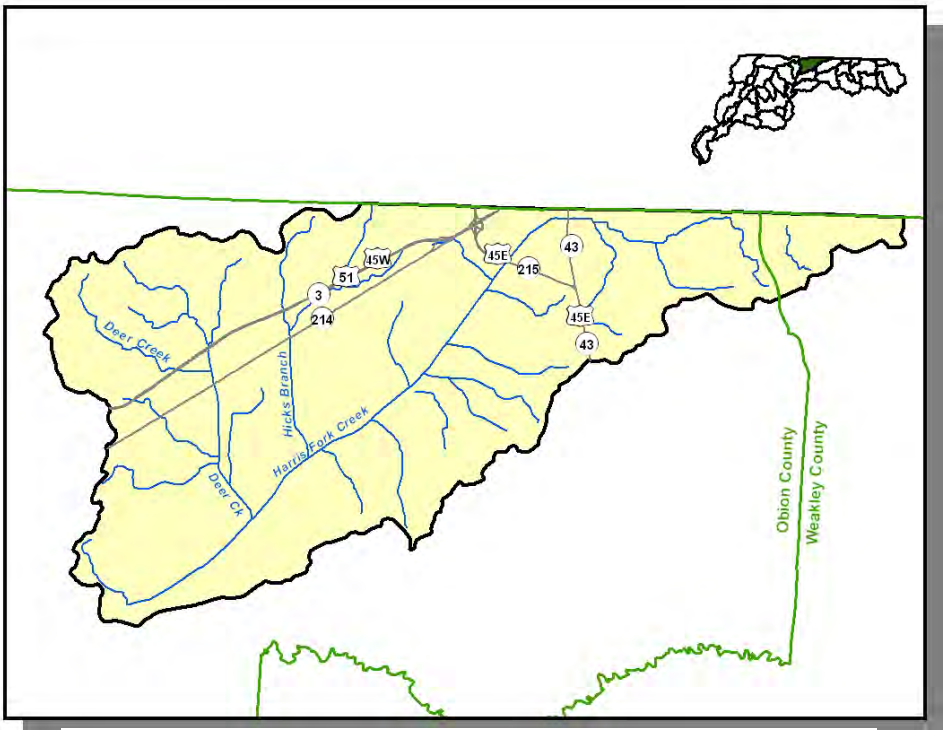


Figure 4-112. Locational Details of Subwatershed 080102020206.

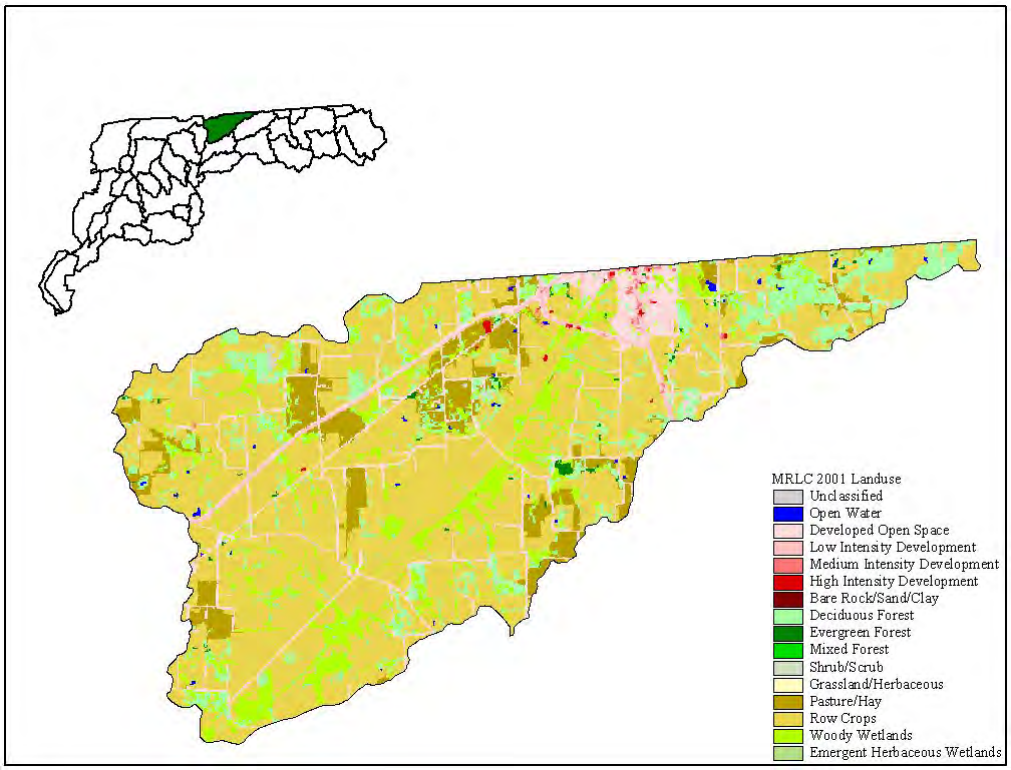


Figure 4-113. Illustration of Land Use Distribution in Subwatershed 080102020206.

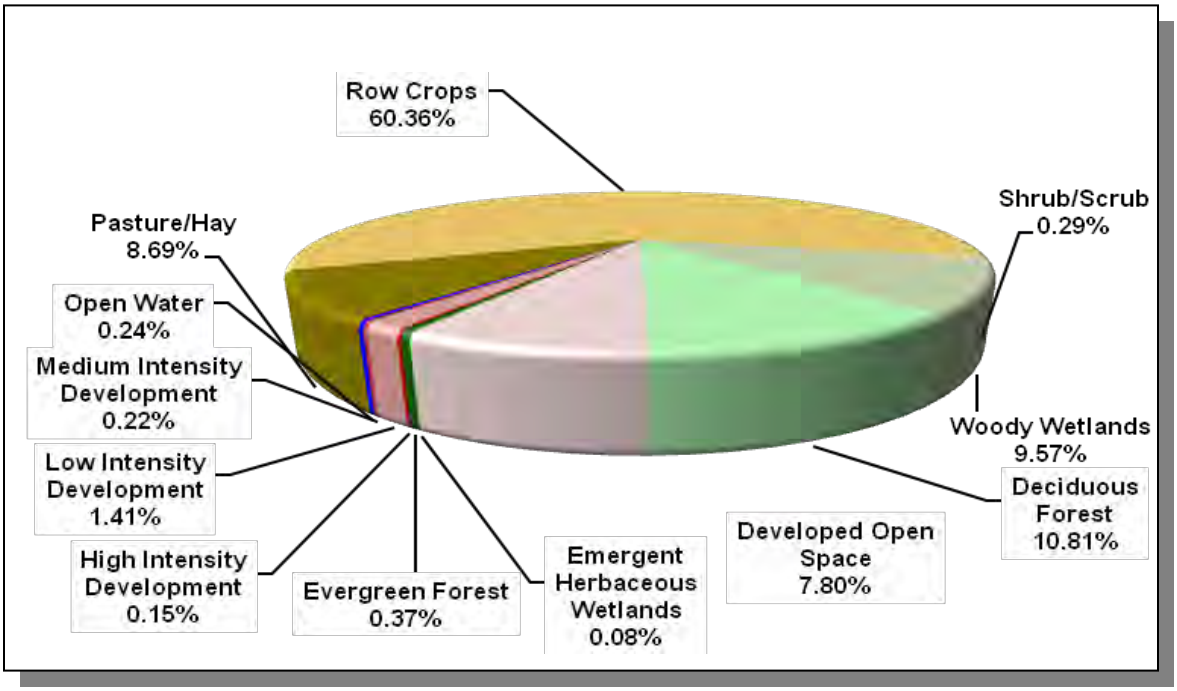


Figure 4-114. Land Use Distribution in Subwatershed 080102020206. *More information is provided in Appendix IV.*

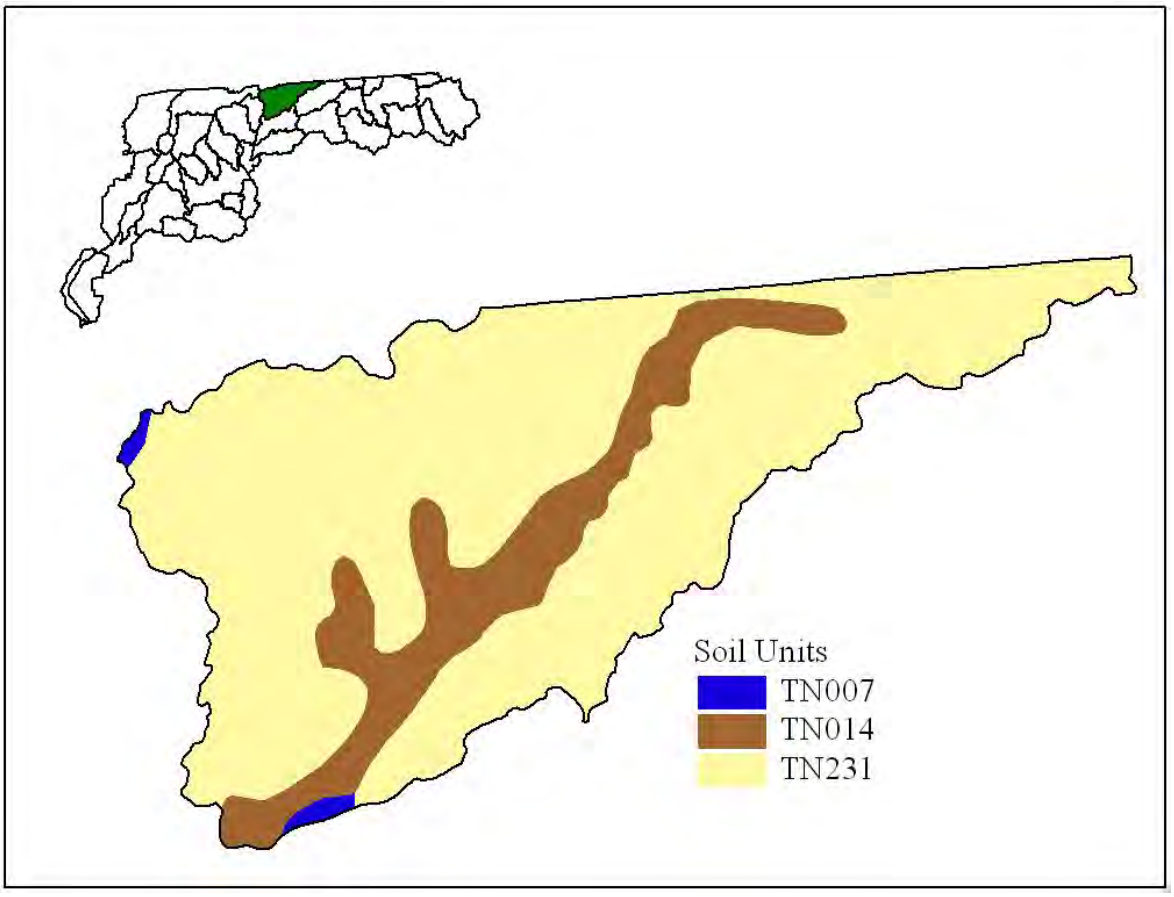


Figure 4-115. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020206.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN014	30.00	C	1.30	5.12	Silty Loam	0.47
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-70. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020206. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	6.37	2,020	2,042	2,067	2.30
Weakley	31,972	32,808	34,895	0.21	68	70	74	8.80
Totals	**63,689**	**64,877**	**67,345**		**2,088**	**2,112**	**2,141**	**2.50**

Table 4-71. Population Estimates in Subwatershed 080102020206.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
South Fulton	Obion	2,688	1,182	1,133	49	0

Table 4-72. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020206.

4.2.M.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020206.

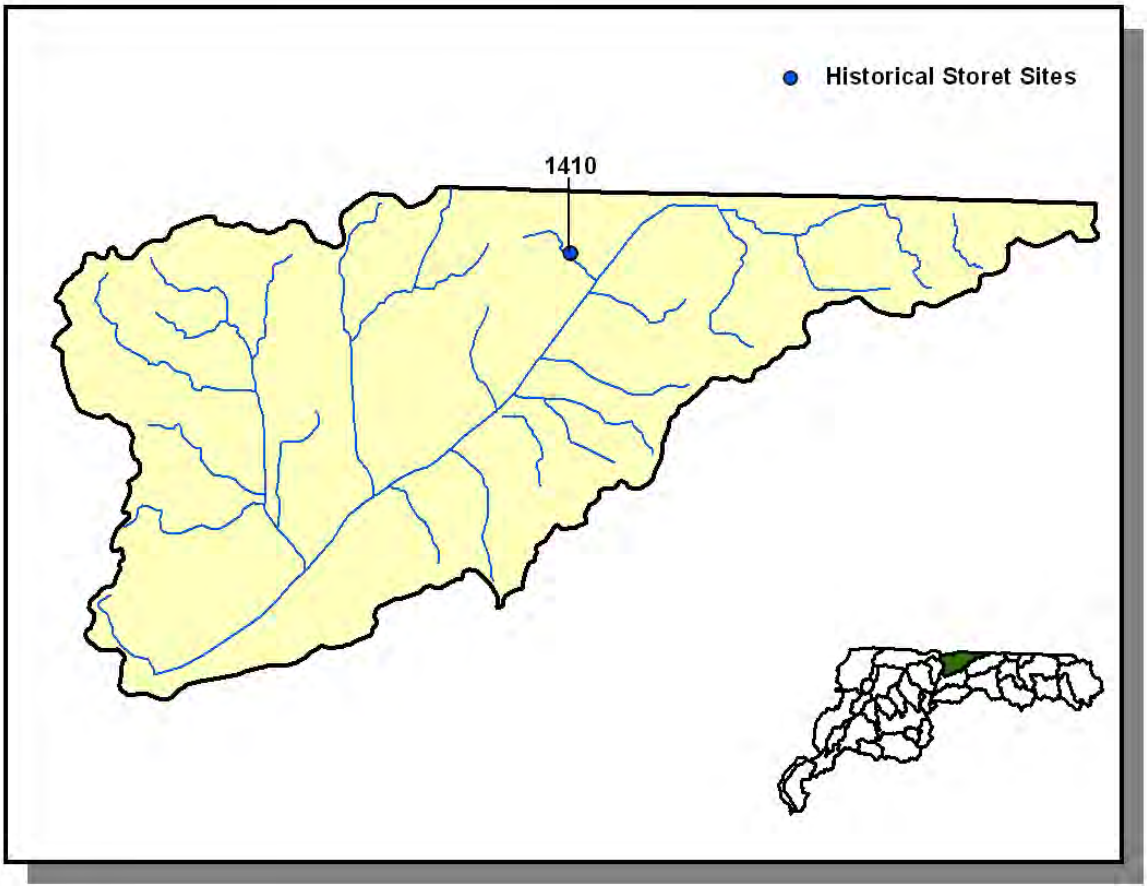


Figure 4-116. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020206. *More information, including site names and locations, is provided in Appendix IV.*

4.2.M.iii. Permitted Activities.

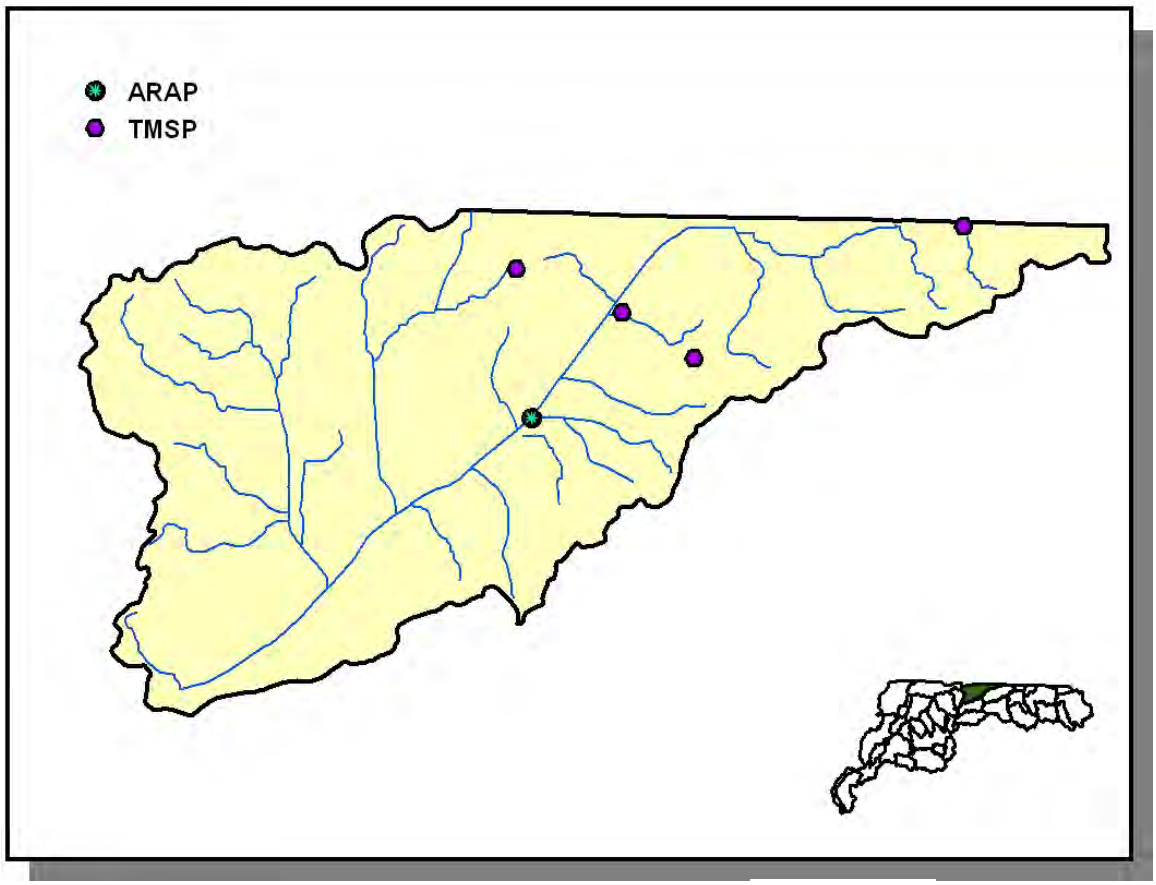


Figure 4-117. Location of Permits Issued in Subwatershed 080102020206. *More information, including the names of facilities, is provided in Appendix IV.*

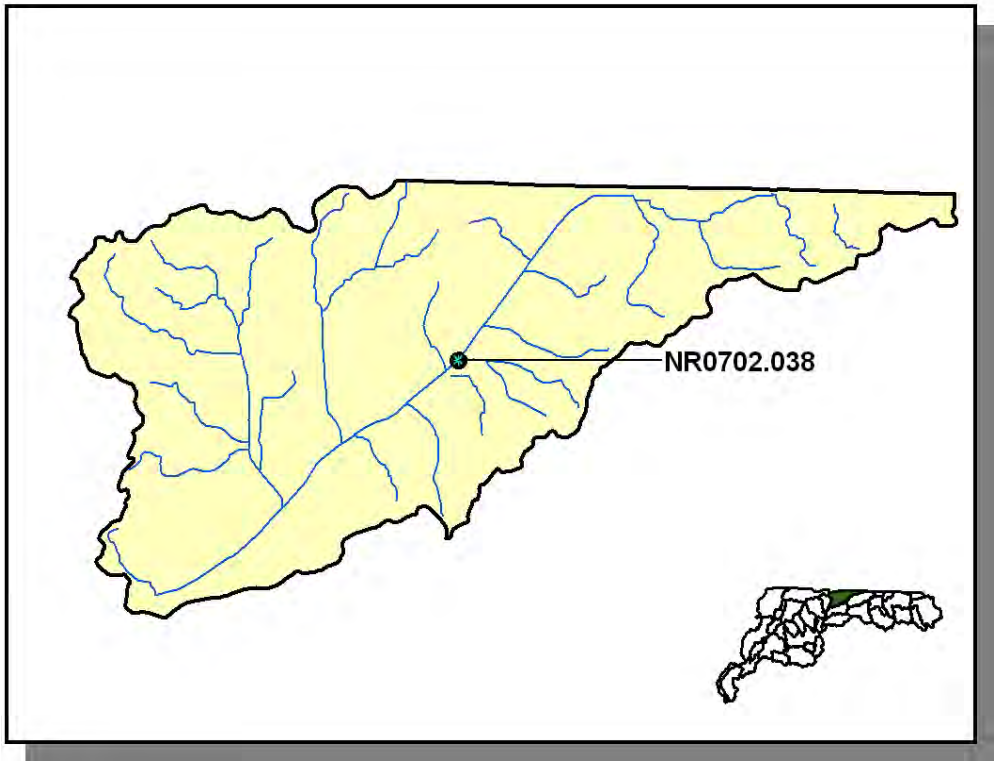


Figure 4-118. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020206. *More information is provided in Appendix IV.*

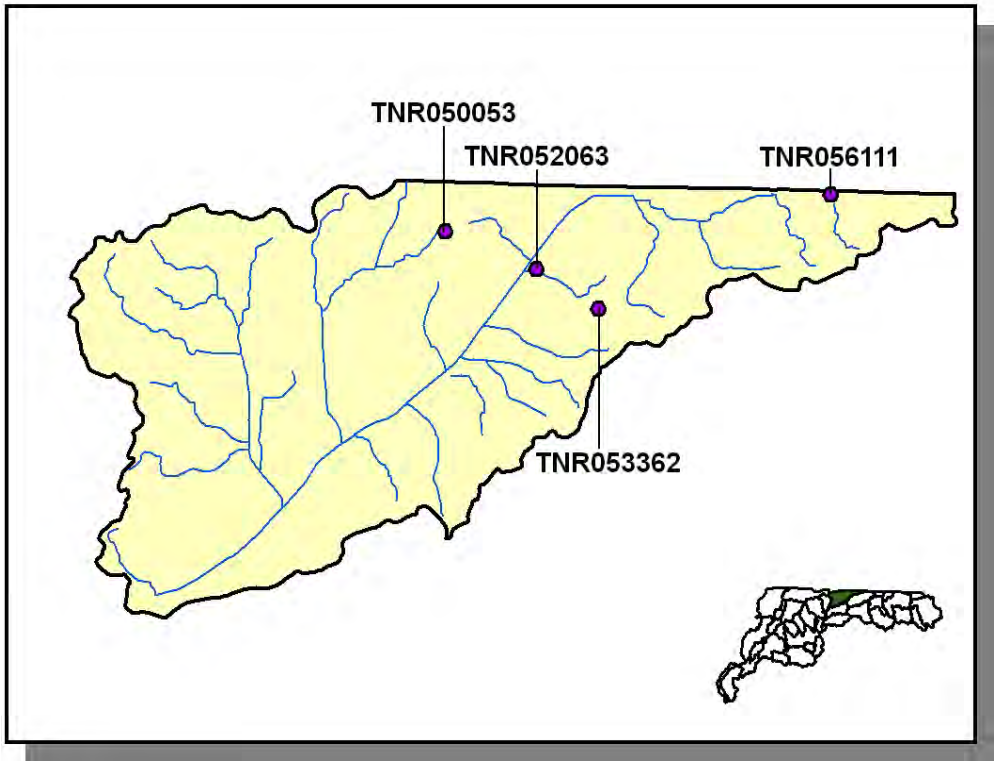


Figure 4-119. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020206. *More information is provided in Appendix IV.*

4.2.M.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-73. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8
Weakley	96.1	95.9	6.7	24.6

Table 4-74. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Other Cropland not Planted	13.92
Wheat (Close Grown Cropland)	9.79
Soybeans (Row Crops)	8.04
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.48
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.87
Grass Forbs Legumes Mixed (Pastureland)	0.87
Grass (Pastureland)	0.66
Legume (Hayland)	0.49
Grass (Hayland)	0.47
Farmsteads and Ranch Headquarters	0.17
Legume (Pastureland)	0.12

Table 4-75. Annual Estimated Total Soil Loss in Subwatershed 080102020206.

4.2.N. 080102020207 (Needham Creek).

4.2.N.i. General Description.

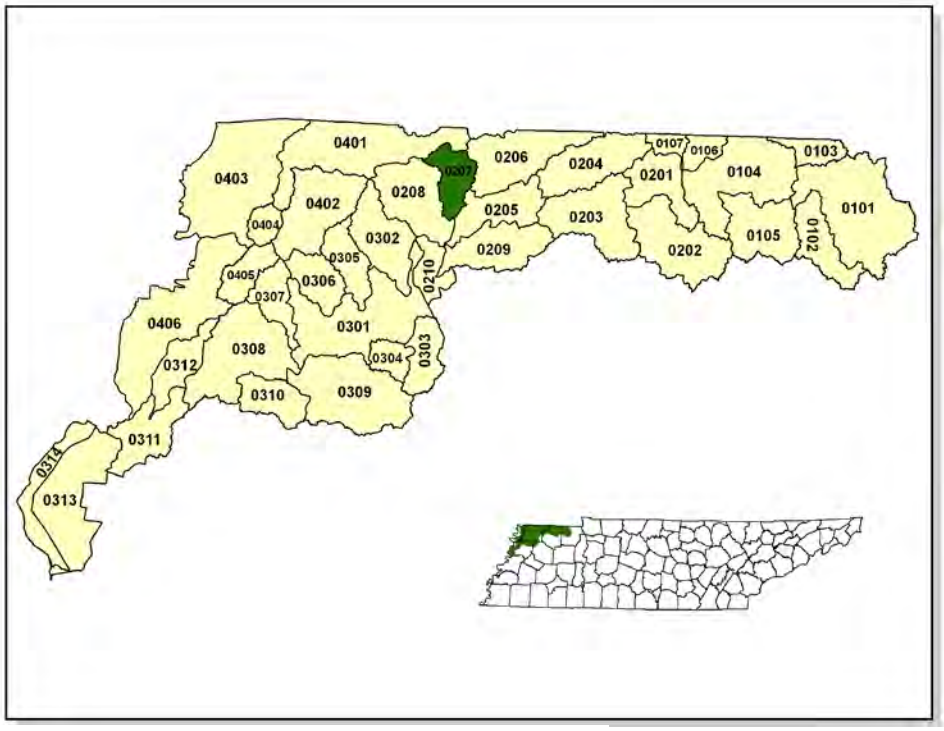


Figure 4-120. Location of Subwatershed 080102020207. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

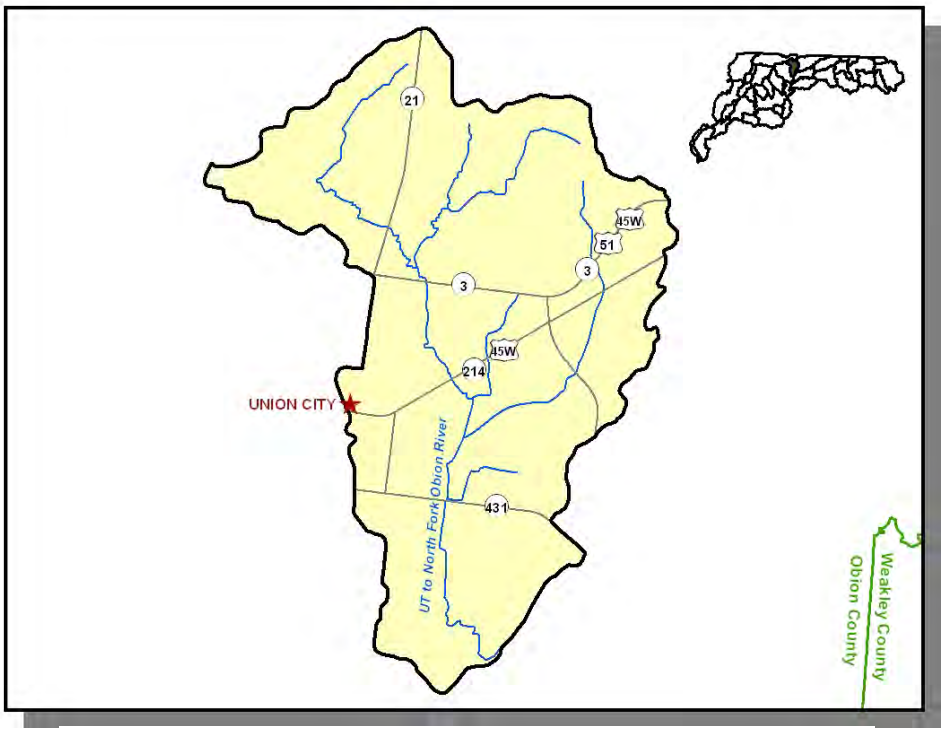


Figure 4-121. Locational Details of Subwatershed 080102020207.

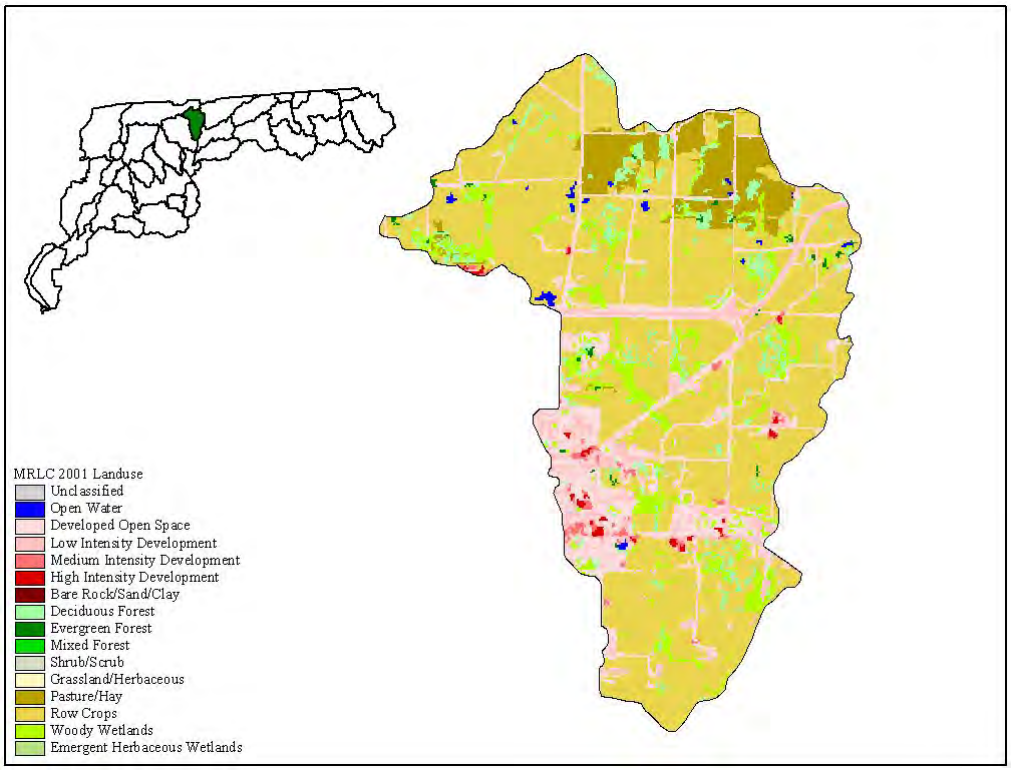


Figure 4-122. Illustration of Land Use Distribution in Subwatershed 080102020207.

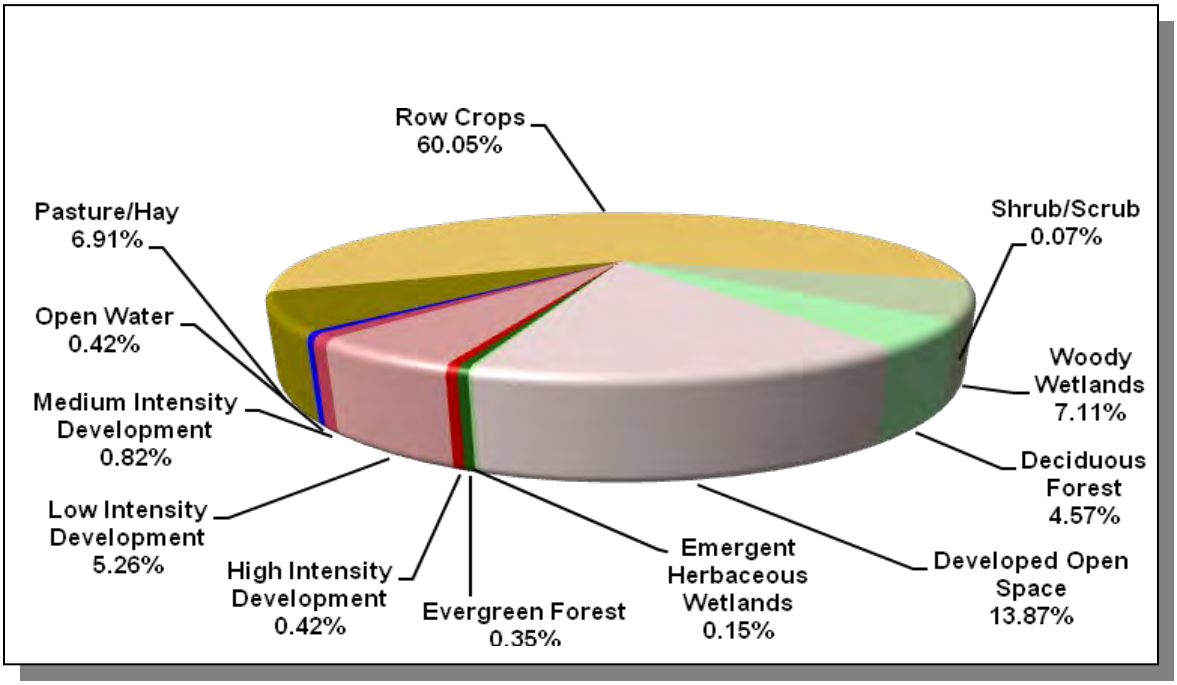


Figure 4-123. Land Use Distribution in Subwatershed 080102020207. *More information is provided in Appendix IV.*

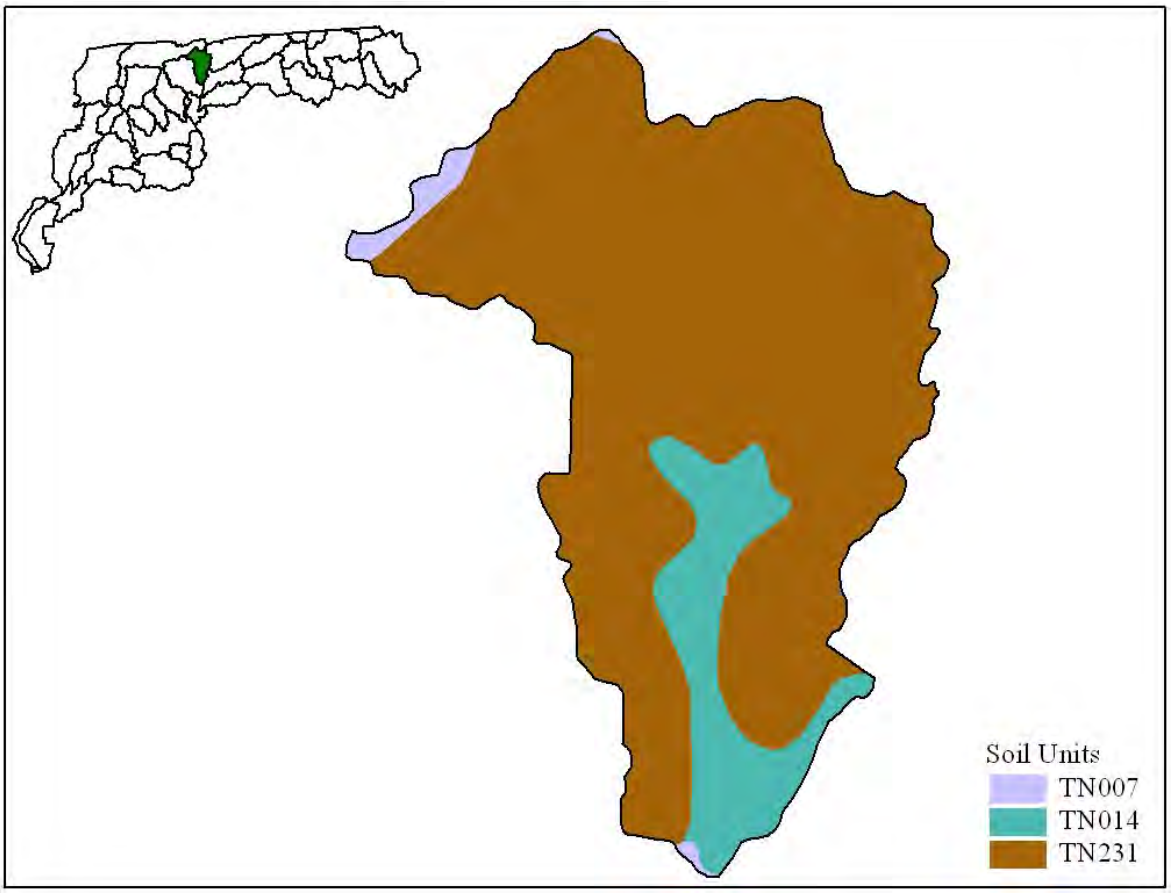


Figure 4-124. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020207.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN014	30.00	C	1.30	5.12	Silty Loam	0.47
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-76. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020207. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	2.97	941	952	963	2.30

Table 4-77. Population Estimates in Subwatershed 080102020207.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Union City	Obion	10,512	4,608	4,572	36	0

Table 4-78. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020207.

4.2.N.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102020207.

4.2.N.iii. Permitted Activities.

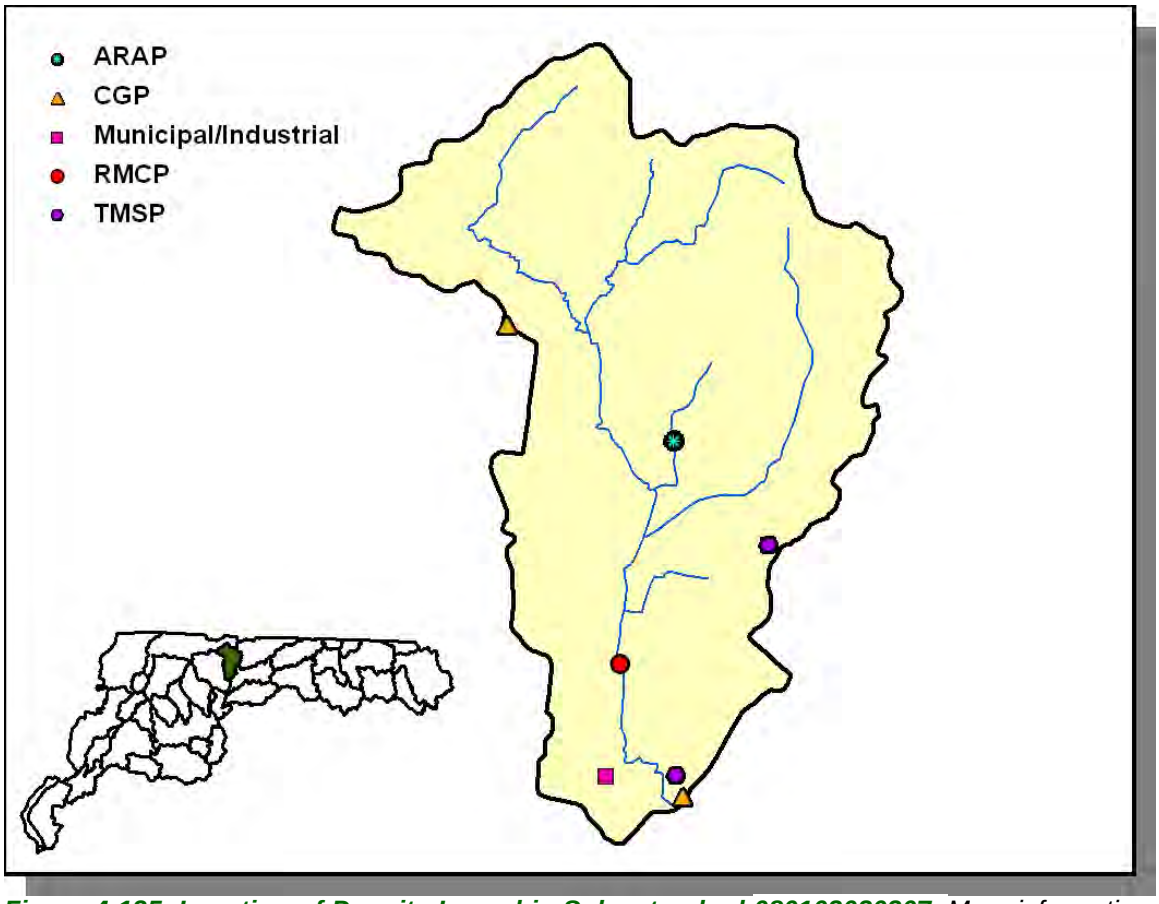


Figure 4-125. Location of Permits Issued in Subwatershed 080102020207. *More information, including the names of facilities, is provided in Appendix IV.*

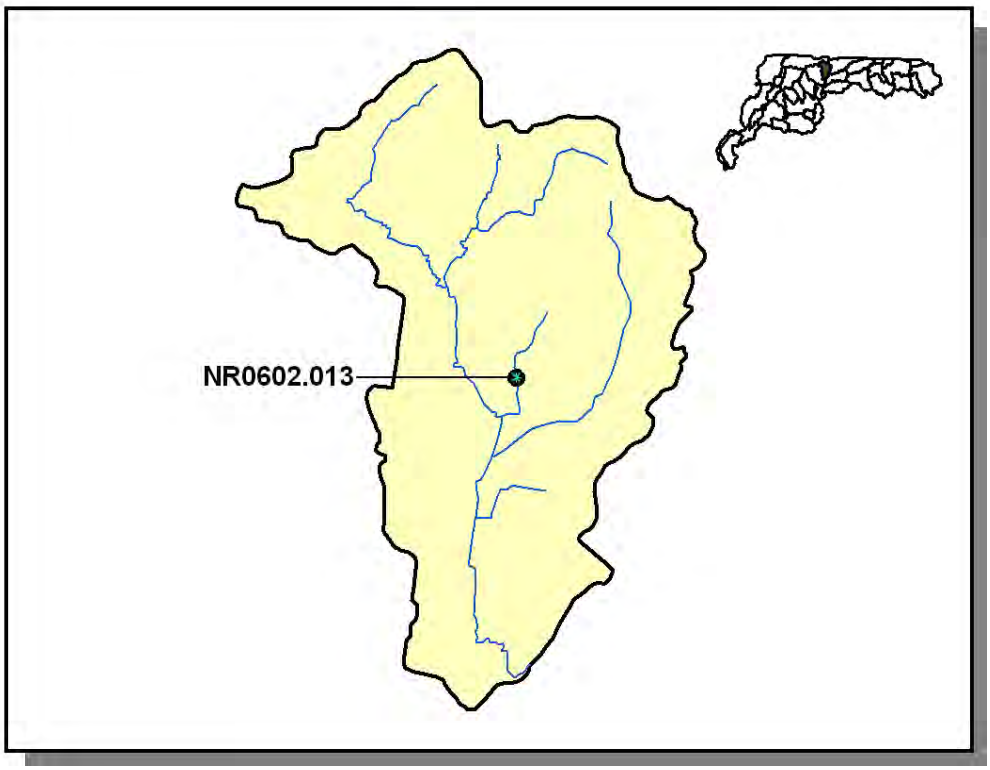


Figure 4-126. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020207. *More information is provided in Appendix IV.*

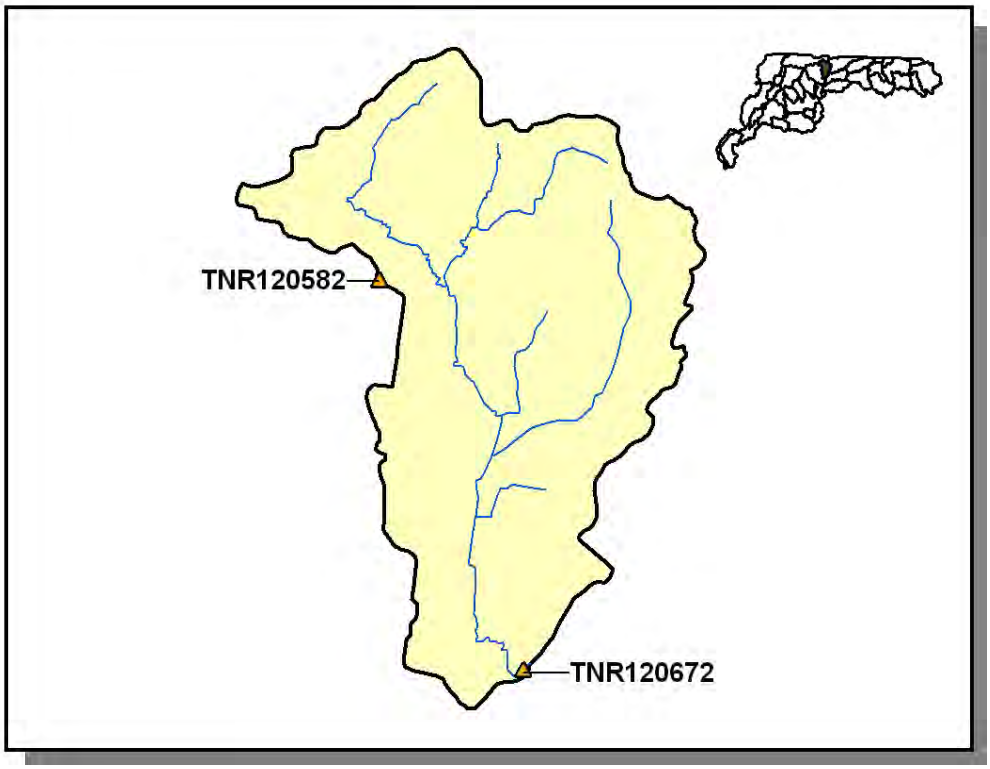


Figure 4-127. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020207. *More information is provided in Appendix IV.*

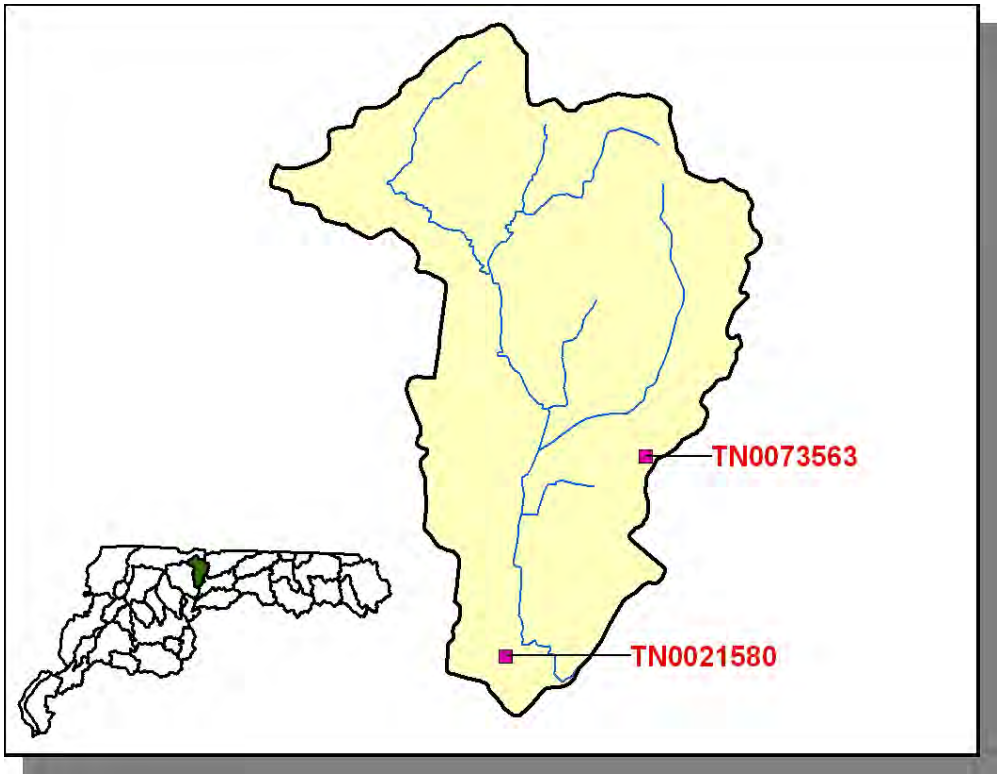


Figure 4-128. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102020207. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	1Q10	7Q10	30Q2	DISCHARGE FLOW
TN0021580		58.9		5.09(Summer) 6.50(Winter)
TN0073563	57.1	59.0	73.1	0.970

Table 4-79. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020207. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	AMMONIA AS N (TOTAL)	$CBOD_5$	CBOD % REMOVAL	BOD_5	TRC	OIL AND GREASE
TN0021580	X	X	X		X	
TN0073563	X	X		X	X	X

Table 4-80. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020207. *$CBOD_5$, Carbonaceous Biochemical Oxygen Demand (5-day); BOD_5, Biochemical Oxygen Demand (5-day); TRC, Total Residual Chlorine.*

PERMIT #	DO	SS	TSS	TSS % REMOVAL	pH	WET	FLOW
TN0021580	X	X	X	X	X	X	X
TN0073563	X	X	X		X	X	X

Table 4-81. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020207. *DO, Dissolved Oxygen; SS, Settleable Solids; TSS, Total Suspended Solids; WET, Whole Effluent Toxicity.*

PERMIT #	E. *coli*	FECAL COLIFORM
TN0021580	X	
TN0073563	X	X

Table 4-82. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020207.

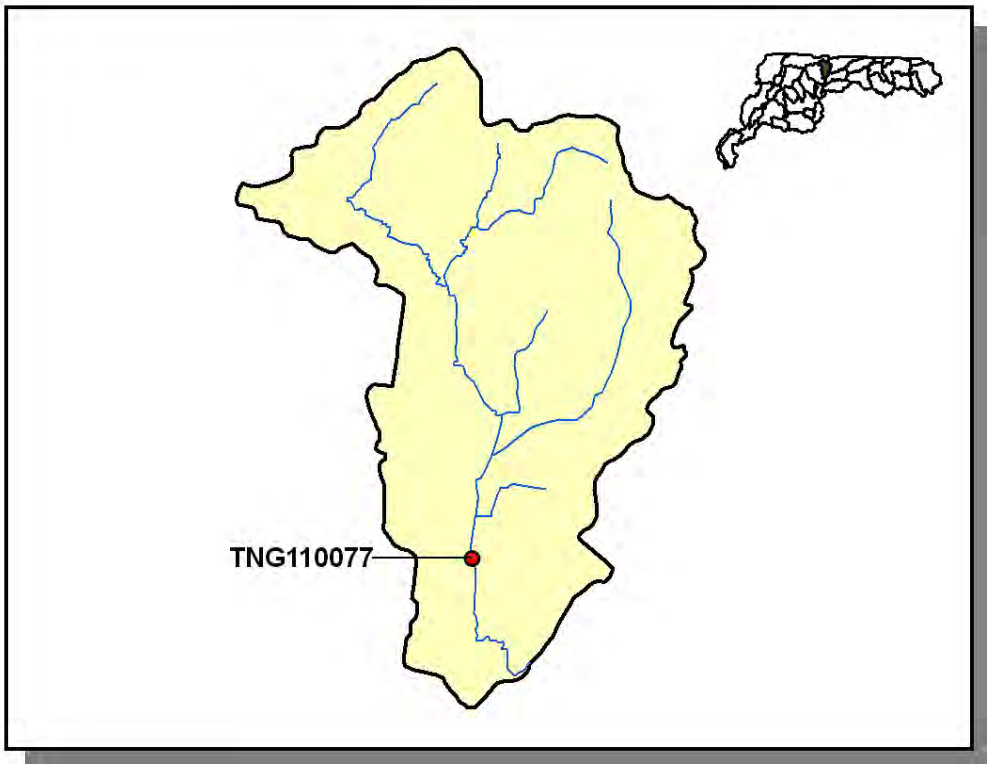


Figure 4-129. Location of RMCP (Ready Mix Concrete Plant) facilities in Subwatershed 080102020207. *More information, including the names of facilities, is provided in Appendix IV.*

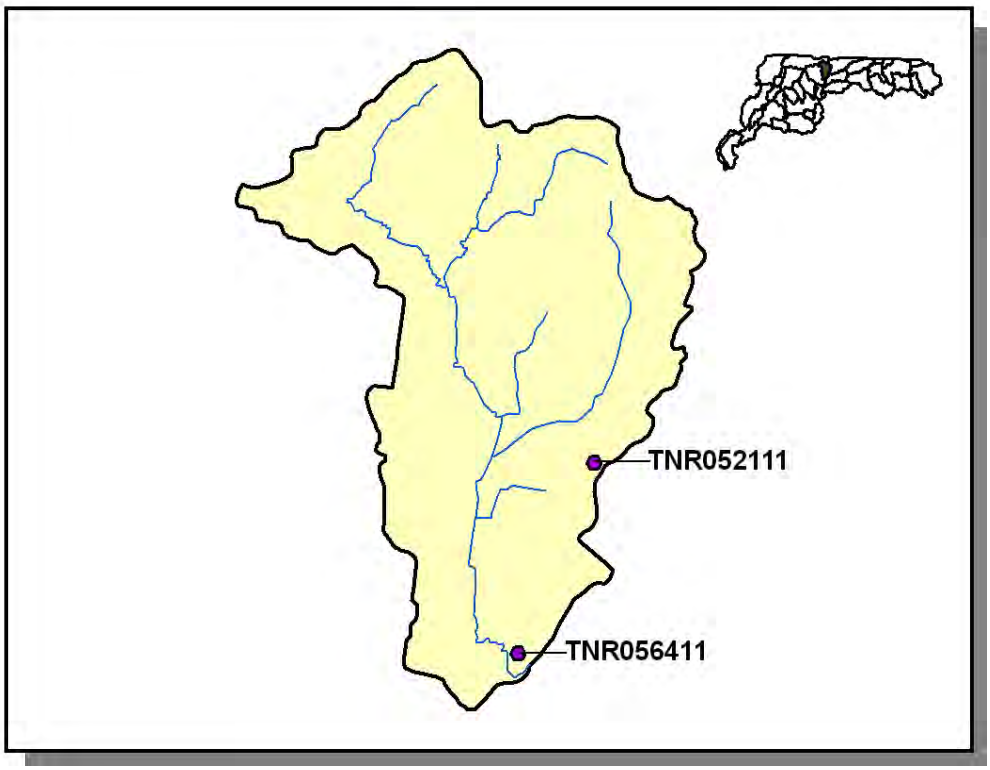


Figure 4-130. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020207. *More information is provided in Appendix IV.*

4.2.N.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-83. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-84. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-85. Annual Estimated Total Soil Loss in Subwatershed 080102020207.

4.2.O. 080102020208 (Houser Creek).

4.2.O.i. General Description.

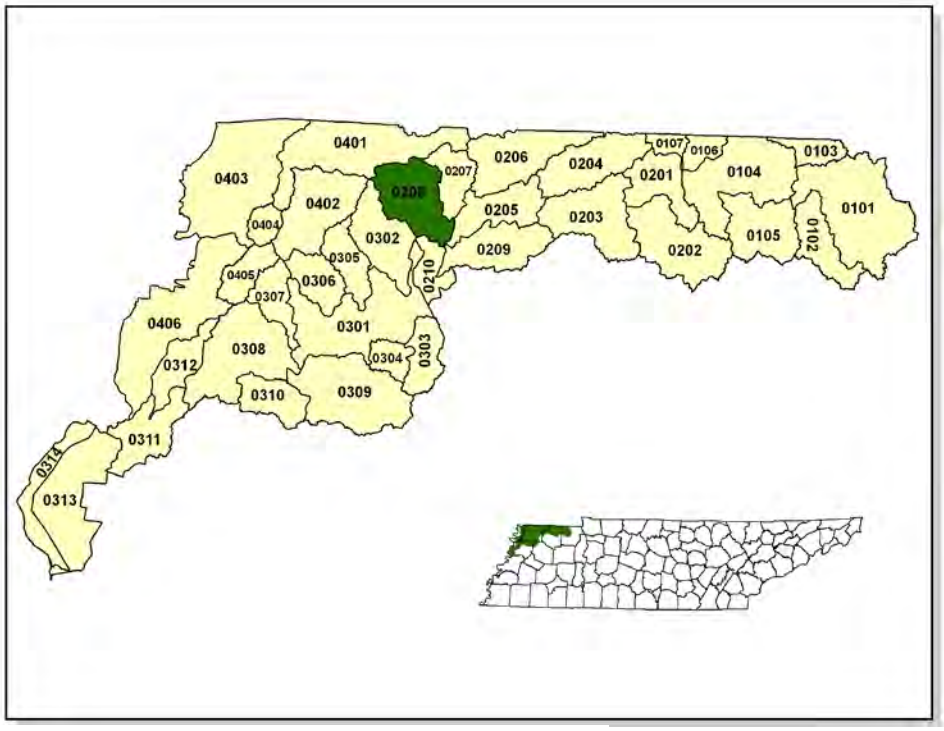


Figure 4-131. Location of Subwatershed 080102020208. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

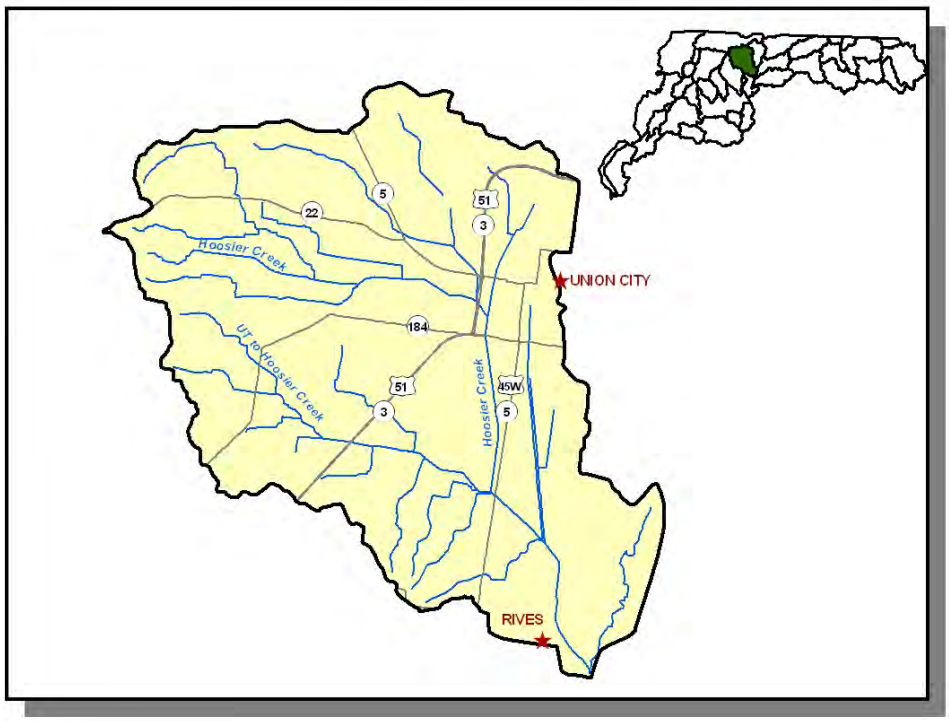


Figure 4-132. Locational Details of Subwatershed 080102020208.

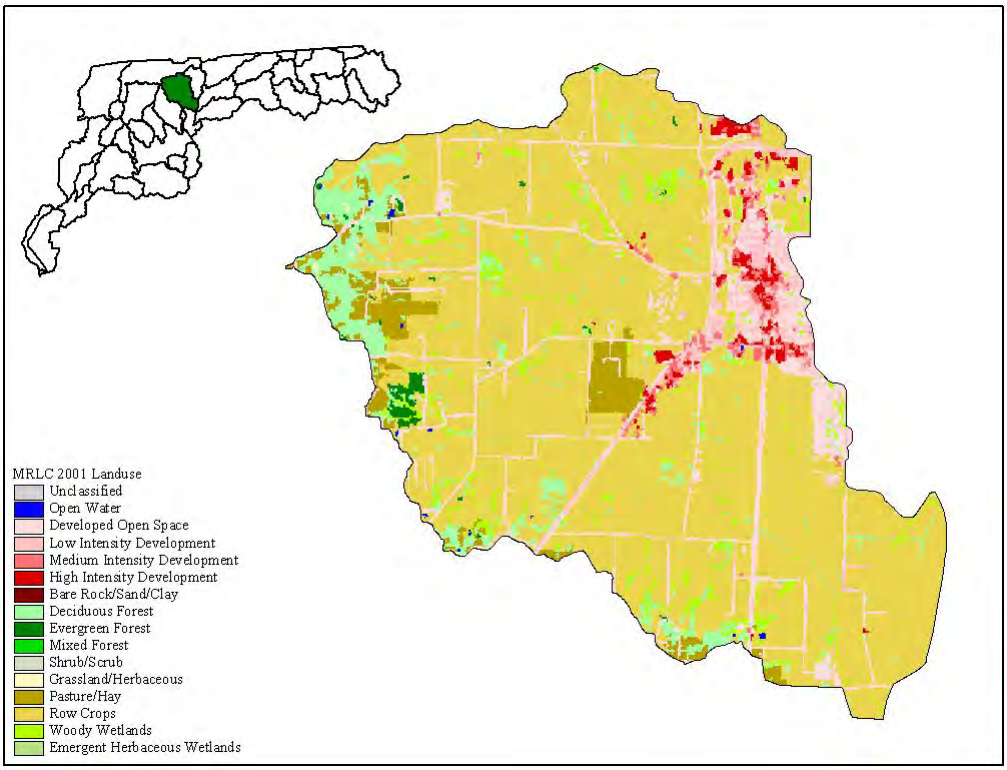


Figure 4-133. Illustration of Land Use Distribution in Subwatershed 080102020208.

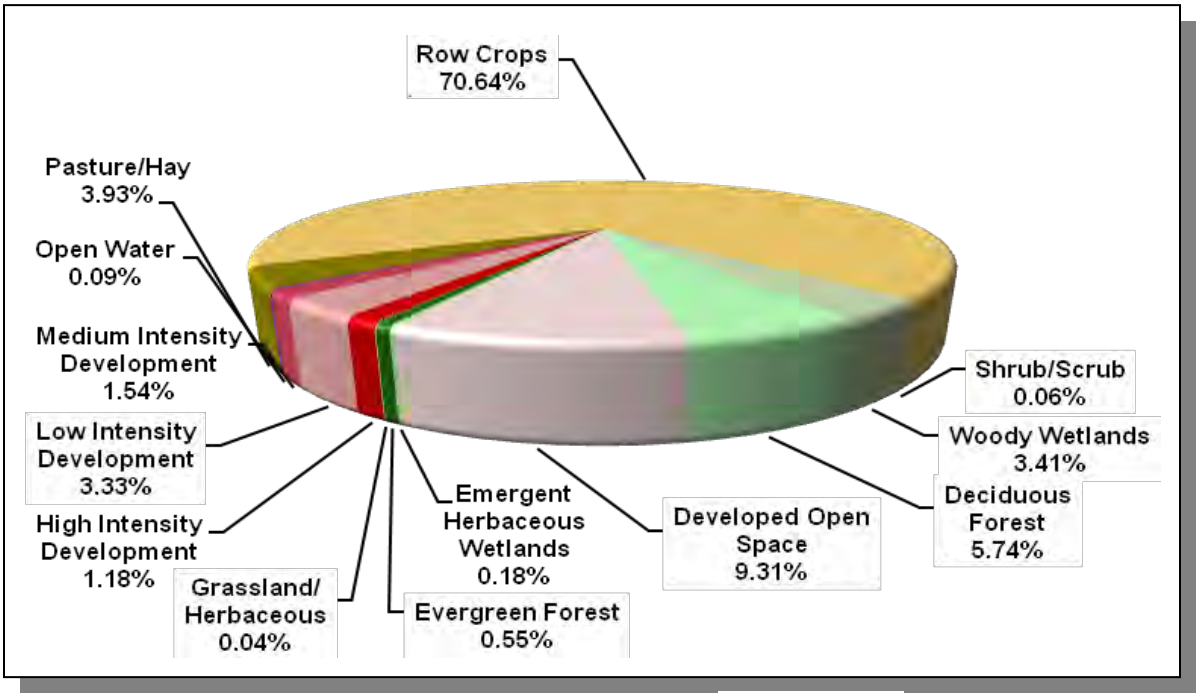


Figure 4-134. Land Use Distribution in Subwatershed 080102020208. *More information is provided in Appendix IV.*

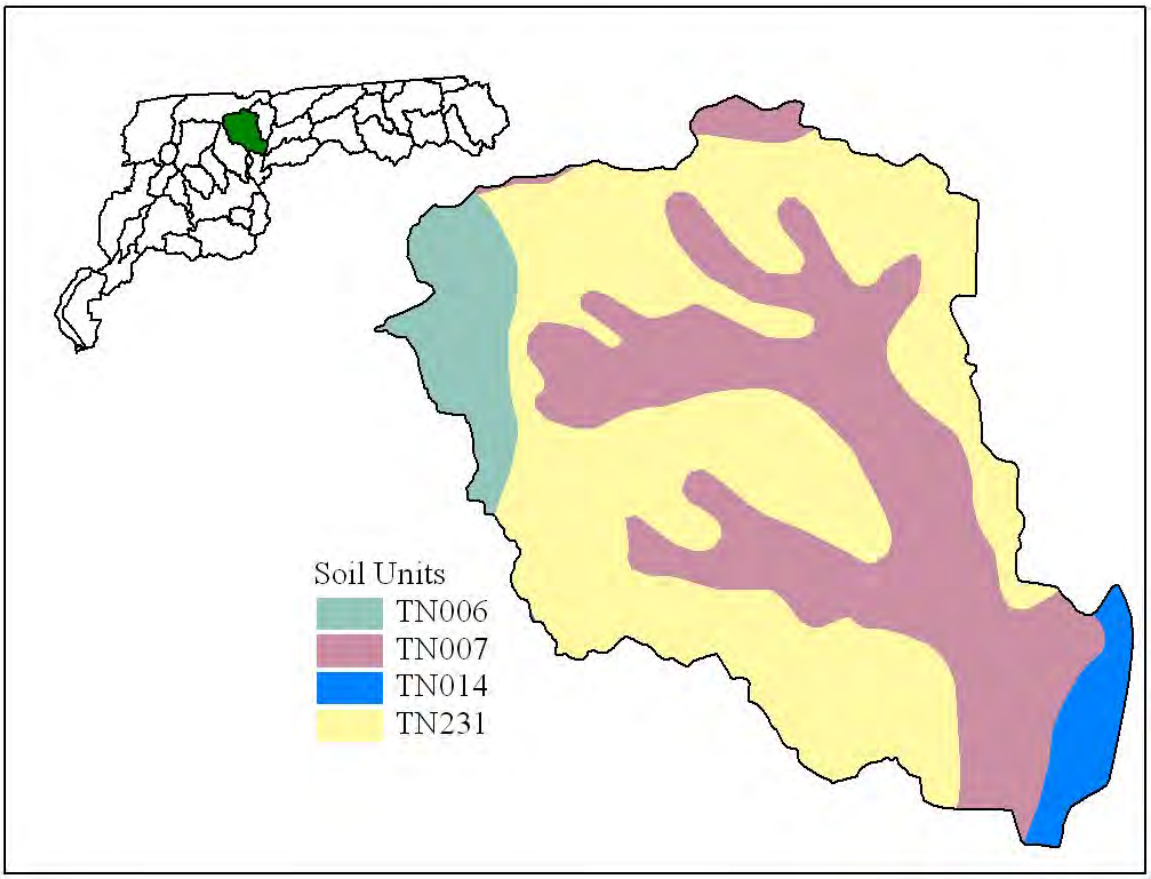


Figure 4-135. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020208.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN014	30.00	C	1.30	5.12	Silty Loam	0.47
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-86. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020208. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	6.04	1,914	1,936	1,959	2.40

Table 4-87. Population Estimates in Subwatershed 080102020208.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Rives	Obion	357	154	139	12	3
Union City	Obion	10,512	4,608	4,572	36	0

Table 4-88. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020208.

4.2.O.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102020208.

4.2.O.iii. Permitted Activities.

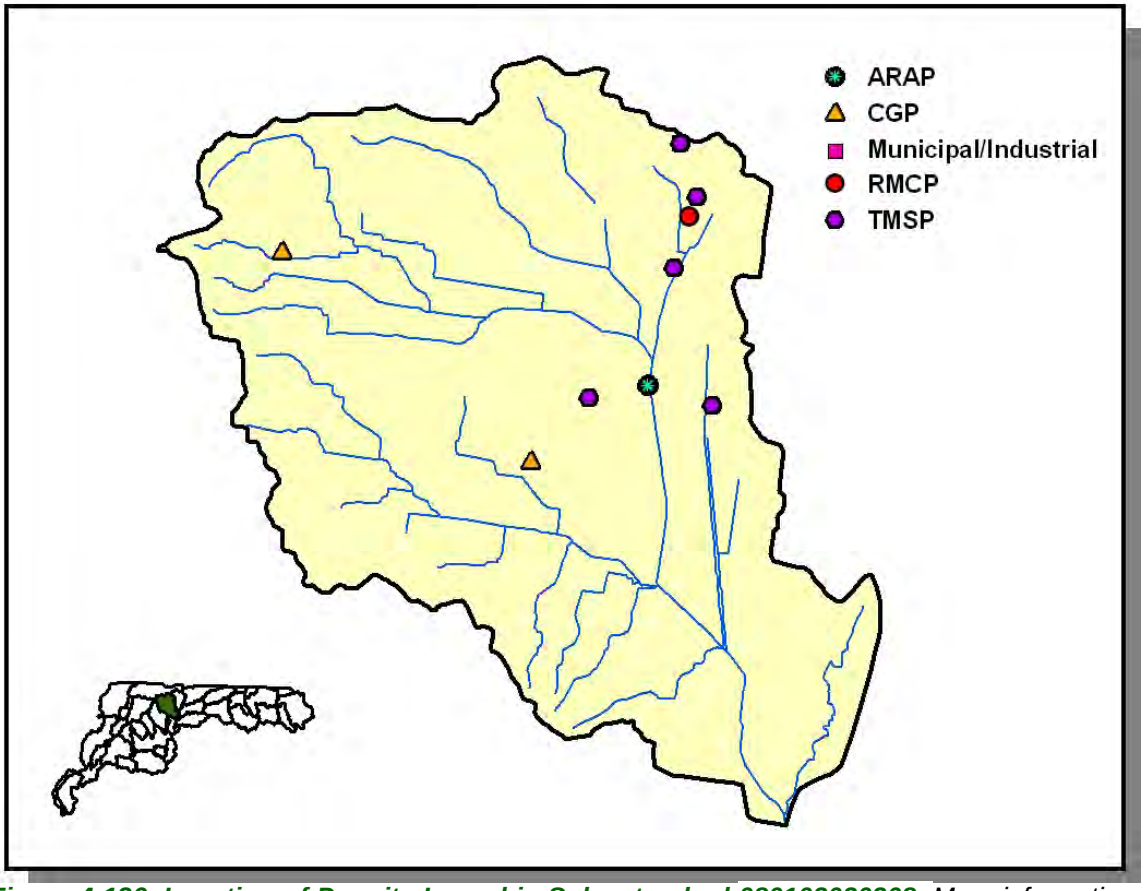


Figure 4-136. Location of Permits Issued in Subwatershed 080102020208. *More information, including the names of facilities, is provided in Appendix IV.*

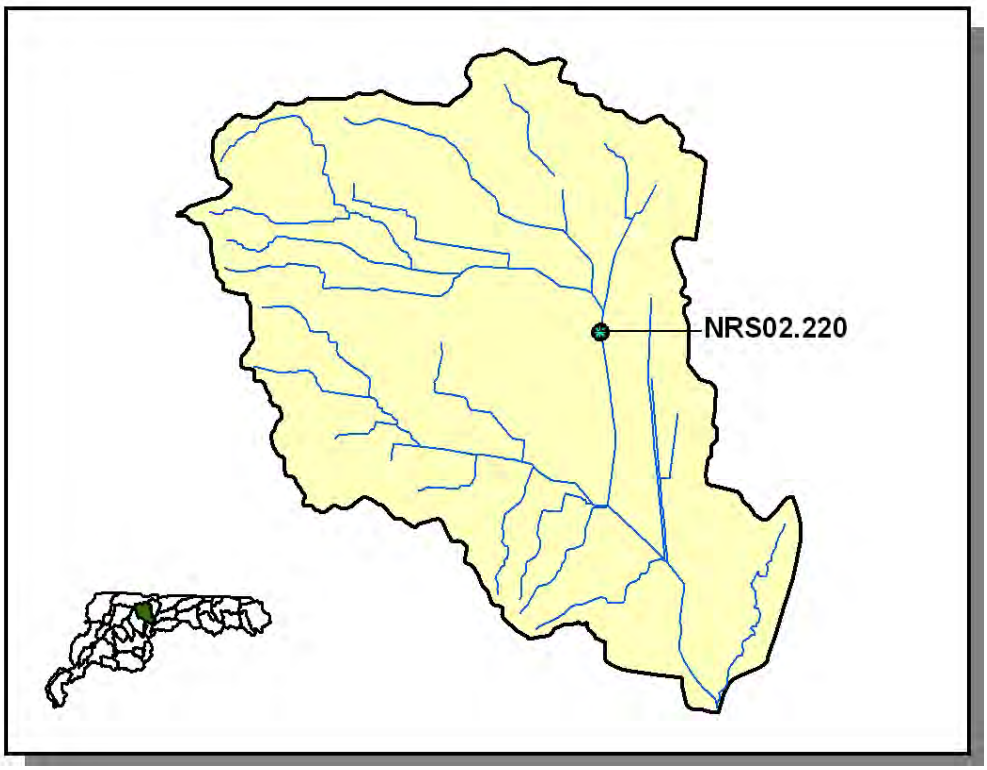


Figure 4-137. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020208. *More information is provided in Appendix IV.*

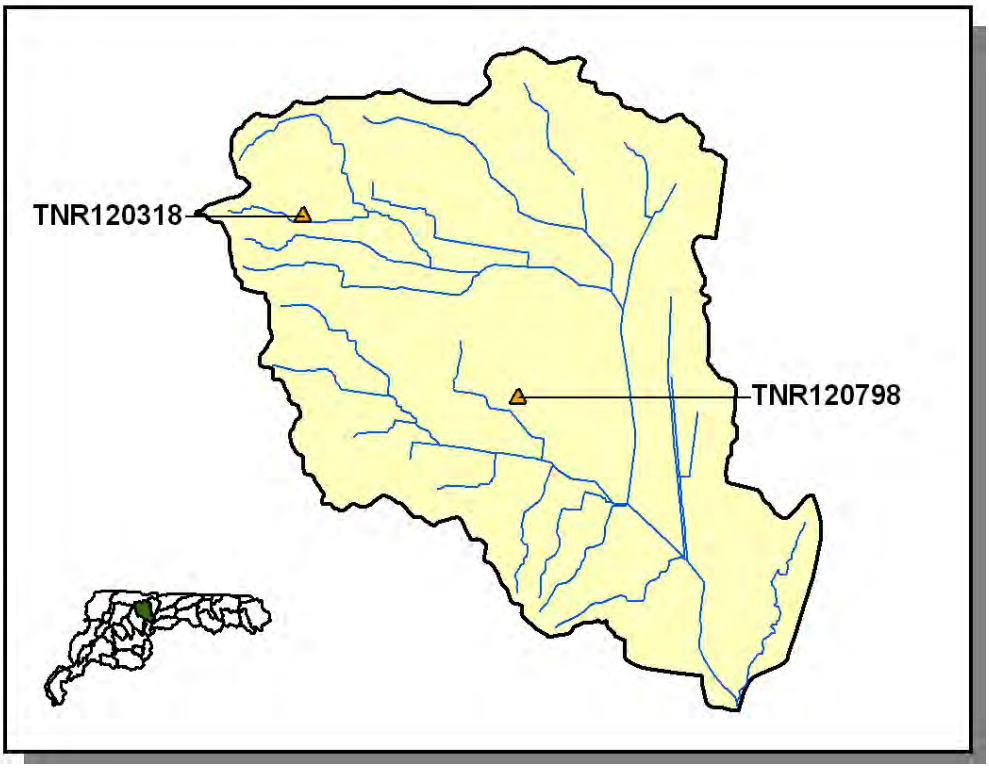


Figure 4-138. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020208. *More information is provided in Appendix IV.*

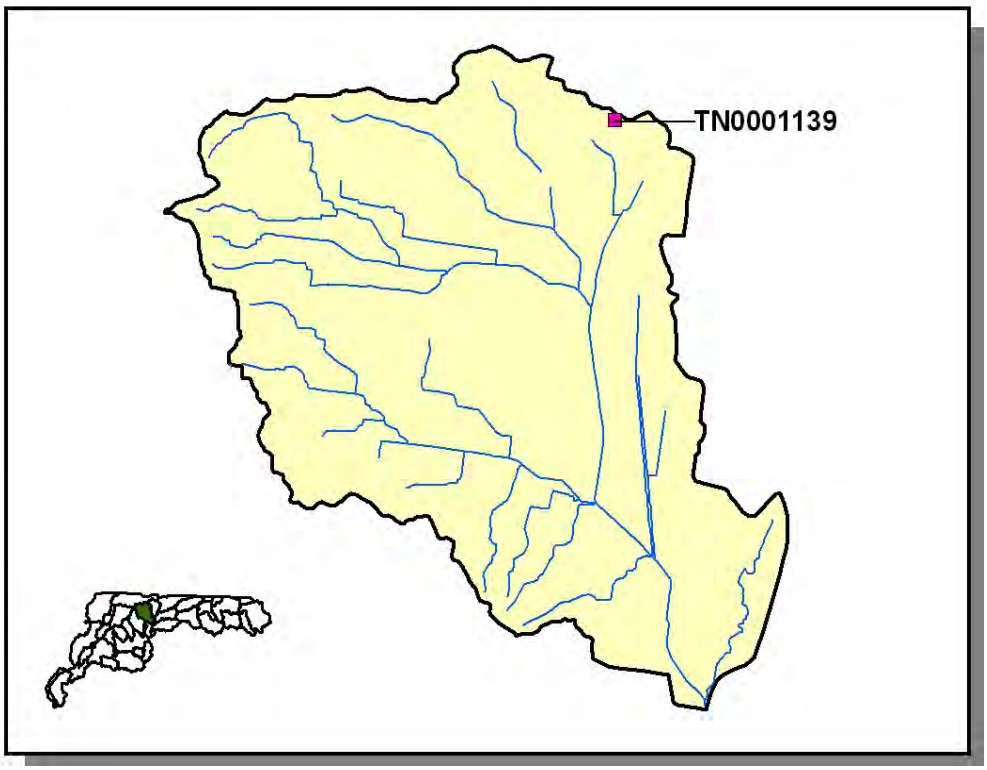


Figure 4-139. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102020208. *More information, including the name of the facility is provided in Appendix IV.*

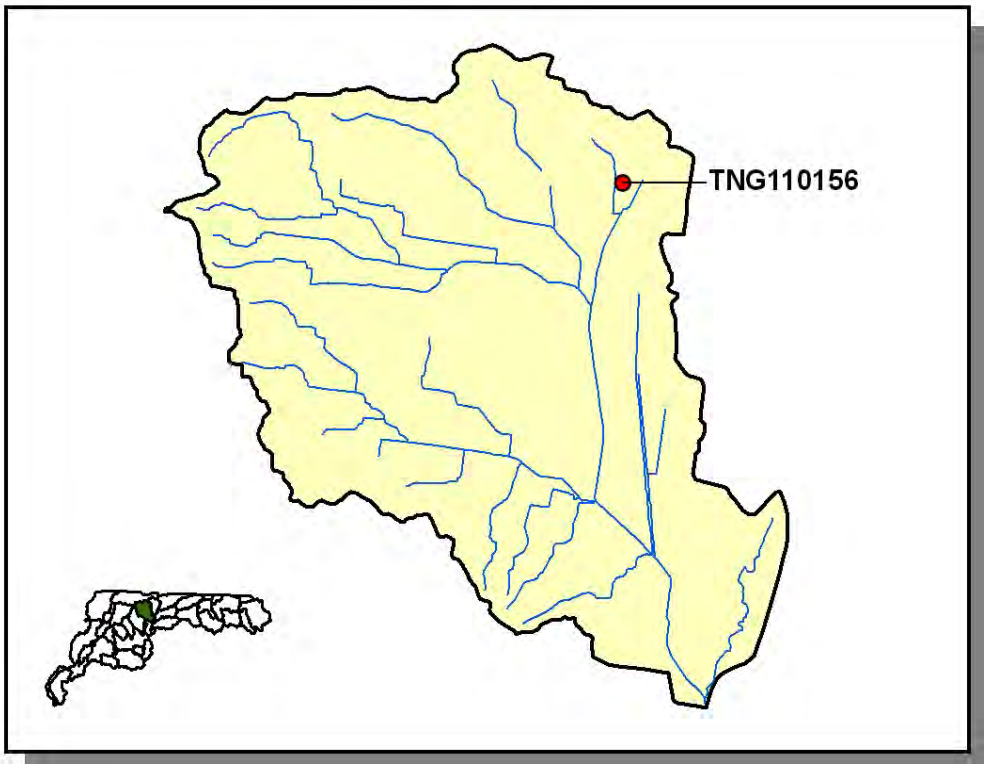


Figure 4-140. Location of RMCP (Ready Mix Concrete Plant) facilities in Subwatershed 080102020208. *More information, including the names of facilities, is provided in Appendix IV.*

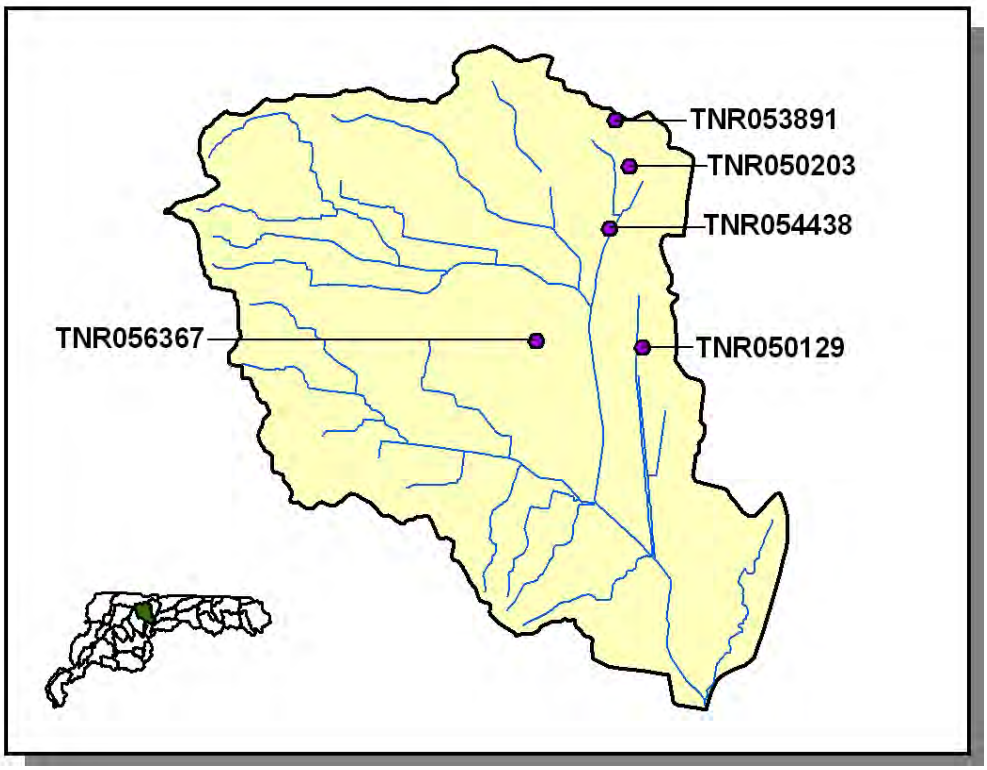


Figure 4-141. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020208. *More information is provided in Appendix IV.*

4.2.O.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-89. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-90. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-91. Annual Estimated Total Soil Loss in Subwatershed 080102020208.

4.2.P. 080102020209 (Little Cypress Creek).

4.2.P.i. General Description.

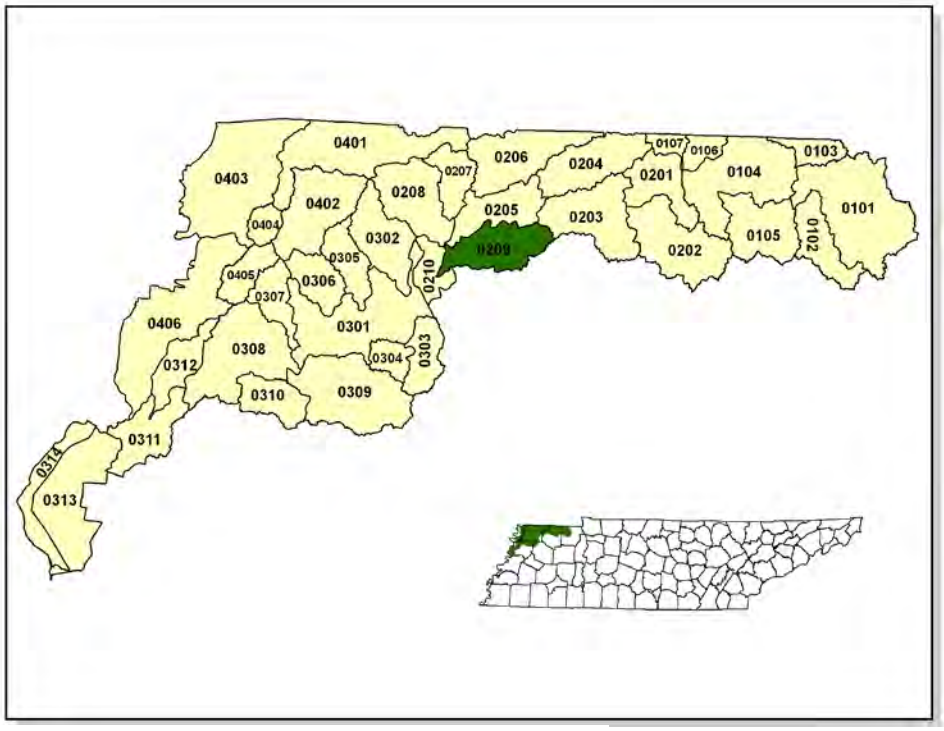


Figure 4-142. Location of Subwatershed 080102020209. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

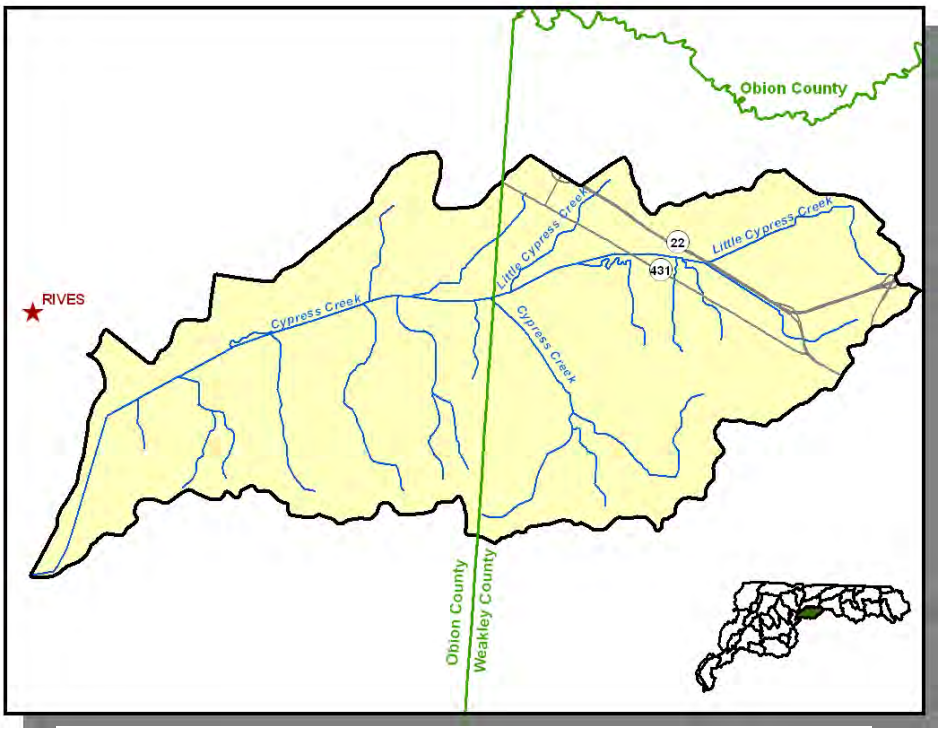


Figure 4-143. Locational Details of Subwatershed 080102020209.

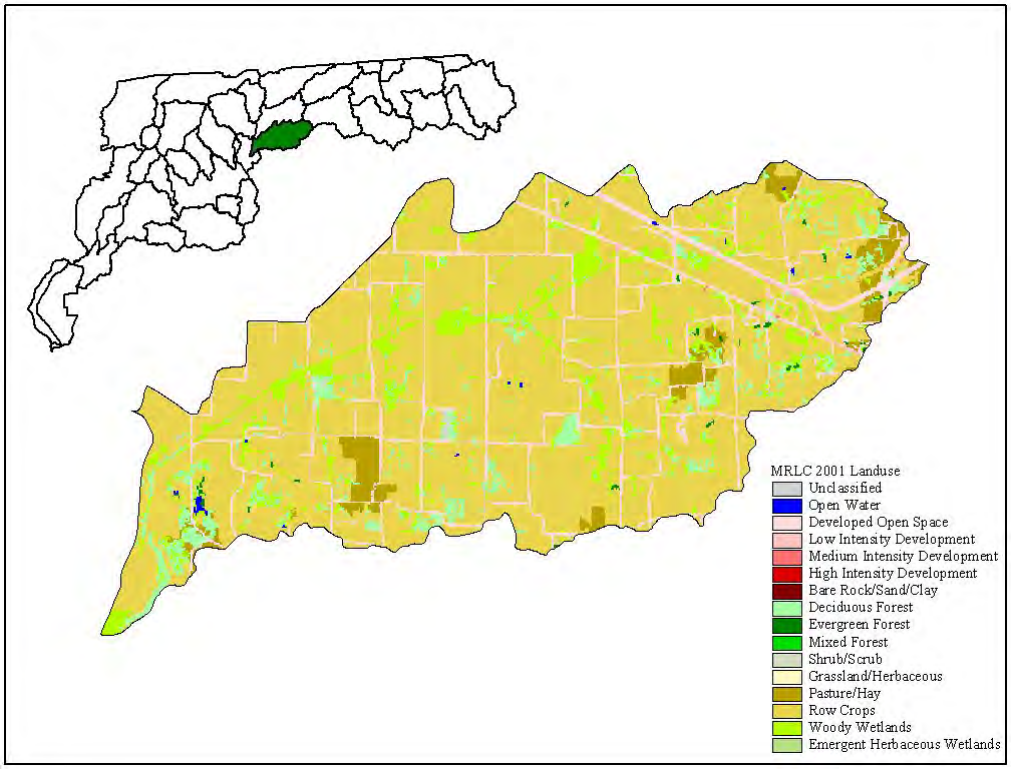


Figure 4-144. Illustration of Land Use Distribution in Subwatershed 080102020209.

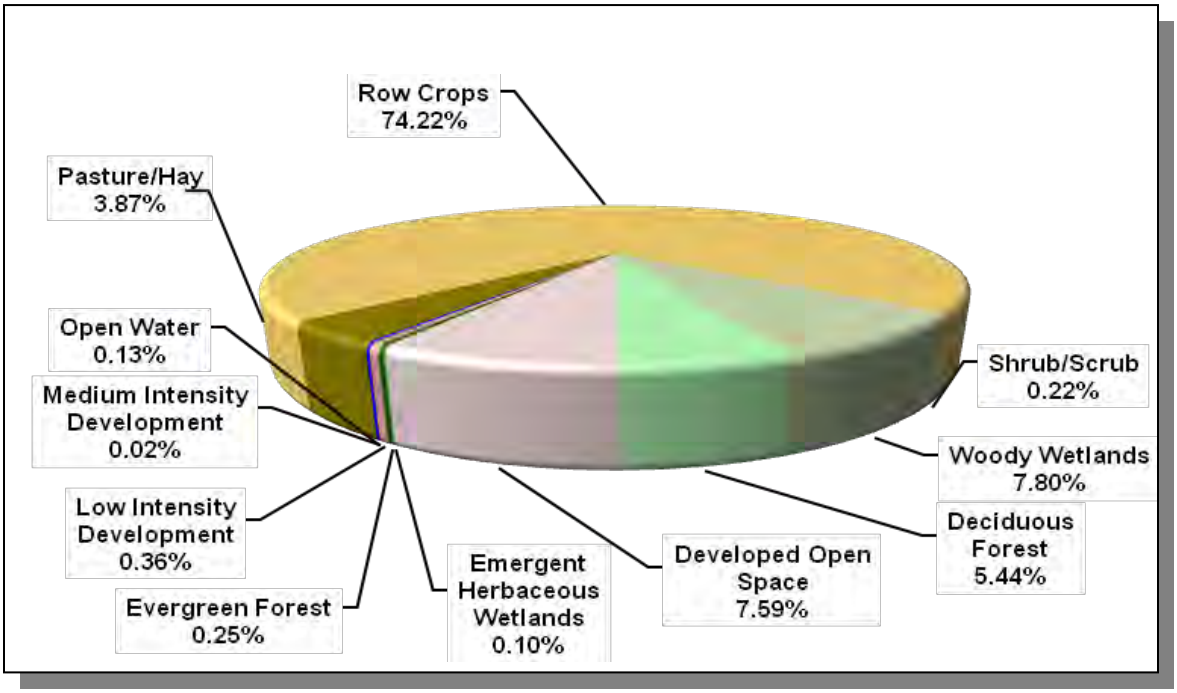


Figure 4-145. Land Use Distribution in Subwatershed 080102020209. *More information is provided in Appendix IV.*

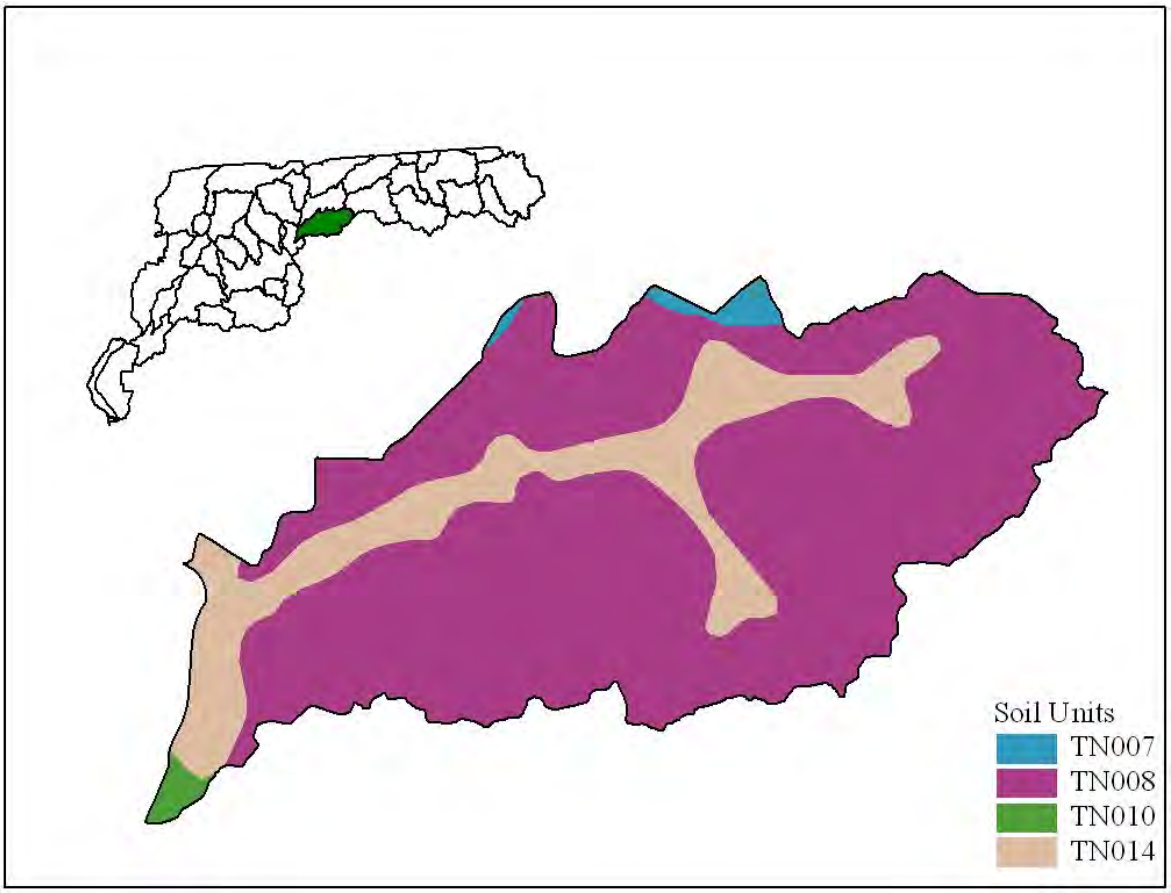


Figure 4-146. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020209.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-92. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020209. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	2.66	842	852	862	2.40
Weakley	31,972	32,808	34,895	2.63	842	864	919	9.10
Totals	**63,689**	**64,877**	**67,345**		**1,684**	**1,716**	**1,781**	**5.80**

Table 4-93. Population Estimates in Subwatershed 080102020209.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Martin	Weakley	8,600	3,104	3,039	65	0

Table 4-94. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020209.

4.2.P.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020209.

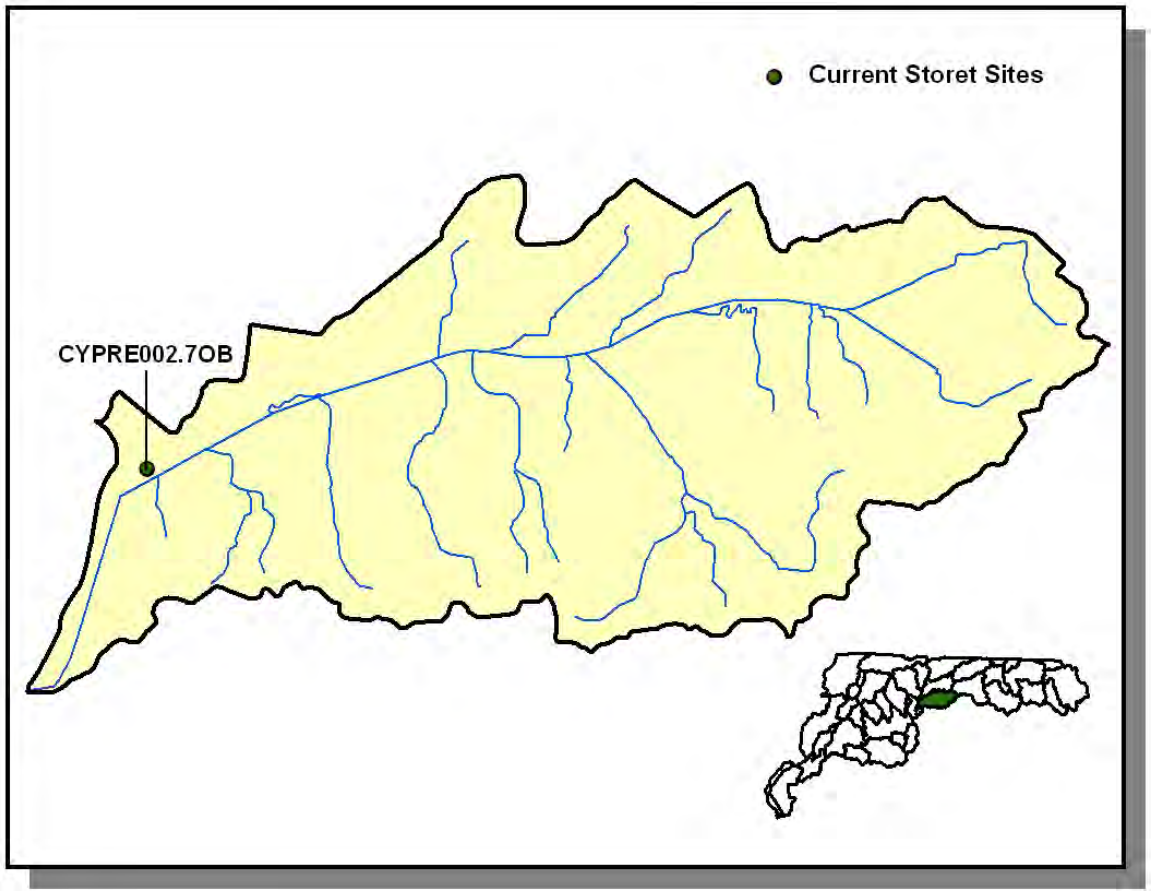


Figure 4-147. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020209. *More information, including site names and locations, is provided in Appendix IV.*

4.2.P.iii. Permitted Activities.

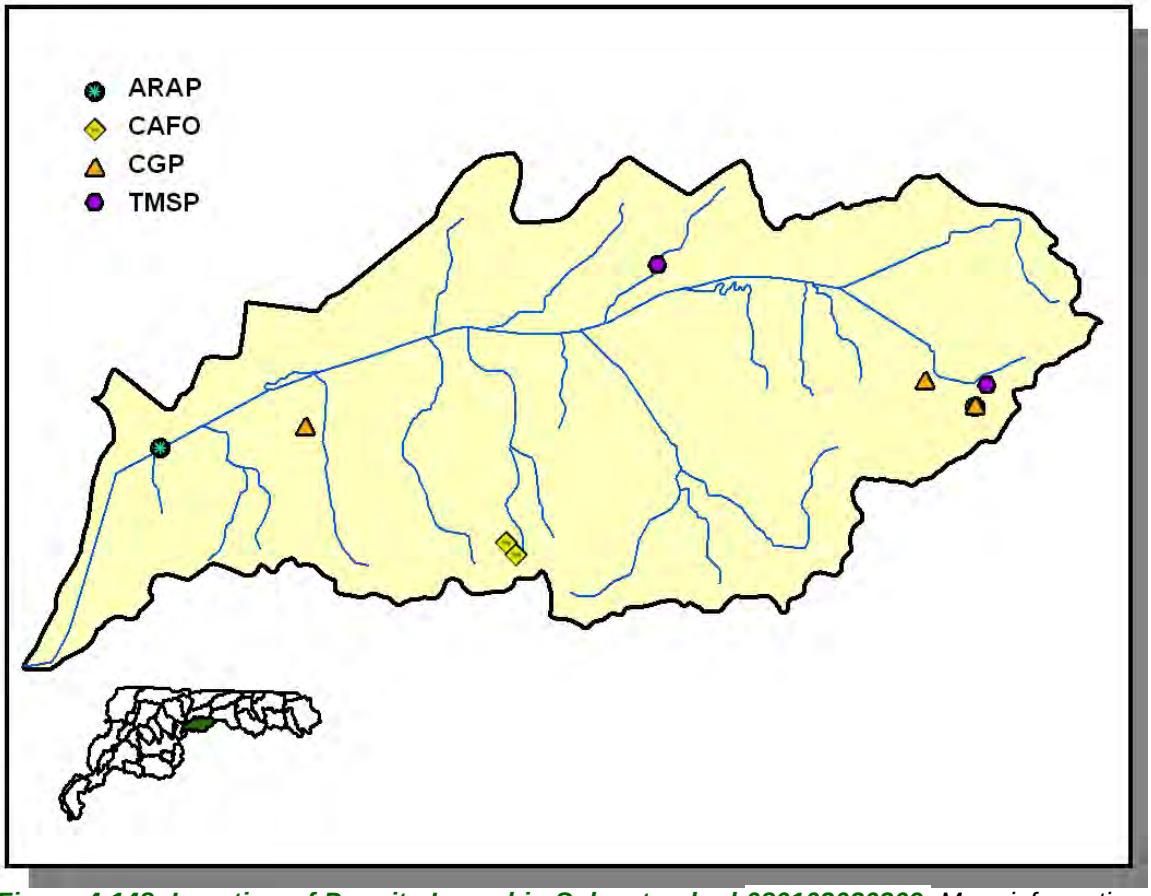


Figure 4-148. Location of Permits Issued in Subwatershed 080102020209. *More information, including the names of facilities, is provided in Appendix IV.*

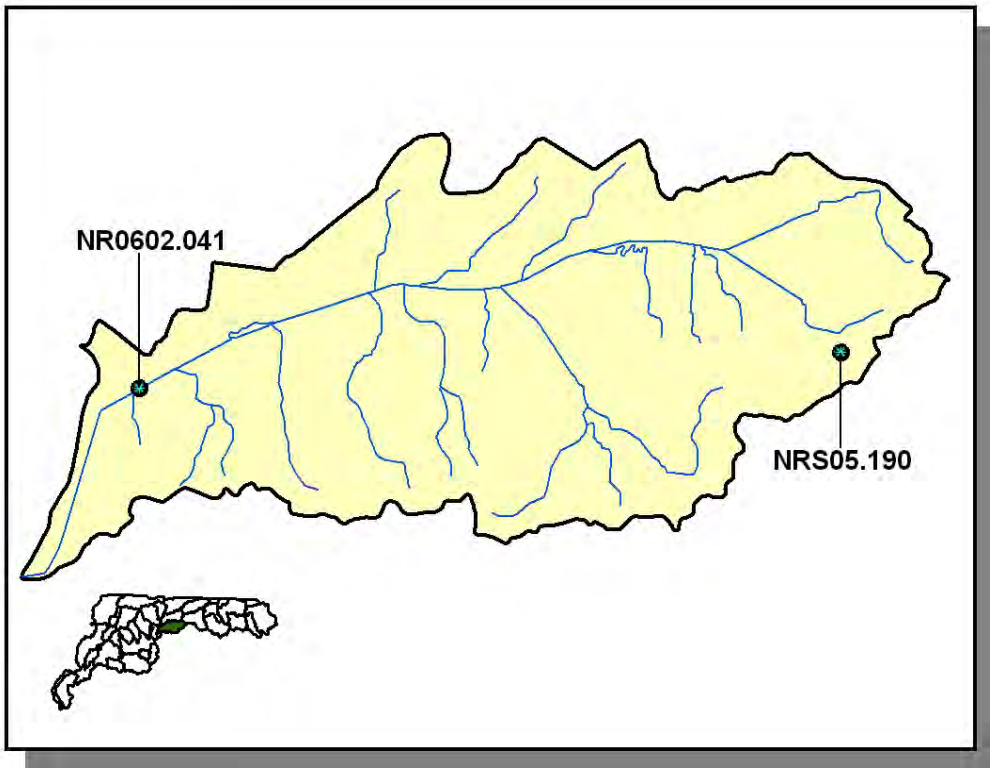


Figure 4-149. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020209. *More information is provided in Appendix IV.*

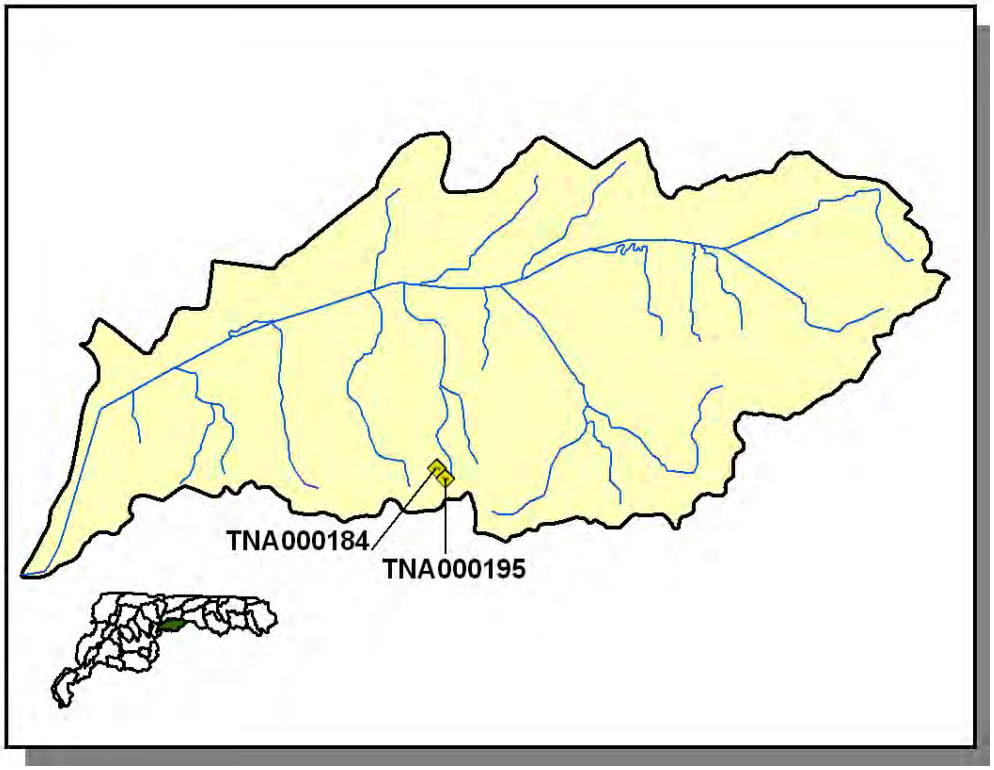


Figure 4-150. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102020209. *More information, including the names of facilities, is provided in Appendix IV.*

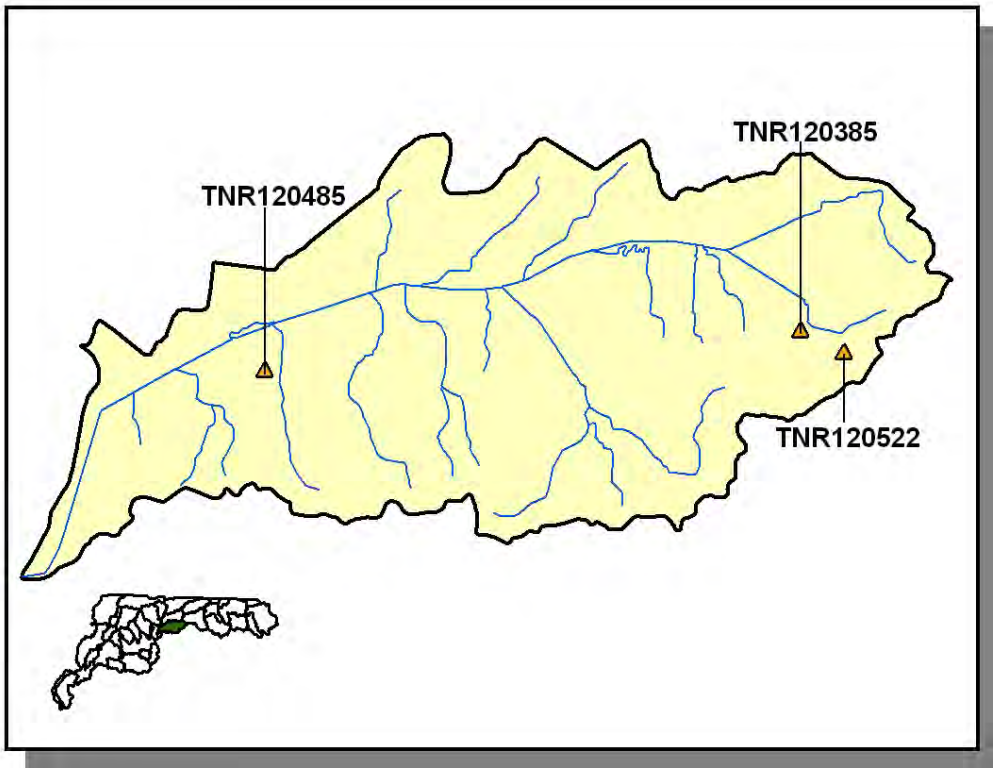


Figure 4-151. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020209. *More information is provided in Appendix IV.*

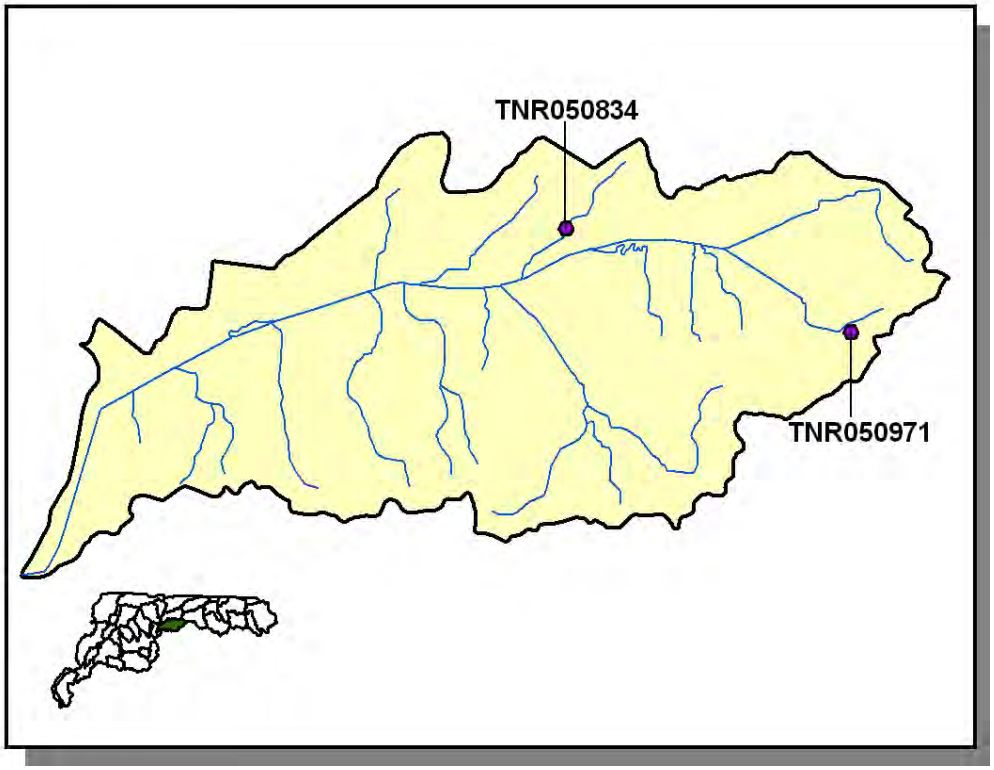


Figure 4-152. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020209. *More information is provided in Appendix IV.*

4.2.P.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-95. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8
Weakley	96.1	95.9	6.7	24.6

Table 4-96. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	9.90
Other Cropland not Planted	9.35
Soybeans (Row Crops)	7.84
Corn (Row Crops)	5.97
Cotton (Row Crops)	5.74
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.17
Grass Forbs Legumes Mixed (Pastureland	0.98
Legume (Pastureland)	0.77
Legume (Hayland)	0.49
Grass (Pastureland)	0.40
Grass (Hayland)	0.35
Farmsteads and Ranch Headquarters	0.30

Table 4-97. Annual Estimated Total Soil Loss in Subwatershed 080102020209.

4.2.Q. 080102020210 (North Fork Obion River).

4.2.Q.i. General Description.

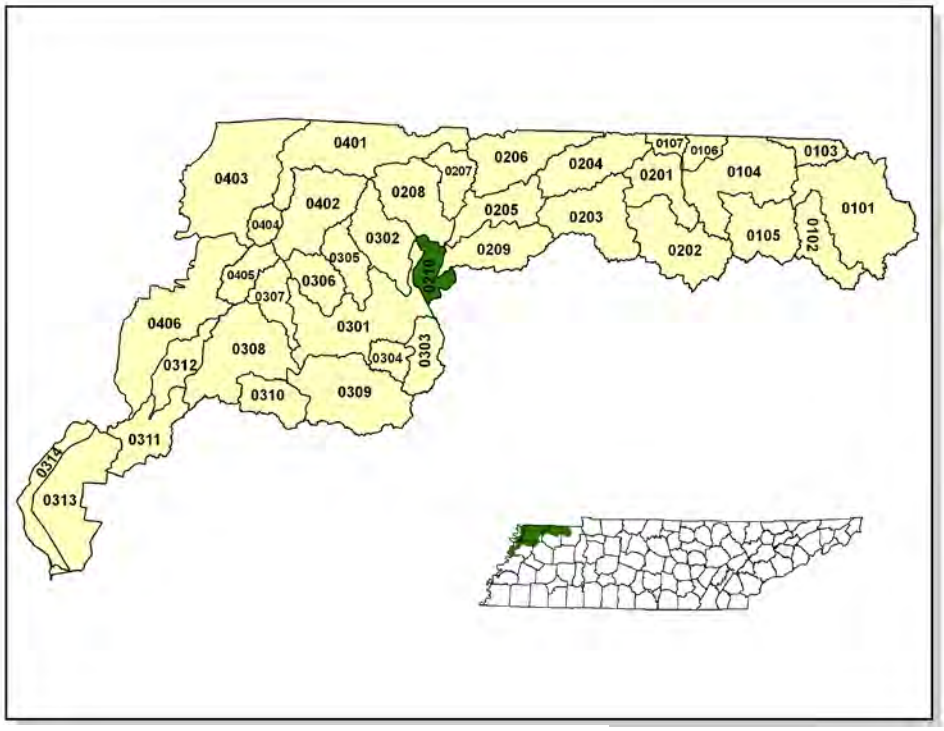


Figure 4-153. Location of Subwatershed 080102020210. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

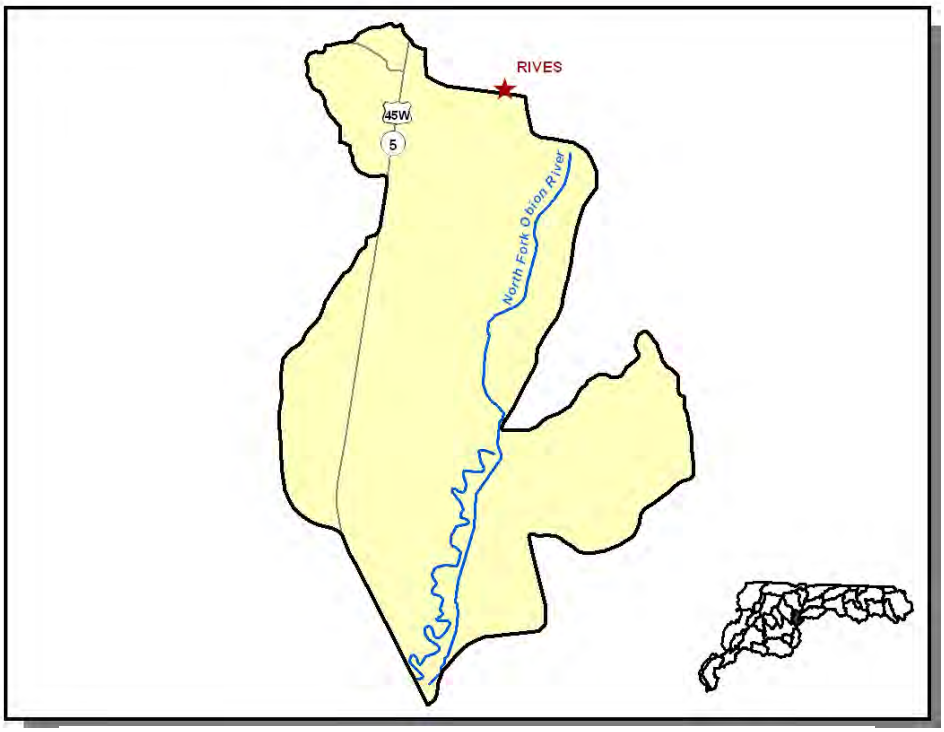


Figure 4-154. Locational Details of Subwatershed 080102020210.

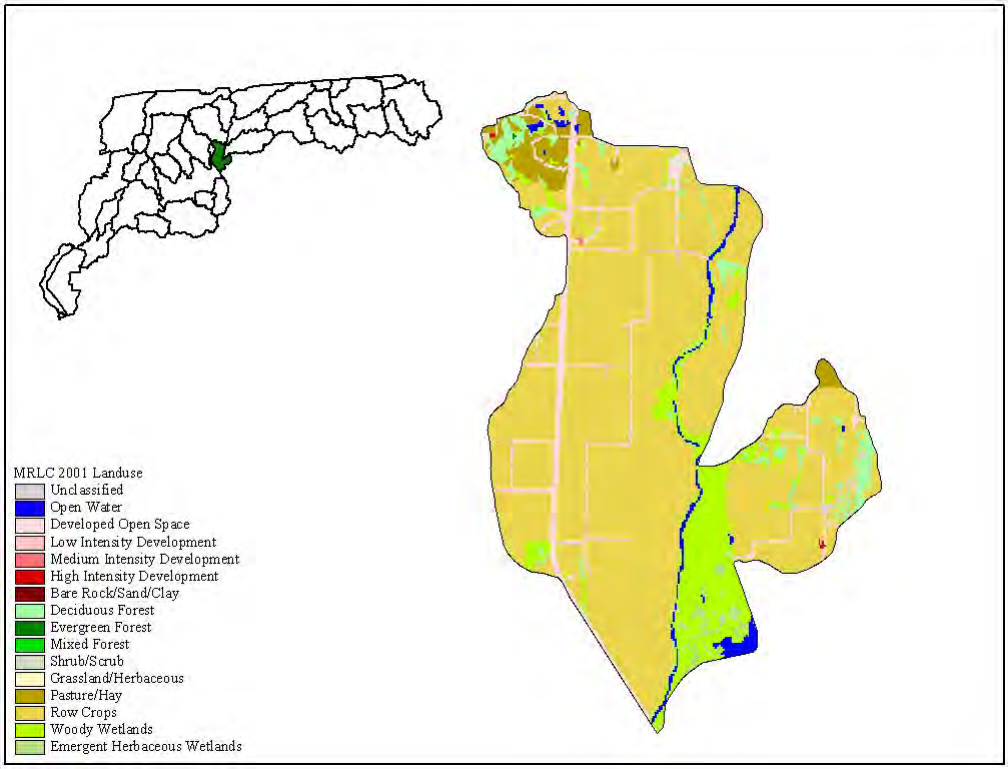


Figure 4-155. Illustration of Land Use Distribution in Subwatershed 080102020210.

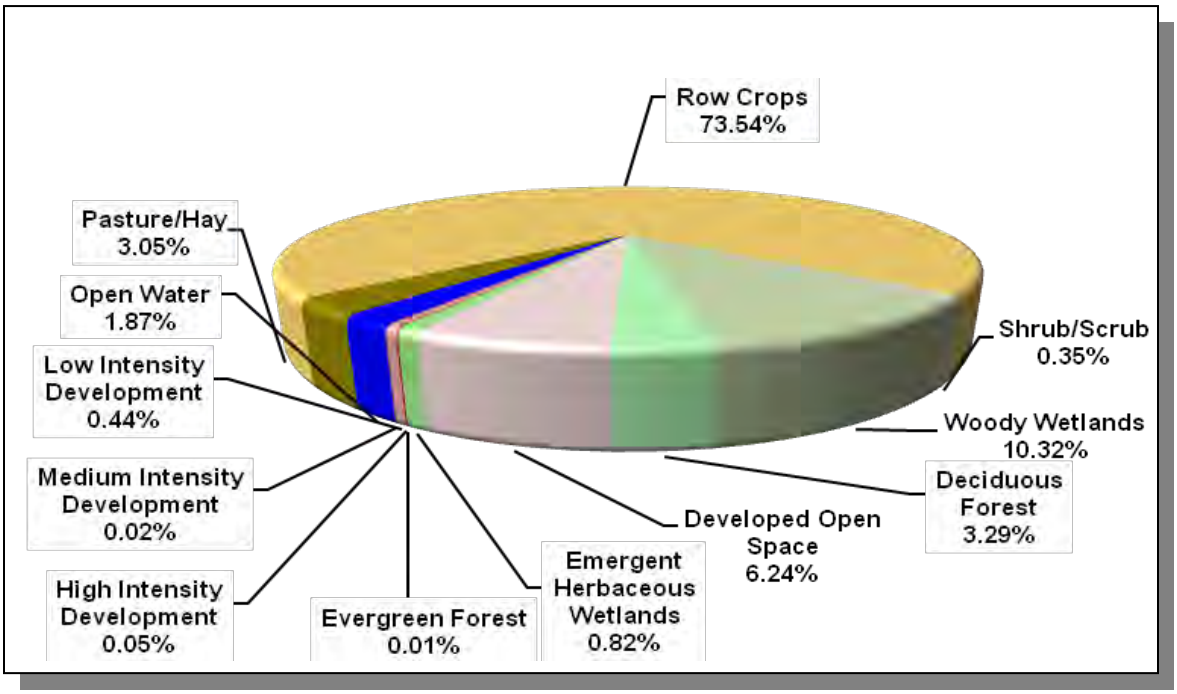


Figure 4-156. Land Use Distribution in Subwatershed 080102020210.

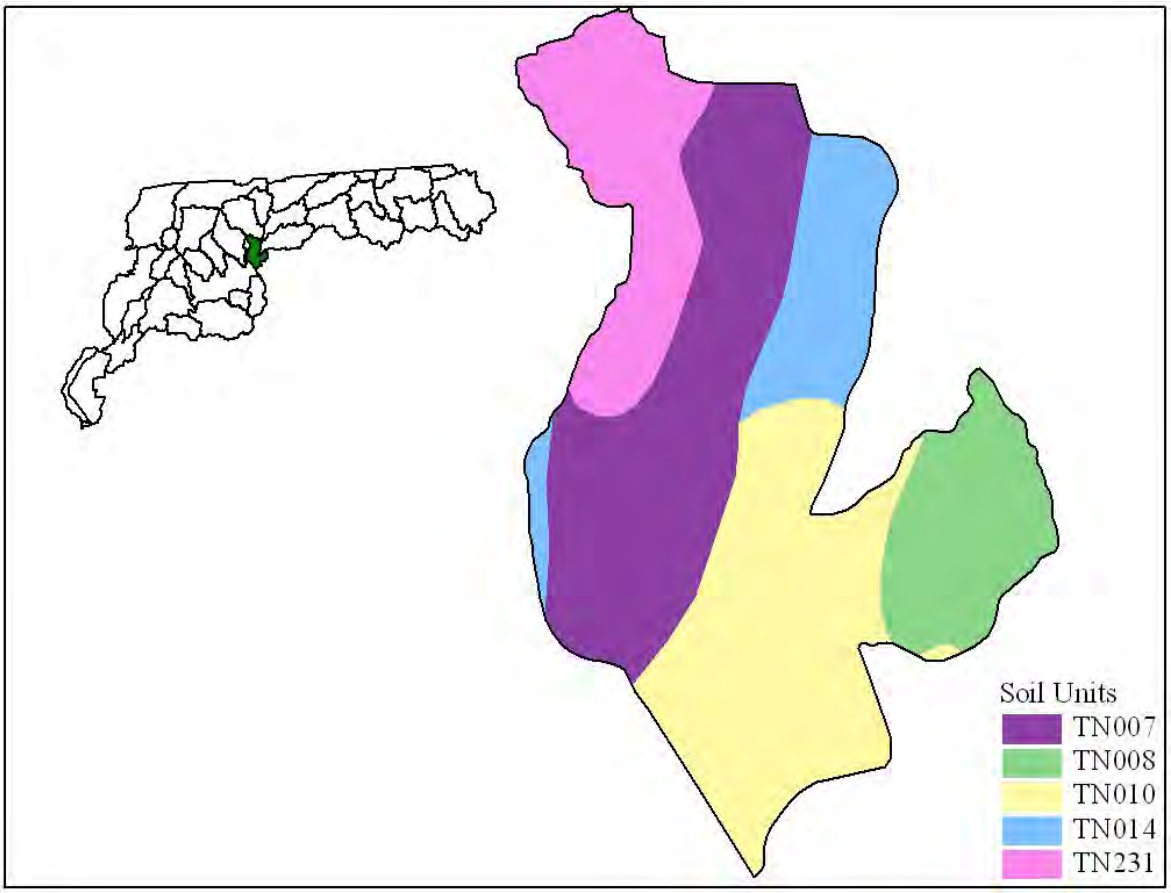


Figure 4-157. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020210.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN014	30.00	C	1.30	5.12	Silty Loam	0.47
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-98. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020210. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	2.24	710	718	726	2.30

Table 4-99. Population Estimates in Subwatershed 080102020210.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Rives	Obion	357	154	139	12	3

Table 4-100. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020210.

4.2.Q.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020210.

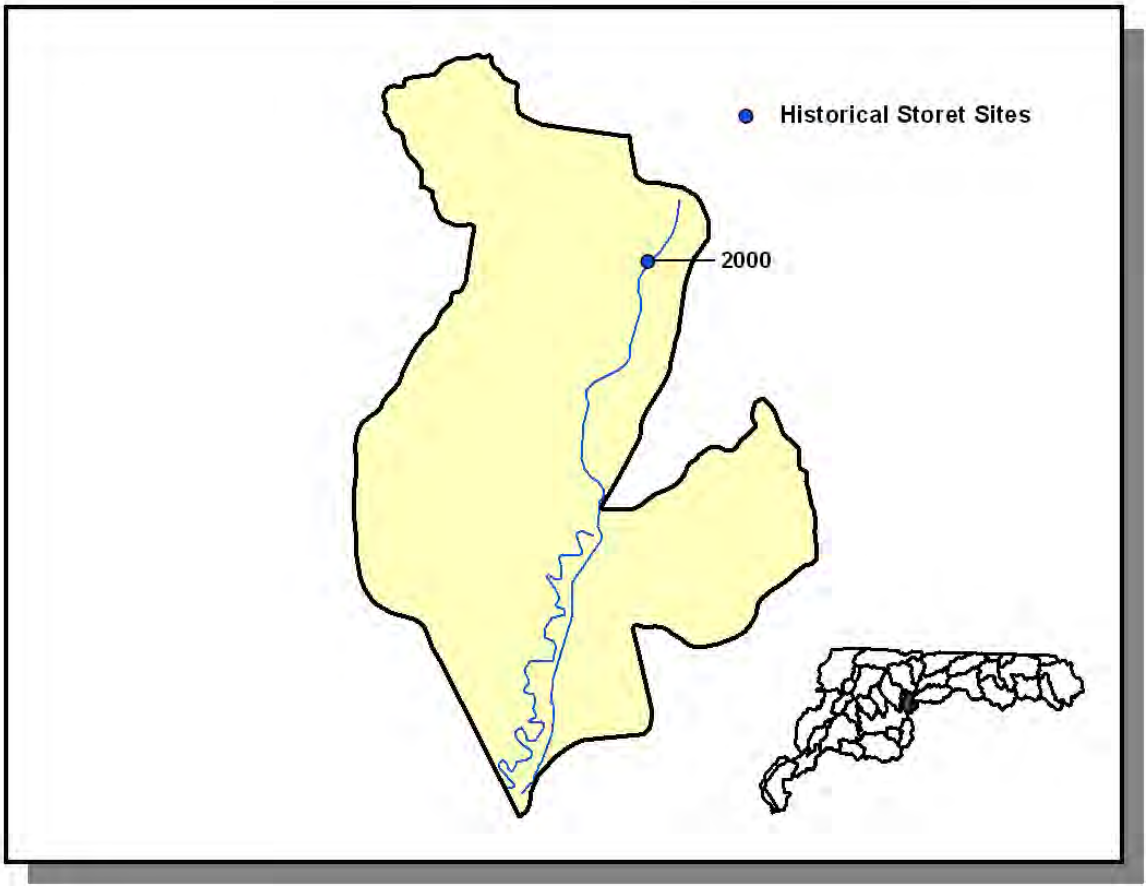


Figure 4-158. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020210. *More information, including site names and locations, is provided in Appendix IV.*

4.2.Q.iii. Permitted Activities.

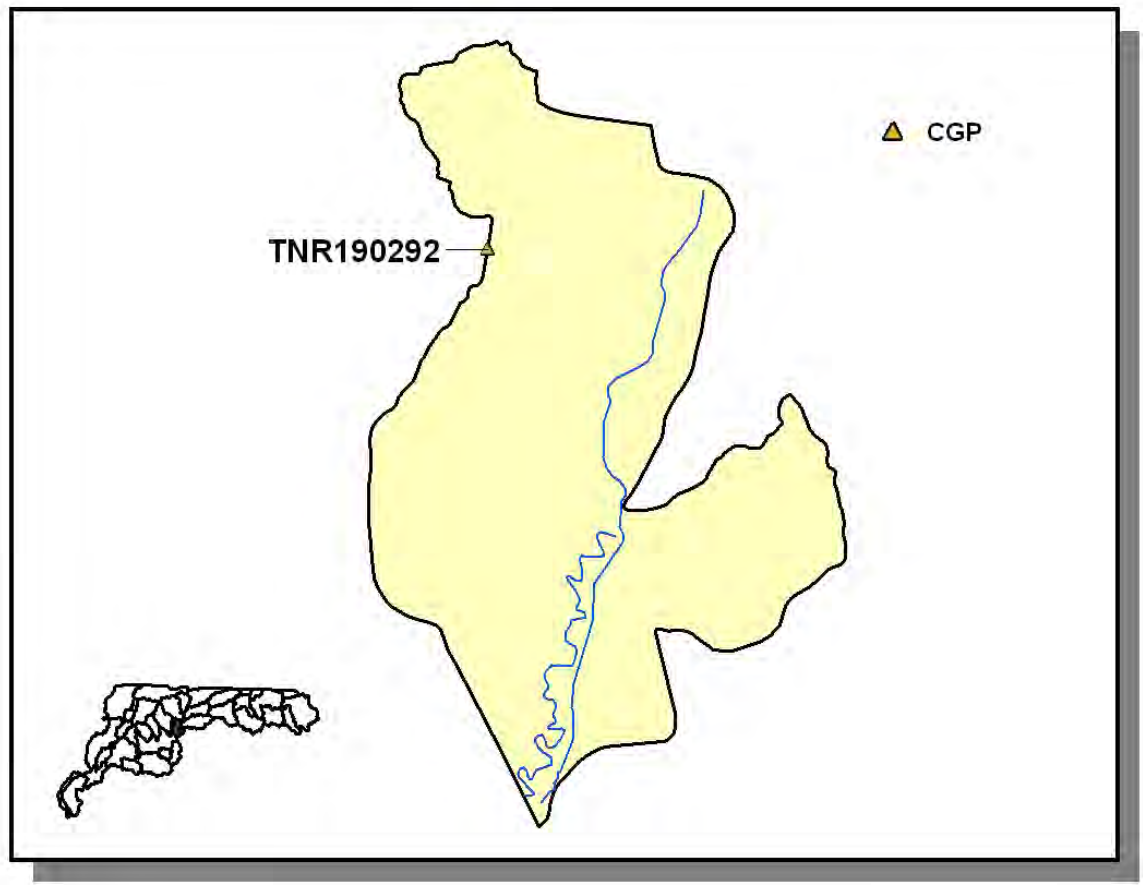


Figure 4-159. Location of Permits Issued in Subwatershed 080102020210. *CGP, Construction General Permit. More information, including the names of facilities, is provided in Appendix IV.*

4.2.Q.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-101. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-102. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-103. Annual Estimated Total Soil Loss in Subwatershed 080102020210.

4.2.R. 080102020301 (Obion River).

4.2.R.i. General Description.

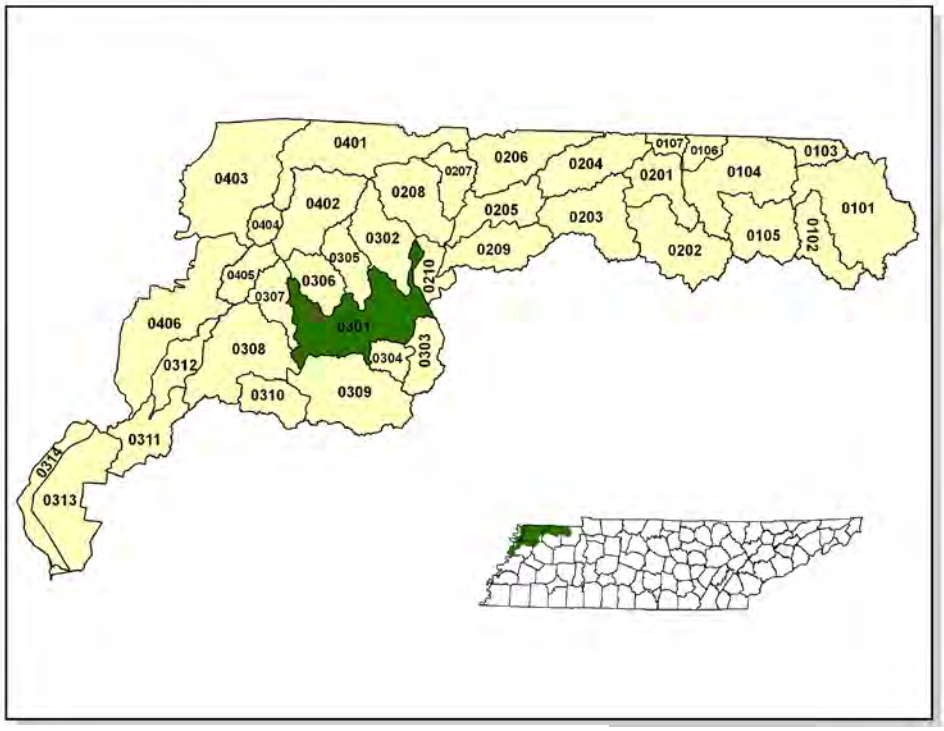


Figure 4-160. Location of Subwatershed 080102020301. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

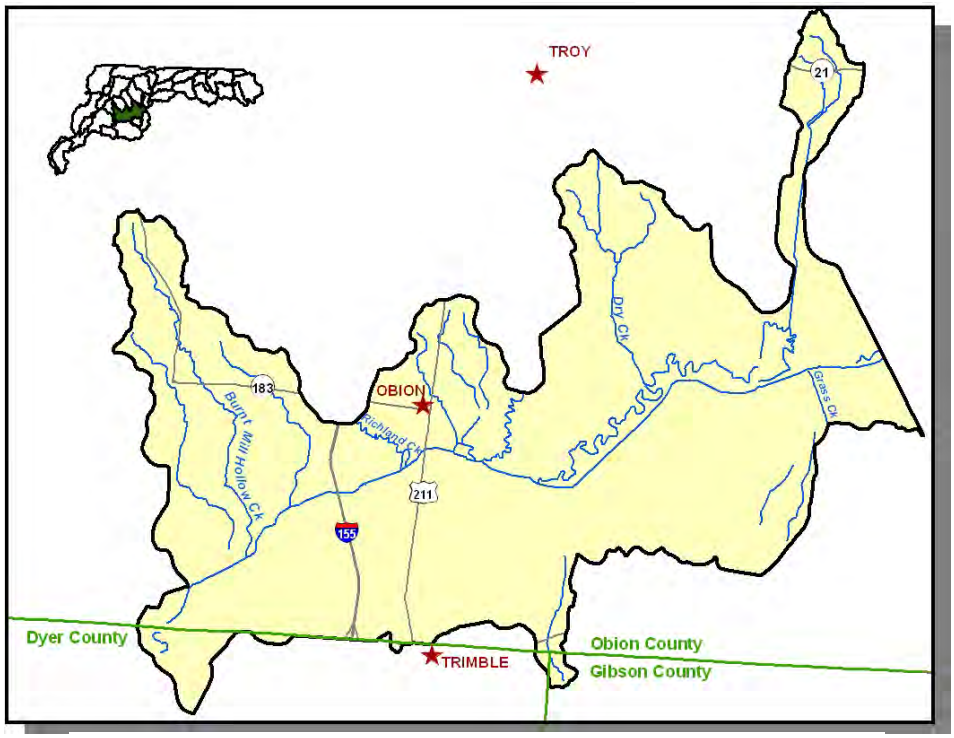


Figure 4-161. Locational Details of Subwatershed 080102020301.

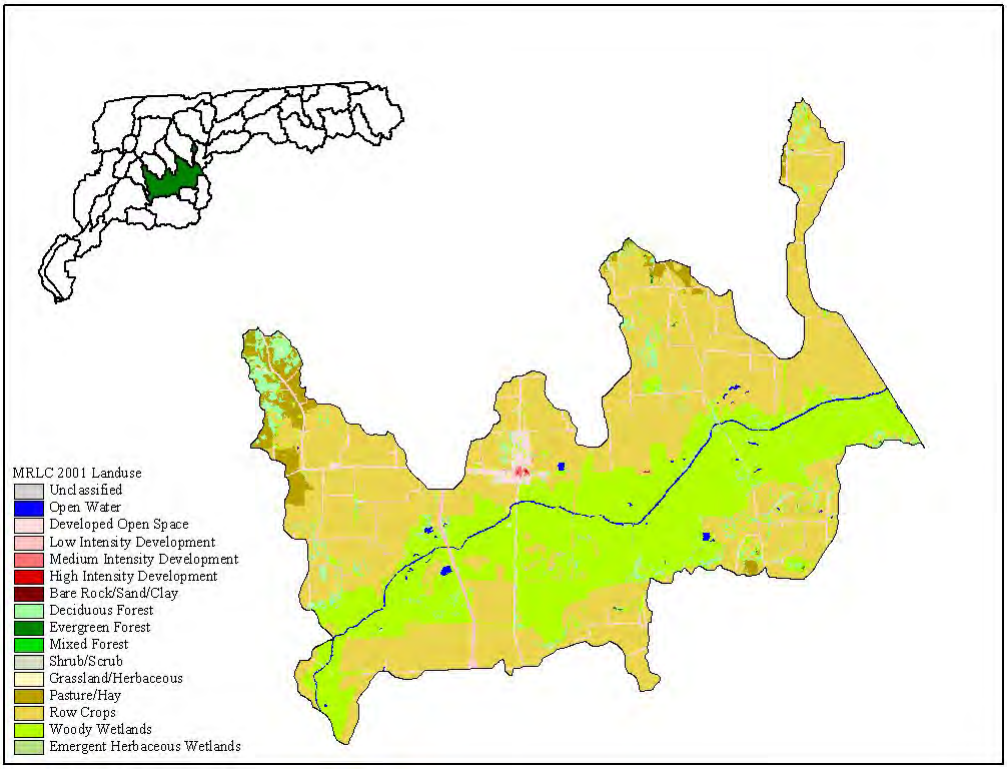


Figure 4-162. Illustration of Land Use Distribution in Subwatershed 080102020301.

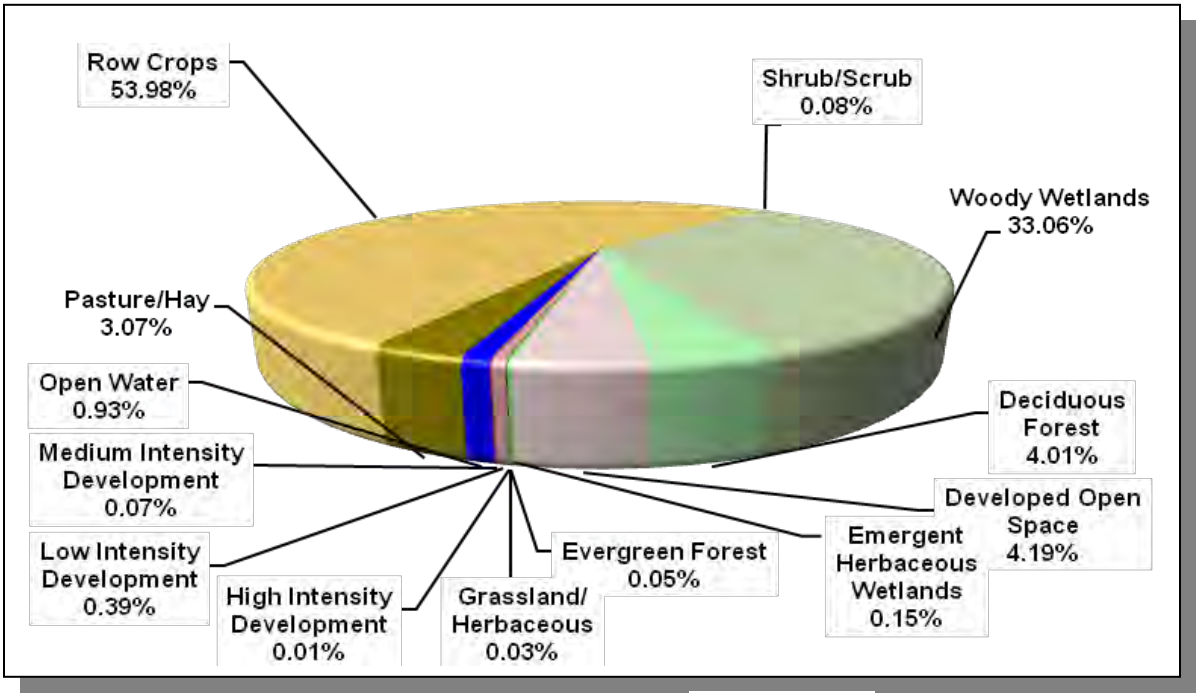


Figure 4-163. Land Use Distribution in Subwatershed 080102020301. *More information is provided in Appendix IV.*

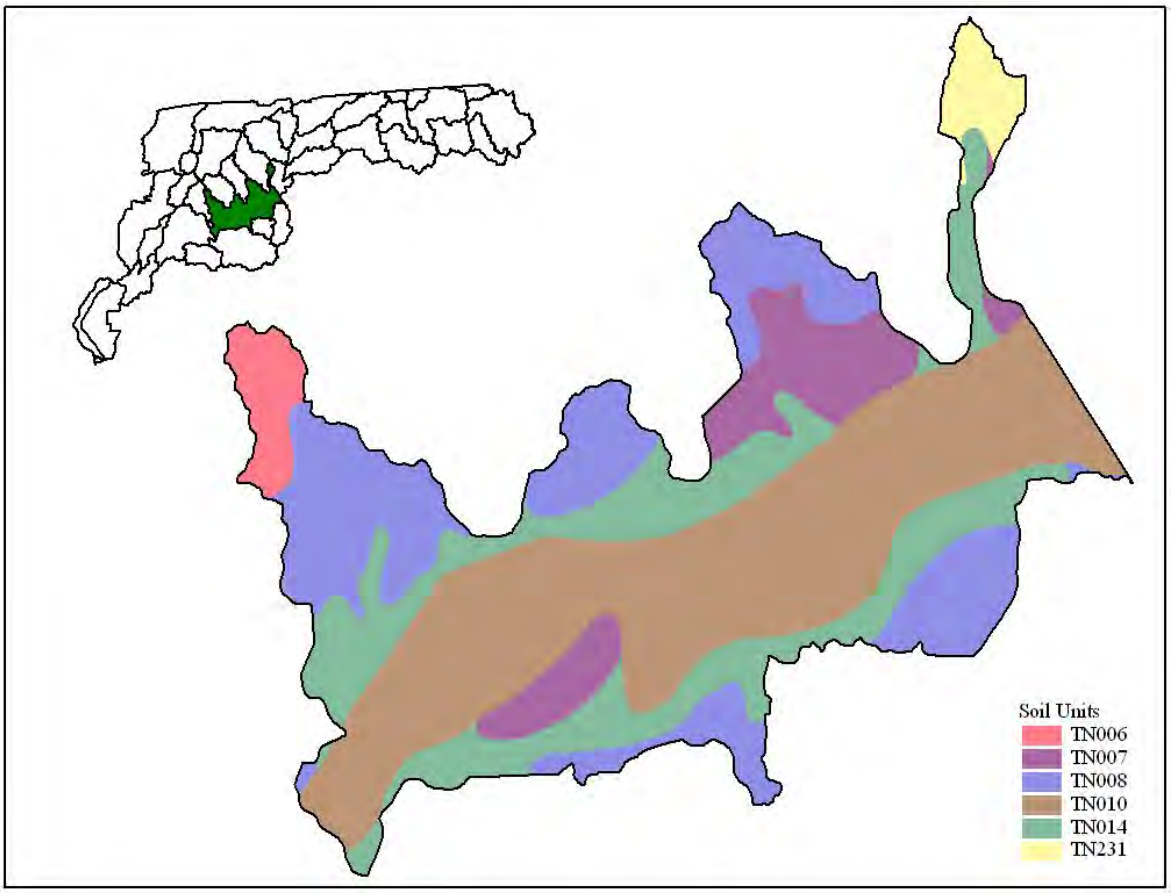


Figure 4-164. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020301.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN014	30.00	C	1.30	5.12	Silty Loam	0.47
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-104. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020301. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Dyer	34,854	36,465	37,279	0.28	98	103	105	7.10
Gibson	46,315	48,083	48,152	0.03	16	17	17	6.30
Obion	31,717	32,069	32,450	10.32	3,272	3,308	3,348	2.30
Totals	**112,886**	**116,617**	**117,881**		**3,386**	**3,428**	**3,470**	**2.50**

Table 4-105. Population Estimates in Subwatershed 080102020301.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Obion	Obion	1,241	536	534	2	0
Trimble	Obion	695	306	295	11	0
Total		**1,936**	**842**	**829**	**13**	**0**

Table 4-106. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020301.

4.2.R.ii. USGS Gaging Stations and STORET Sites.

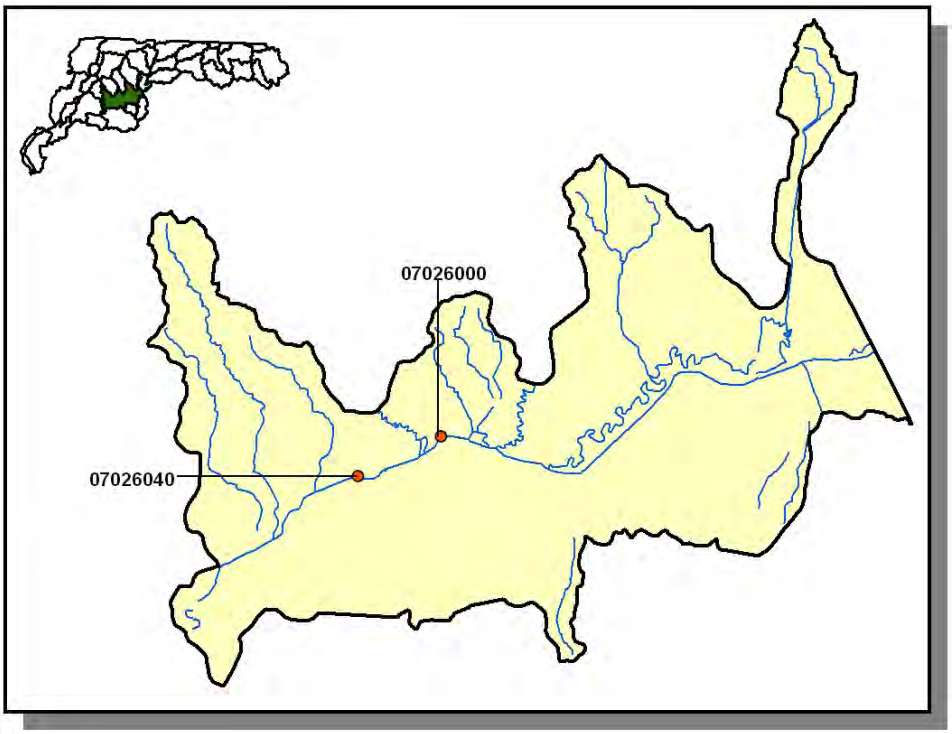


Figure 4-165. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102020301. *More information is provided in Appendix IV.*

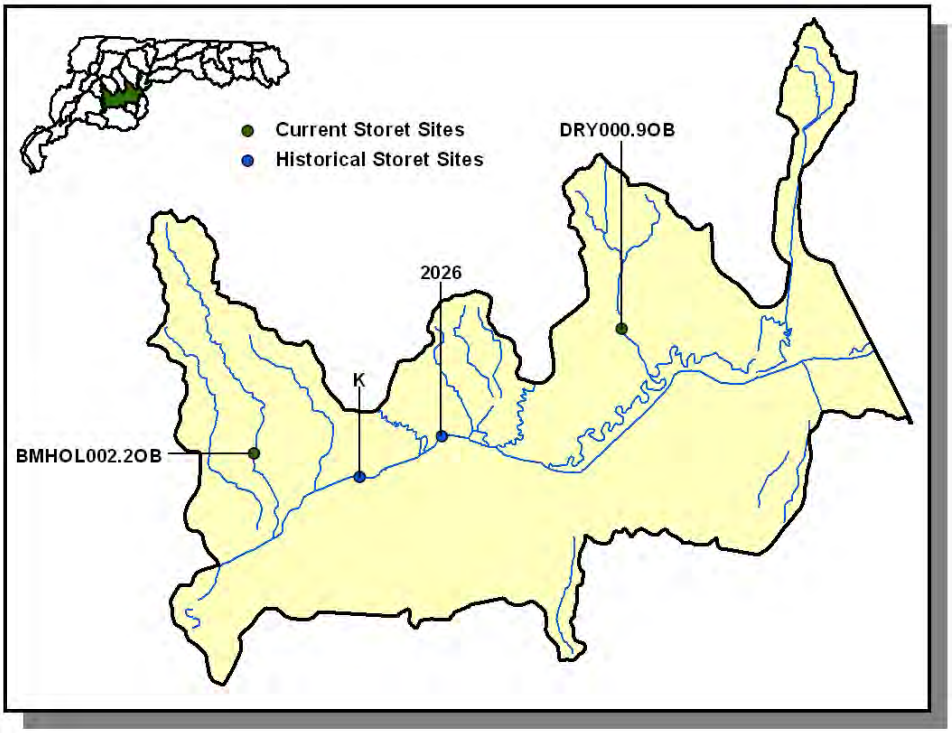


Figure 4-166. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020301. *More information, including site names and locations, is provided in Appendix IV.*

4.2.R.iii. Permitted Activities.

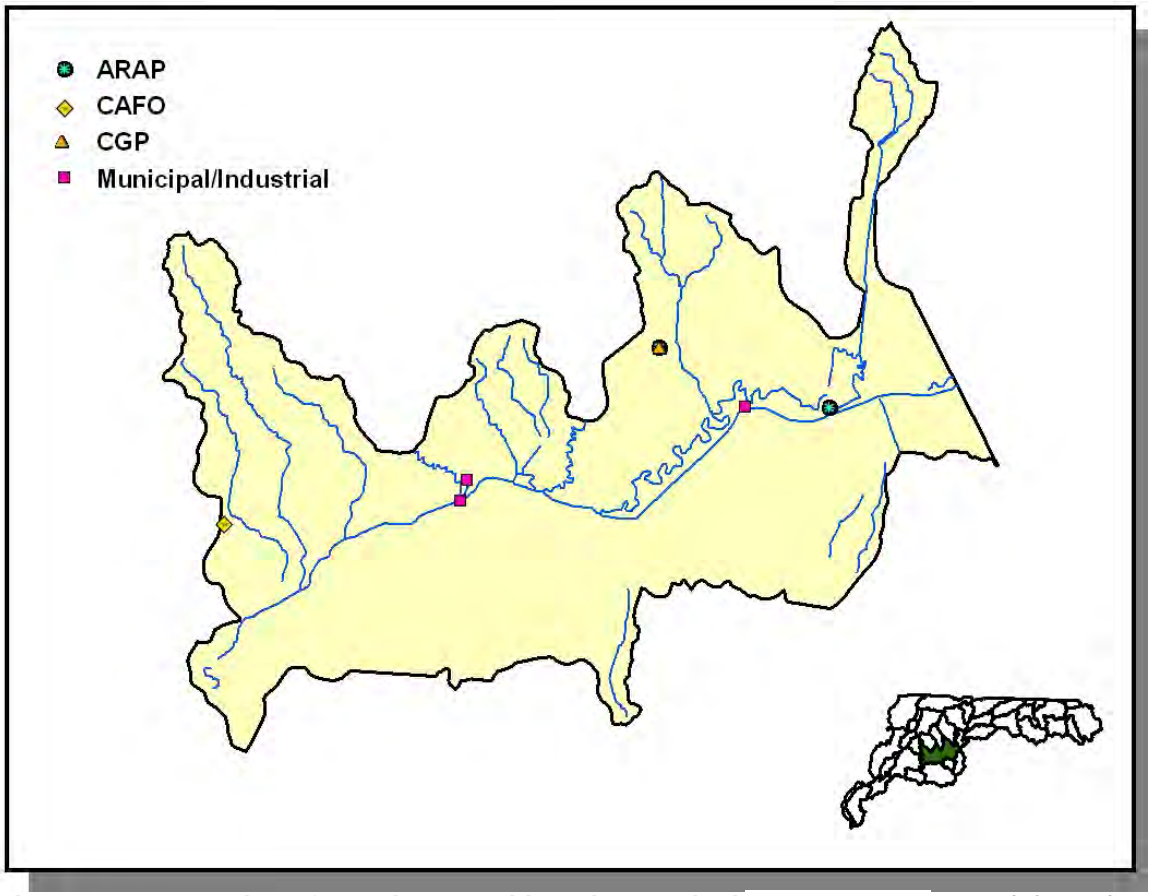


Figure 4-167. Location of Permits Issued in Subwatershed 080102020301. *More information, including the names of facilities, is provided in Appendix IV.*

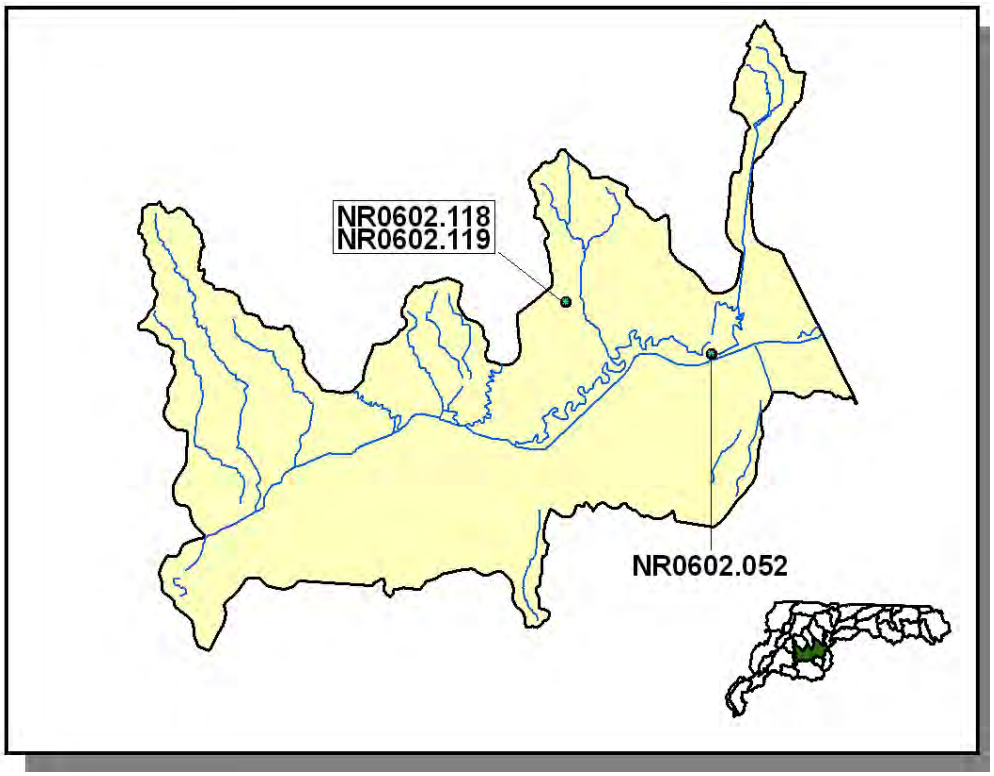


Figure 4-168. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020301. *More information is provided in Appendix IV.*

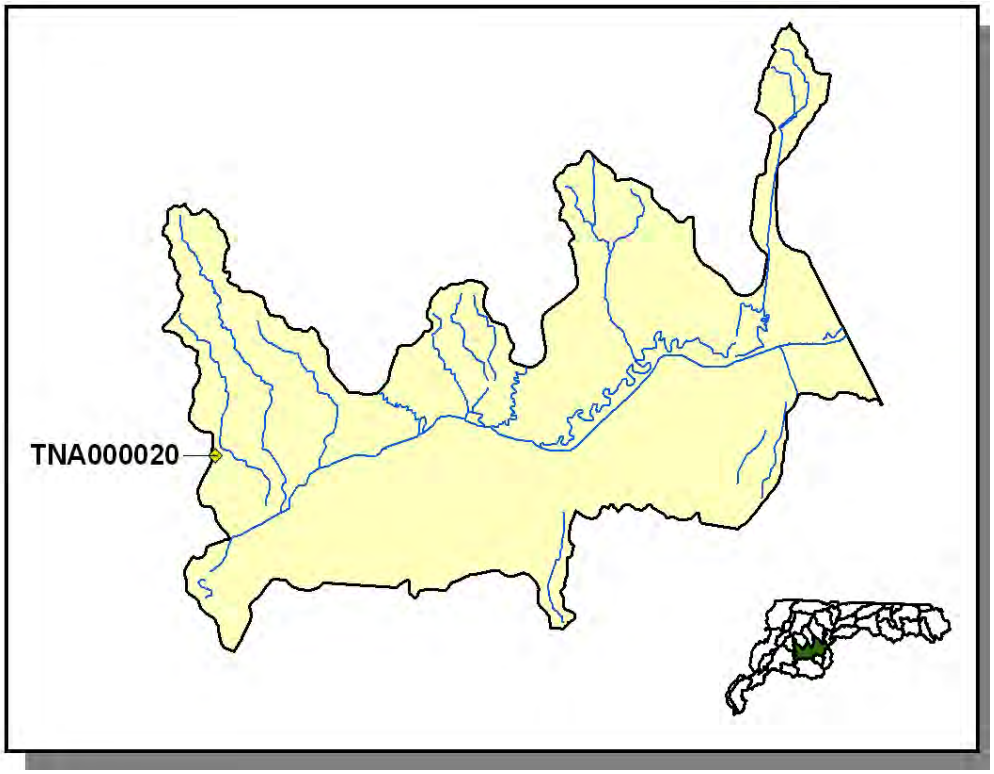


Figure 4-169. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102020301. *More information, including the names of facilities, is provided in Appendix IV.*

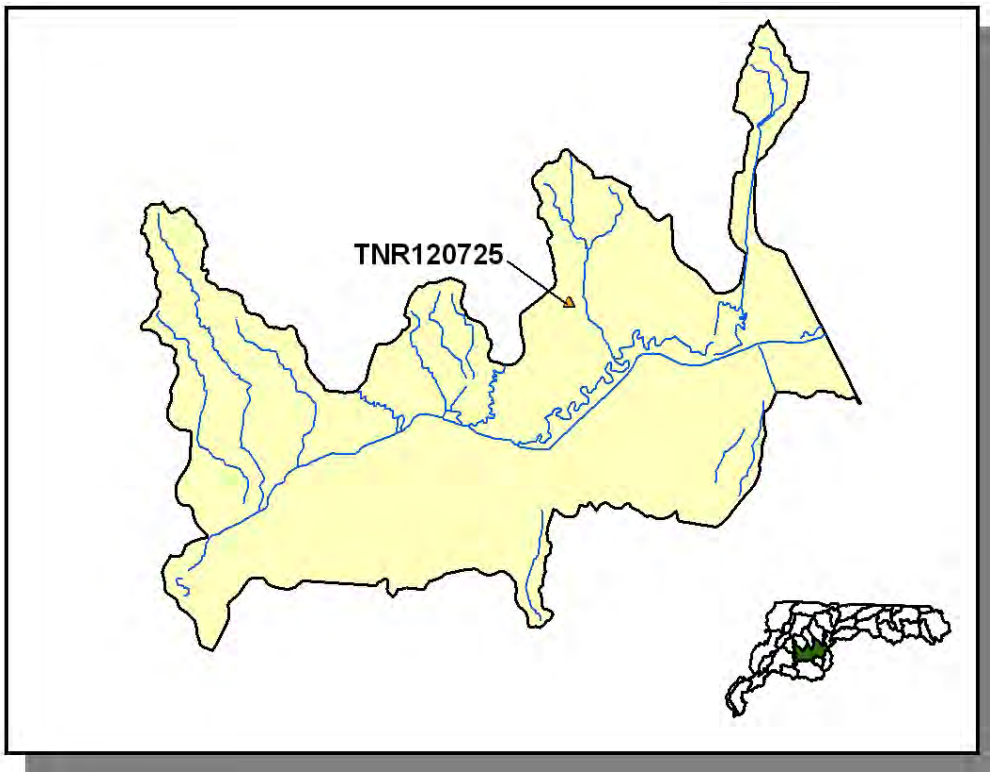


Figure 4-170. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020301. *More information is provided in Appendix IV.*

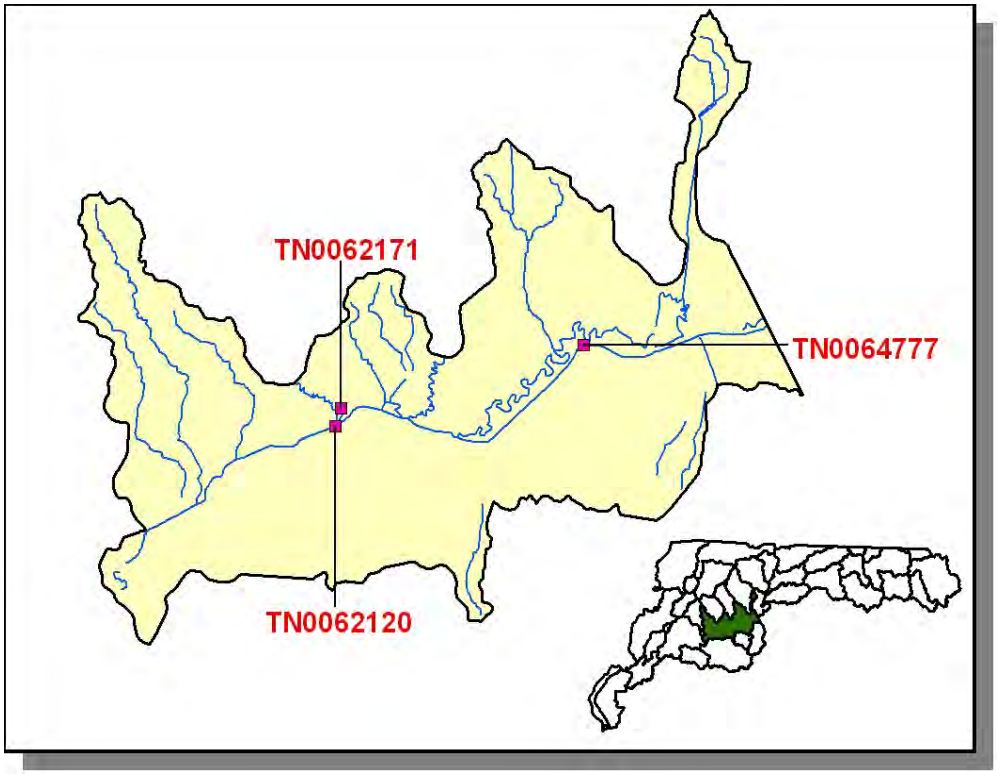


Figure 4-171. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102020301. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0062120	230.0	0.2
TN0062171	178.0	0.199
TN0064777	178.0	0.2

Table 4-107. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020301. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	BOD_5	BOD % REMOVAL	DO	SS	TSS	pH	E. *coli*	FLOW	TRC
TN0062120	X	X	X	X	X	X		X	X
TN0062171	X	X	X	X	X	X	X	X	X
TN0064777	X	X	X	X	X	X	X	X	X

Table 4-108. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020301. *BOD_5, Biochemical Oxygen Demand (5-day); DO, Dissolved Oxygen; SS, Settleable Solids; TSS, Total Suspended Solids; TRC, Total Residual Chlorine.*

4.2.R.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Dyer		10,982		12	1,311	
Gibson	9,766	21,779	221	605	7,506	74
Obion	8,033	18,503	118	7	21,149	205

Table 4-109. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Dyer	40.4	40.4	0.8	2.8

Table 4-110. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	13.87
Wheat (Close Grown Cropland)	9.63
Soybeans (Row Crops)	7.99
Cotton (Row Crops)	5.77
Corn (Row Crops)	4.47
Oats (Close Grown Cropland)	3.34
Sorghum (Row Crops)	2.85
Conservation Reserve Program Land	1.88
Other Land in Farms	1.34
Grass Forbs Legumes Mixed (Pastureland)	0.84
Grass (Pastureland)	0.70
Grass (Hayland)	0.47
Farmsteads and Ranch Headquarters	0.19

Table 4-111. Annual Estimated Total Soil Loss in Subwatershed 080102020301.

4.2.S. 080102020302 (Davidson Creek).

4.2.S.i. General Description.

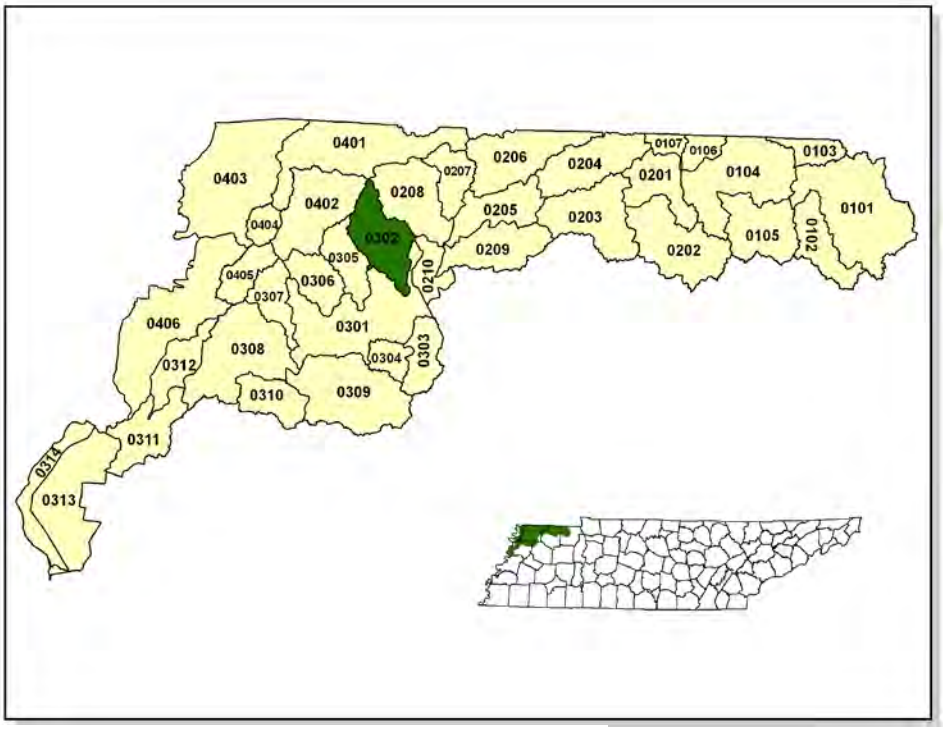


Figure 4-172. Location of Subwatershed 080102020302. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

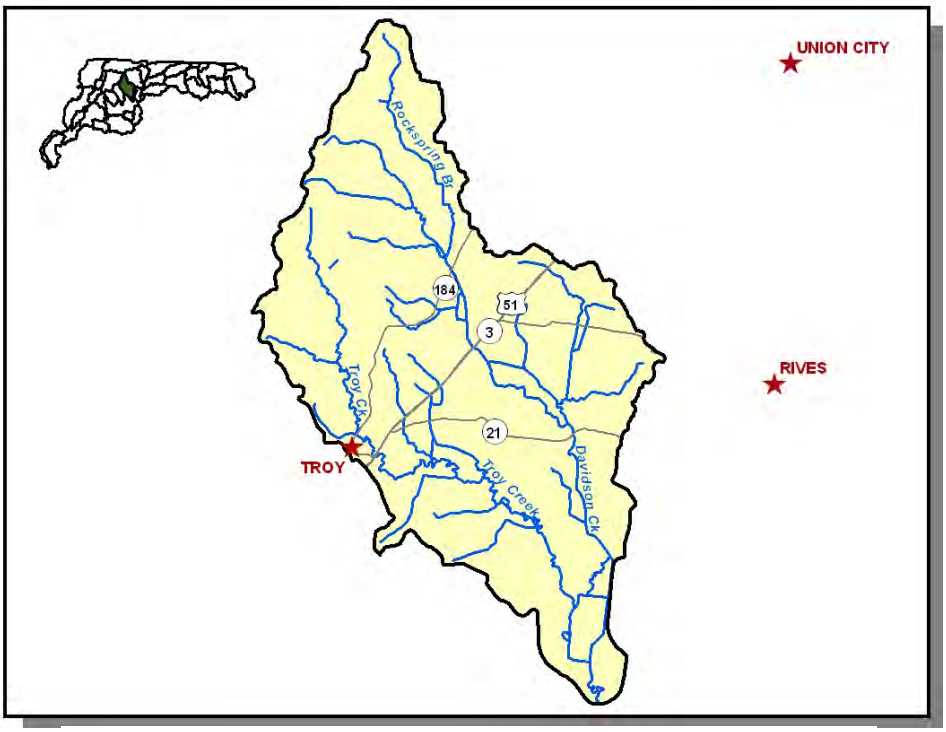


Figure 4-173. Locational Details of Subwatershed 080102020302.

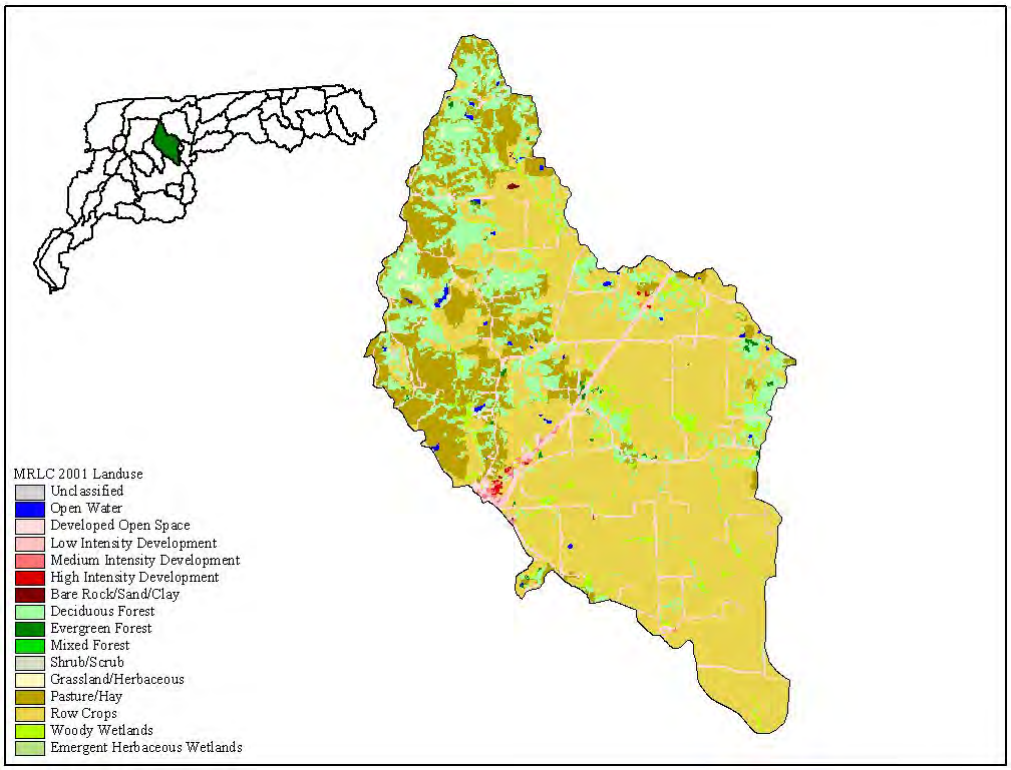


Figure 4-174. Illustration of Land Use Distribution in Subwatershed 080102020302.

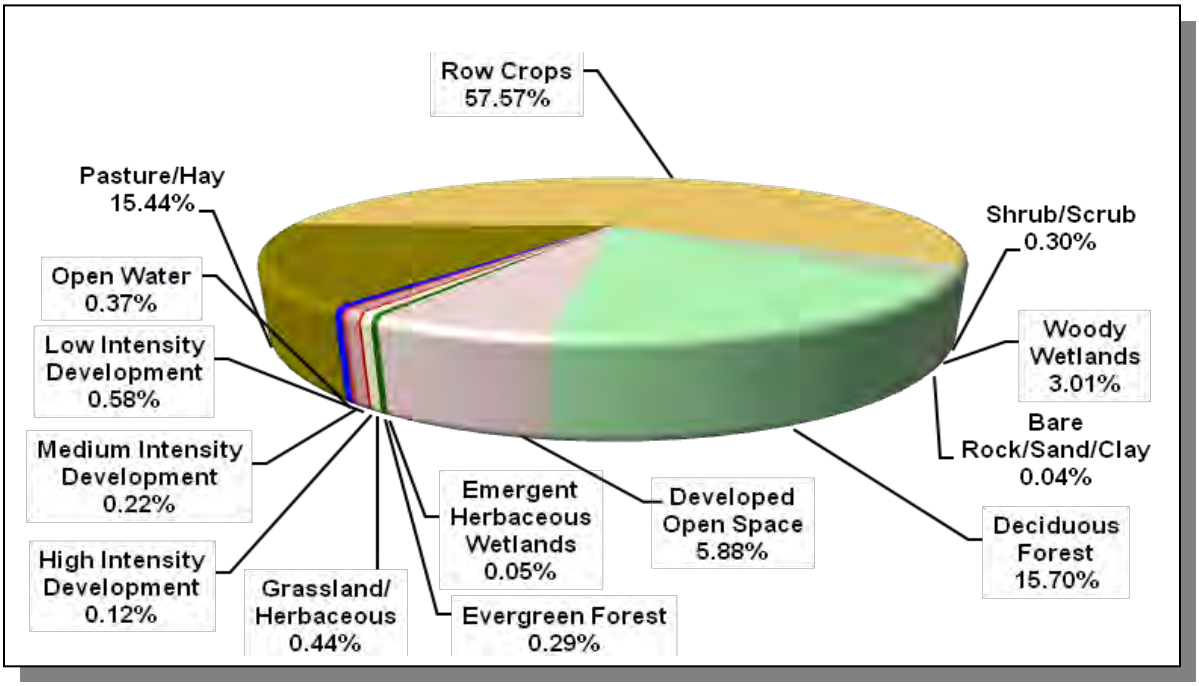


Figure 4-175. Land Use Distribution in Subwatershed 080102020302. *More information is provided in Appendix IV.*

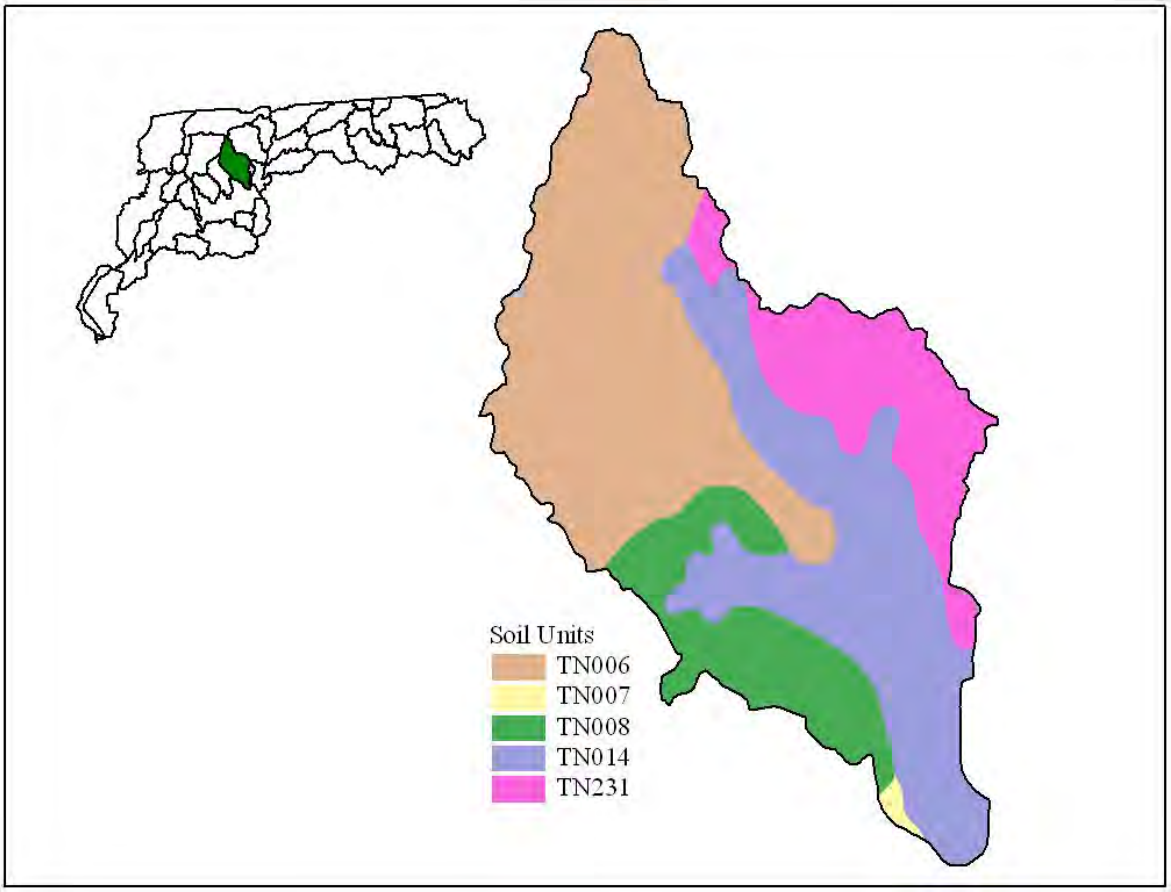


Figure 4-176. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020302.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN014	30.00	C	1.30	5.12	Silty Loam	0.47
TN231	8.00	C	1.30	5.21	Silty Loam	0.48

Table 4-112. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020302. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	5.36	1,699	1,717	1,738	2.30

Table 4-113. Population Estimates in Subwatershed 080102020302.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Troy	Obion	1,033	451	423	28	0

Table 4-114. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020302.

4.2.S.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020302.

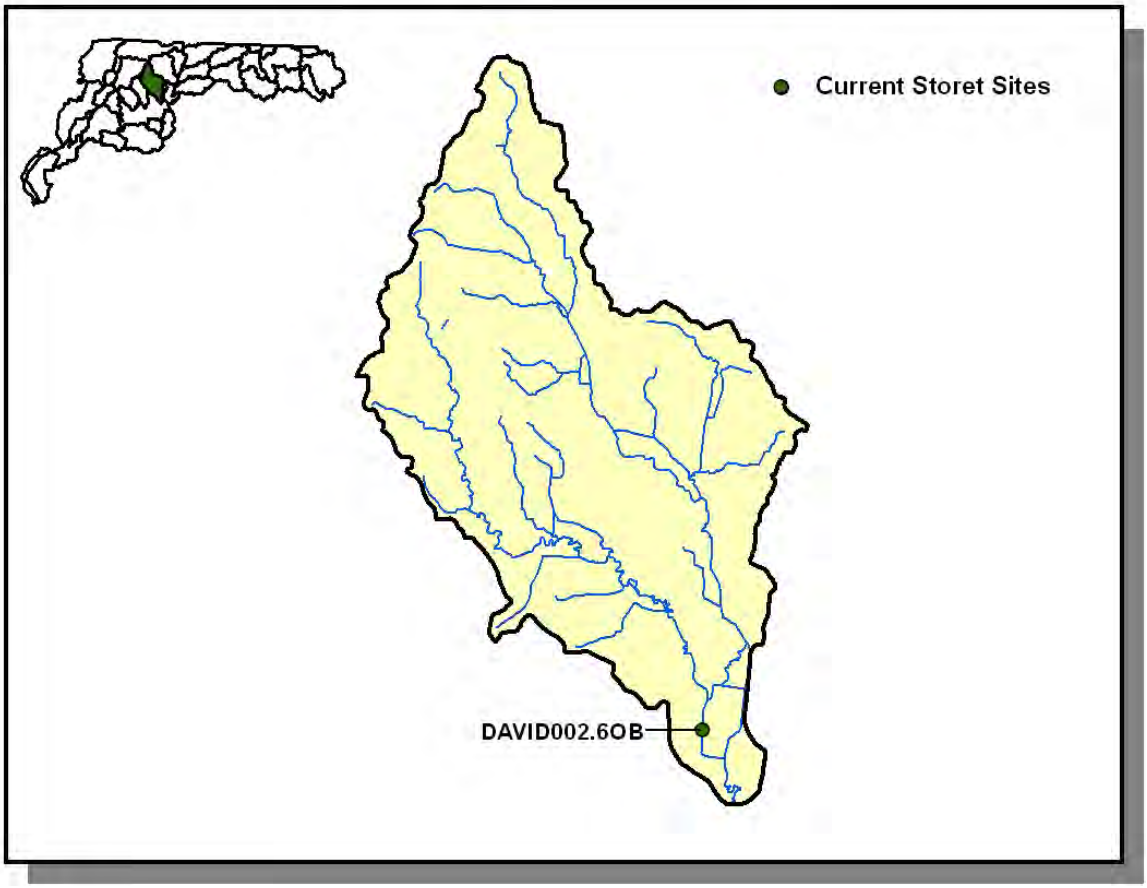


Figure 4-177. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020302. *More information, including site names and locations, is provided in Appendix IV.*

4.2.S.iii. Permitted Activities.

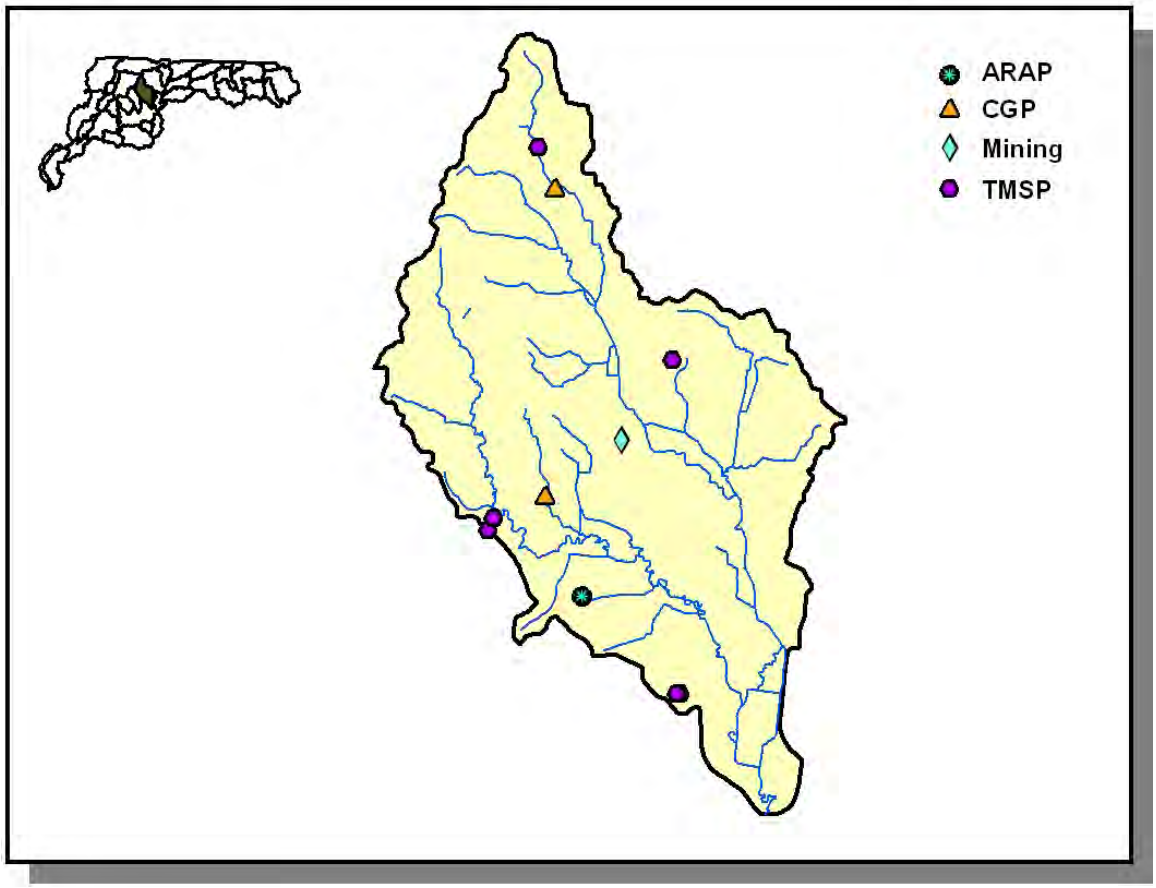


Figure 4-178. Location of Permits Issued in Subwatershed 080102020302. *More information, including the names of facilities, is provided in Appendix IV.*

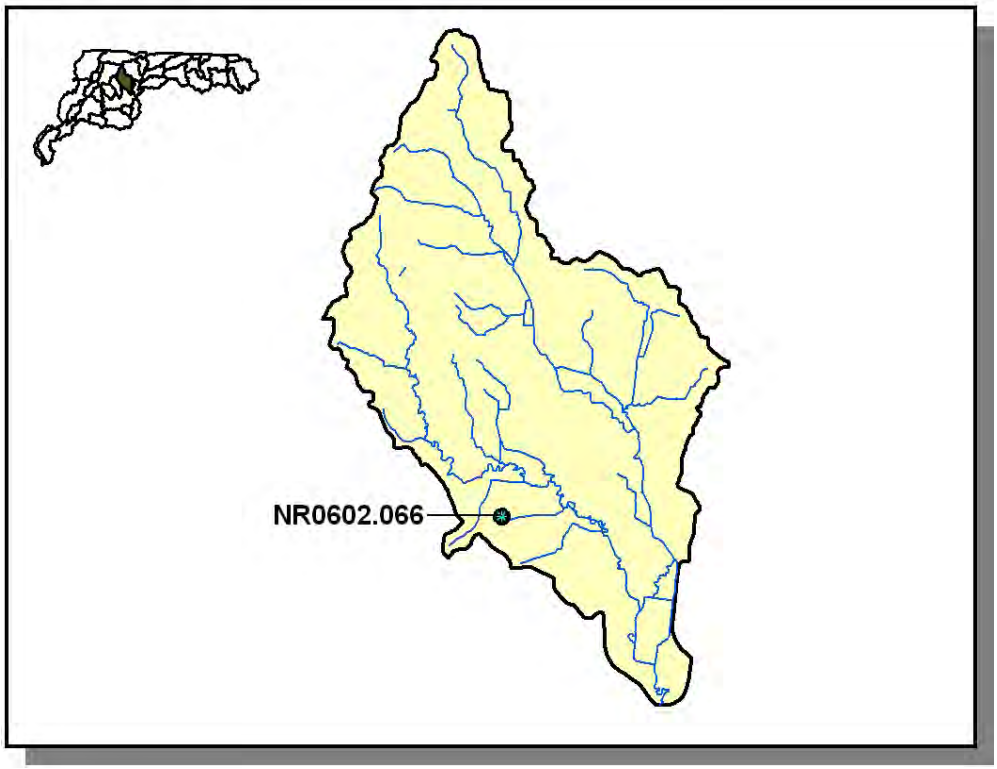


Figure 4-179. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020302. *More information is provided in Appendix IV.*

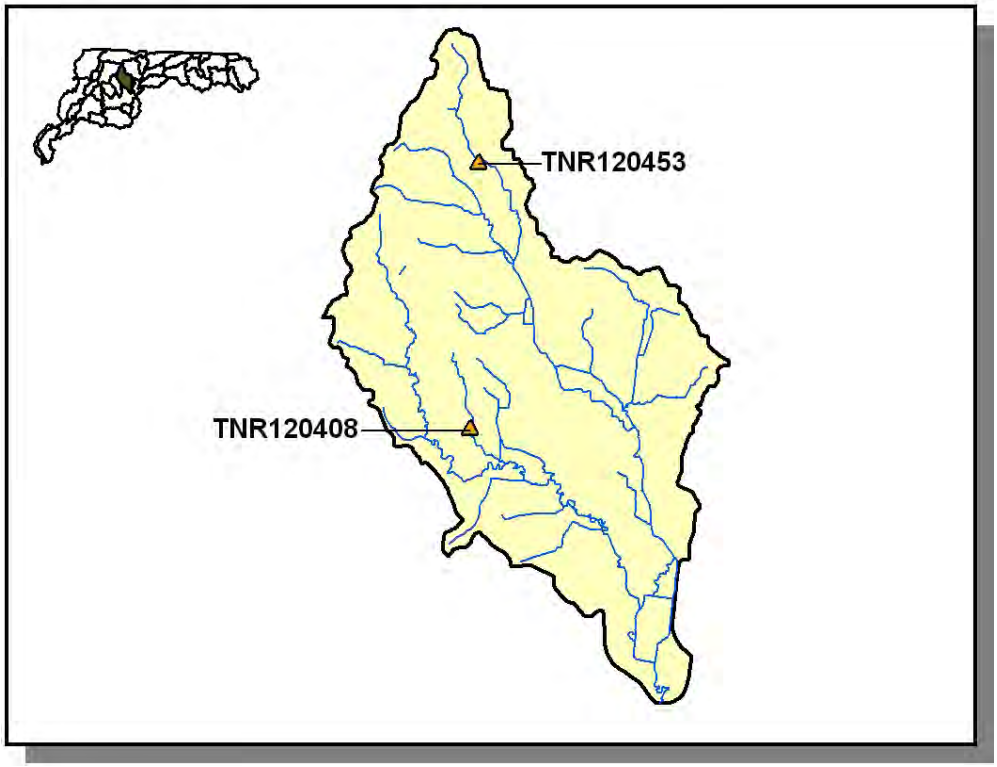


Figure 4-180. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020302. *More information is provided in Appendix IV.*

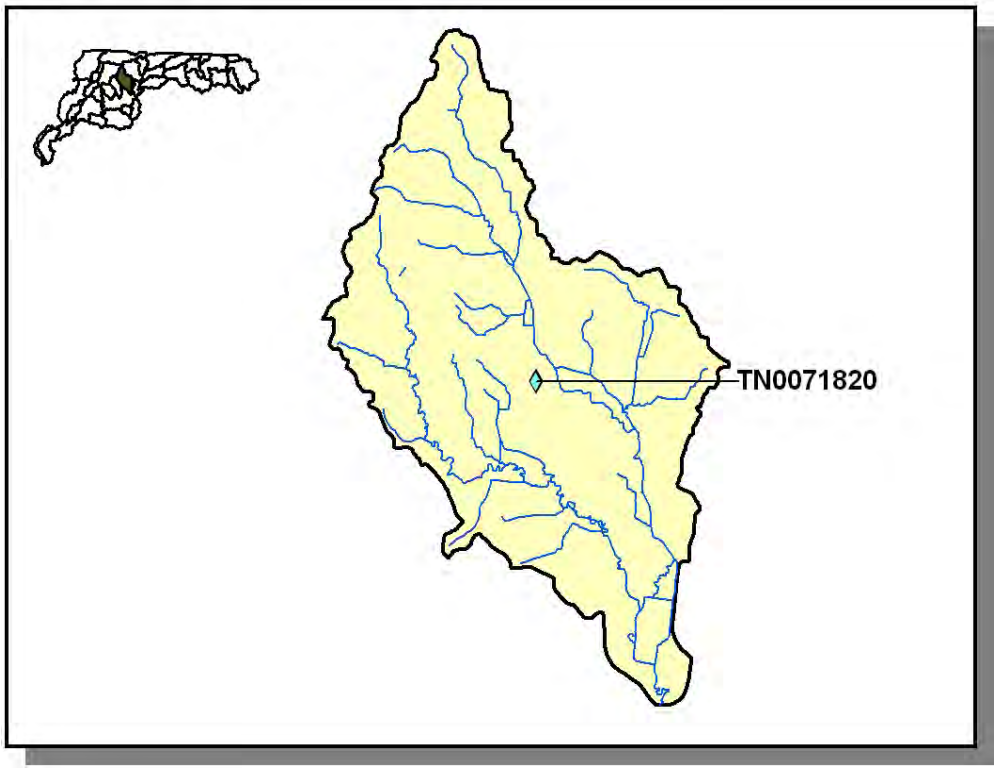


Figure 4-181. Location of Permitted Mining Facilities in Subwatershed 080102020302. *More information is provided in Appendix IV.*

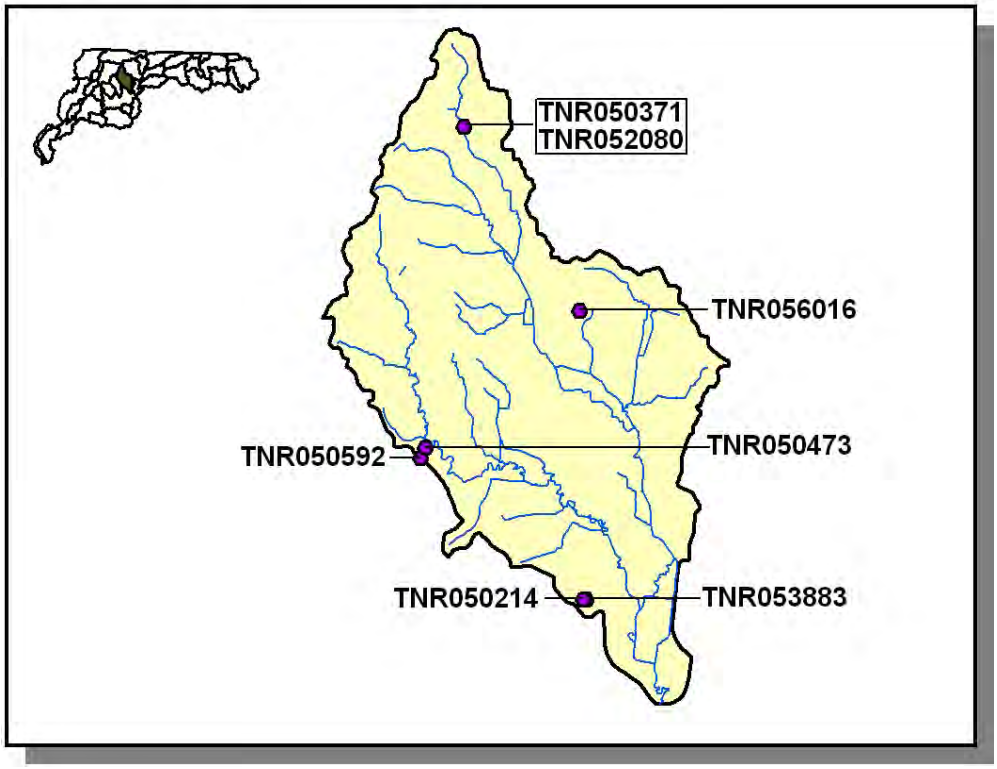


Figure 4-182. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020302. *More information is provided in Appendix IV.*

4.2.S.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-115. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-116. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-117. Annual Estimated Total Soil Loss in Subwatershed 080102020302.

4.2.T. 080102020303 (Grass Creek).

4.2.T.i. General Description.

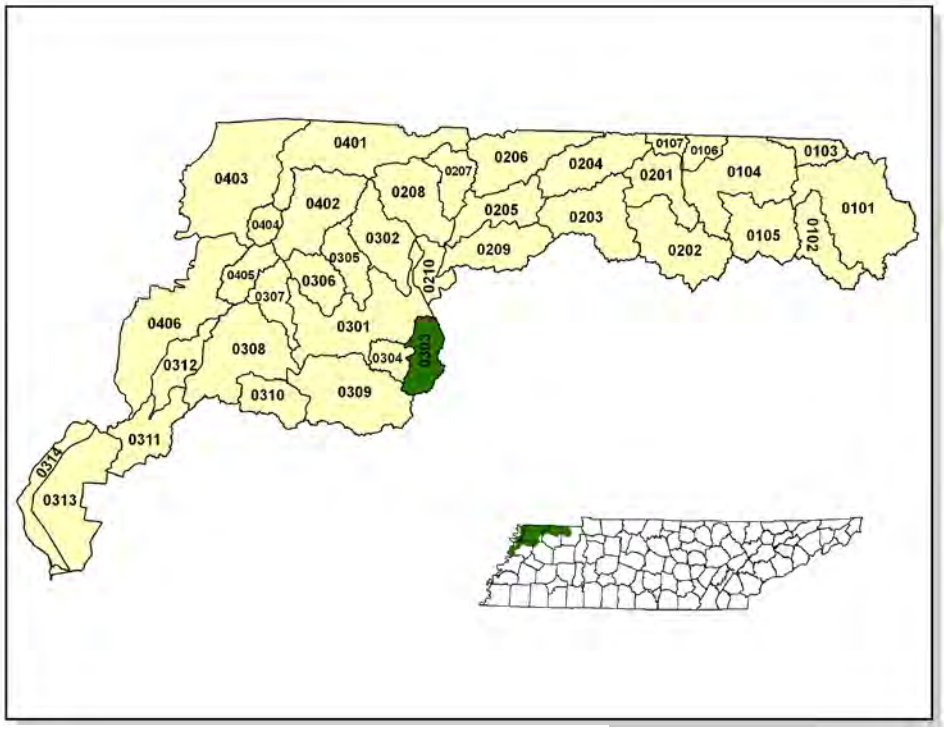


Figure 4-183. Location of Subwatershed 080102020303. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

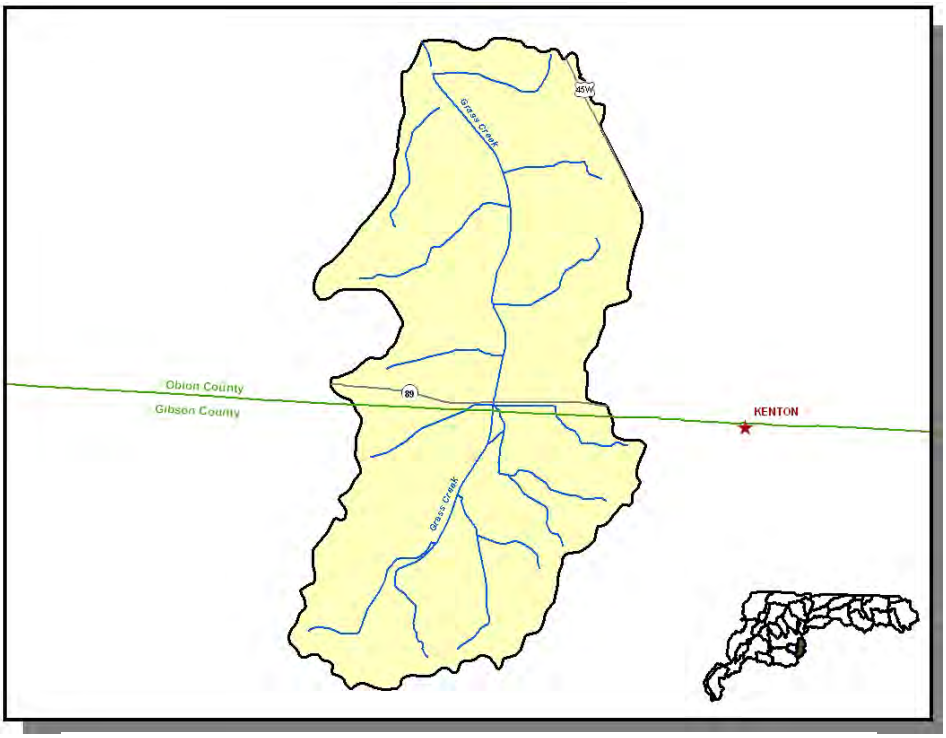


Figure 4-184. Locational Details of Subwatershed 080102020303.

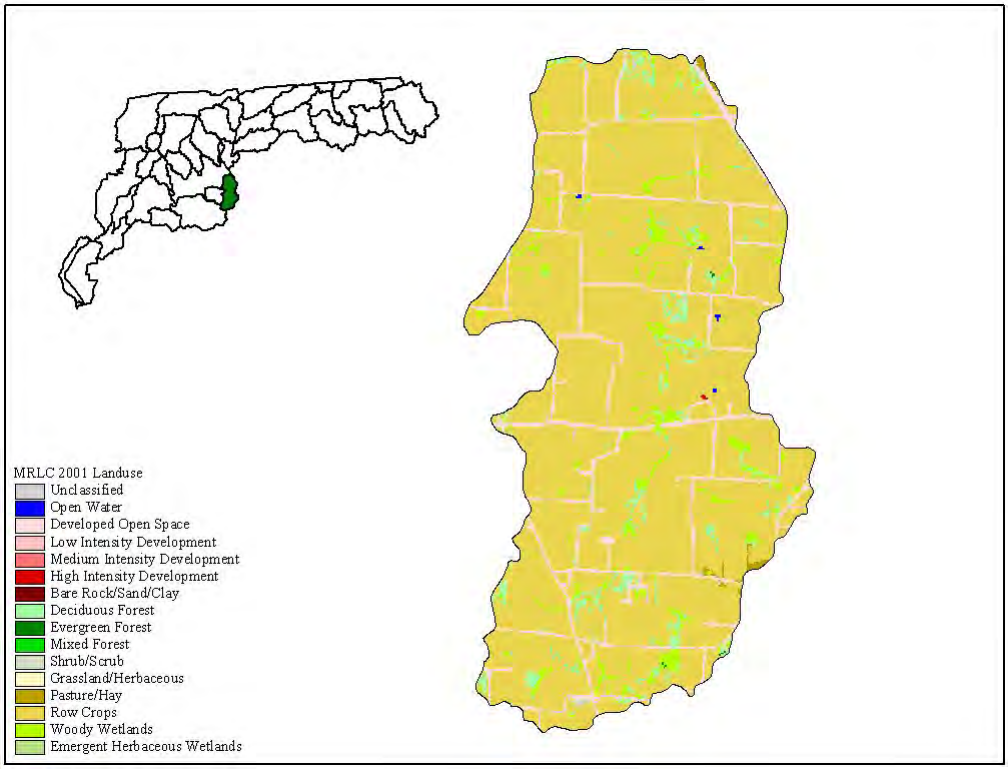


Figure 4-185. Illustration of Land Use Distribution in Subwatershed 080102020303.

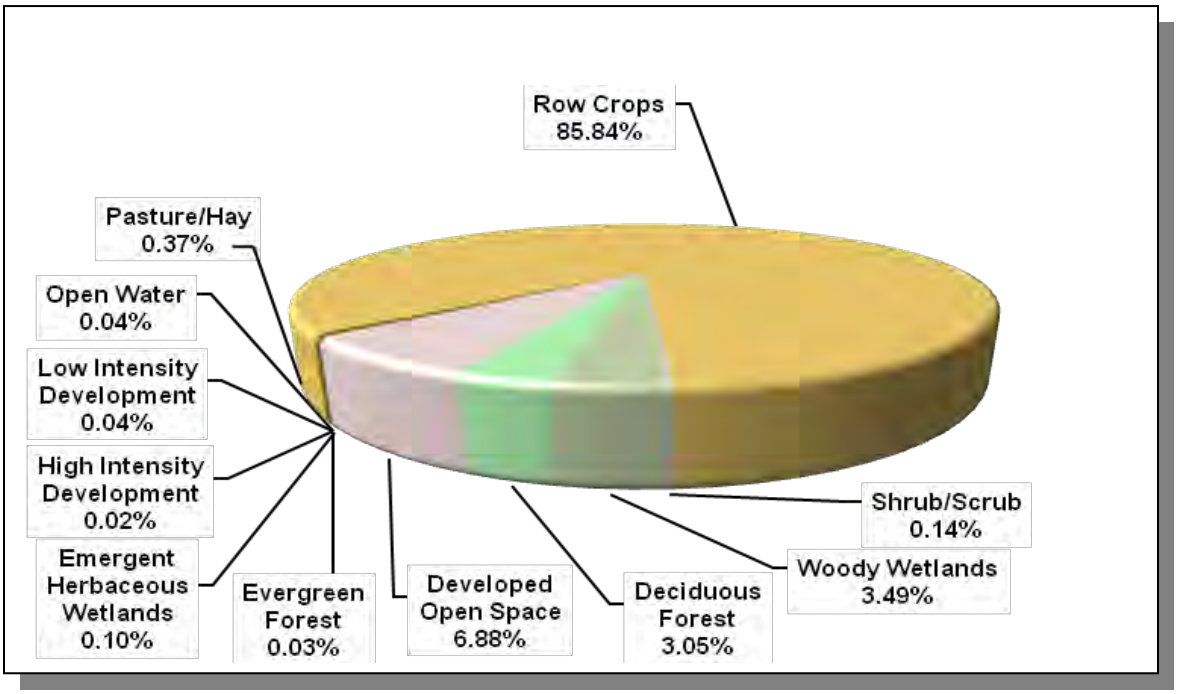


Figure 4-186. Land Use Distribution in Subwatershed 080102020303. *More information is provided in Appendix IV.*

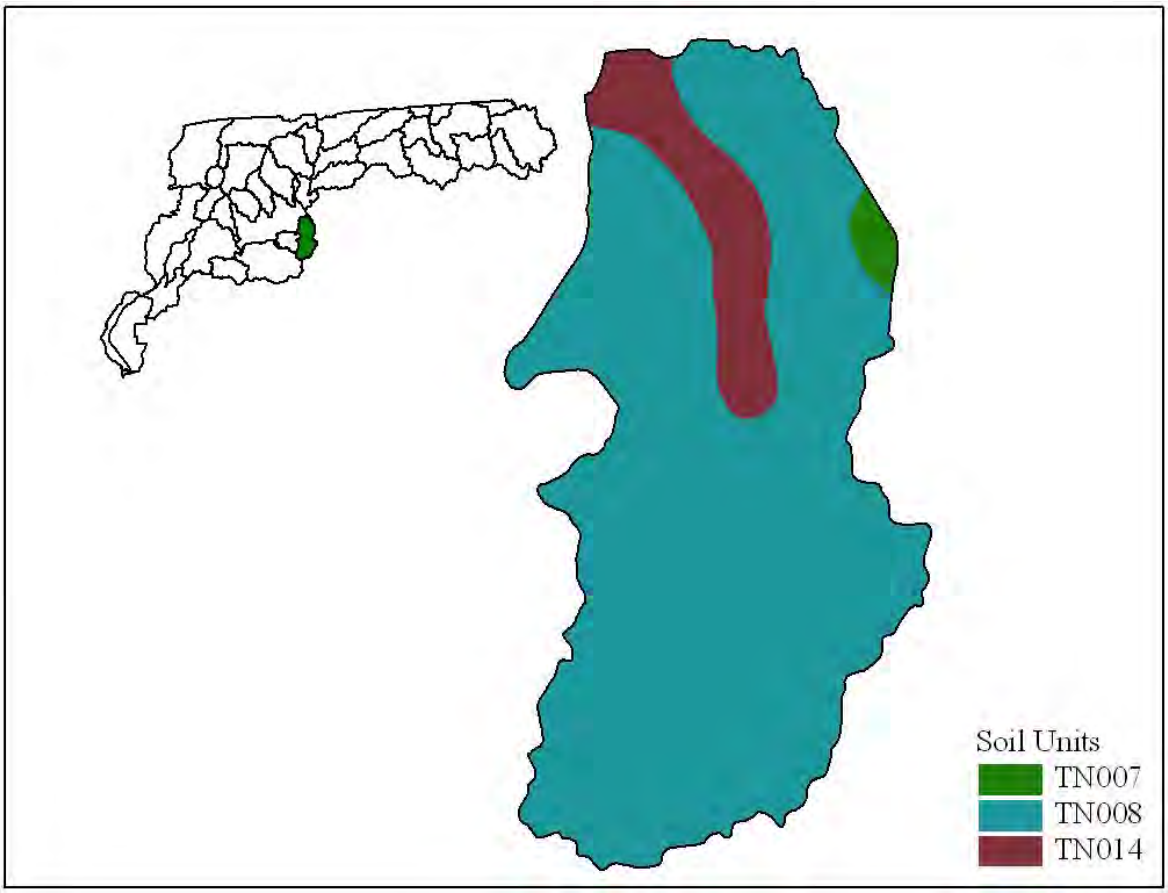


Figure 4-187. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020303

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-118. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020303. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Gibson	46,315	48,083	48,152	1.29	599	622	623	4.00
Obion	31,717	32,069	32,450	1.71	544	550	556	2.20
Totals	**78,032**	**80,152**	**80,602**		**1,143**	**1,172**	**1,179**	**3.10**

Table 4-119. Population Estimates in Subwatershed 080102020303.

4.2.T.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102020303.

4.2.T.iii. Permitted Activities.

There are no permitted activities located in subwatershed 080102020303 as of June 30th, 2007.

4.2.T.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Gibson	9,766	21,779	221	605	7,506	74
Obion	8,033	18,503	118	7	21,149	205

Table 4-120. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Gibson	36.4	36.4	2.0	8.6
Obion	67.6	67.6	4.4	20.8

Table 4-121. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Cotton (Row Crops)	10.86
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.29
Other Cropland not Planted	8.13
Corn (Row Crops)	7.65
Sorghum (Row Crops)	4.37
Other Land in Farms	1.34
Conservation Reserve Program Land	1.27
Grass Forbs Legumes Mixed (Pastureland)	0.87
Grass (Pastureland)	0.50
Grass (Hayland)	0.42
Farmsteads and Ranch Headquarters	0.25
Legume (Pastureland)	0.07

Table 4-122. Annual Estimated Total Soil Loss in Subwatershed 080102020303.

4.2.U. 080102020304 (Dillard Creek).

4.2.U.i. General Description.

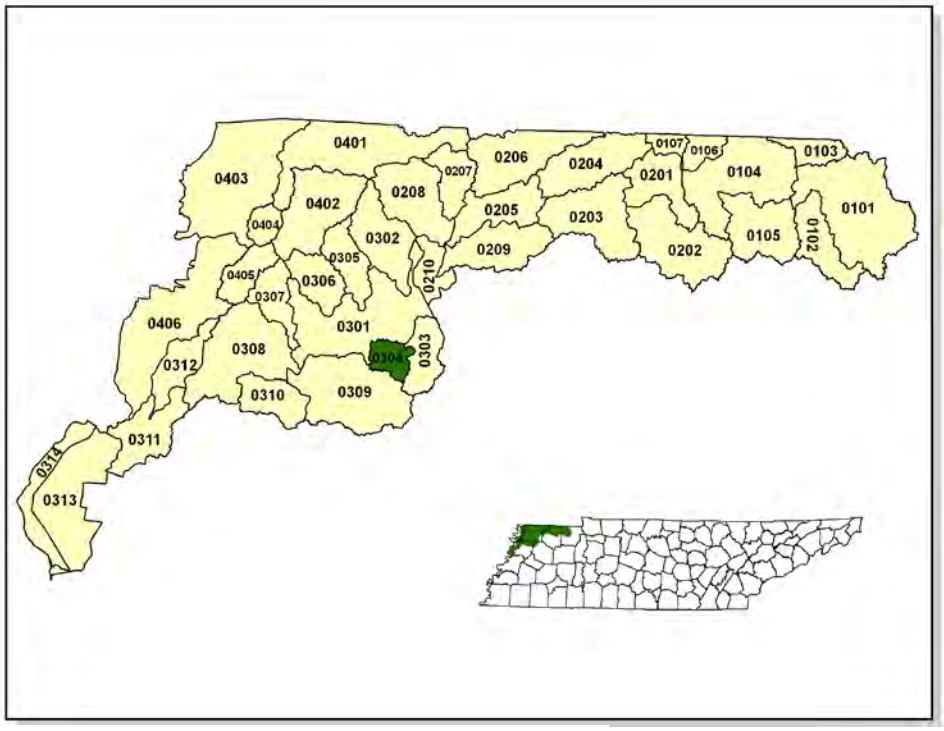


Figure 4-188. Location of Subwatershed 080102020304. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

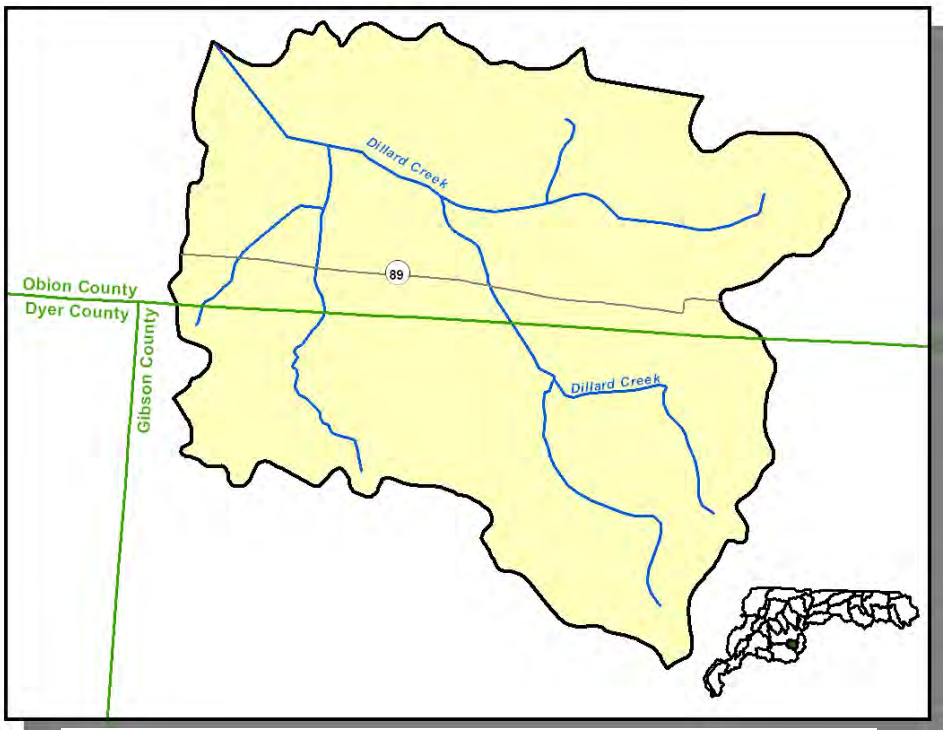


Figure 4-189. Locational Details of Subwatershed 080102020304.

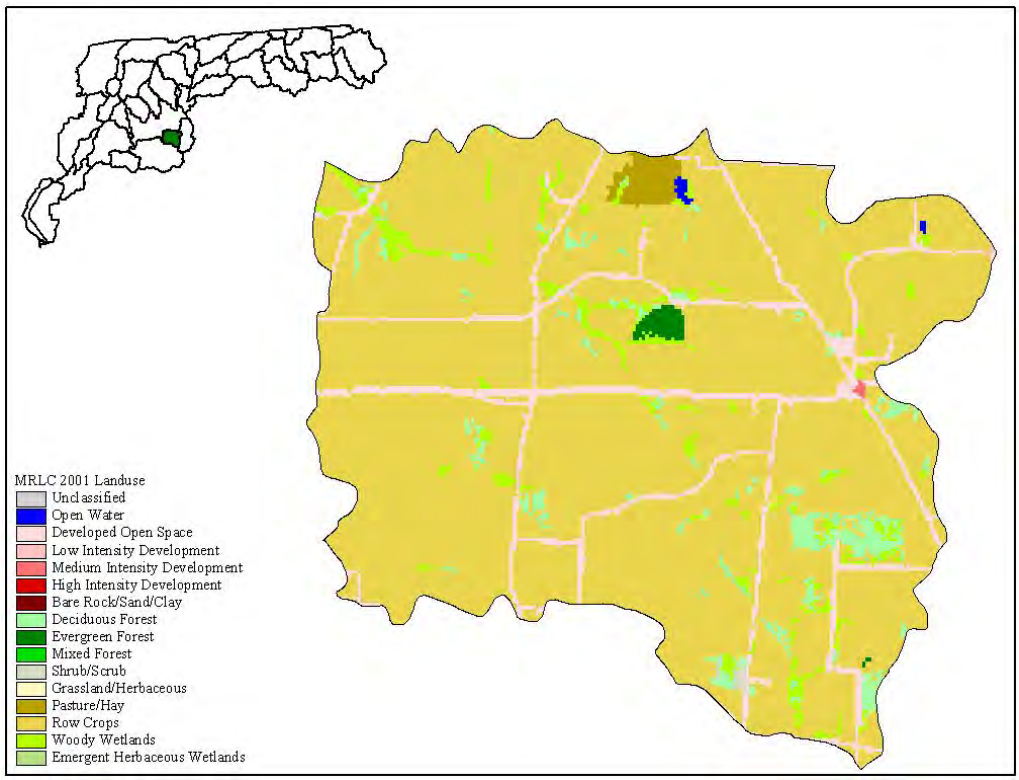


Figure 4-190. Illustration of Land Use Distribution in Subwatershed 080102020304.

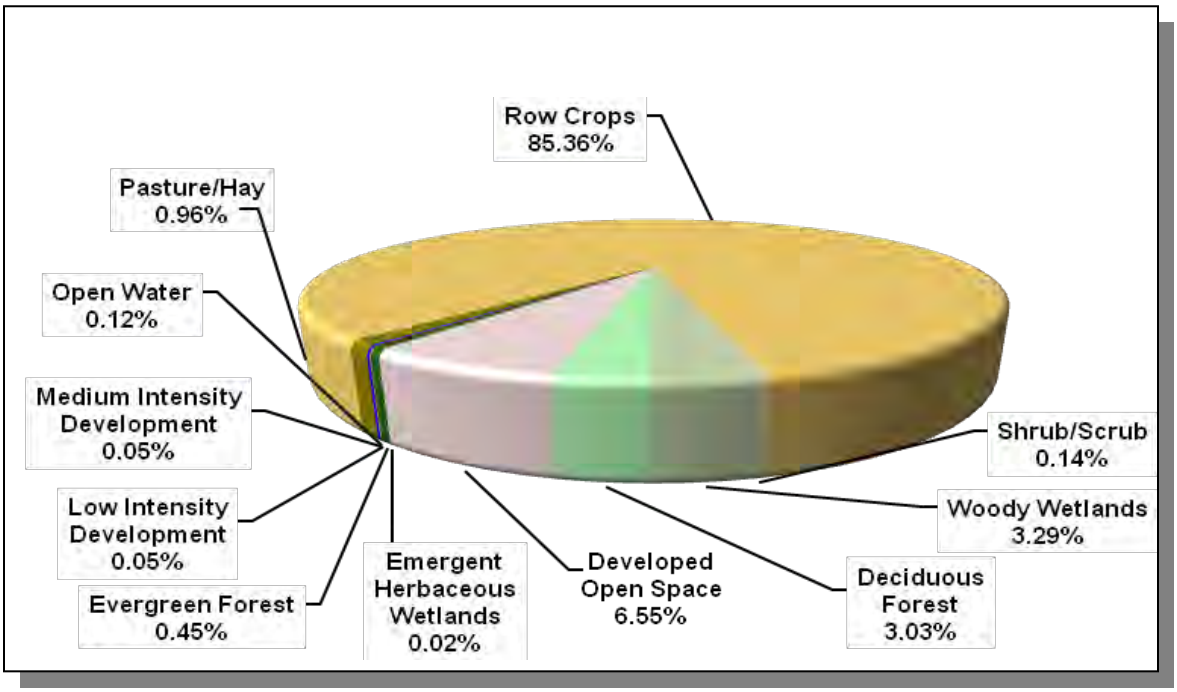


Figure 4-191. Land Use Distribution in Subwatershed 080102020304. *More information is provided in Appendix IV.*

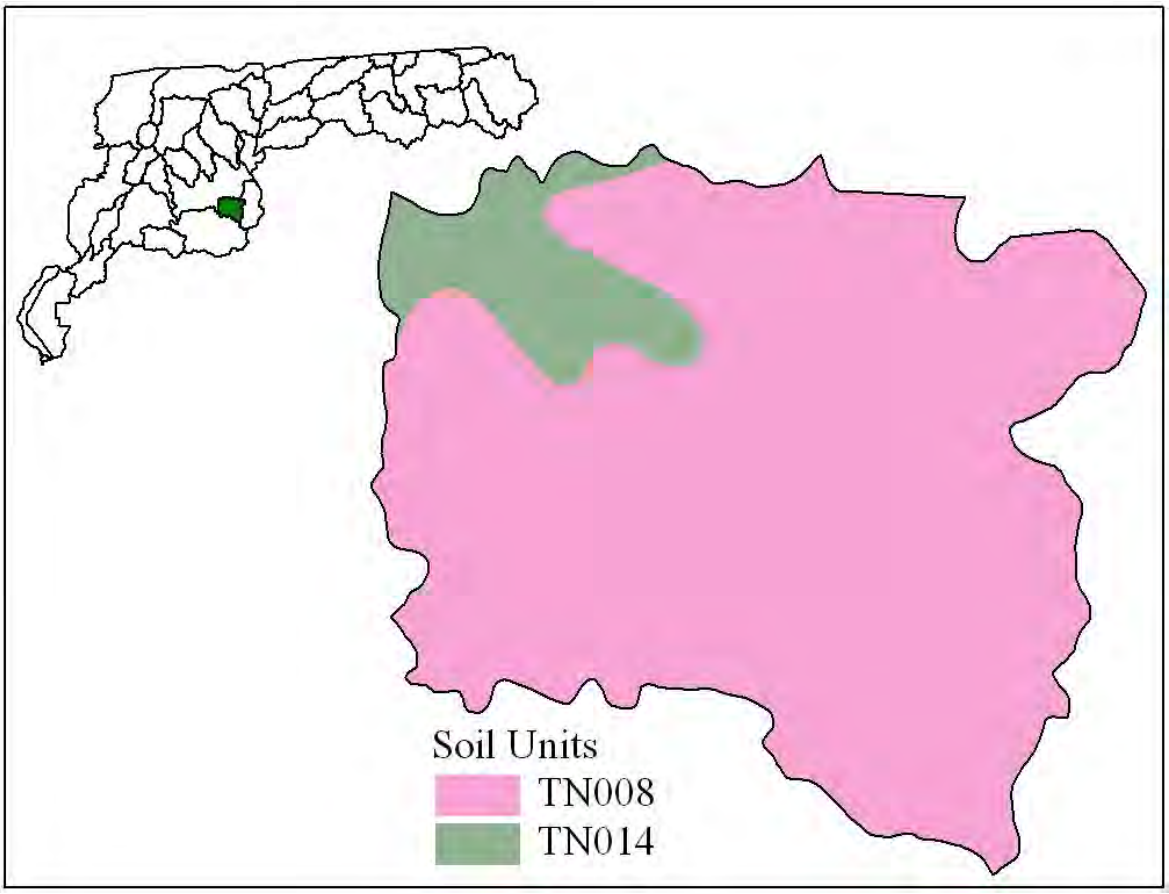


Figure 4-192. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020304

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-123. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020304. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Gibson	46,315	48,083	48,152	0.76	351	364	365	4.00
Obion	31,717	32,069	32,450	0.98	311	314	318	2.30
Totals	**78,032**	**80,152**	**80,602**		**662**	**678**	**683**	**3.20**

Table 4-124. Population Estimates in Subwatershed 080102020304.

4.2.U.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102020304.

4.2.U.iii. Permitted Activities.

There are no permitted activities located in subwatershed 080102020304 as of June 30th 2007.

4.2.U.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Gibson	9,766	21,779	221	605	7,506	74
Obion	8,033	18,503	118	7	21,149	205

Table 4-125. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Gibson	36.4	36.4	2.0	8.6
Obion	67.6	67.6	4.4	20.8

Table 4-126. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Cotton (Row Crops)	10.93
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.29
Other Cropland not Planted	8.05
Corn (Row Crops)	7.69
Sorghum (Row Crops)	4.40
Other Land in Farms	1.34
Conservation Reserve Program Land	1.26
Grass Forbs Legumes Mixed (Pastureland)	0.87
Grass (Pastureland)	0.50
Grass (Hayland)	0.42
Farmsteads and Ranch Headquarters	0.25
Legume (Pastureland)	0.07

Table 4-127. Annual Estimated Total Soil Loss in Subwatershed 080102020304.

4.2.V 080102020305 (Mill Creek).

4.2.V.i. General Description.

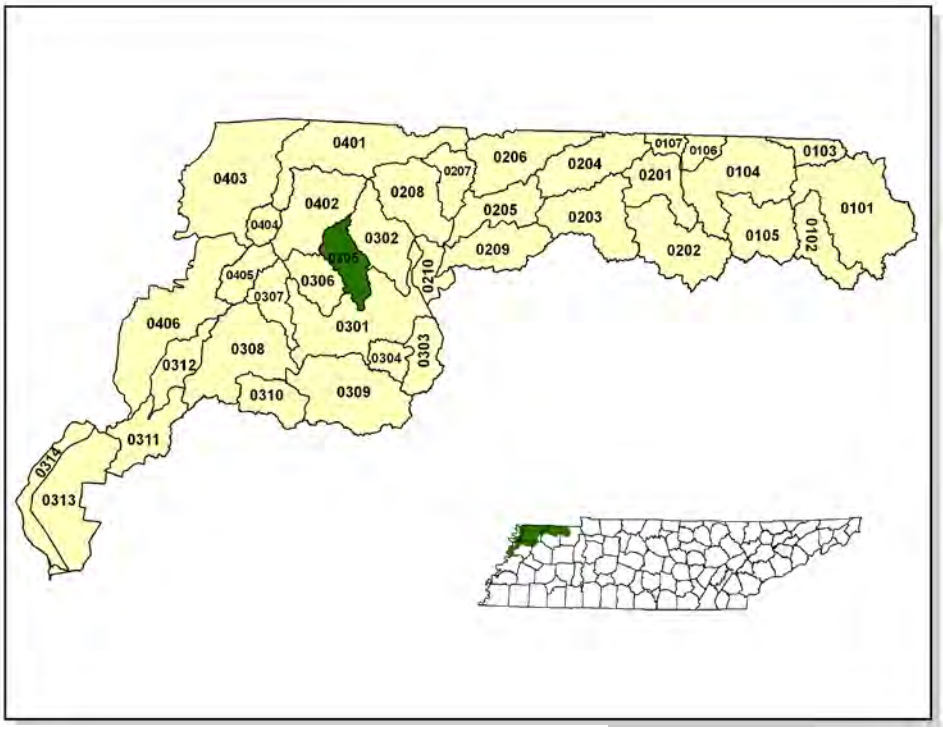


Figure 4-193. Location of Subwatershed 080102020305. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

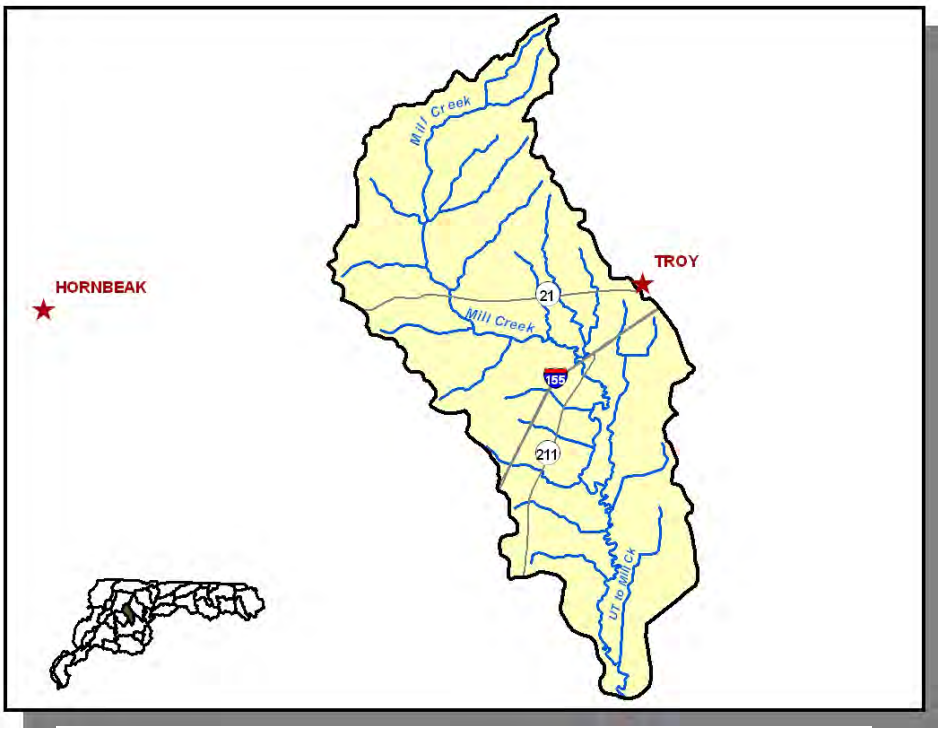


Figure 4-194. Locational Details of Subwatershed 080102020305.

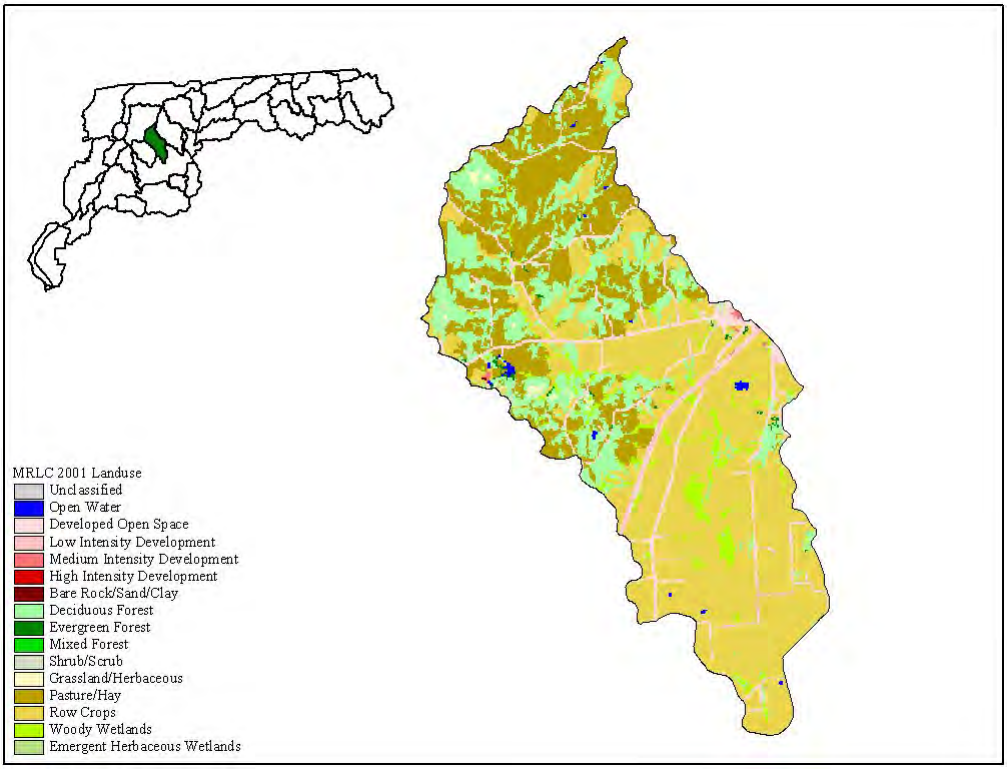


Figure 4-195. Illustration of Land Use Distribution in Subwatershed 080102020305.

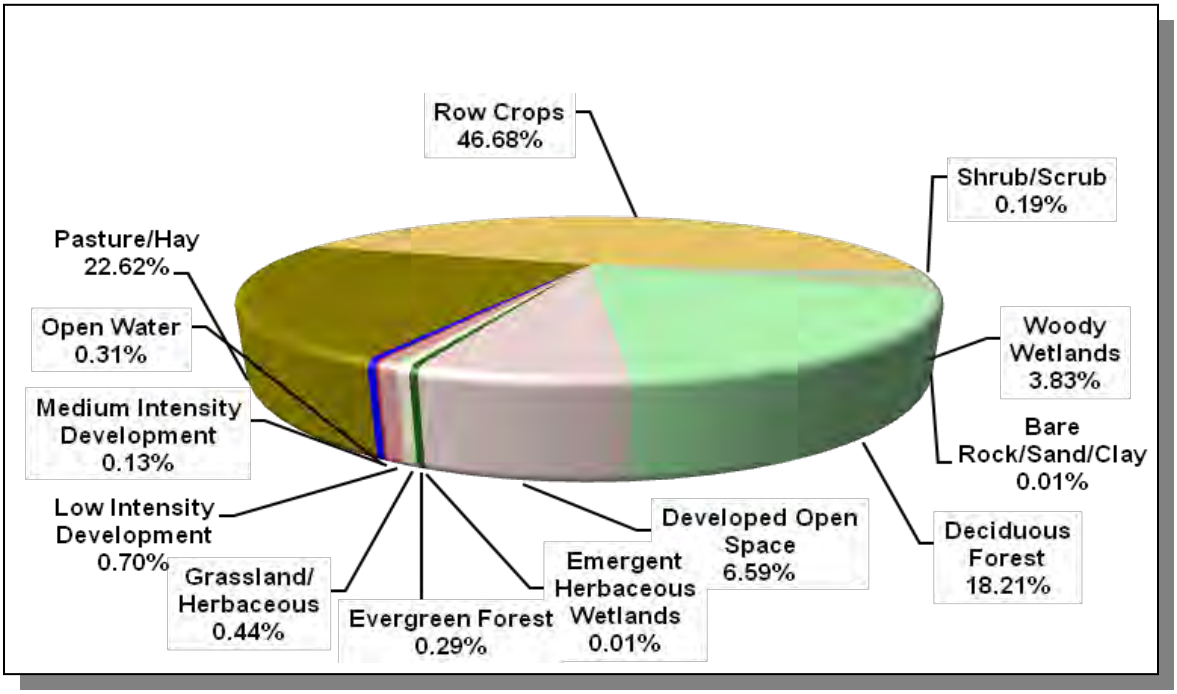


Figure 4-196. Land Use Distribution in Subwatershed 080102020305. *More information is provided in Appendix IV.*

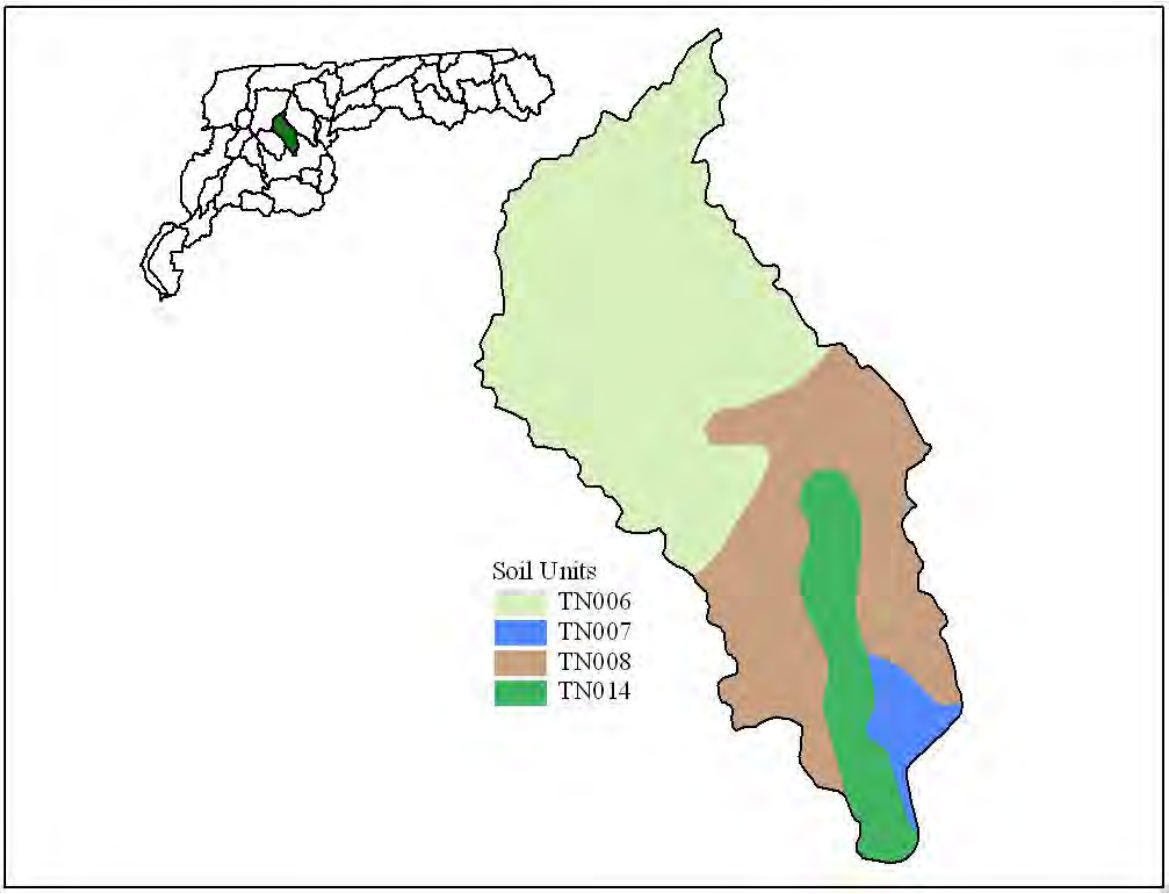


Figure 4-197. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020305.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-128. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020305. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	3.24	1,029	1,040	1,052	2.20

Table 4-129. Population Estimates in Subwatershed 080102020305.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Troy	Obion	1,033	451	423	28	0

Table 4-130. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020305.

4.2.V.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102020305.

4.2.V.iii. Permitted Activities.

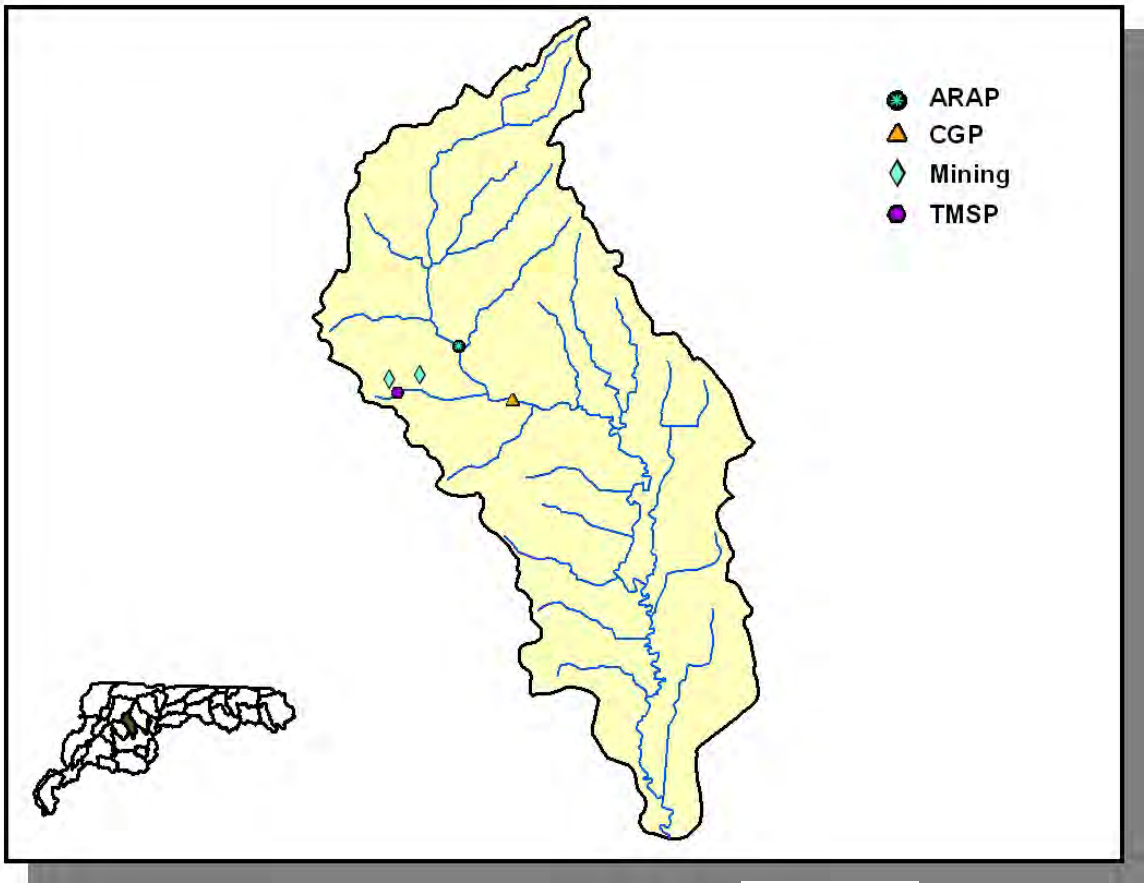


Figure 4-198. Location of Permits Issued in Subwatershed 080102020305. *More information, including the names of facilities, is provided in Appendix IV.*

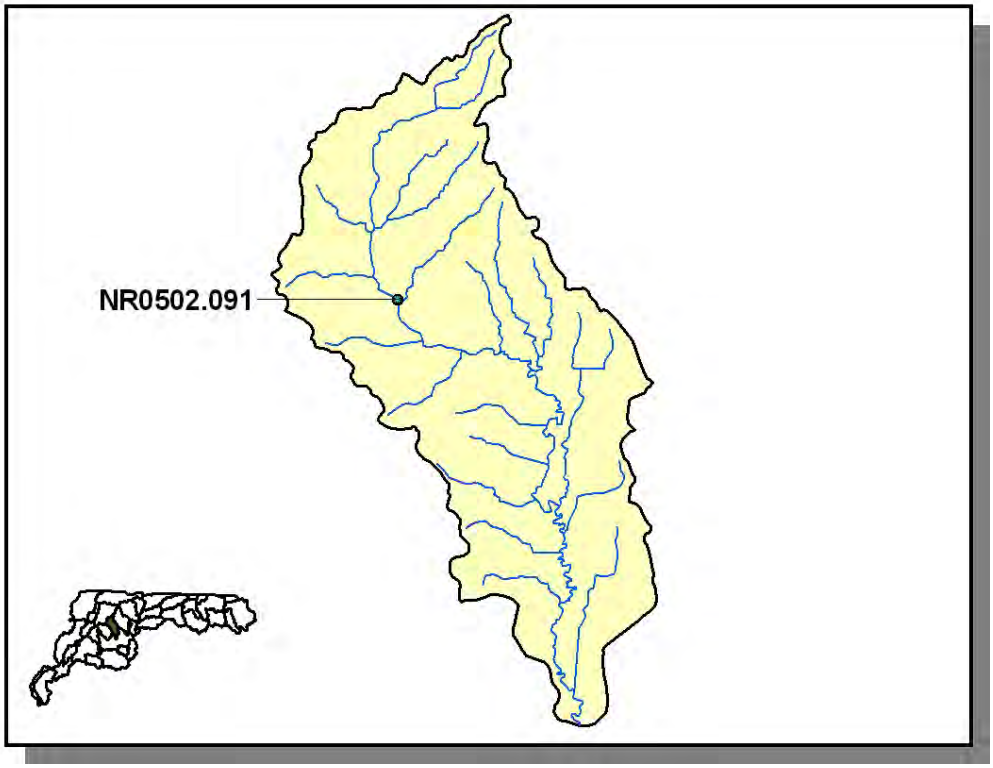


Figure 4-199. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020305. *More information is provided in Appendix IV.*

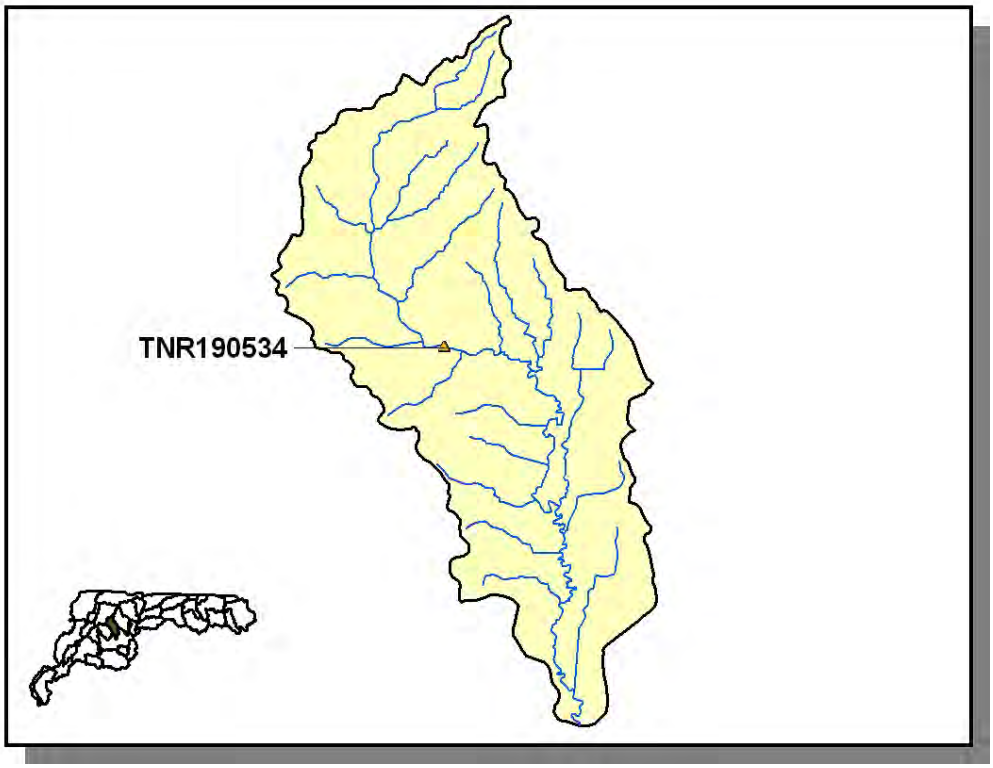


Figure 4-200. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020305. *More information is provided in Appendix IV.*

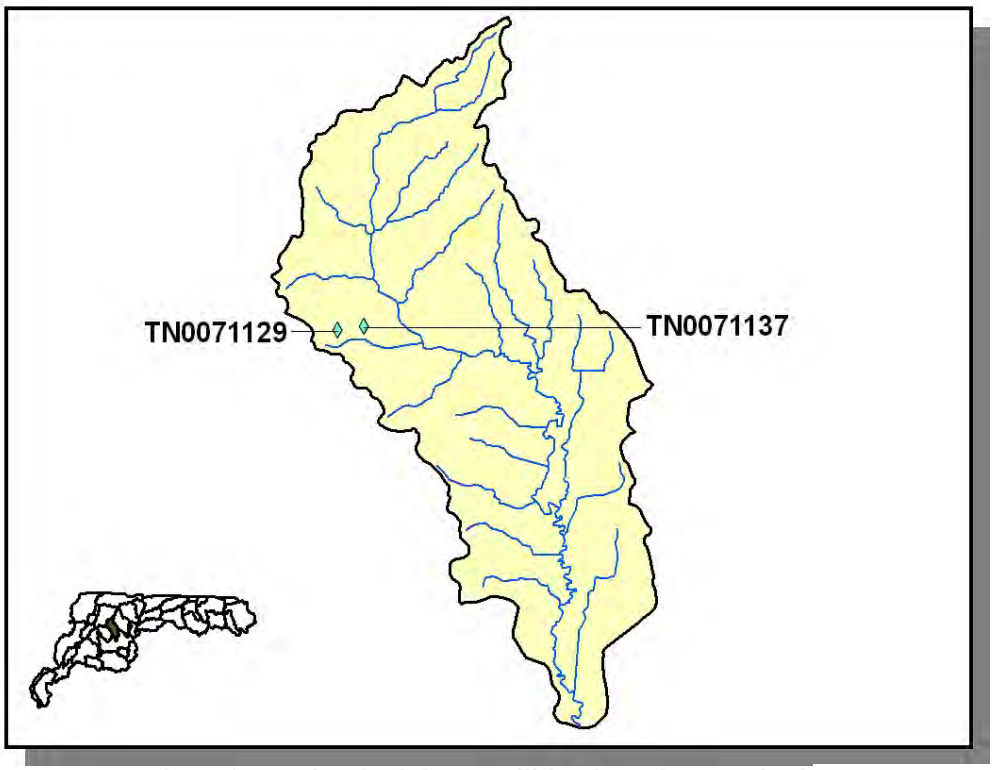


Figure 4-201. Location of Permitted Mining Facilities in Subwatershed 080102020305. *More information is provided in Appendix IV.*

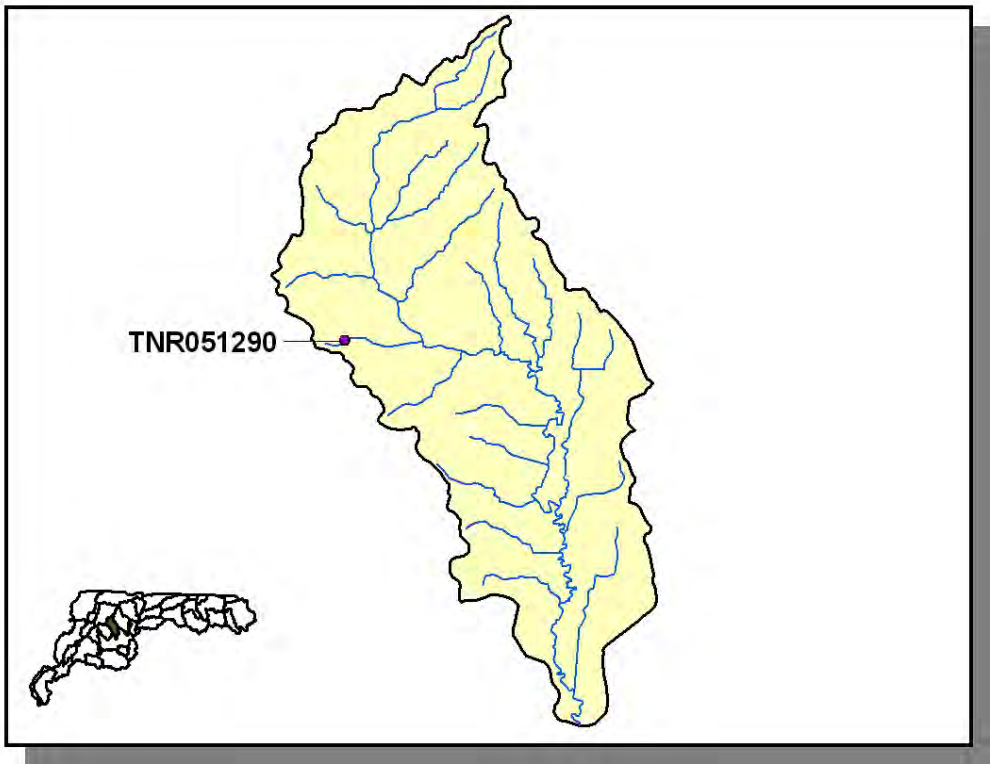


Figure 4-202. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020305. *More information is provided in Appendix IV.*

4.2.V.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-131. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-132. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-133. Annual Estimated Total Soil Loss in Subwatershed 080102020305.

4.2.W. 080102020306 (Richland Creek).

4.2.W.i. General Description.

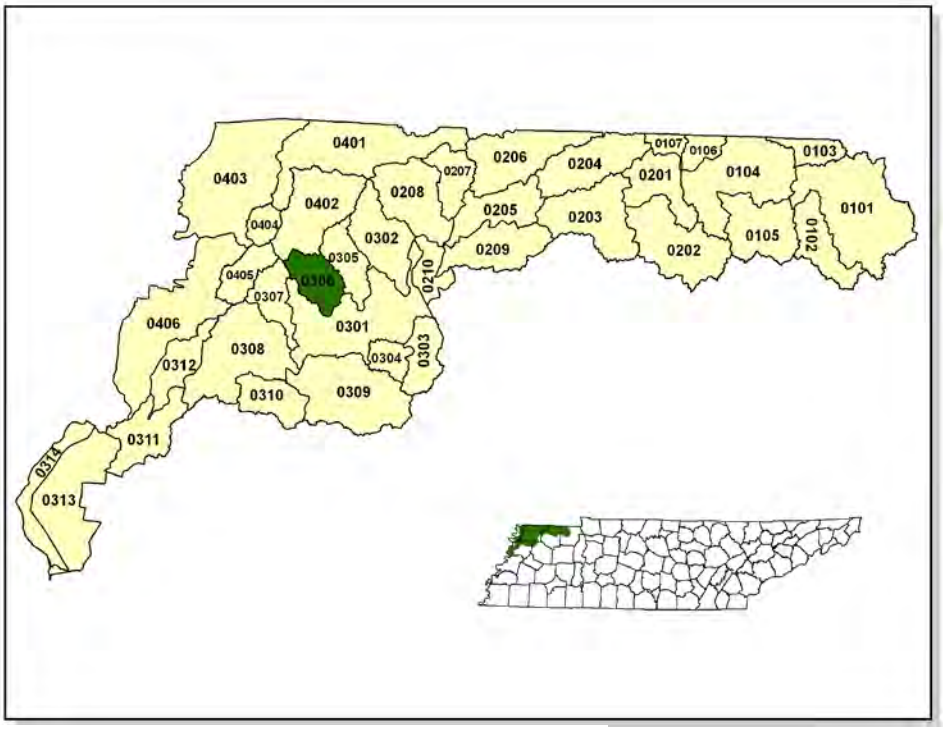


Figure 4-203. Location of Subwatershed 080102020306. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

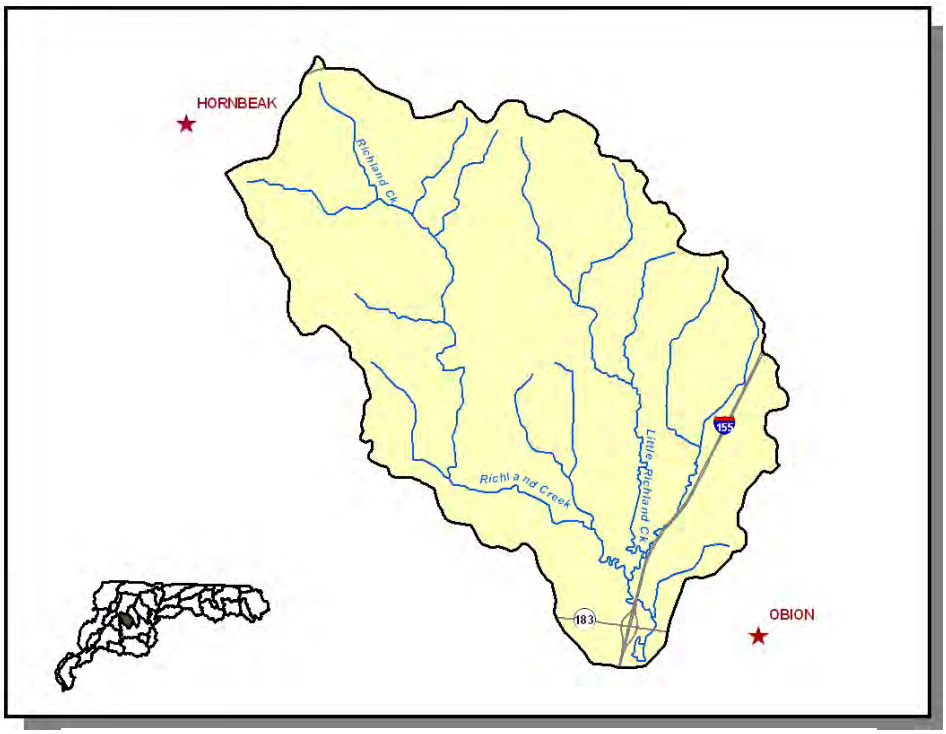


Figure 4-204. Locational Details of Subwatershed 080102020306.

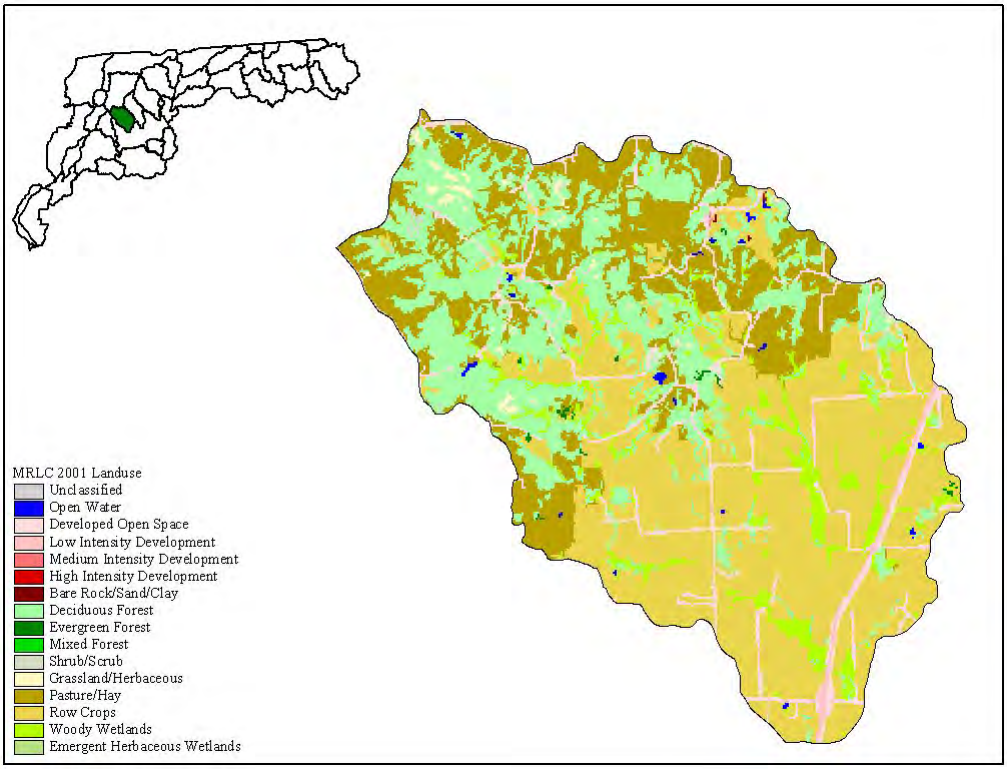


Figure 4-205. Illustration of Land Use Distribution in Subwatershed 080102020306.

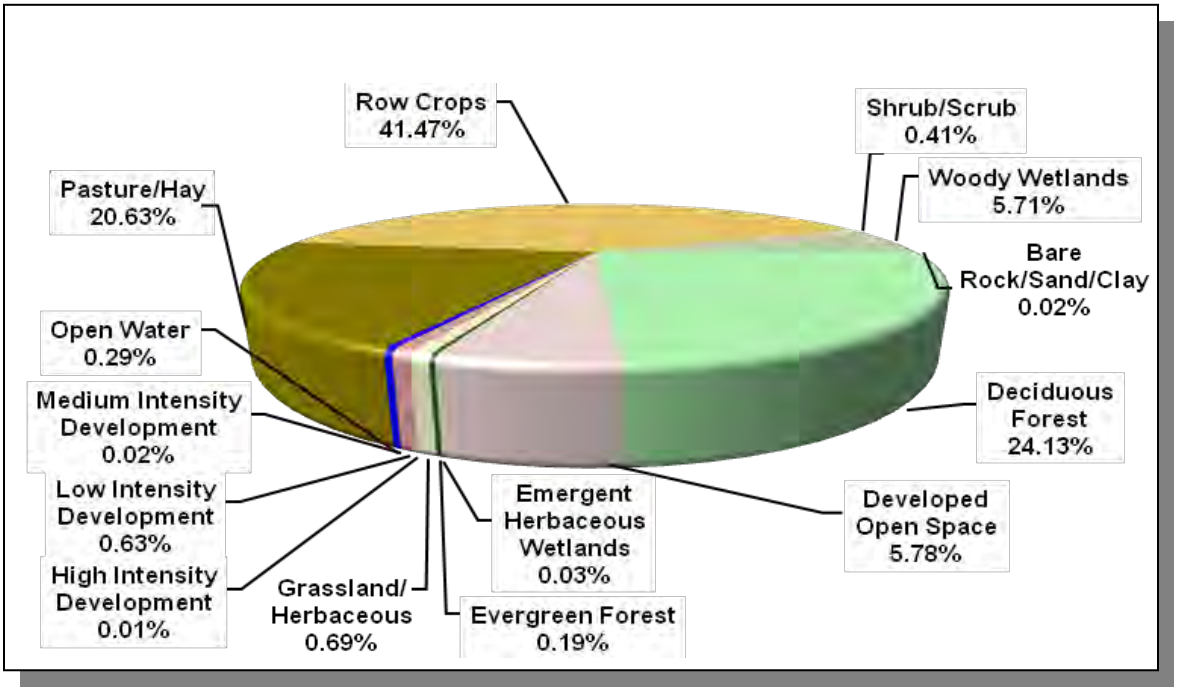


Figure 4-206. Land Use Distribution in Subwatershed 080102020306. *More information is provided in Appendix IV.*

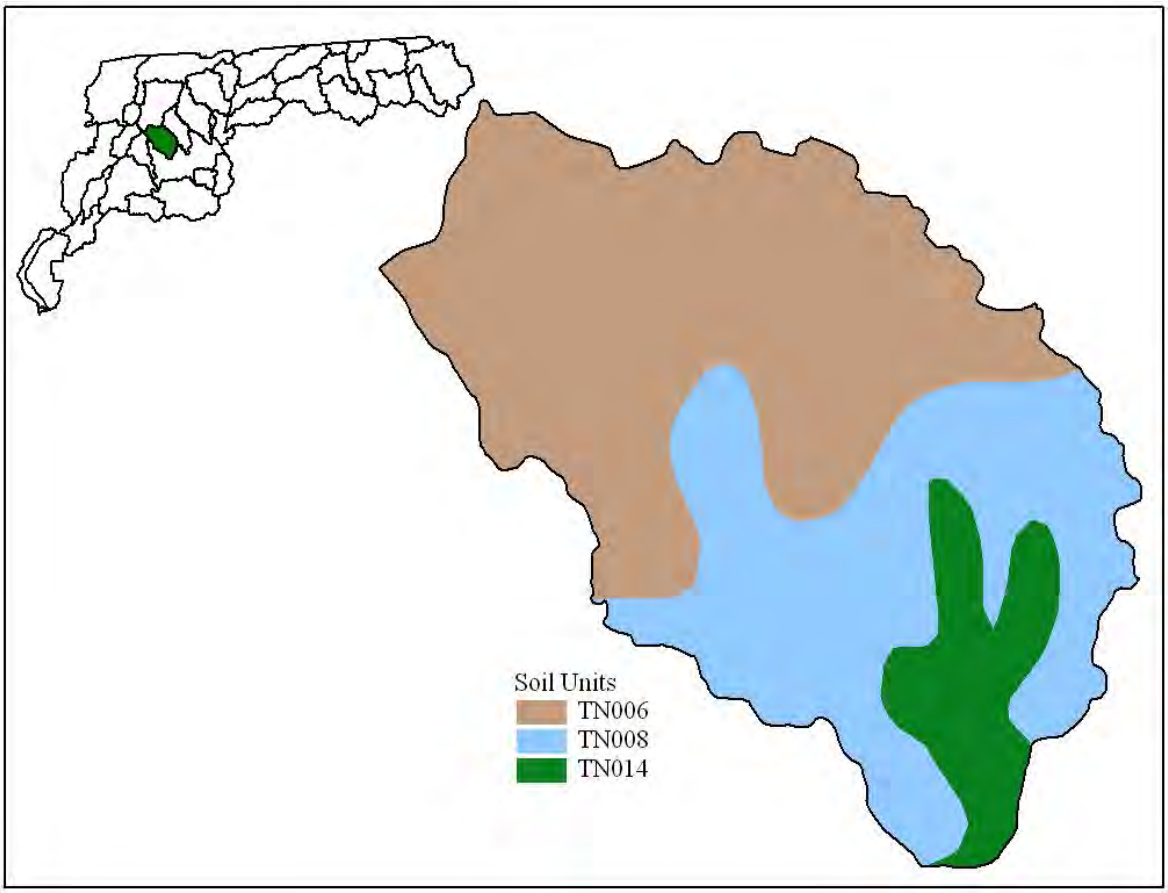


Figure 4-207. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020306.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-134. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020306. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	3.2	1,016	1,027	1,040	2.4

Table 4-135. Population Estimates in Subwatershed 080102020306.

4.2.W.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020306.

4.2.W.iii. Permitted Activities.

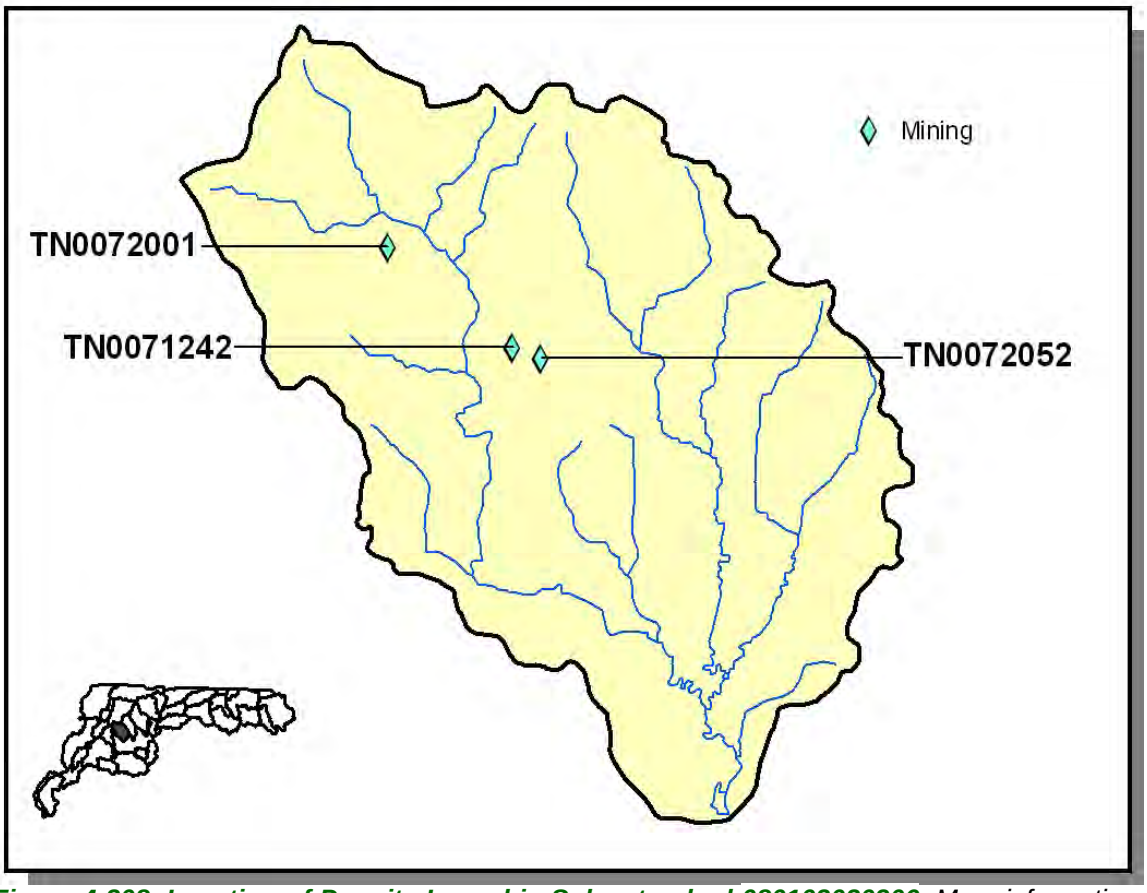


Figure 4-208. Location of Permits Issued in Subwatershed 080102020306. *More information, including the names of facilities, is provided in Appendix IV.*

4.2.W.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-136. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-137. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-138. Annual Estimated Total Soil Loss in Subwatershed 080102020306.

4.2.X. 080102020307 (Clover Creek).

4.2.X.i. General Description.

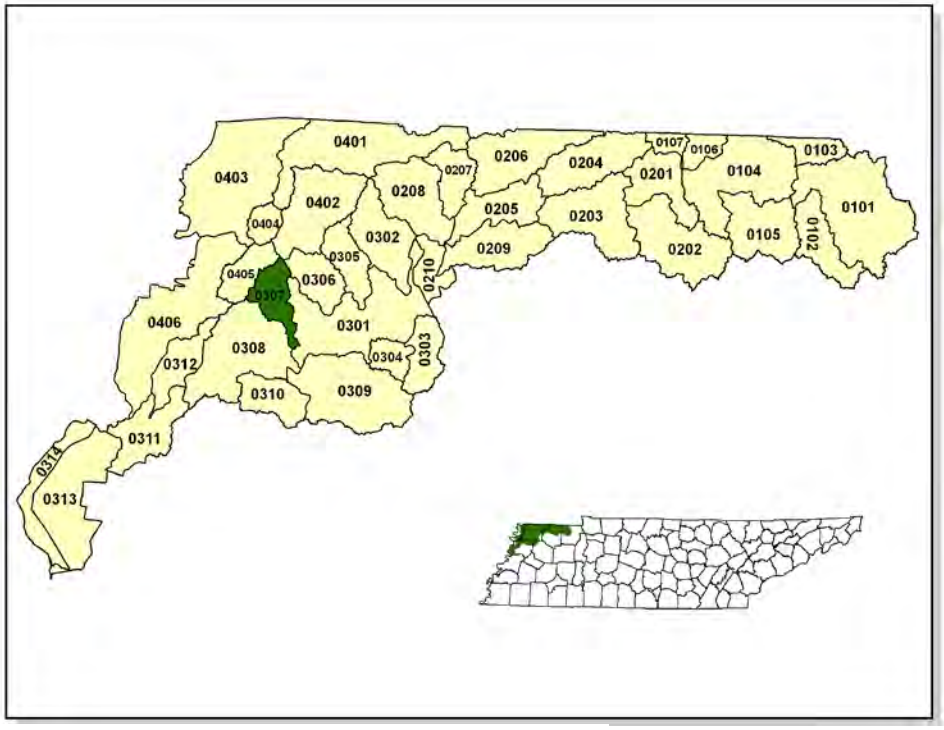


Figure 4-209. Location of Subwatershed 080102020307. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

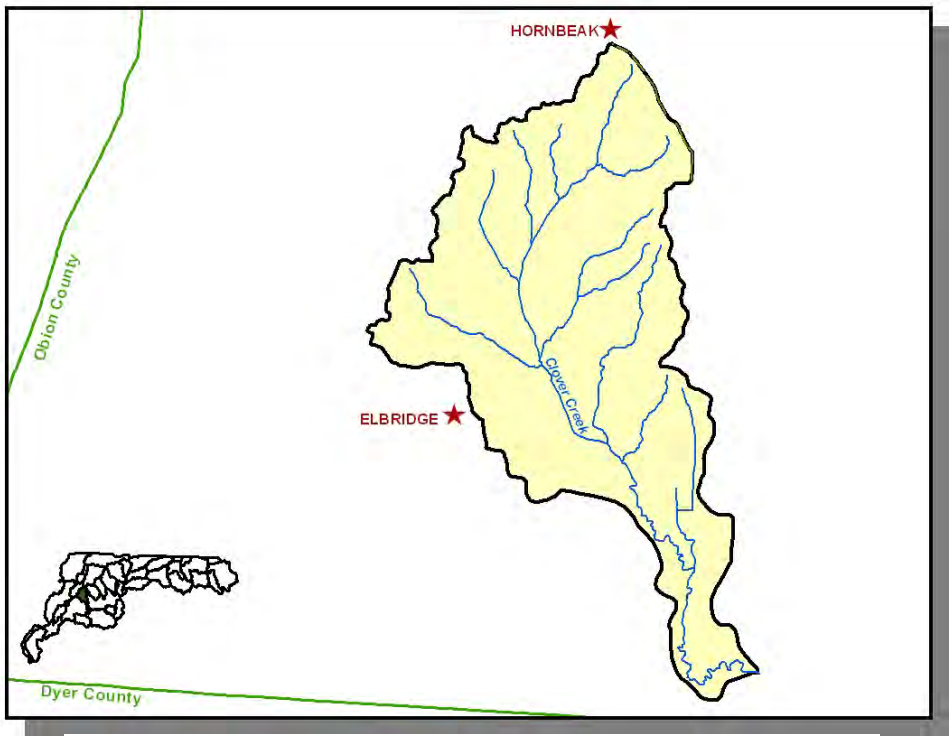


Figure 4-210. Locational Details of Subwatershed 080102020307.

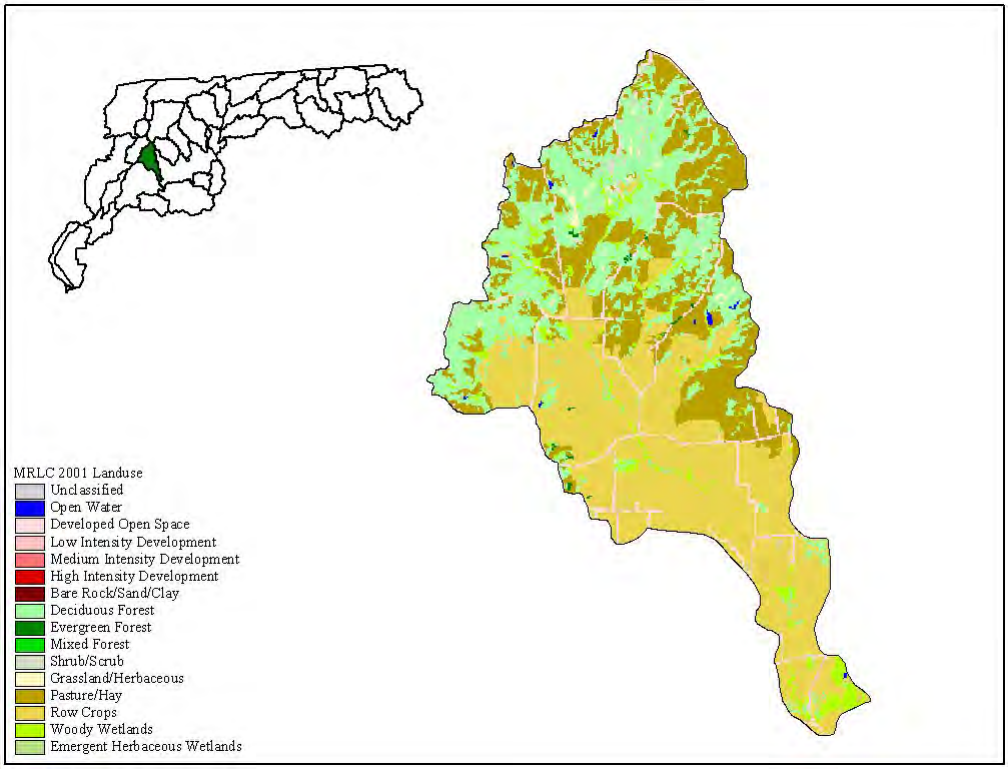


Figure 4-211. Illustration of Land Use Distribution in Subwatershed 080102020307.

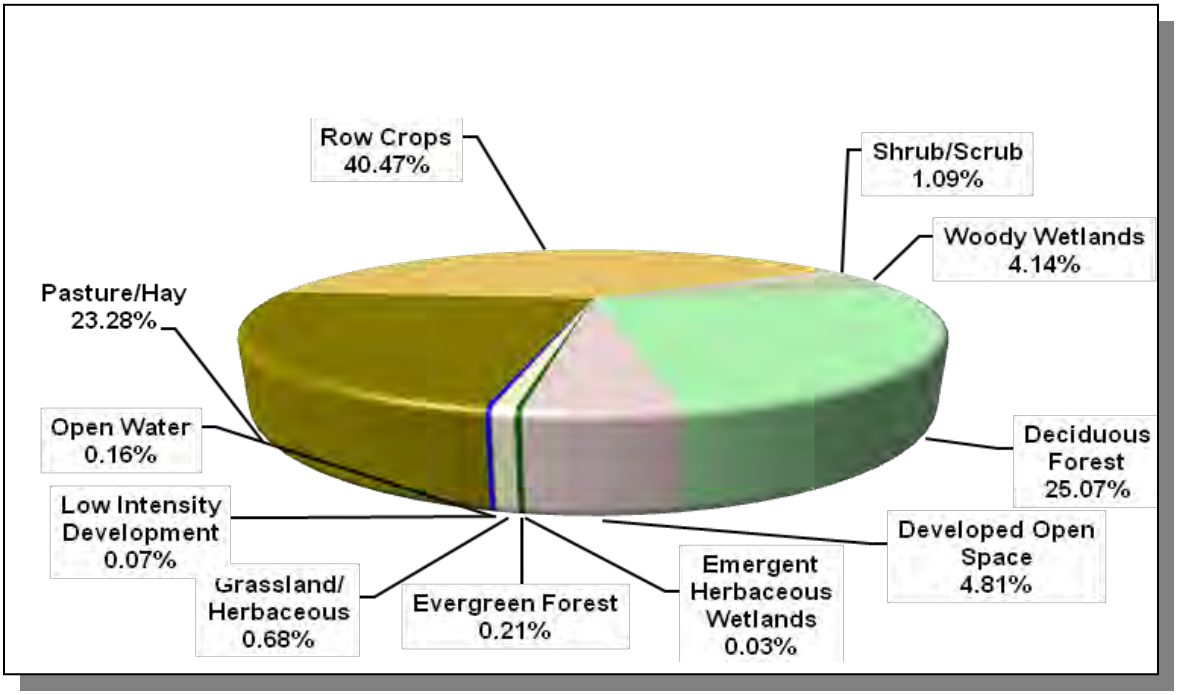


Figure 4-212. Land Use Distribution in Subwatershed 080102020307. *More information is provided in Appendix IV.*

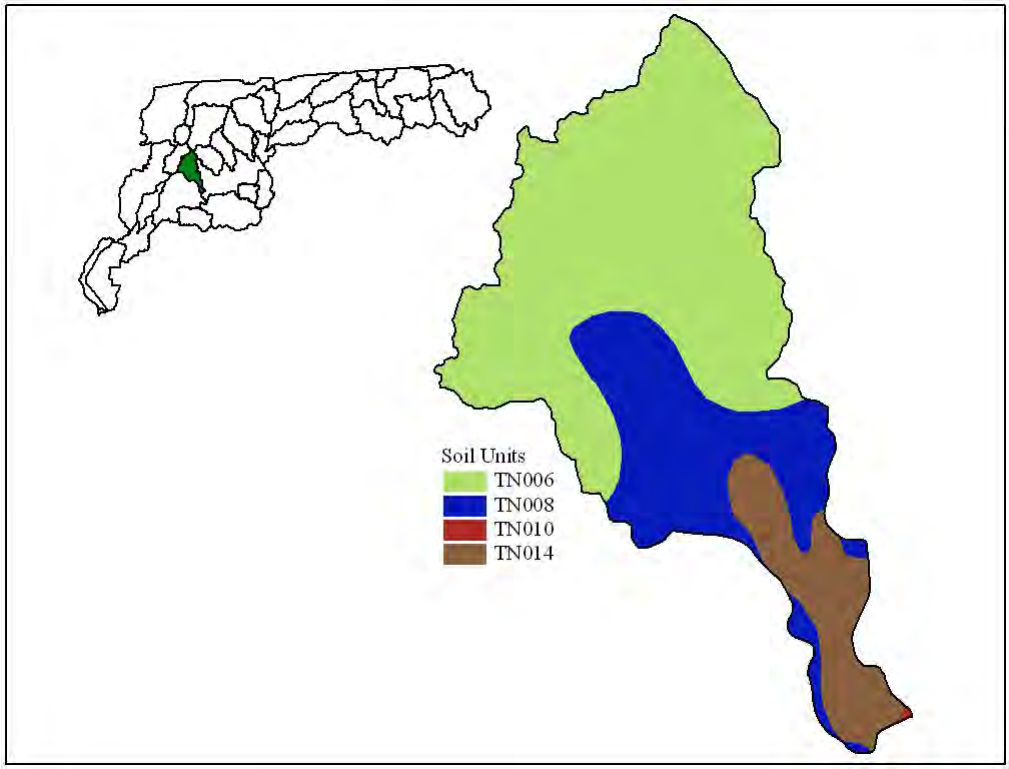


Figure 4-213. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020307.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-139. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020307. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32450	2.94	931	942	953	2.40

Table 4-140. Population Estimates in Subwatershed 080102020307.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Hornbeak	Obion	472	194	12	180	2

Table 4-141. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020307.

4.2.X.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020307.

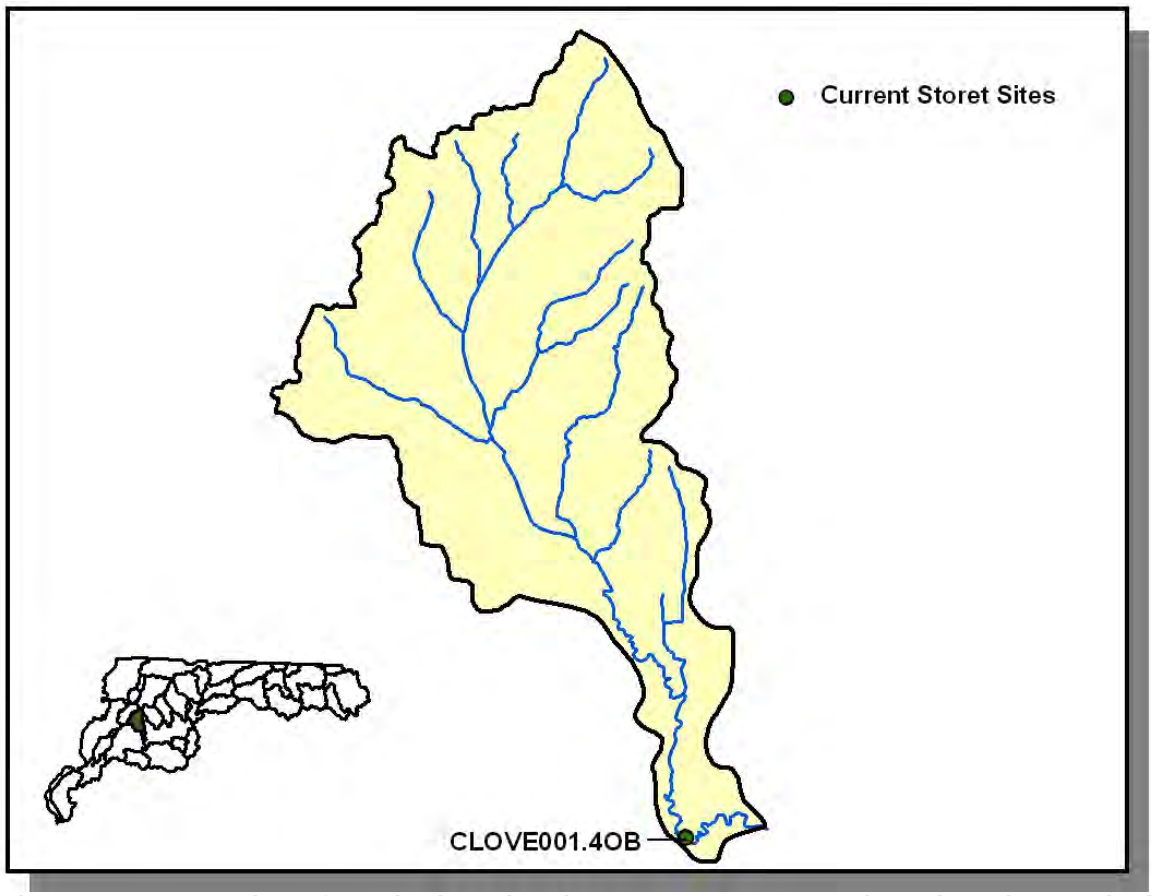


Figure 4-214. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020307. *More information, including site names and locations, is provided in Appendix IV.*

4.2.X.iii. Permitted Activities.

There are no permitted activities located in subwatershed 080102020307 as of June 30th 2007.

4.2.X.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	7	820,630	21,149	118

Table 4-142. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-143. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-144. Annual Estimated Total Soil Loss in Subwatershed 080102020307.

4.2.Y. 080102020308 (Obion River).

4.2.Y.i. General Description.

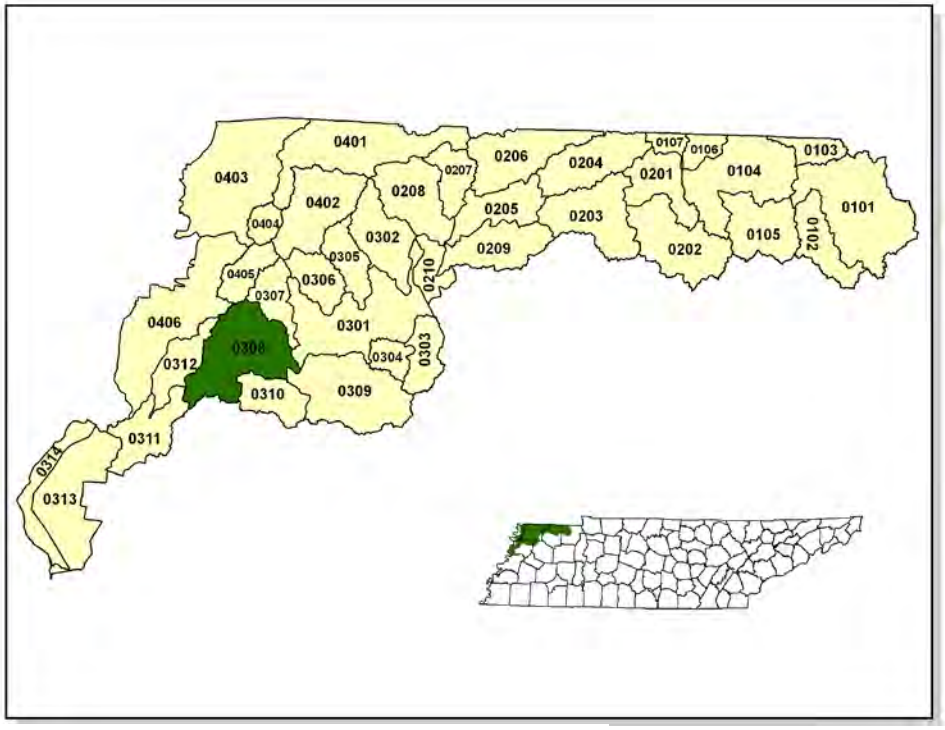


Figure 4-215. Location of Subwatershed 080102020308. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

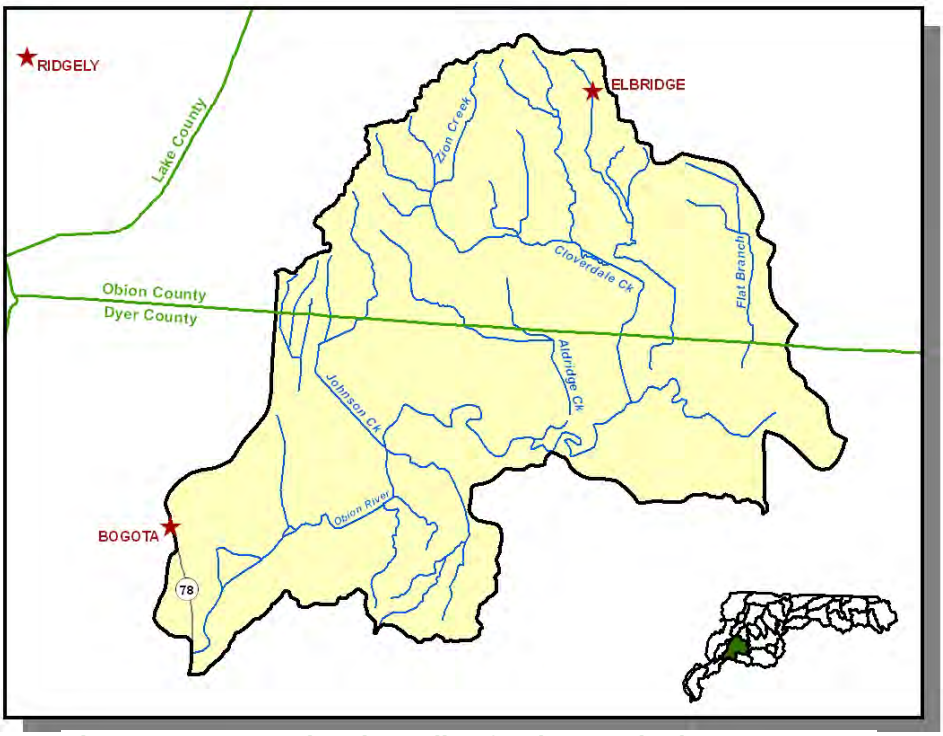


Figure 4-216. Locational Details of Subwatershed 080102020308.

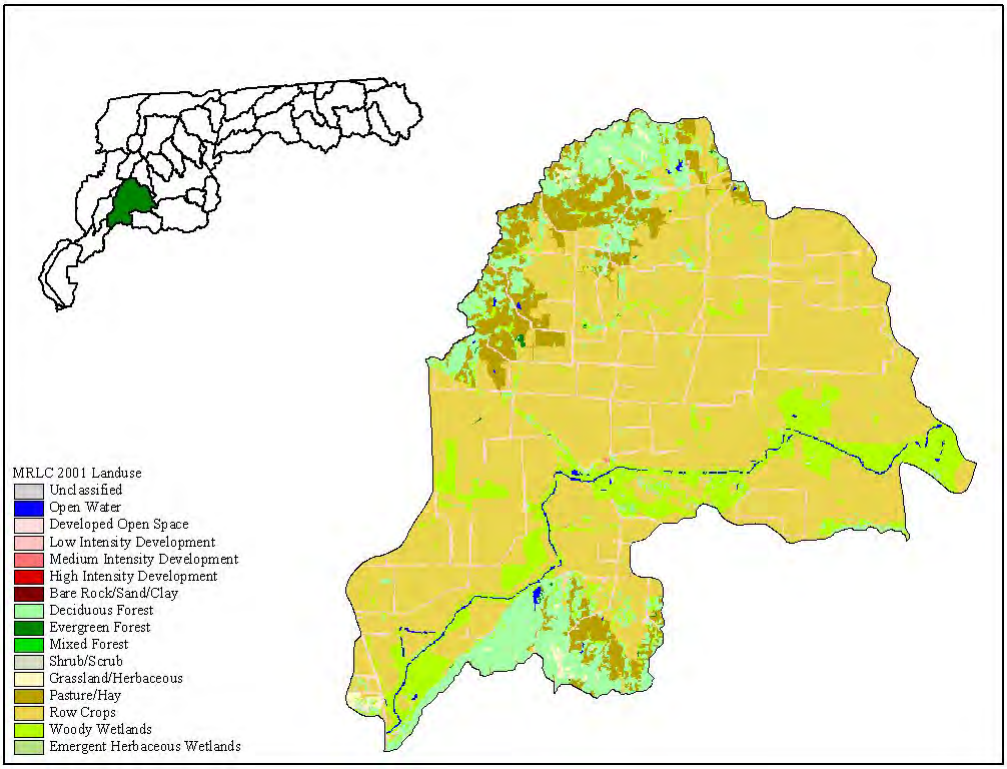


Figure 4-217. Illustration of Land Use Distribution in Subwatershed 080102020308.

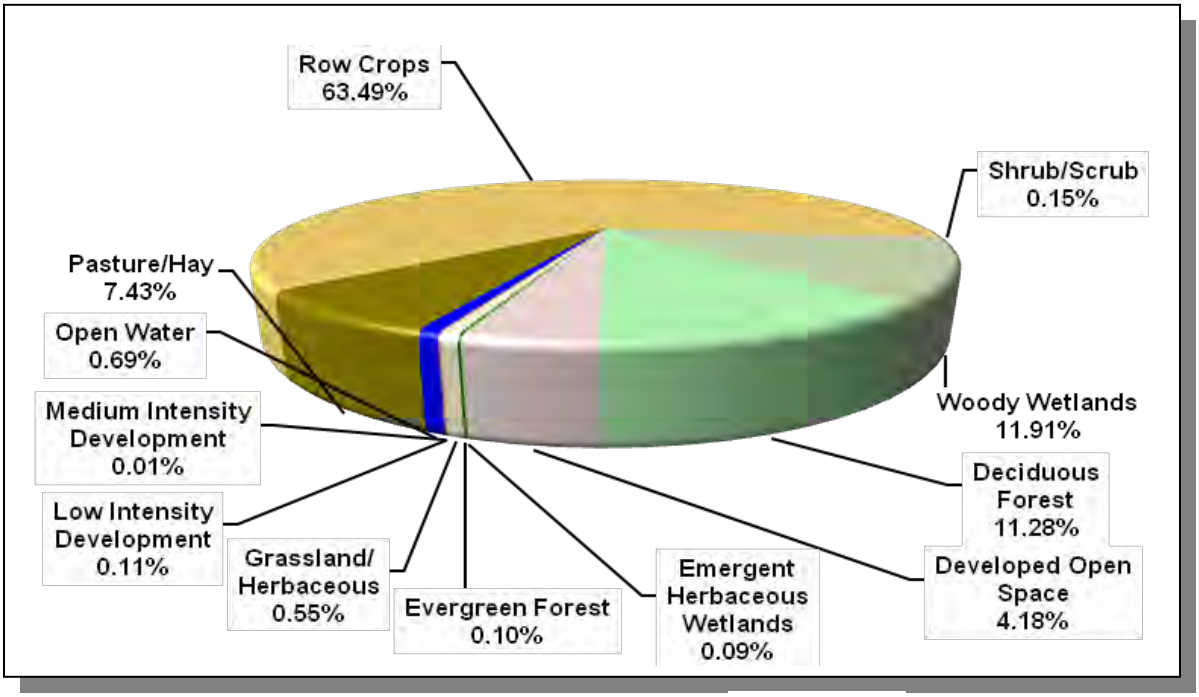


Figure 4-218. Land Use Distribution in Subwatershed 080102020308. *More information is provided in Appendix IV.*

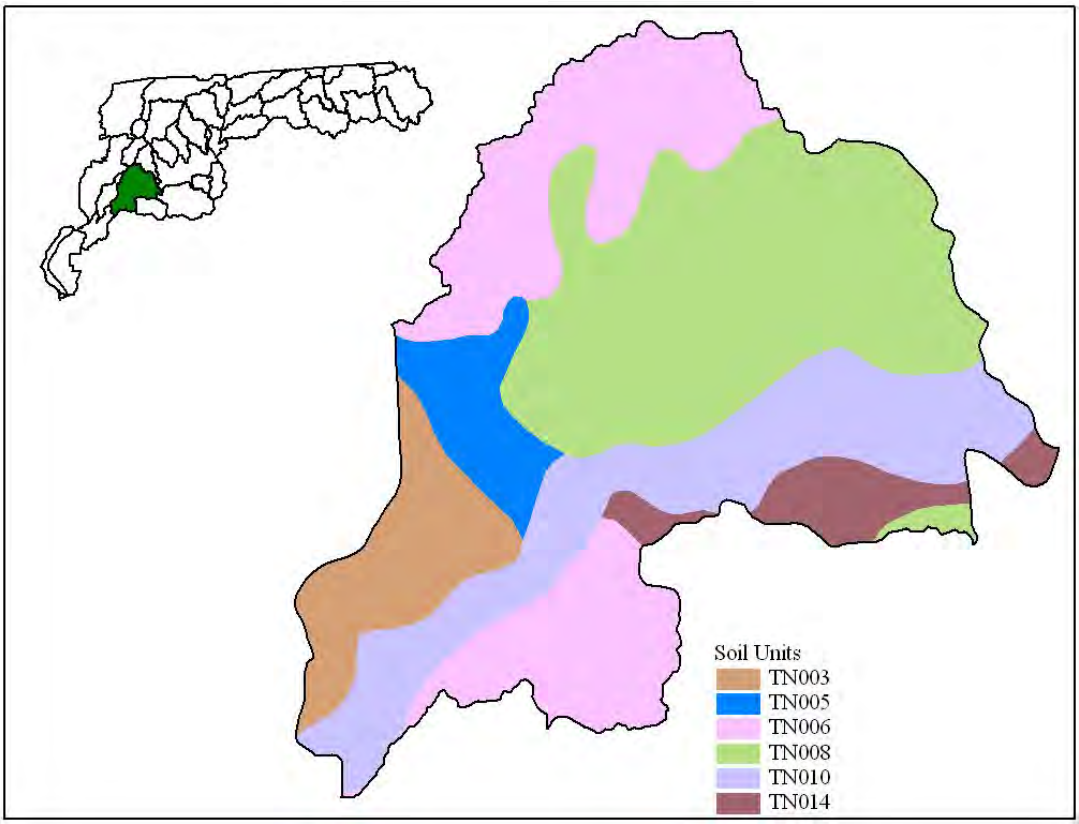


Figure 4-219. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020308.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN003	62.00	C	0.50	6.65	Silty Clay	0.33
TN005	10.00	C	1.79	6.68	Silty Loam	0.41
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-145. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020308. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Dyer	34,854	36,465	37,279	5.81	2,023	2,117	2,164	7.00
Obion	31,717	32,069	32,450	3.84	1,218	1,231	1,246	2.30
Totals	**66,571**	**68,534**	**69,729**		**3,241**	**3,348**	**3,410**	**5.20**

Table 4-146. Population Estimates in Subwatershed 080102020308.

4.2.Y.ii. USGS Gaging Stations and STORET Sites.

There are no STORET sites located in subwatershed 080102020308.

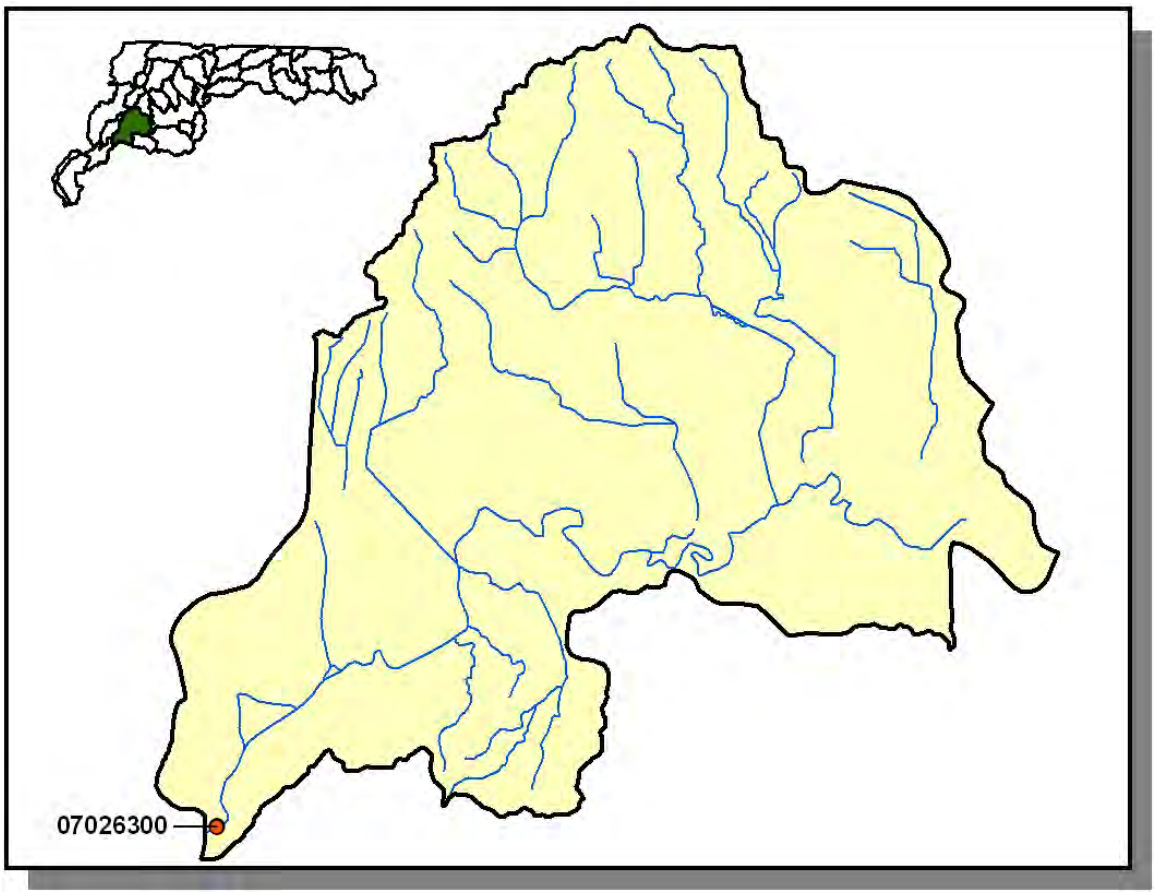


Figure 4-220. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102020308. *More information is provided in Appendix IV.*

4.2.Y.iii. Permitted Activities.

There are not permitted activities located in subwatershed 080102020308 as of June 30th, 2007.

4.2.Y.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Dyer		10,982		12	1,311	
Obion	8,033	18,503	118	7	21,149	205

Table 4-147. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Dyer	40.4	40.4	0.8	2.8
Obion	67.6	67.6	4.4	20.8

Table 4-148. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	6.67
Soybeans (Row Crops)	6.61
Wheat (Close Grown Cropland)	6.31
Corn (Row Crops)	6.17
Cotton (Row Crops)	5.48
Sorghum (Row Crops)	4.61
Oats (Close Grown Cropland)	3.34
Grass (Pastureland)	1.26
Conservation Reserve Program Land	1.02
Farmsteads and Ranch Headquarters	0.79
Grass Forbs Legumes Mixed (Pastureland)	0.57
Grass (Hayland)	0.28
Legume (Pastureland)	0.07

Table 4-149. Annual Estimated Total Soil Loss in Subwatershed 080102020308.

4.2.Z. 080102020309 (Reeds Creek).

4.2.Z.i. General Description.

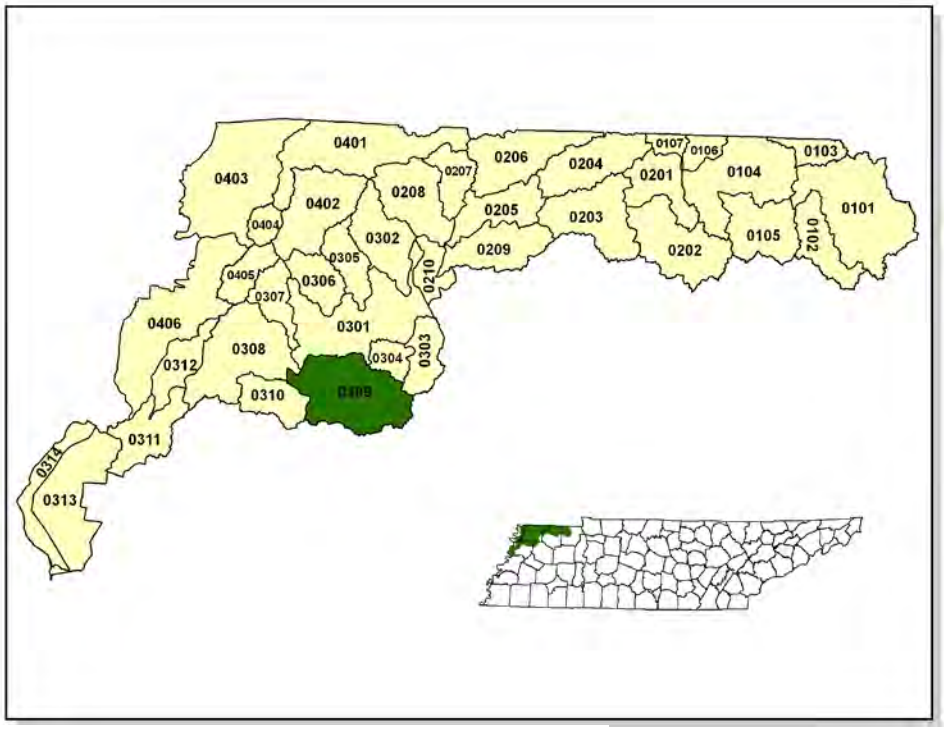


Figure 4-221. Location of Subwatershed 080102020309. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

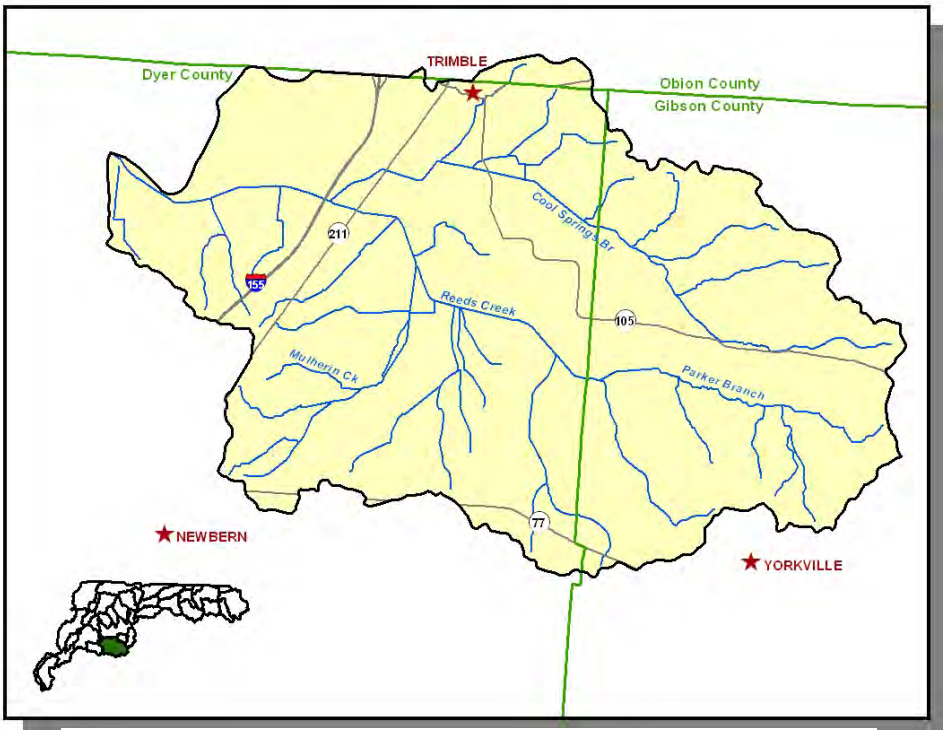


Figure 4-222. Locational Details of Subwatershed 080102020309.

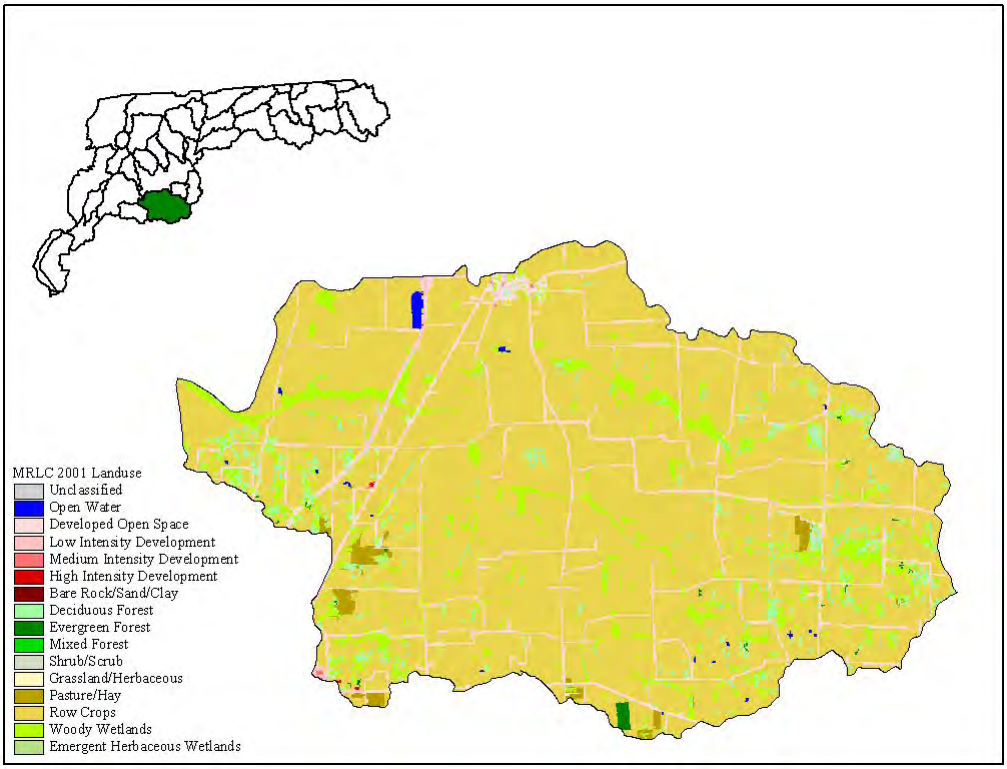


Figure 4-223. Illustration of Land Use Distribution in Subwatershed 080102020309.

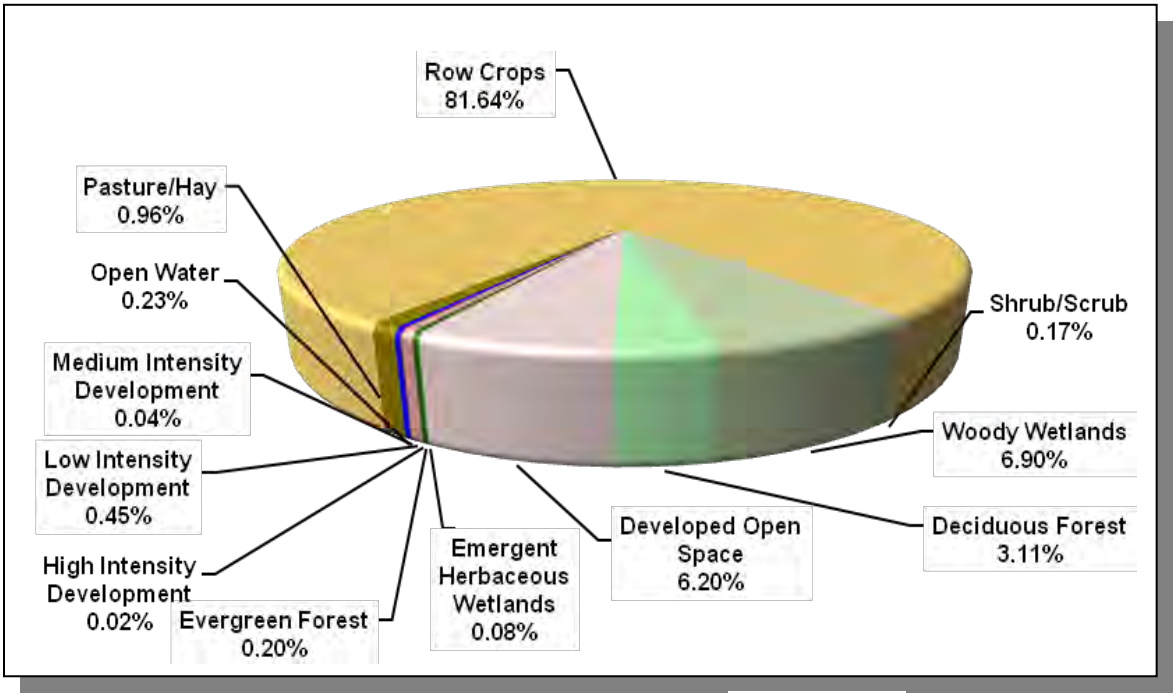


Figure 4-224. Land Use Distribution in Subwatershed 080102020309. *More information is provided in Appendix IV.*

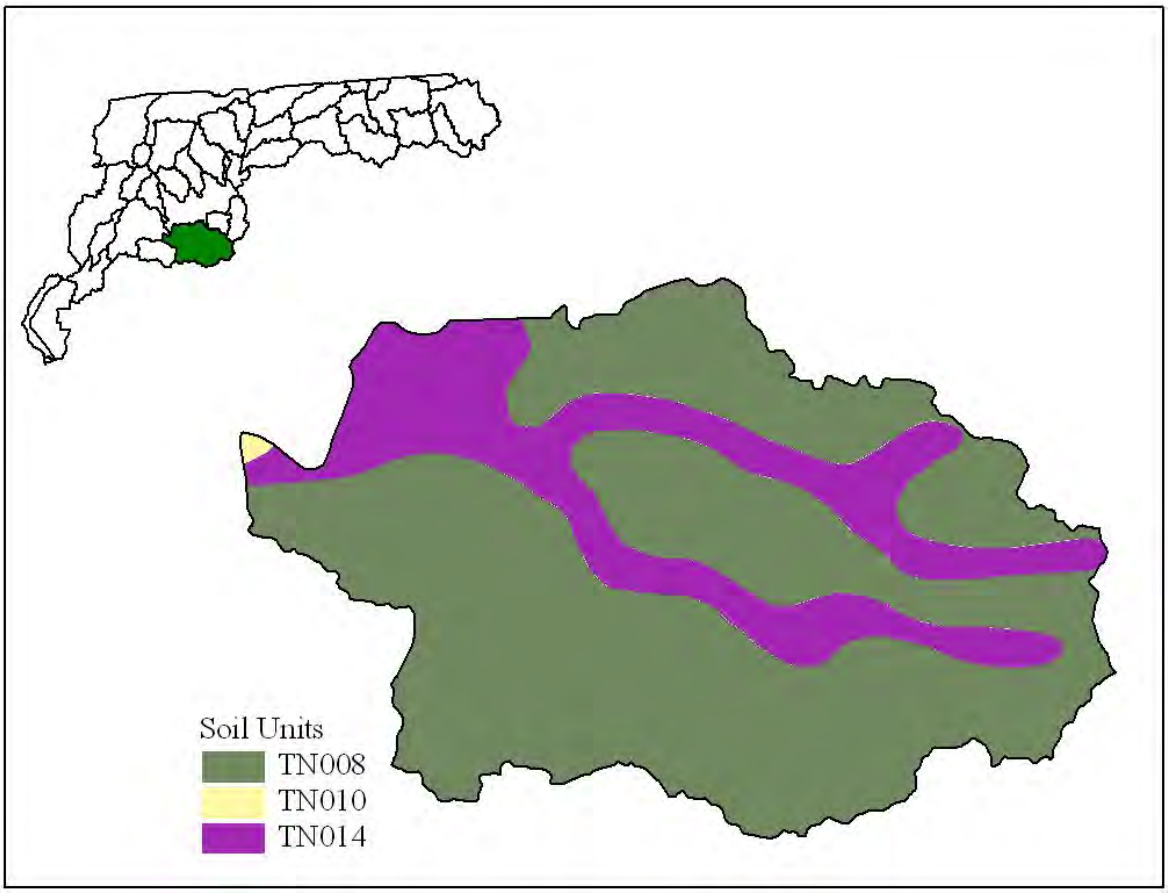


Figure 4-225. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020309.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-150. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020309. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Dyer	34,854	36,465	37,279	6.26	2,183	2,284	2,335	7.00
Gibson	46,315	48,083	48,152	3.24	1,503	1,560	1,562	3.90
Obion	31,717	32,069	32,450	0.09	30	30	30	0.00
Totals	**112,886**	**116,617**	**117,881**		**3,716**	**3,874**	**3,927**	**5.70**

Table 4-151. Population Estimates in Subwatershed 080102020309.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Trimble	Obion	695	306	295	11	0
Newbern	Dyer	2,514	1,052	994	58	0
Total		**3,209**	**1,358**	**1,289**	**69**	**0**

Table 4-152. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020309.

4.2.Z.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020309.

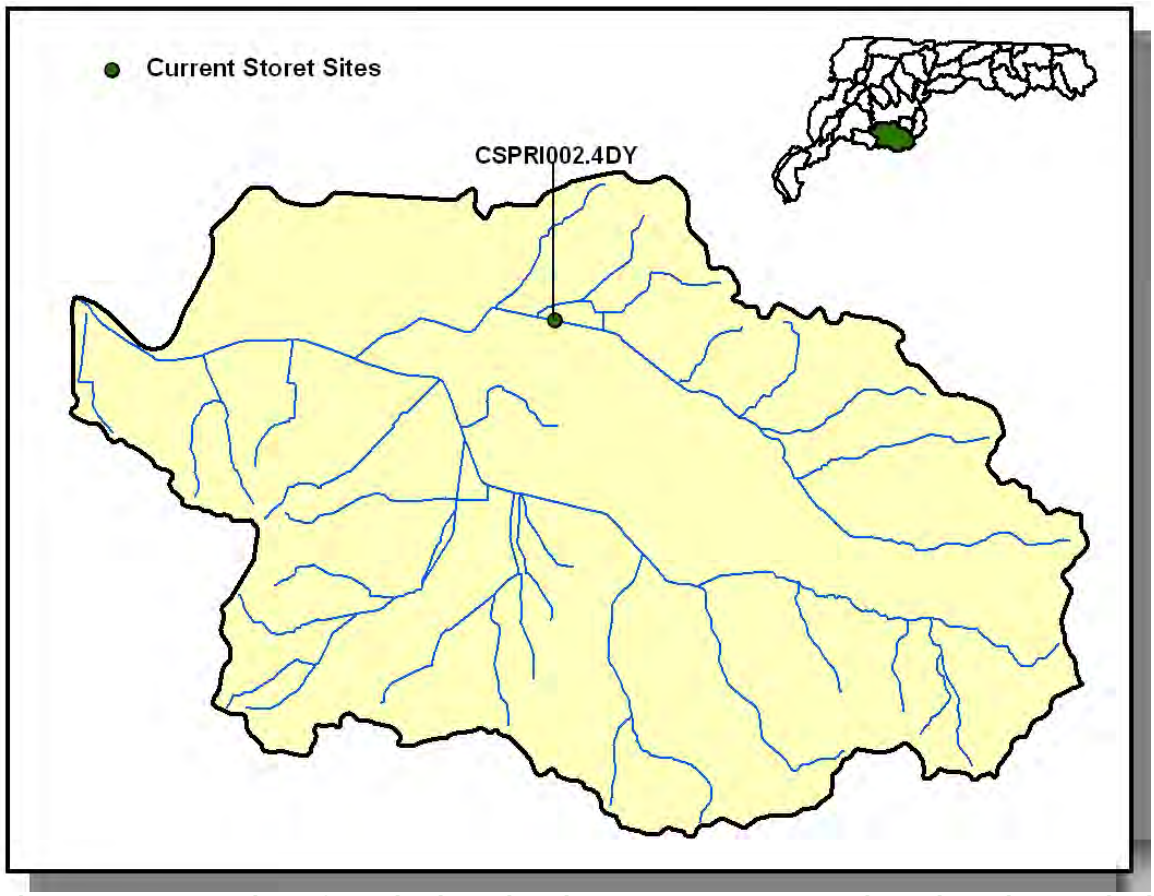


Figure 4-226. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020309. *More information, including site names and locations, is provided in Appendix IV.*

4.2.Z.iii. Permitted Activities.

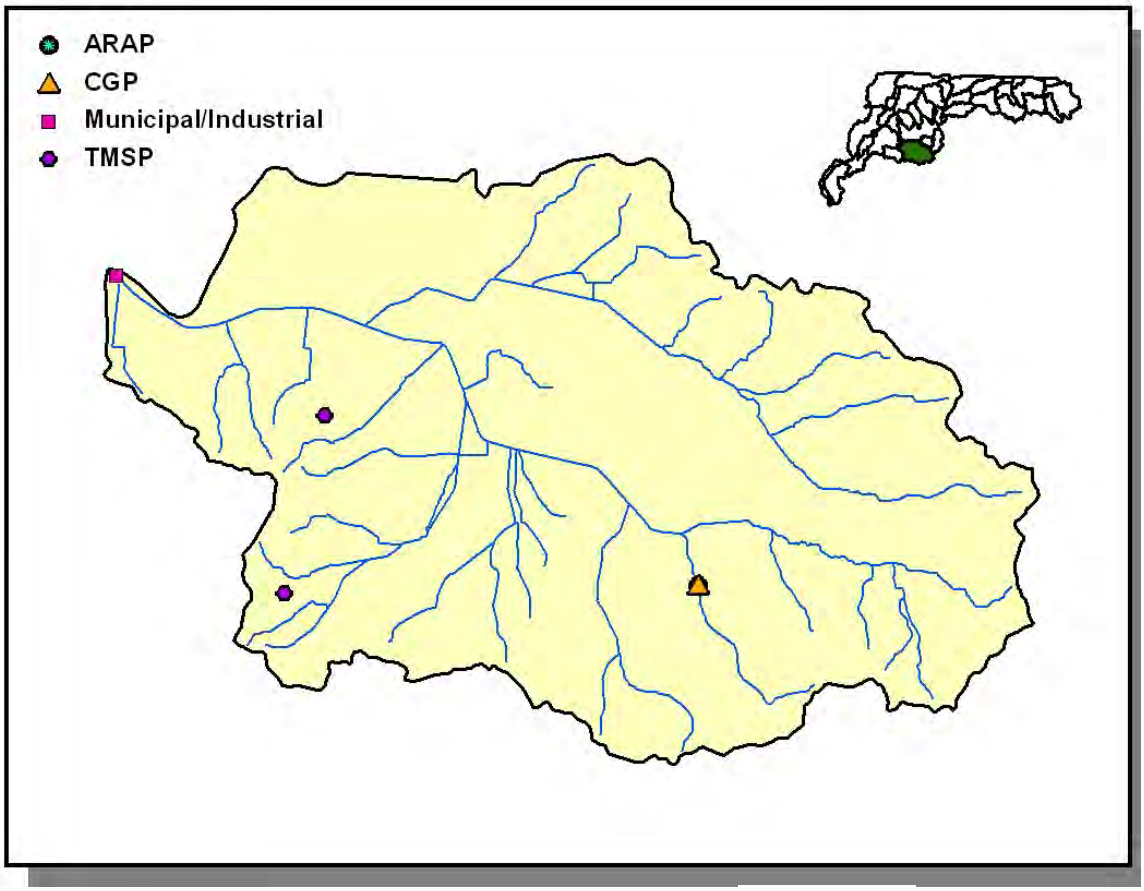


Figure 4-227. Location of Permits Issued in Subwatershed 080102020309. *More information, including the names of facilities, is provided in Appendix IV.*

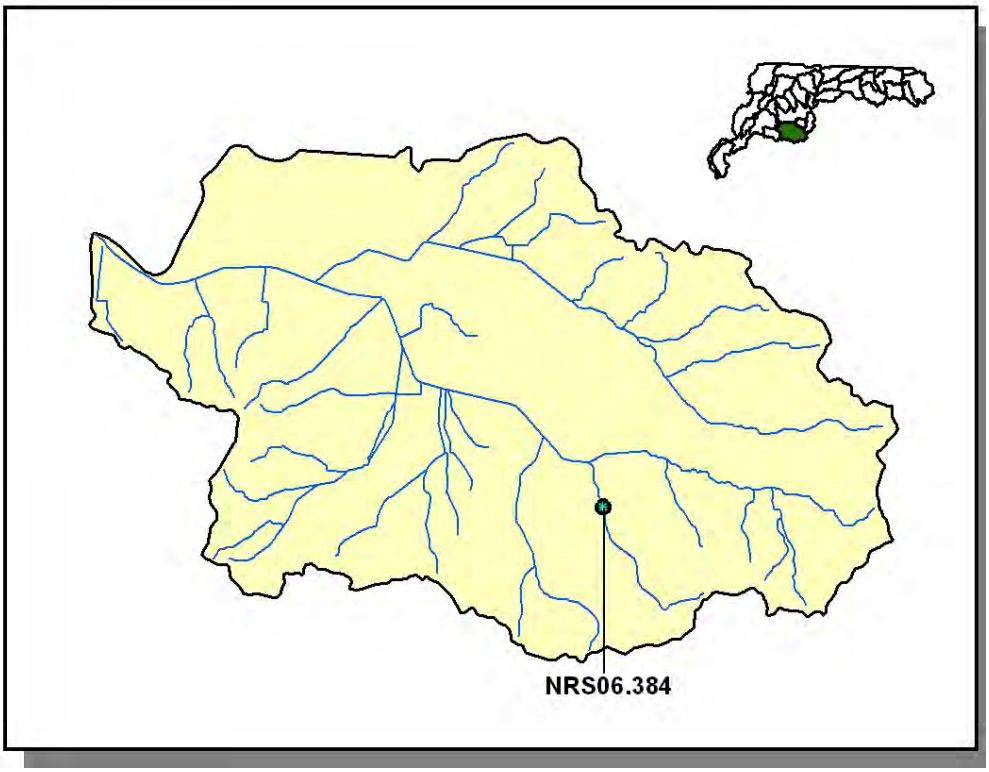


Figure 4-228. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020309. *More information is provided in Appendix IV.*

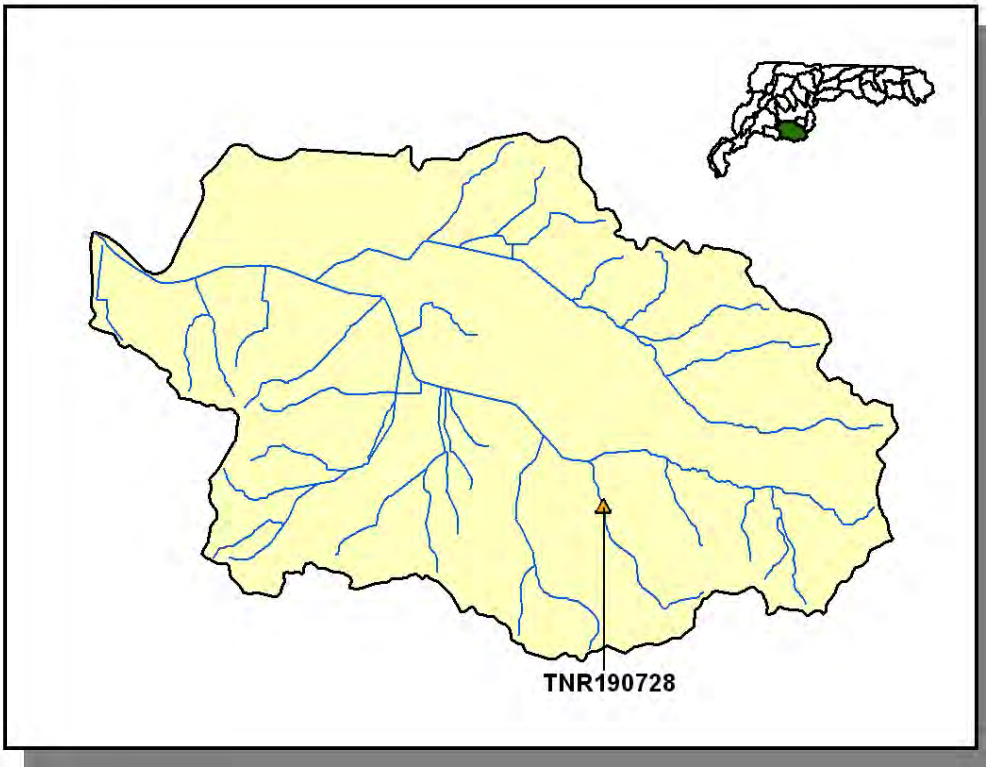


Figure 4-229. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020309. *More information is provided in Appendix IV.*

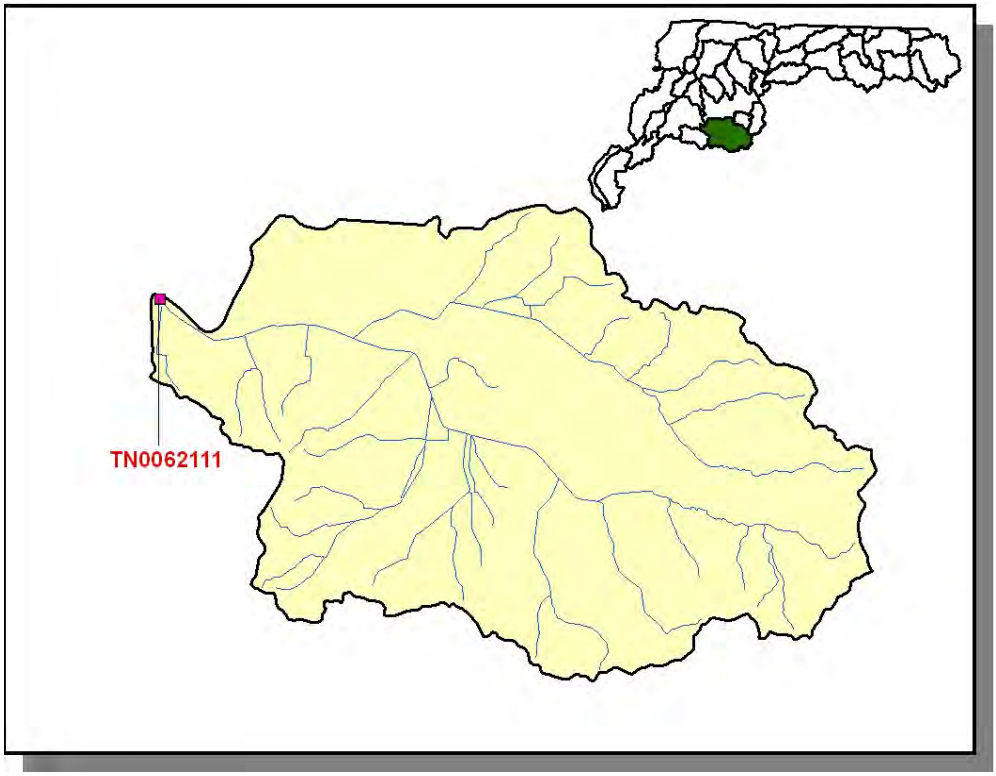


Figure 4-230. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102020309. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0062111	178.0	2.2

Table 4-153. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020309. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	AMMONIA AS N (TOTAL)	$CBOD_5$	CBOD % REMOVAL	TRC
TN0062111	X	X	X	X

Table 4-154. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020309. *$CBOD_5$, Carbonaceous Biochemical Oxygen Demand (5-day); TRC, Total Residual Chlorine.*

PERMIT #	WET	DO	SS	TSS	TSS % REMOVAL	pH	E. *coli*	FLOW
TN0062111	X	X	X	X	X	X	X	X

Table 4-155. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020309. *DO, Dissolved Oxygen; SS, Settleable Solids; TSS, Total Suspended Solids.*

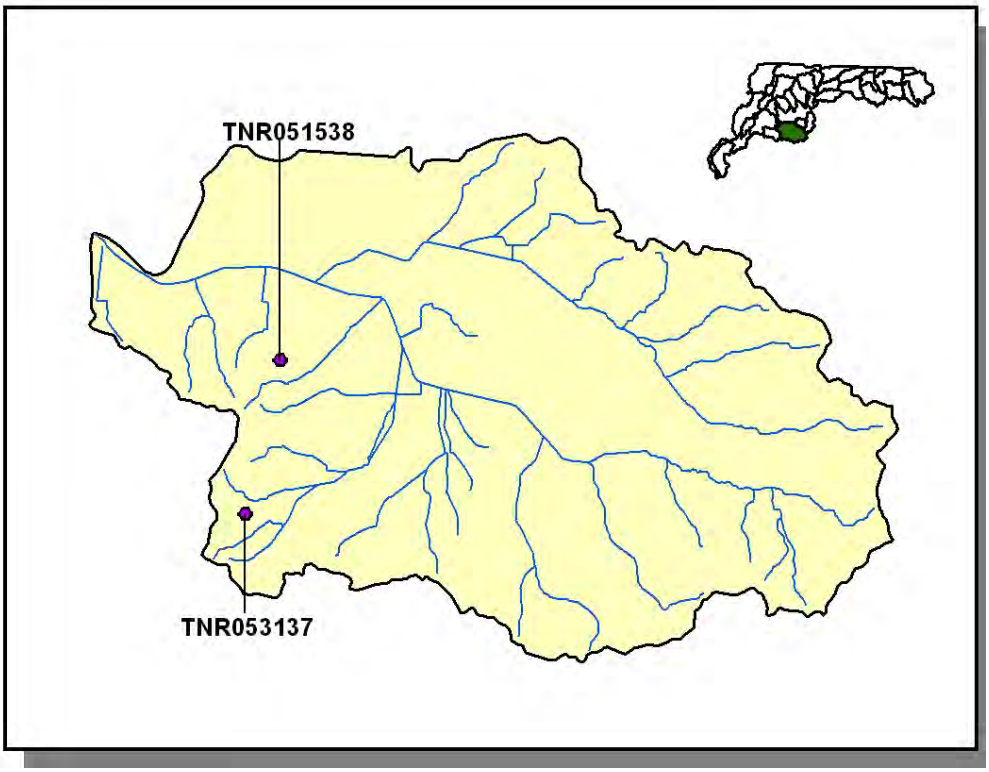


Figure 4-231. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020309. *More information is provided in Appendix IV.*

4.2.Z.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Dyer		10,982		12	1,311	
Gibson	9,766	21,779	221	605	7,506	74
Obion	8,033	18,503	118	7	21,149	205

Table 4-156. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Dyer	40.4	40.4	0.8	2.8
Gibson	36.4	36.4	2.0	8.6
Obion	67.6	67.6	4.4	20.8

Table 4-157. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Cotton (Row Crops)	9.67
Corn (Row Crops)	8.97
Soybeans (Row Crops)	6.72
Sorghum (Row Crops)	6.05
Wheat (Close Grown Cropland)	3.98
Oats (Close Grown Cropland)	3.34
Other Land in Farms	1.34
Other Cropland not Planted	1.20
Grass (Pastureland)	1.14
Farmsteads and Ranch Headquarters	0.91
Grass Forbs Legumes Mixed (Pastureland)	0.56
Conservation Reserve Program Land	0.43
Grass (Hayland)	0.22
Legume (Pastureland)	0.07

Table 4-158. Annual Estimated Total Soil Loss in Subwatershed 080102020309.

4.2.AA. 080102020310 (Biffle Creek).

4.2.AA.i. General Description.

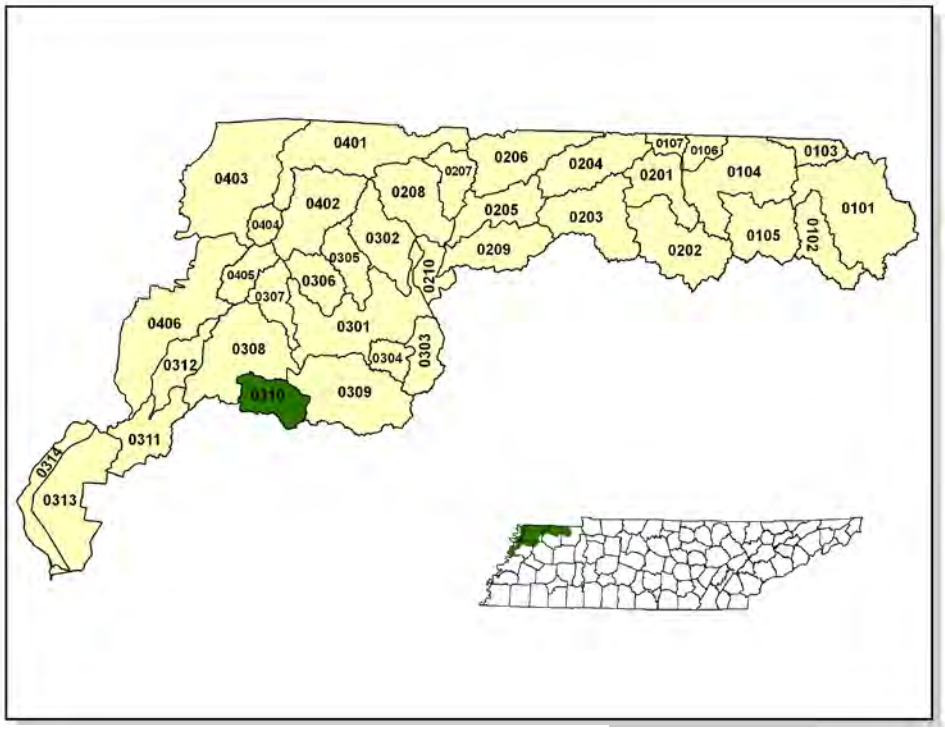


Figure 4-232. Location of Subwatershed 080102020310. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

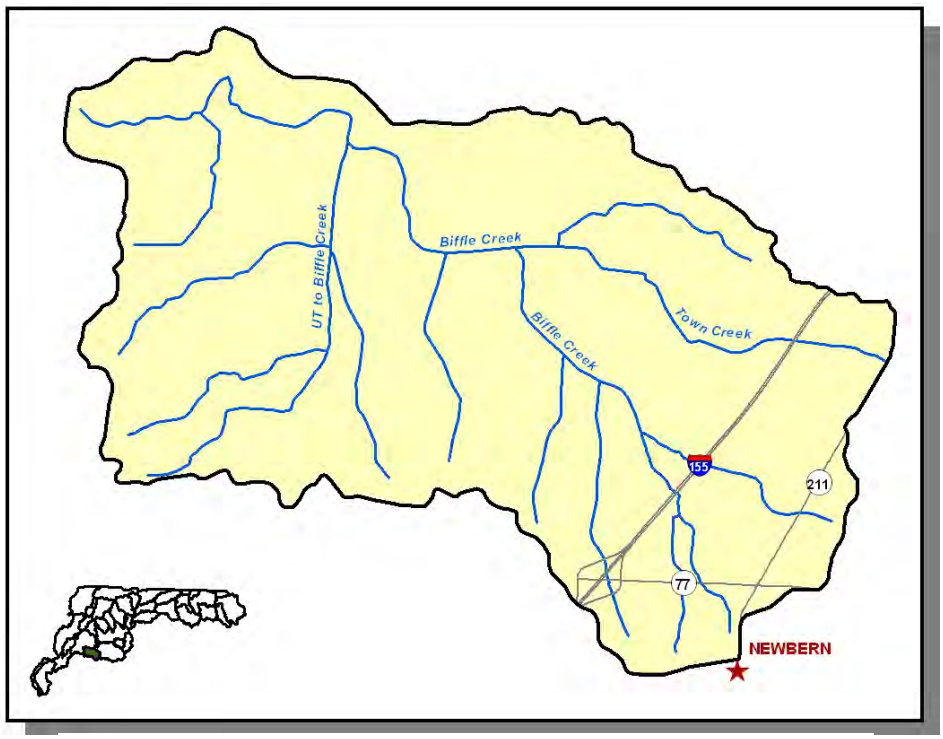


Figure 4-233. Locational Details of Subwatershed 080102020310.

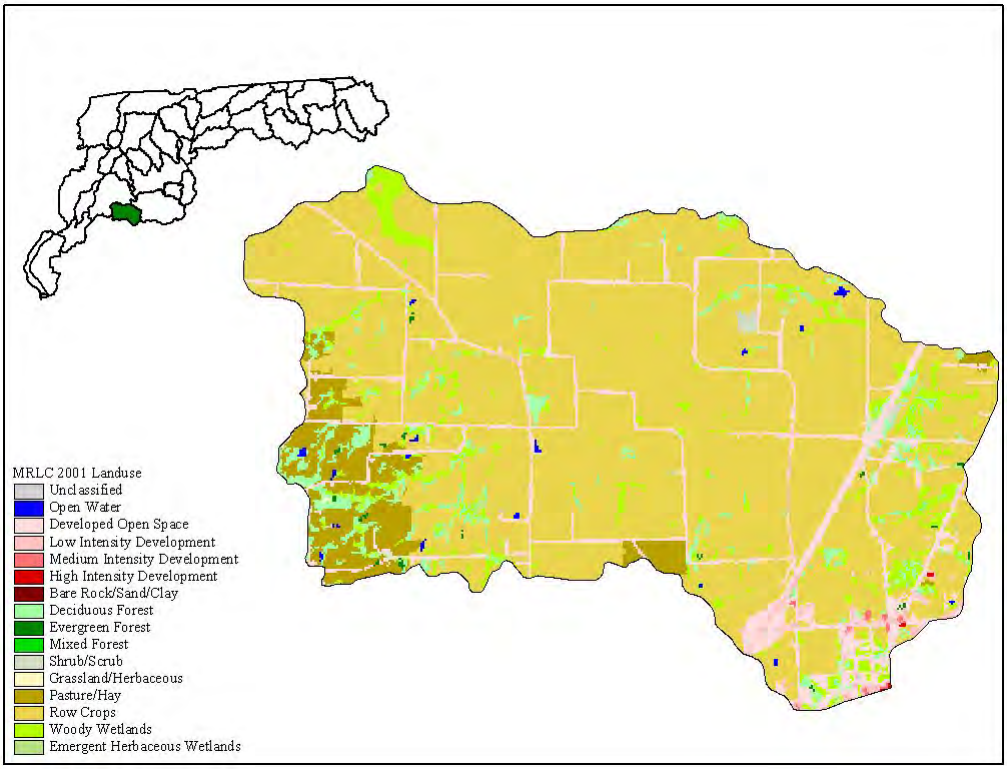


Figure 4-234. Illustration of Land Use Distribution in Subwatershed 080102020310.

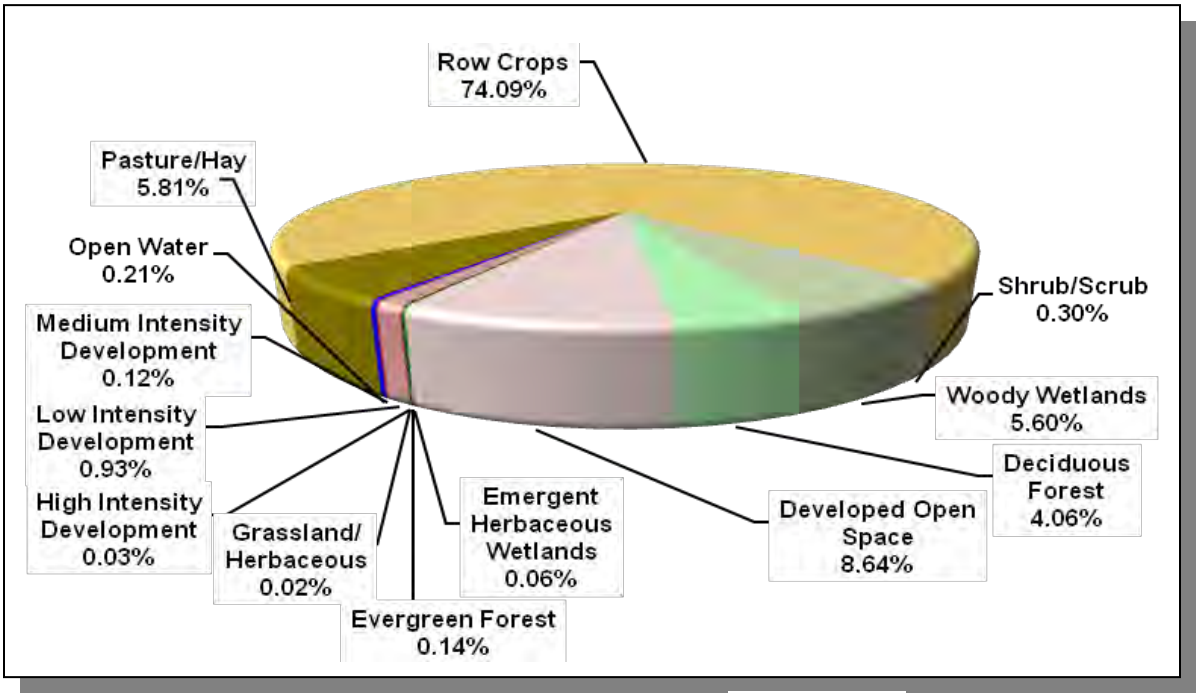


Figure 4-235. Land Use Distribution in Subwatershed 080102020310. *More information is provided in Appendix IV.*

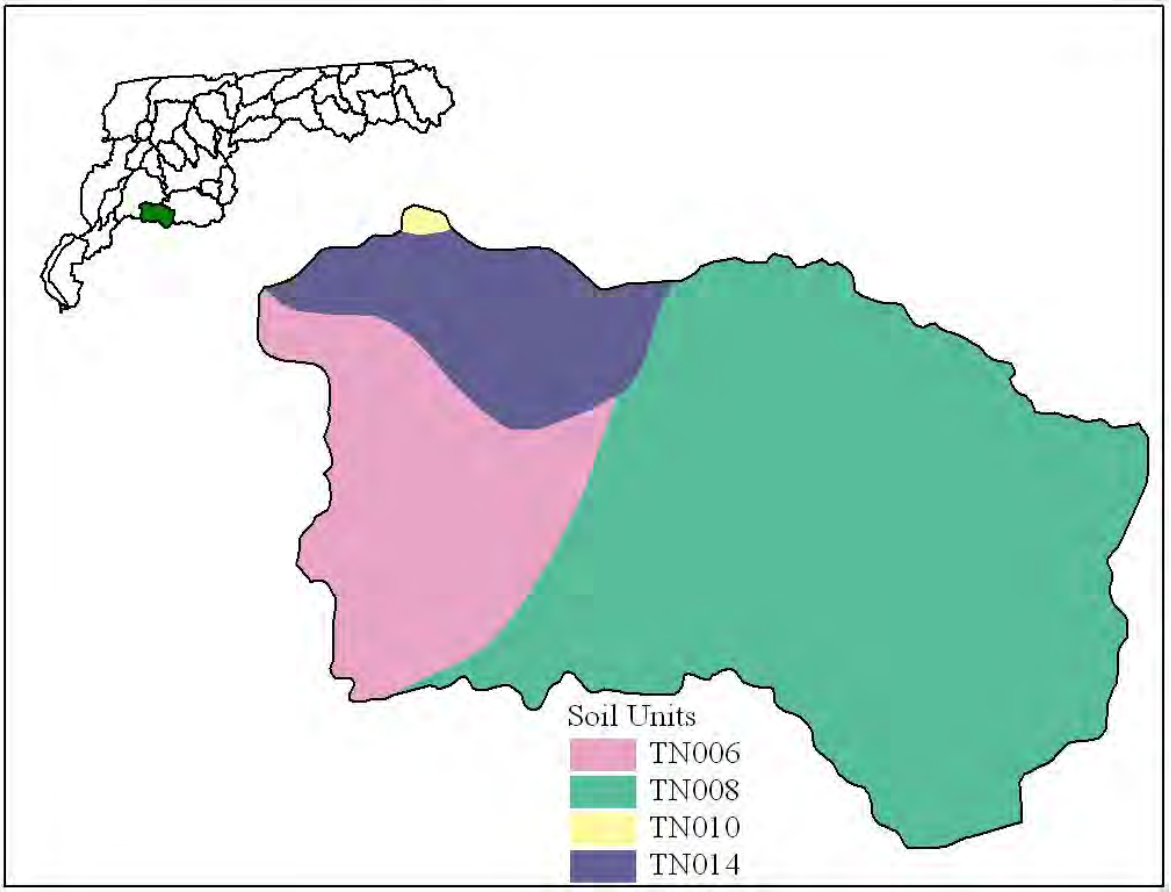


Figure 4-236. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020310.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN008	2.00	C	1.38	5.20	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-159. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020310. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Dyer	34,854	36,465	37,279	3.61	1,258	1,316	1,346	7.00

Table 4-160. Population Estimates in Subwatershed 080102020310.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Newbern	Dyer	2,514	1,052	994	58	0

Table 4-161. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020310.

4.2.AA.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020310.

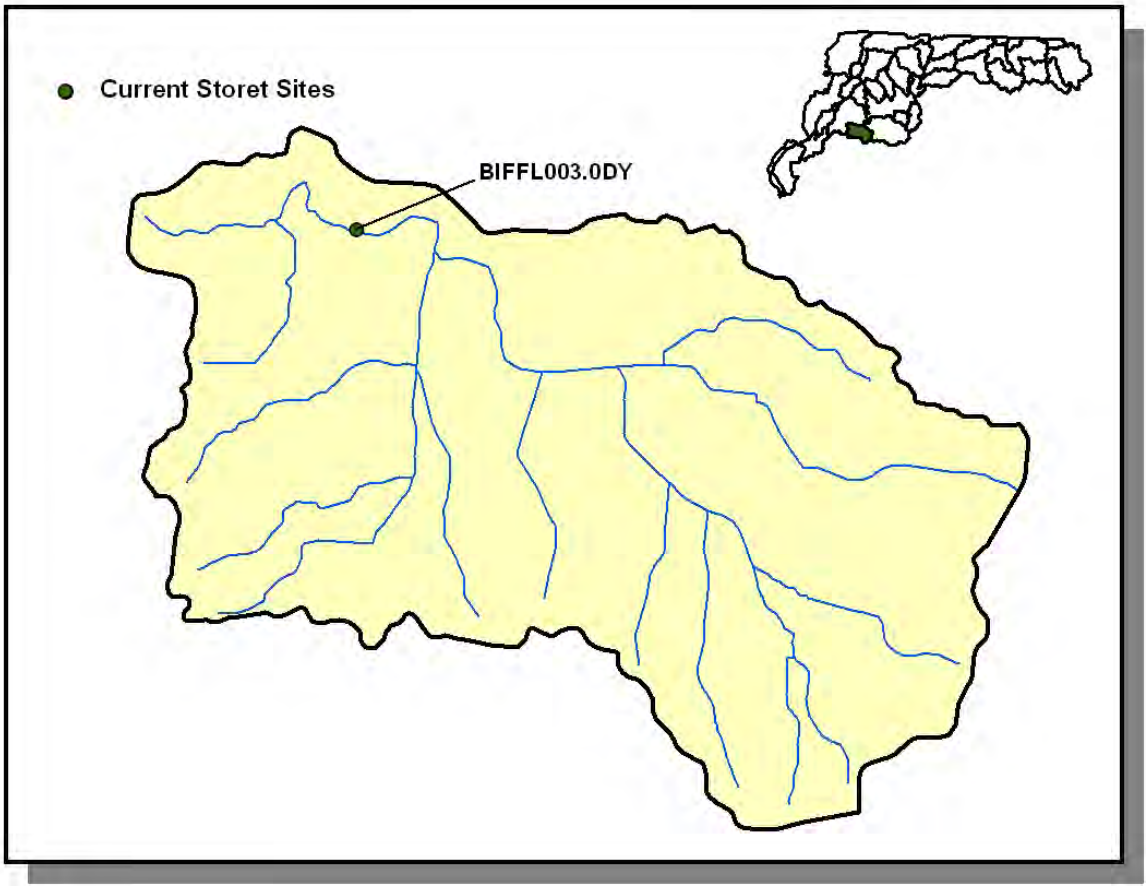


Figure 4-237. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020310. *More information, including site names and locations, is provided in Appendix IV.*

4.2.AA.iii. Permitted Activities.

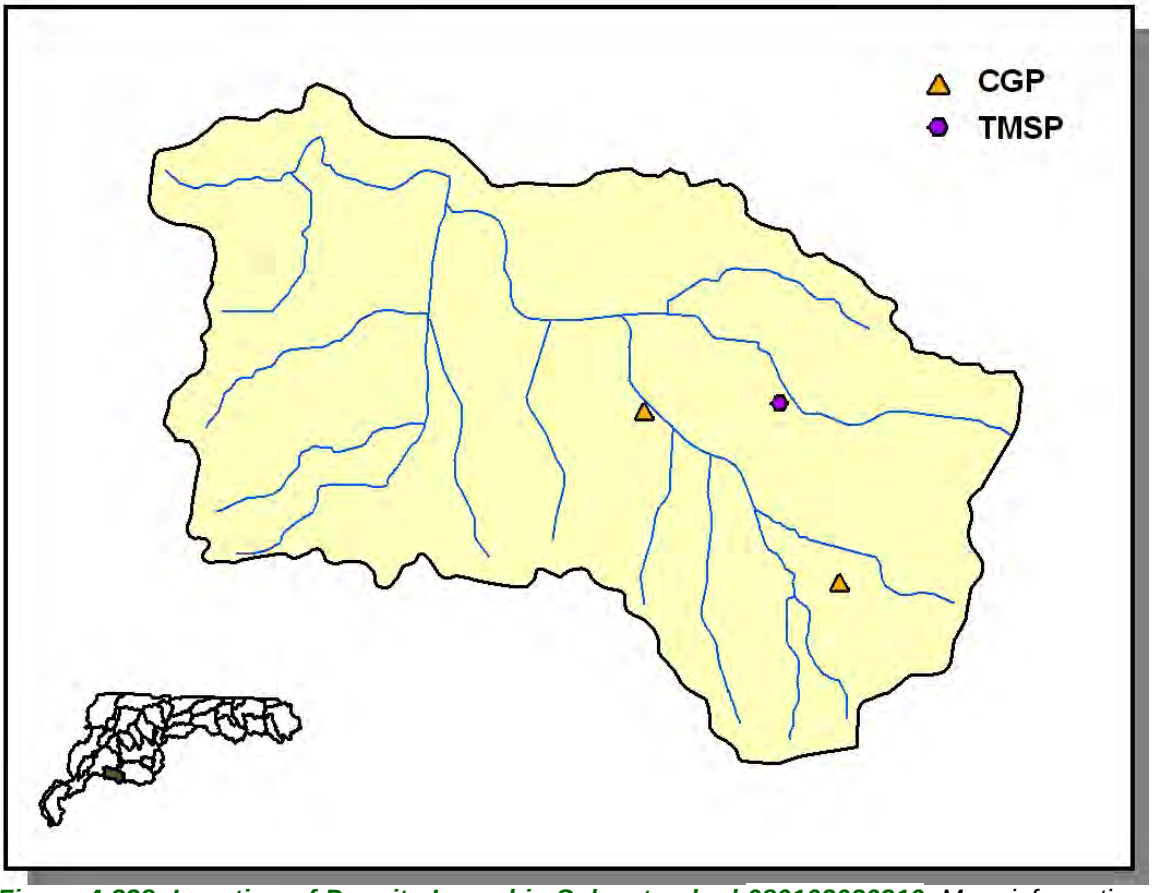


Figure 4-238. Location of Permits Issued in Subwatershed 080102020310. *More information, including the names of facilities, is provided in Appendix IV.*

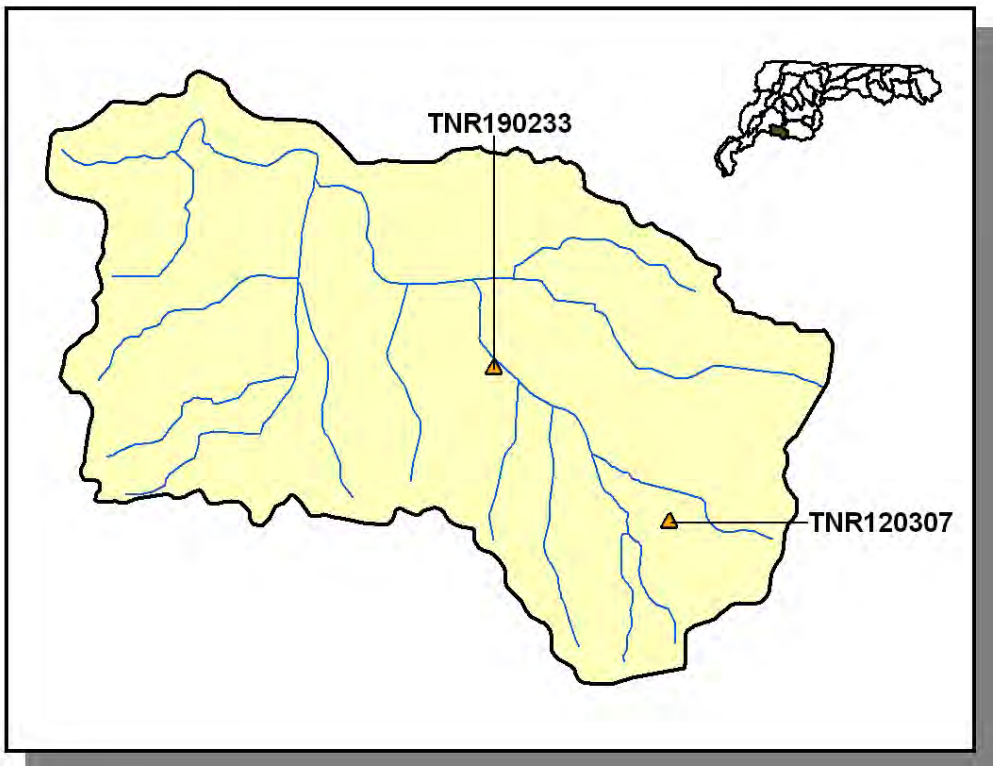


Figure 4-239. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020310. *More information is provided in Appendix IV.*

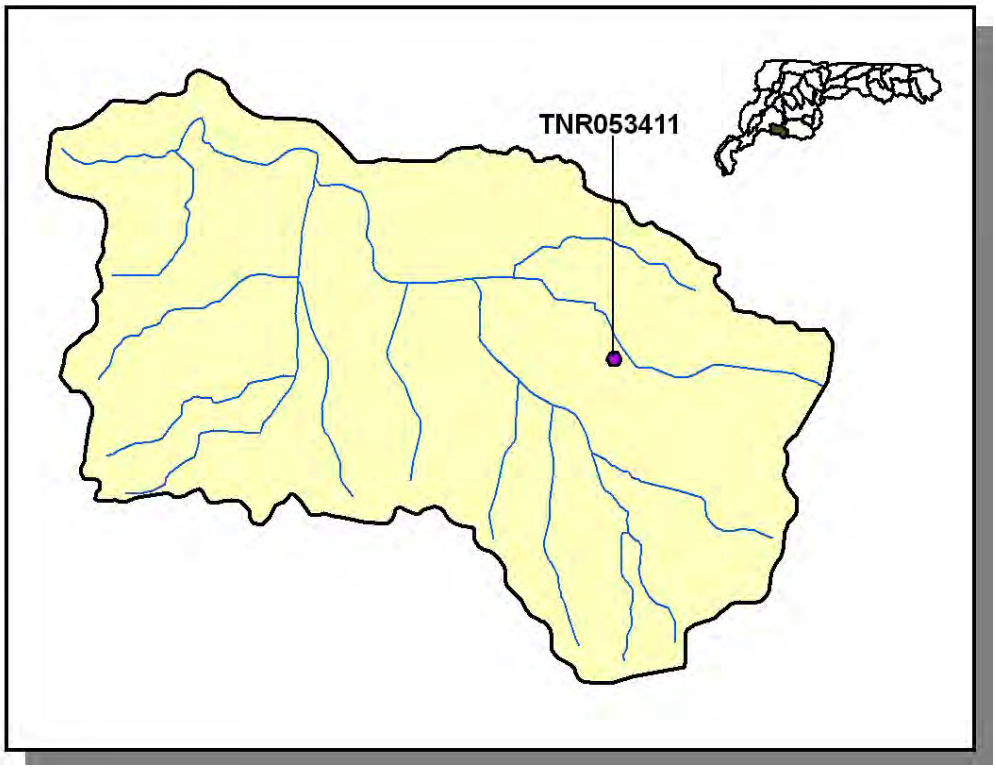


Figure 4-240. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020310. *More information is provided in Appendix IV.*

4.2.AA.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Dyer		10,982		12	1,211	

Table 4-162. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Dyer	40.4	40.4	0.8	2.8

Table 4-163. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Corn (Row Crops)	7.44
Sorghum (Row Crops)	5.90
Soybeans (Row Crops)	5.60
Cotton (Row Crops)	5.30
Wheat (Close Grown Cropland)	3.88
Oats (Close Grown Cropland)	3.34
Grass (Pastureland)	1.66
Other Cropland not Planted	1.36
Farmsteads and Ranch Headquarters	1.24
Conservation Reserve Program Land	0.39
Grass Forbs Legumes Mixed (Pastureland)	0.36
Grass (Hayland)	0.14

Table 4-164. Annual Estimated Total Soil Loss in Subwatershed 080102020310.

4.2.BB. 080102020311 (Obion River).

4.2.BB.i. General Description.

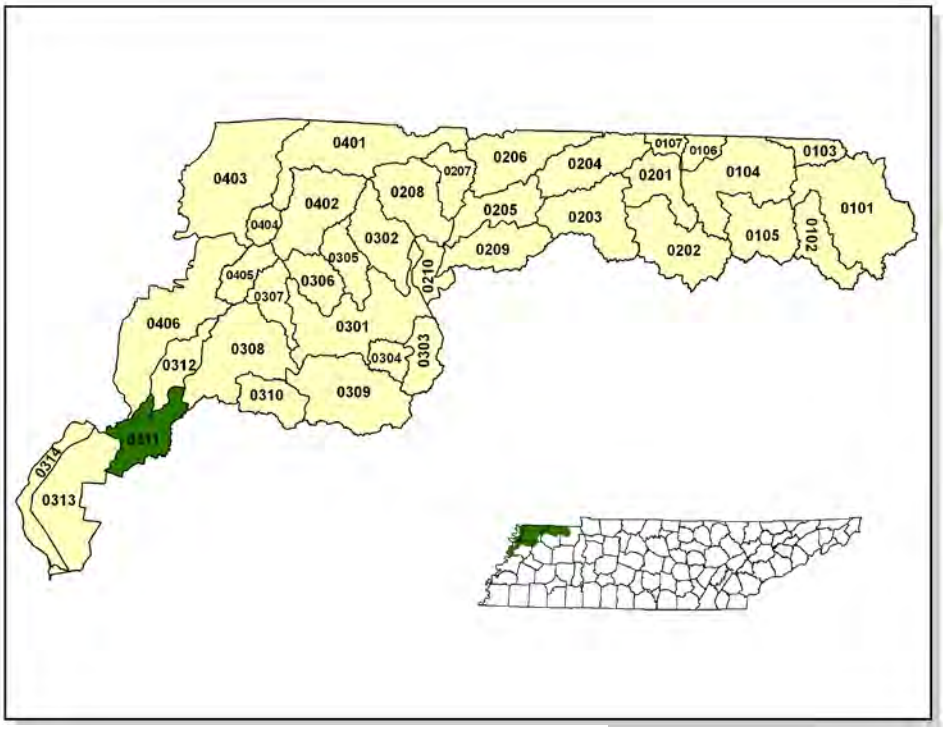


Figure 4-241. Location of Subwatershed 080102020311. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

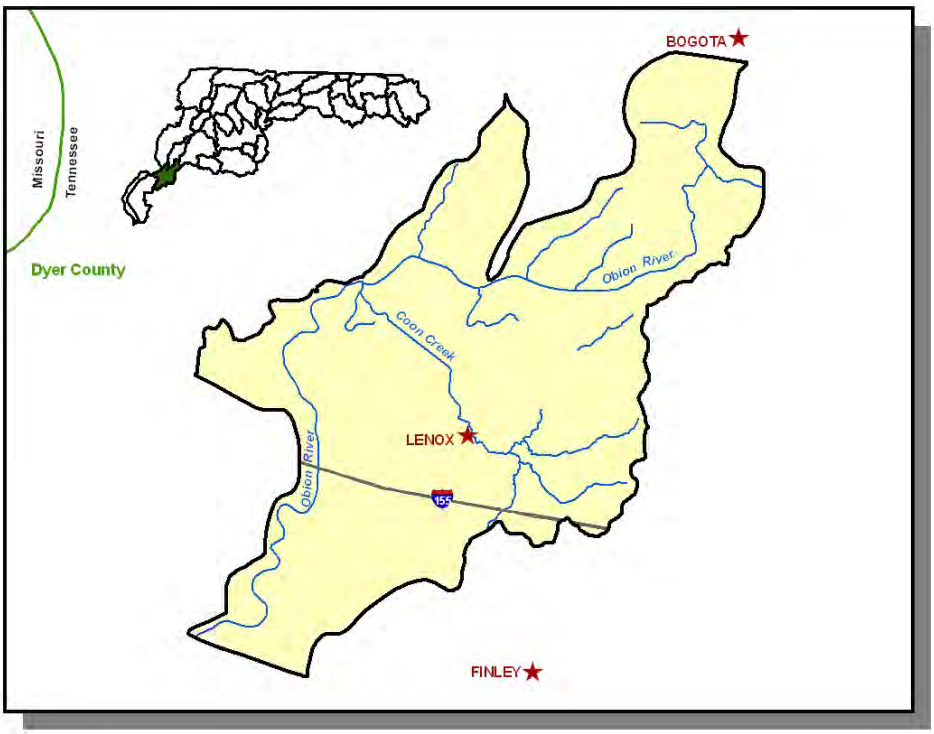


Figure 4-242. Locational Details of Subwatershed 080102020311.

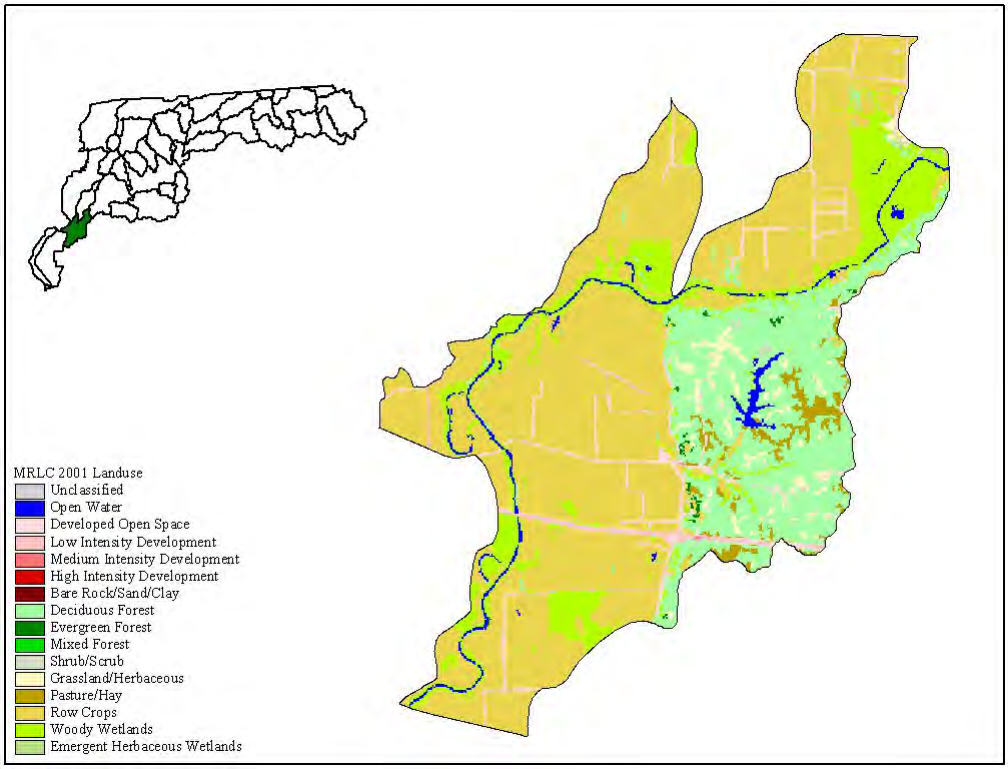


Figure 4-243. Illustration of Land Use Distribution in Subwatershed 080102020311.

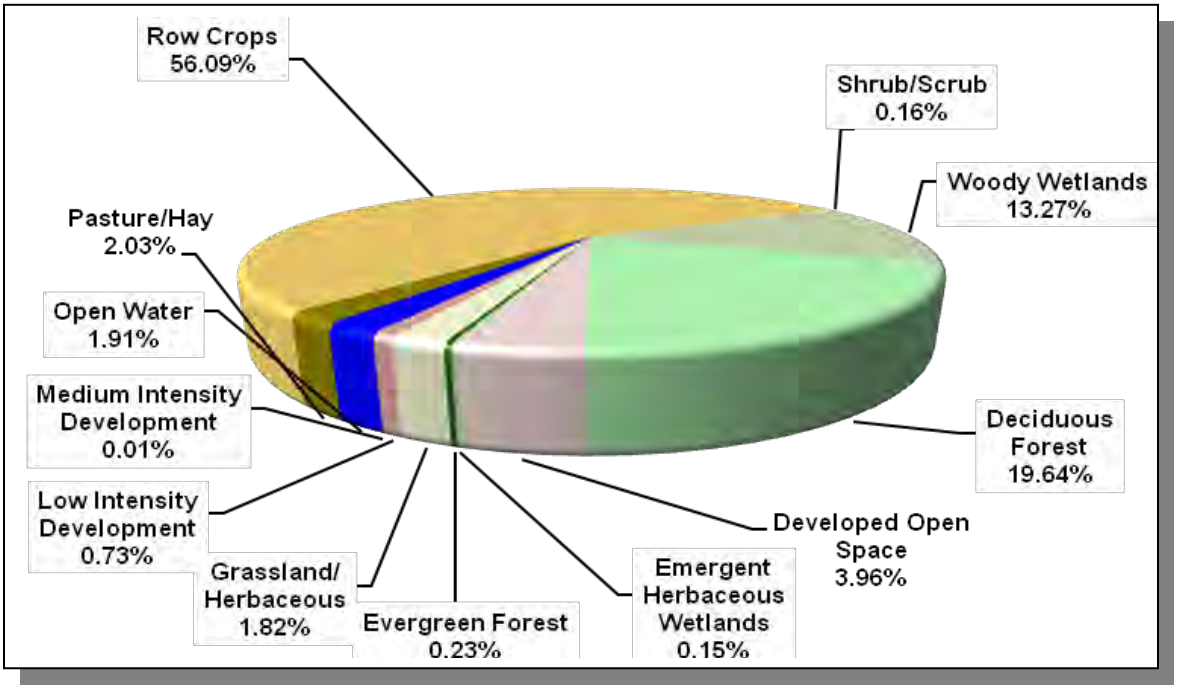


Figure 4-244. Land Use Distribution in Subwatershed 080102020311. *More information is provided in Appendix IV.*

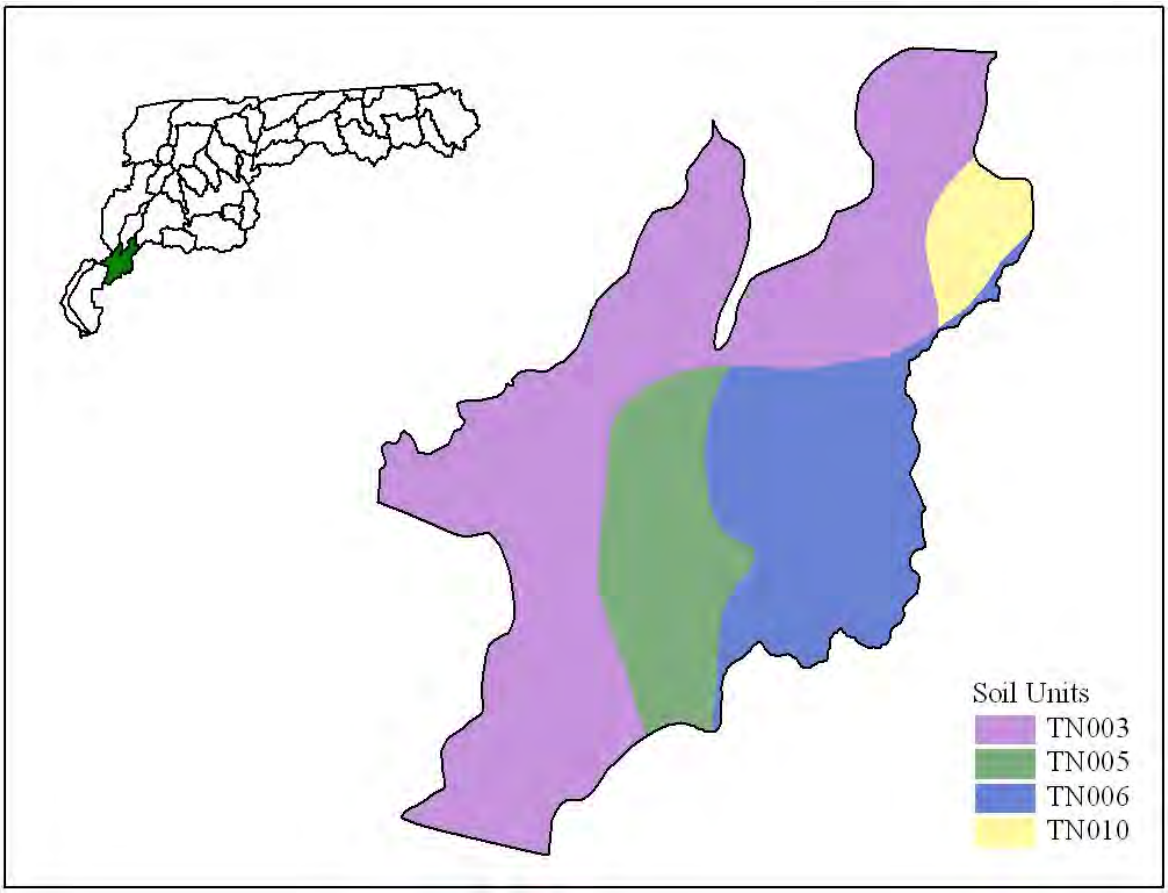


Figure 4-245. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020311.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN003	62.00	C	0.50	6.65	Silty Clay	0.33
TN005	10.00	C	1.79	6.68	Silty Loam	0.41
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN010	81.00	C	1.33	5.11	Silty Loam	0.44

Table 4-165. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020311. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Dyer	34,854	36,465	37,279	5.01	1,745	1,826	1,867	7.00

Table 4-166. Population Estimates in Subwatershed 080102020311.

4.2.BB.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020311.

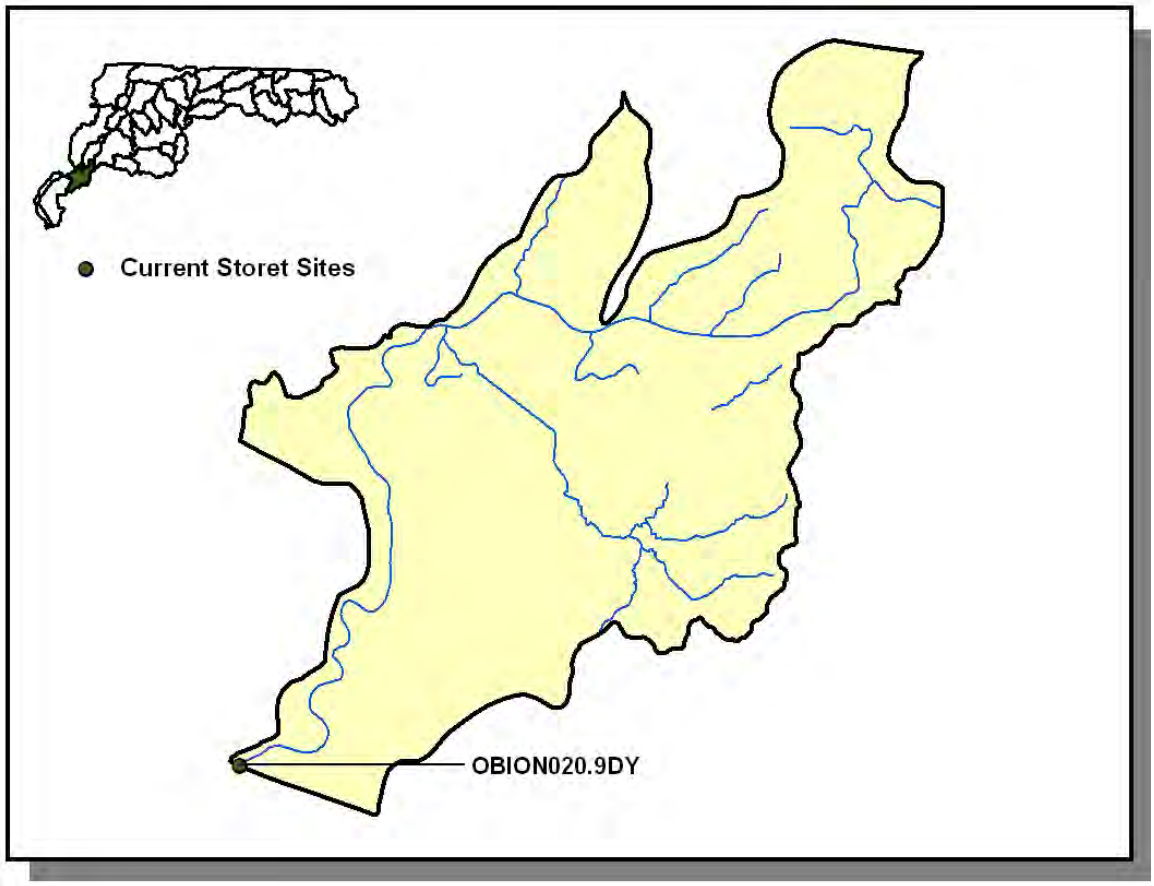


Figure 4-246. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020311. *More information, including site names and locations, is provided in Appendix IV.*

4.2.BB.iii. Permitted Activities.

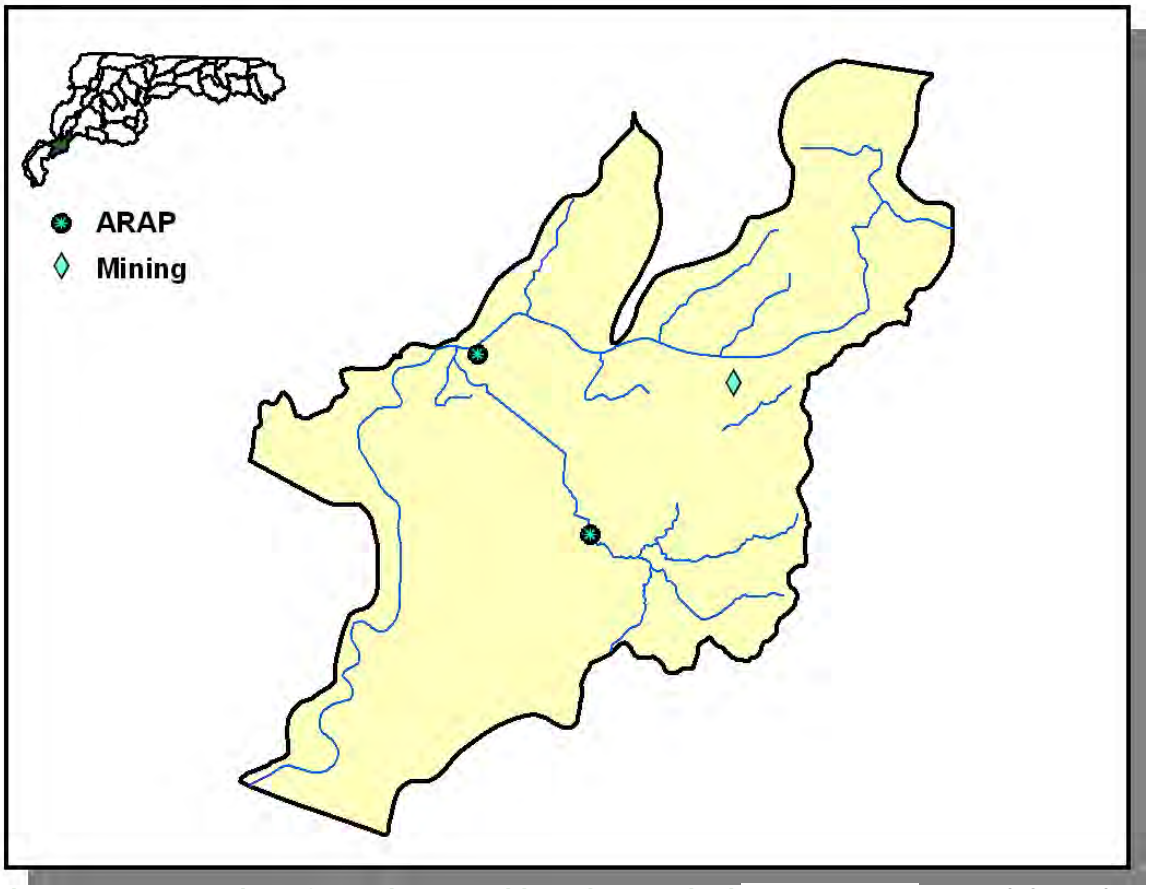


Figure 4-247. Location of Permits Issued in Subwatershed 080102020311. *More information, including the names of facilities, is provided in Appendix IV.*

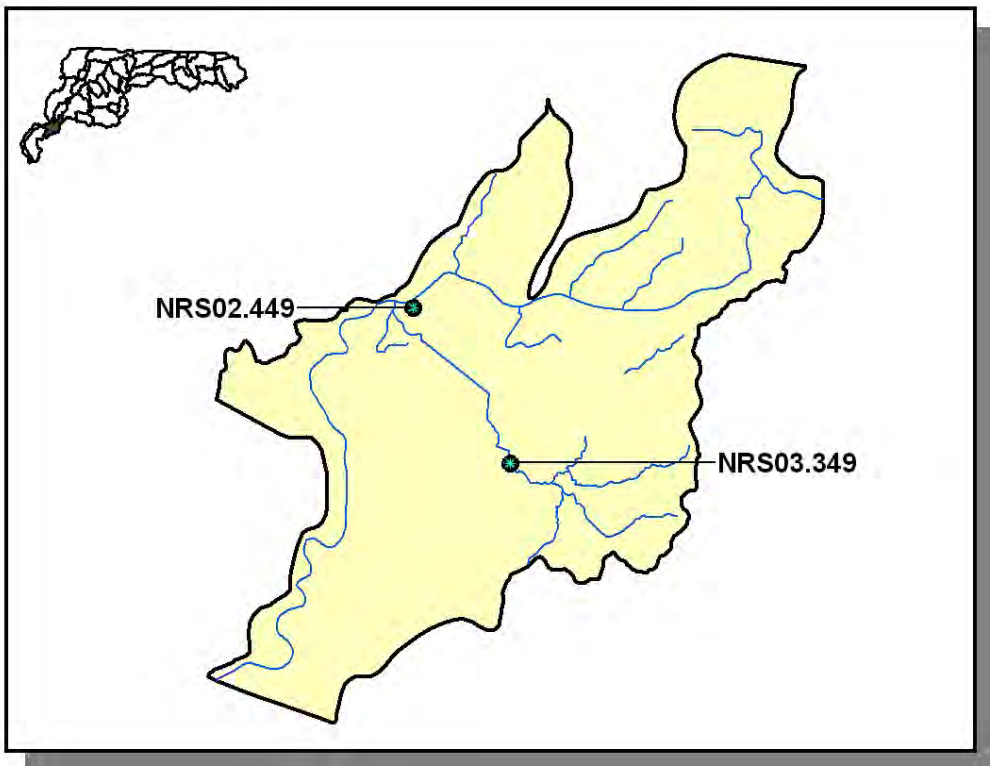


Figure 4-248. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020311. *More information is provided in Appendix IV.*

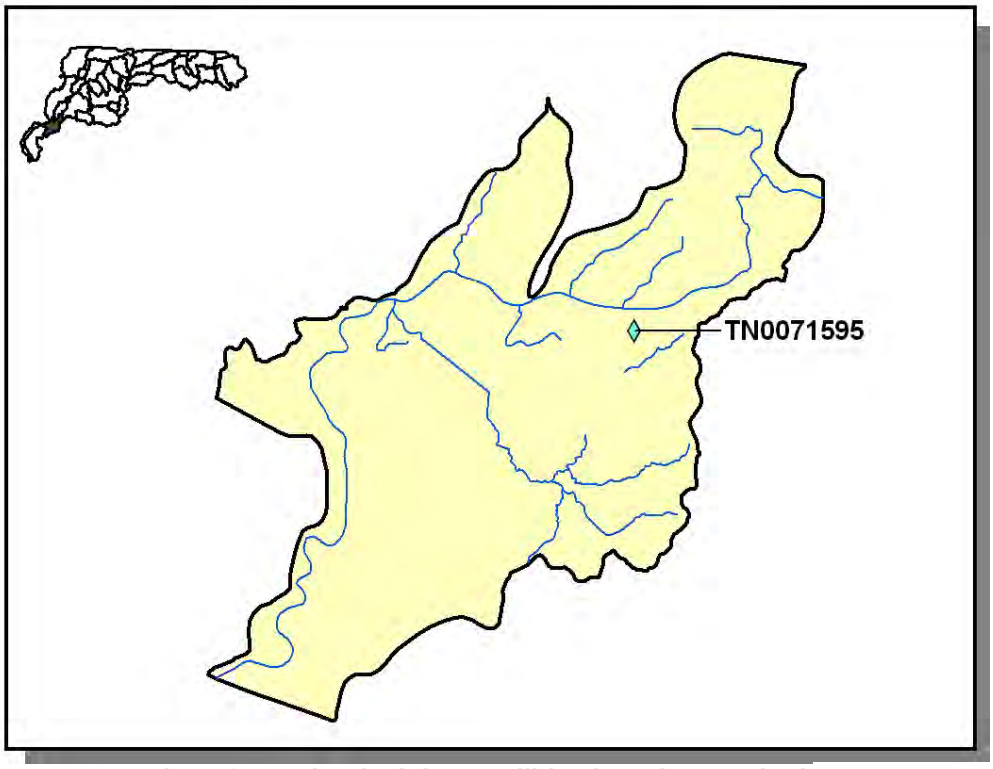


Figure 4-249. Location of Permitted Mining Facilities in Subwatershed 080102020311. *More information is provided in Appendix IV.*

4.2.BB.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Dyer		10,982		12	1,311	

Table 4-167. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Dyer	40.4	40.4	0.8	2.8

Table 4-168. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Corn (Row Crops)	7.44
Sorghum (Row Crops)	5.90
Soybeans (Row Crops)	5.60
Cotton (Row Crops)	5.30
Wheat (Close Grown Cropland)	3.88
Oats (Close Grown Cropland)	3.34
Grass (Pastureland)	1.66
Other Cropland not Planted	1.36
Farmsteads and Ranch Headquarters	1.24
Conservation Reserve Program Land	0.39
Grass Forbs Legumes Mixed (Pastureland)	0.36
Grass (Hayland)	0.14
Corn (Row Crops)	7.44
Sorghum (Row Crops)	5.90

Table 4-169. Annual Estimated Total Soil Loss in Subwatershed 080102020311.

4.2.CC. 080102020312 (Ray's Creek).

4.2.CC.i. General Description.

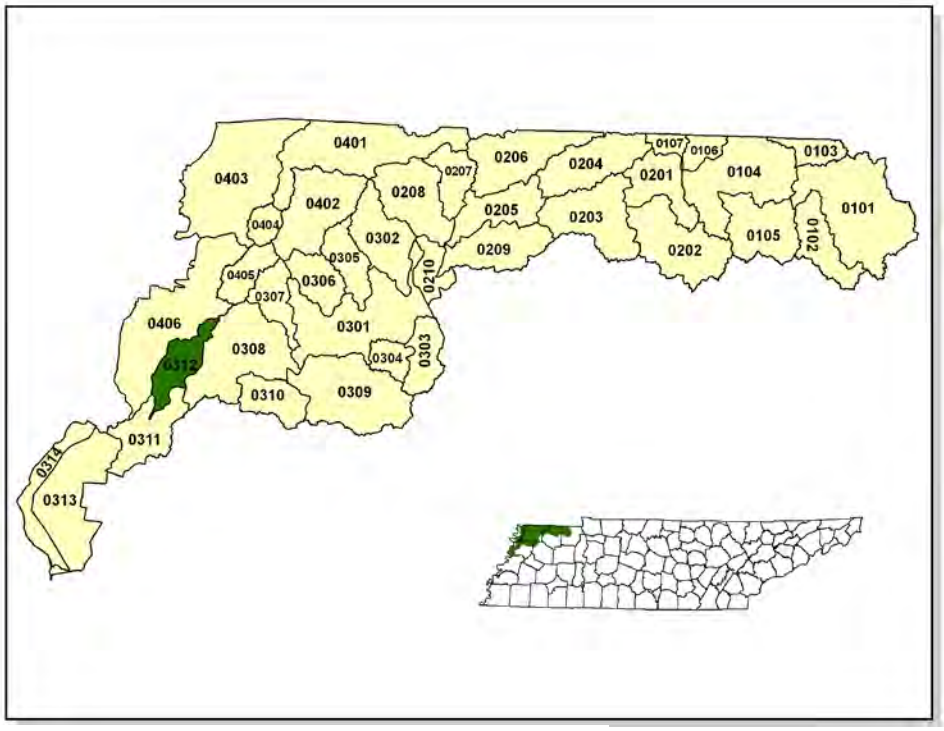


Figure 4-250. Location of Subwatershed 080102020312. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

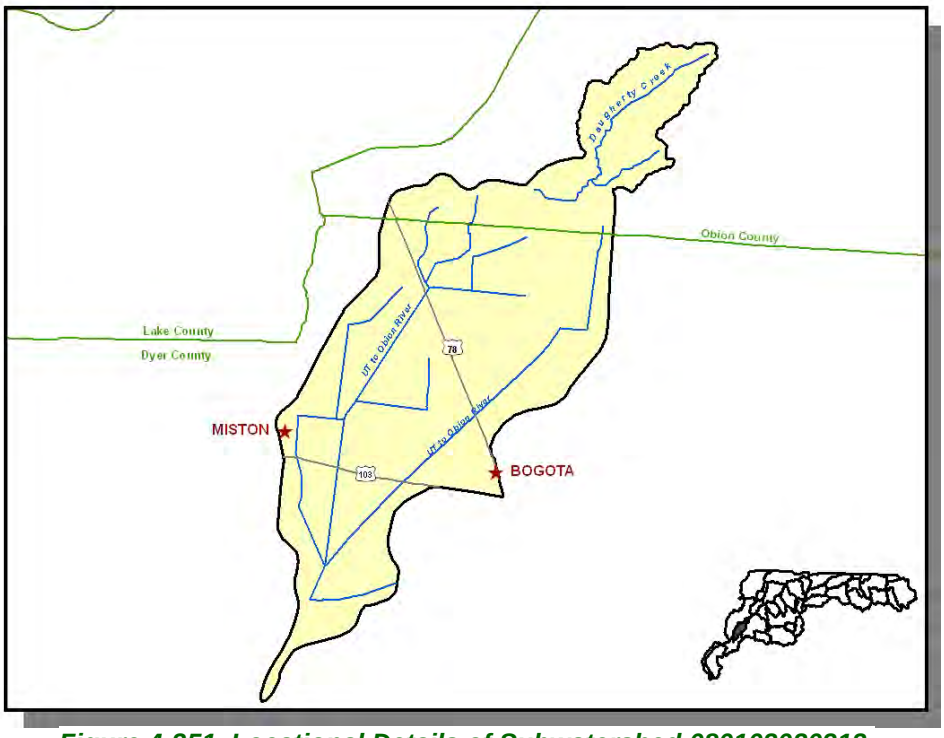


Figure 4-251. Locational Details of Subwatershed 080102020312.

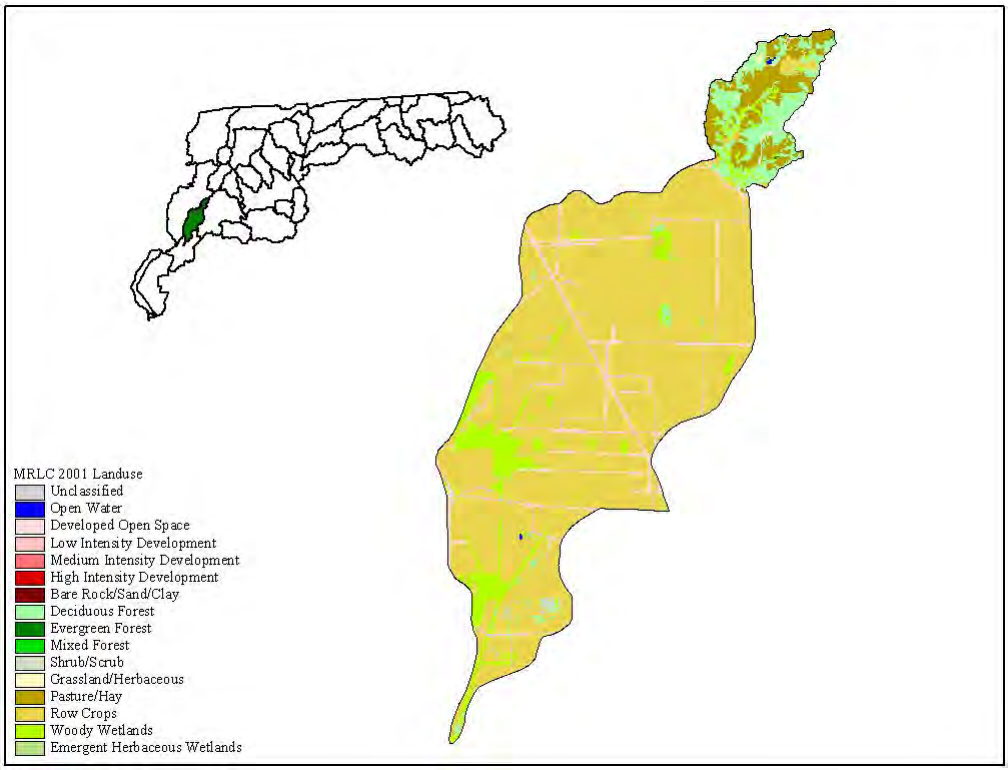


Figure 4-252. Illustration of Land Use Distribution in Subwatershed 080102020312.

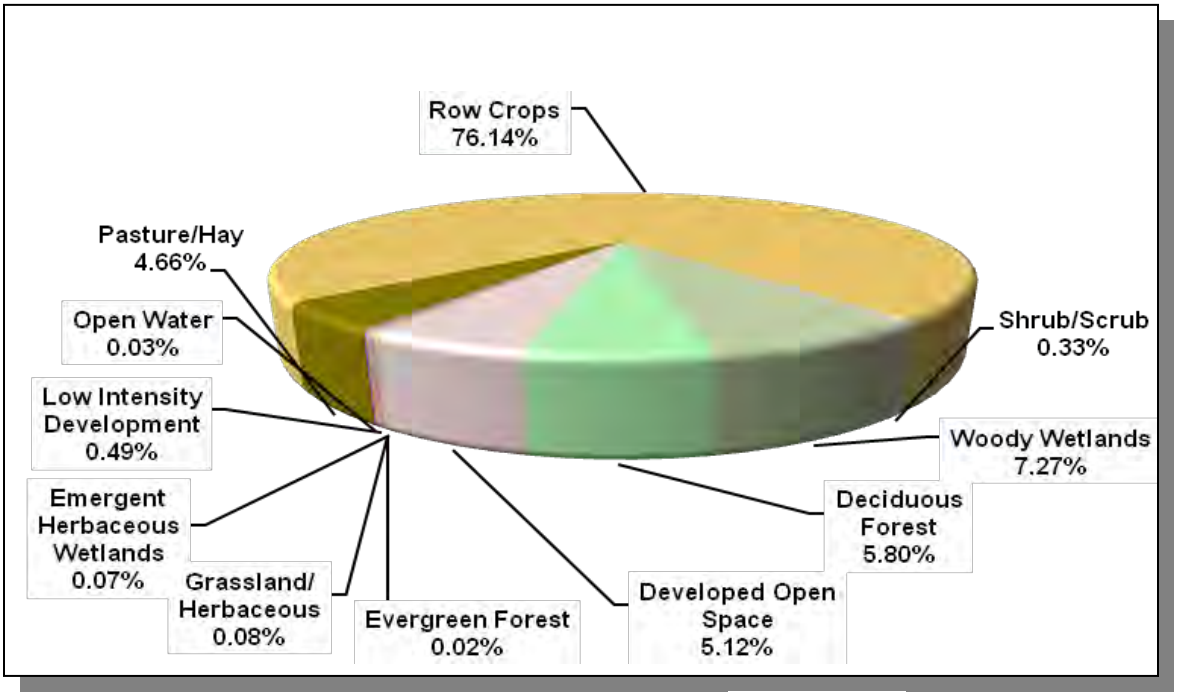


Figure 4-253. Land Use Distribution in Subwatershed 080102020312. *More information is provided in Appendix IV.*

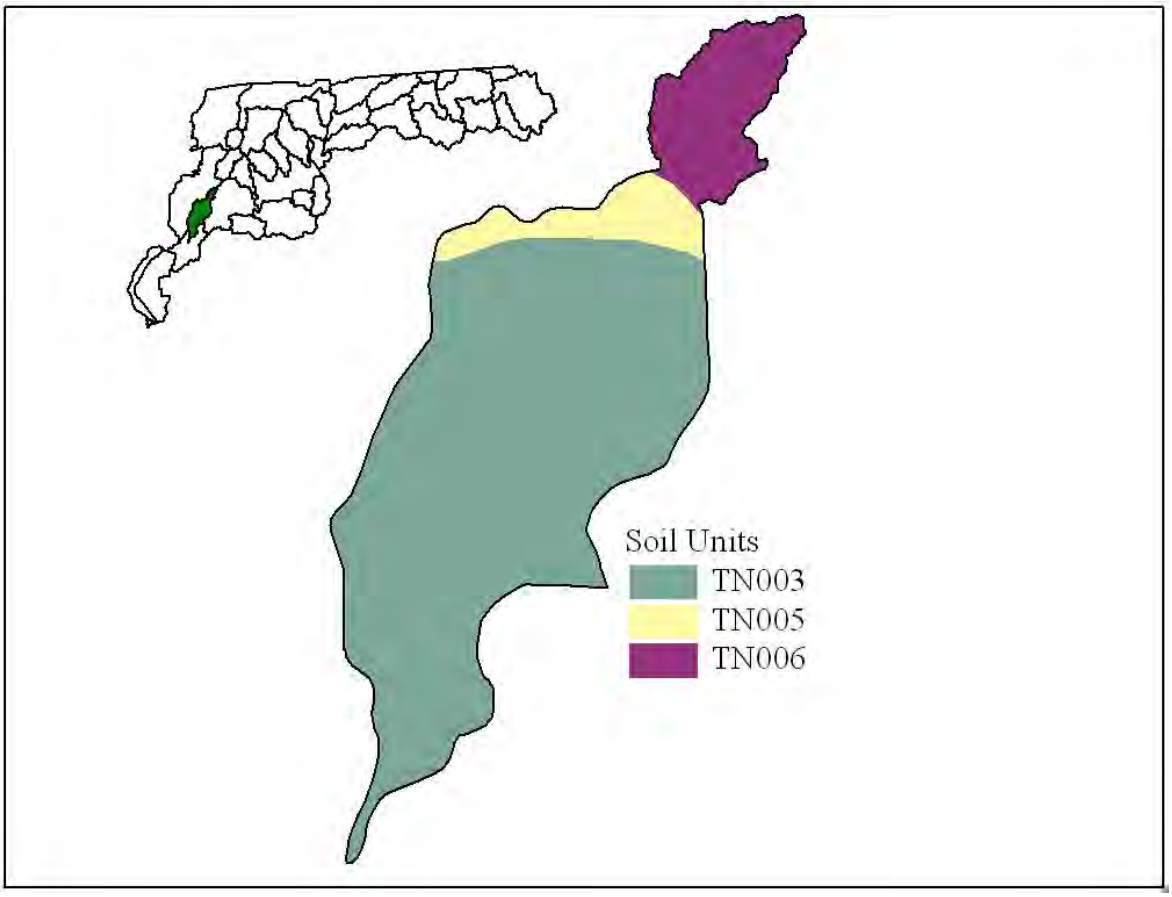


Figure 4-254. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020312.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN003	62.00	C	0.50	6.65	Silty Clay	0.33
TN005	10.00	C	1.79	6.68	Silty Loam	0.41
TN006	0.00	C	1.30	5.42	Silty Loam	0.48

Table 4-170. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020312. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Dyer	34,854	36,465	37,279	2.88	1,002	1,049	1,072	7.00
Obion	31,717	32,069	32,450	0.64	204	206	209	2.50
Totals	**66,571**	**68,534**	**69,729**		**1,206**	**1,255**	**1,281**	**6.20**

Table 4-171. Population Estimates in Subwatershed 080102020312.

4.2.CC.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102020312.

4.2.CC.iii. Permitted Activities.

There are no permitted activities located in subwatershed 080102020312 as of June 30th, 2007.

4.2.CC.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Dyer		10,982		12	1,311	
Obion	8,033	18,503	118	7	21,149	205

Table 4-172. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Dyer	40.4	40.4	0.8	2.8
Obion	67.6	67.6	4.4	20.8

Table 4-173. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Corn (Row Crops)	6.85
Soybeans (Row Crops)	6.07
Cotton (Row Crops)	5.38
Sorghum (Row Crops)	5.30
Wheat (Close Grown Cropland)	5.01
Other Cropland not Planted	3.83
Oats (Close Grown Cropland)	3.34
Grass (Pastureland)	1.47
Farmsteads and Ranch Headquarters	1.03
Conservation Reserve Program Land	0.68
Grass Forbs Legumes Mixed (Pastureland)	0.46
Grass (Hayland)	0.21
Legume (Pastureland)	0.07

Table 4-174. Annual Estimated Total Soil Loss in Subwatershed 080102020312.

4.2.DD. 080102020313 (Obion River).

4.2.DD.i. General Description.

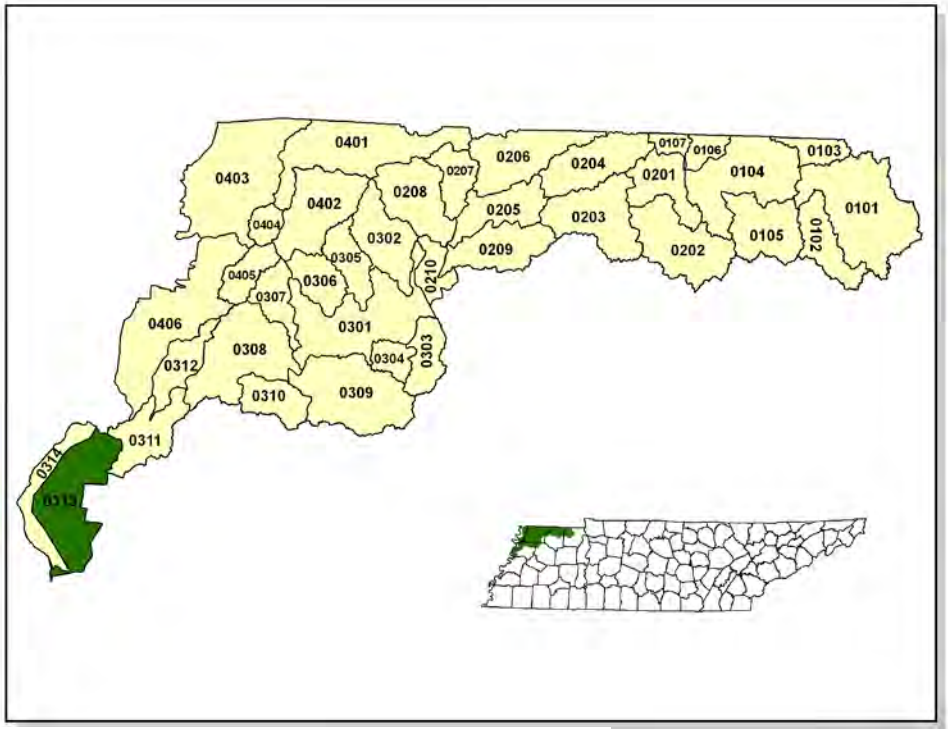


Figure 4-255. Location of Subwatershed 080102020313. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

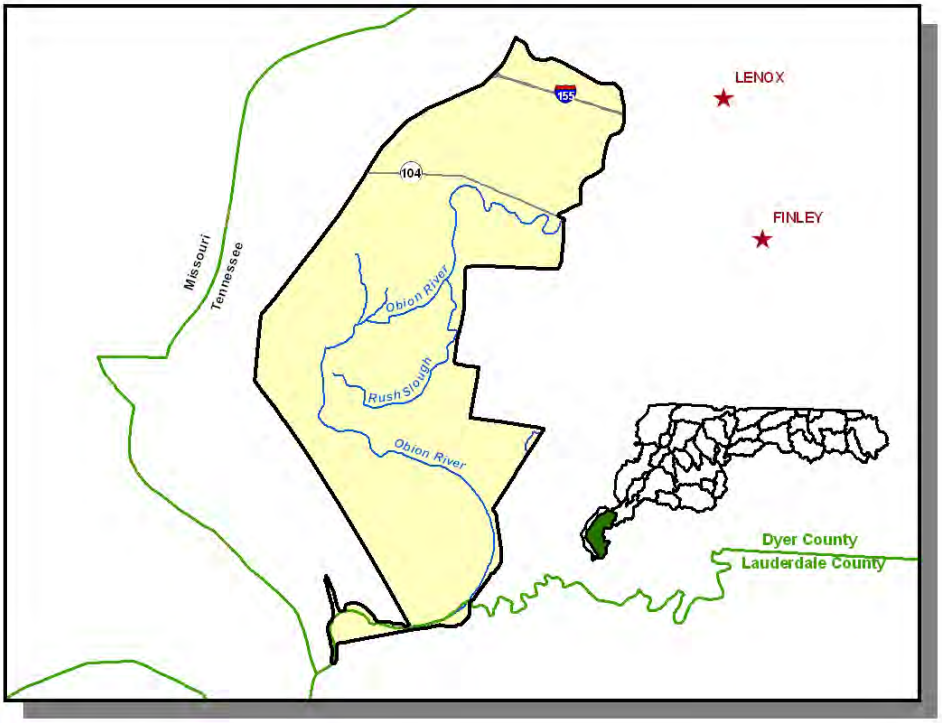


Figure 4-256. Locational Details of Subwatershed 080102020313.

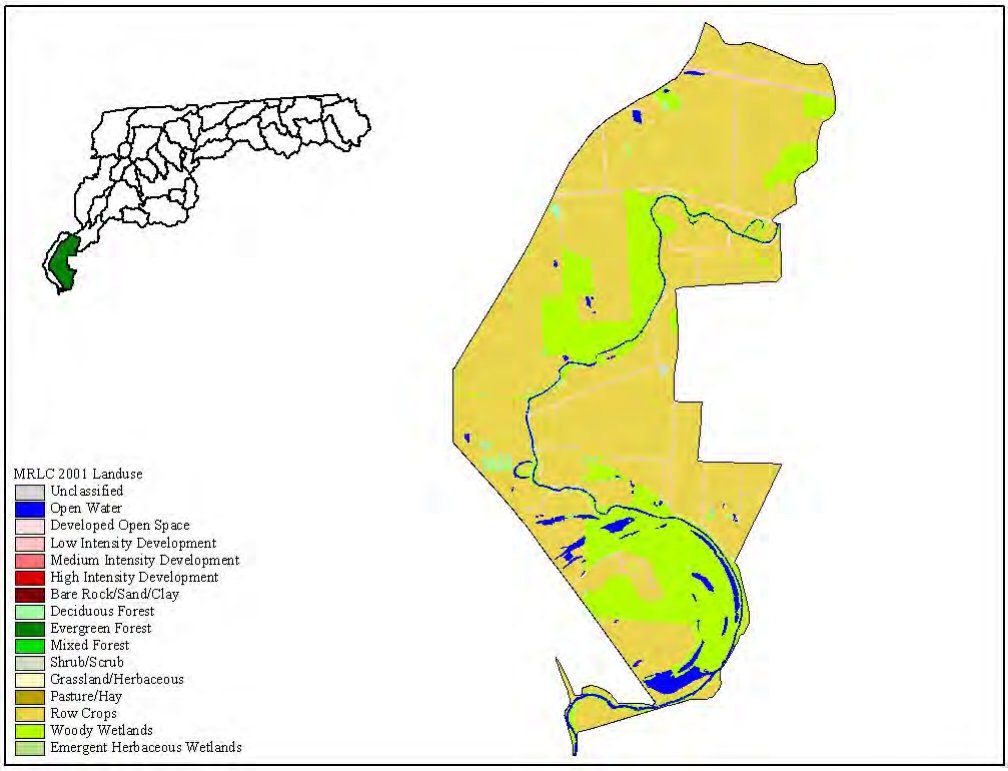


Figure 4-257. Illustration of Land Use Distribution in Subwatershed 080102020313.

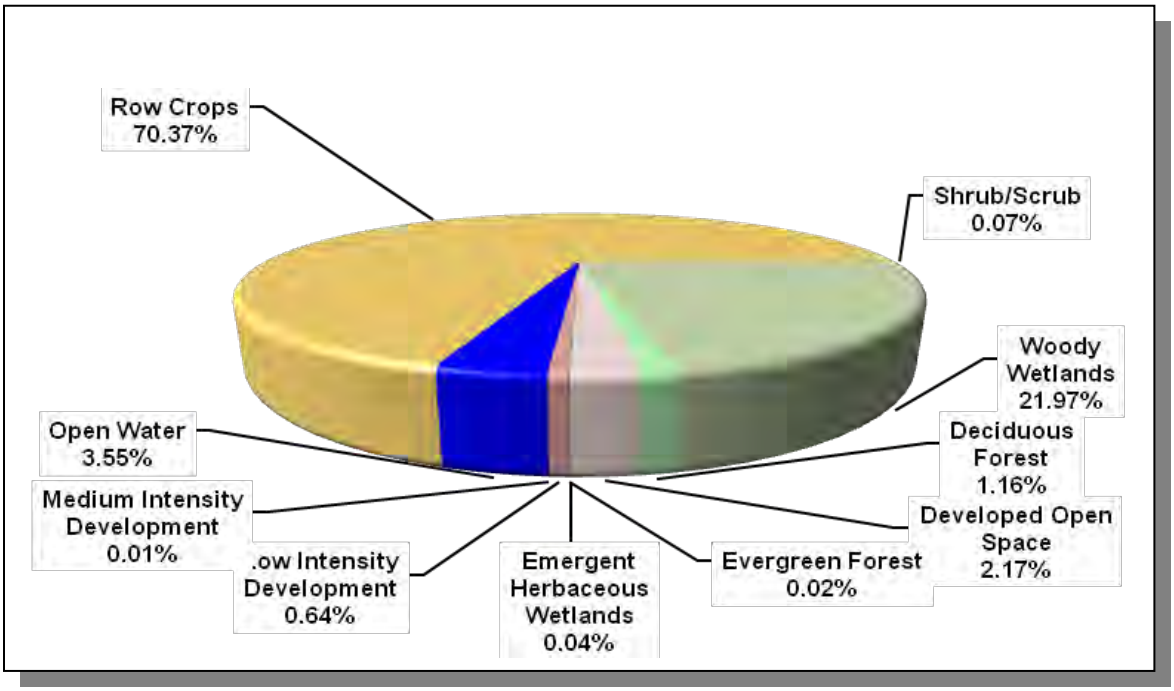


Figure 4-258. Land Use Distribution in Subwatershed 080102020313. *More information is provided in Appendix IV.*

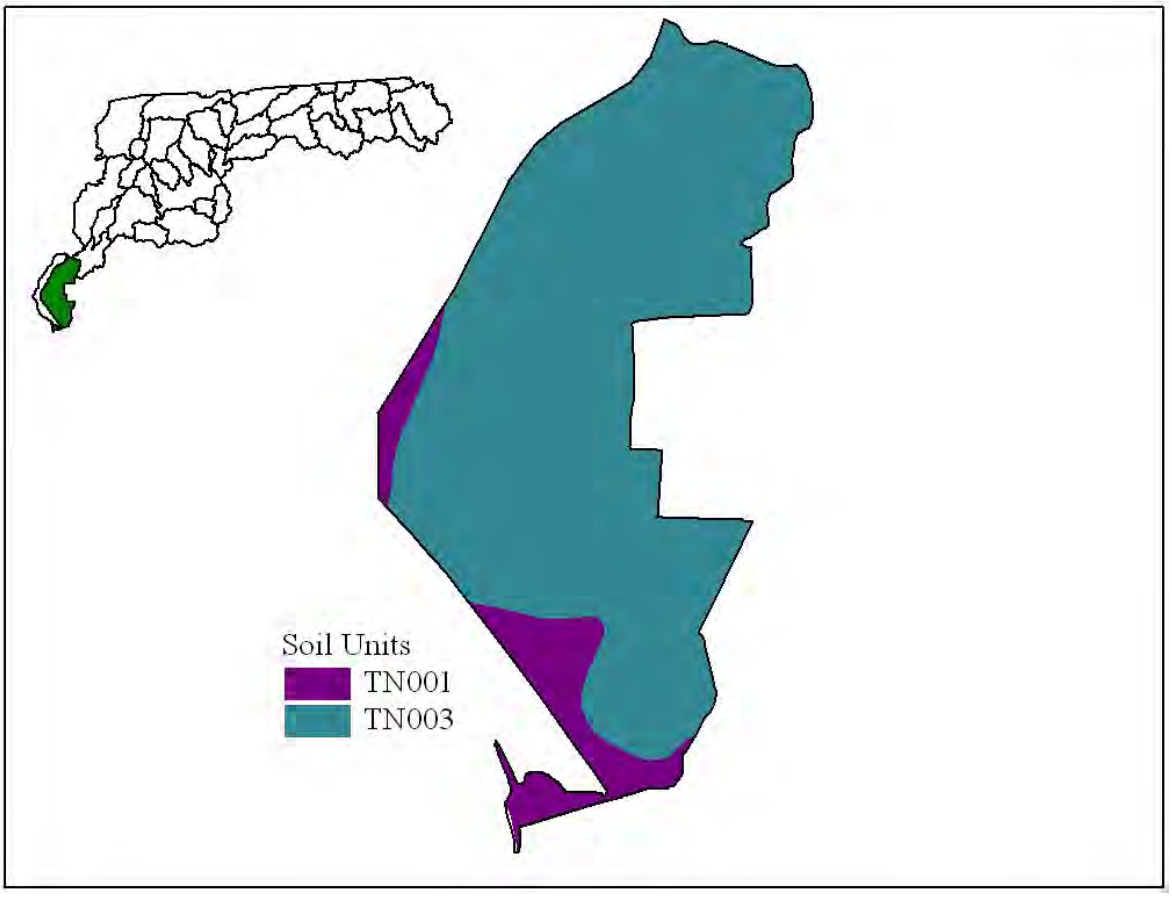


Figure 4-259. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020313.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN001	14.00	C	2.31	7.00	Silty Loam	0.33
TN003	62.00	C	0.50	6.65	Silty Clay	0.33

Table 4-175. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020313. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Dyer	34,854	36,465	37,279	9.08	3,164	3,310	3,384	7.00
Lauderdale	23,491	24,128	27,101	0.18	43	44	50	16.30
Totals	**58,345**	**60,593**	**64,380**		**3,207**	**3,354**	**3,434**	**7.10**

Table 4-176. Population Estimates in Subwatershed 080102020313.

4.2.DD.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020313.

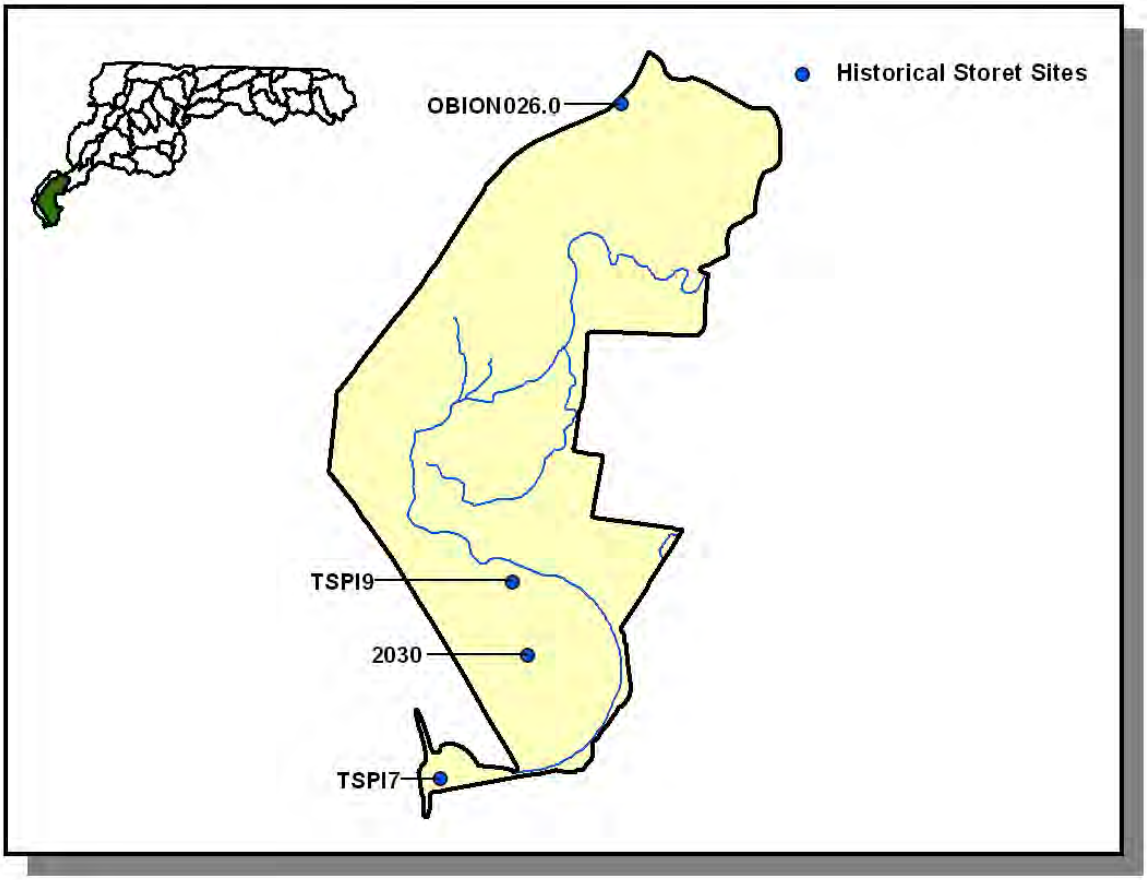


Figure 4-260. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020313. *More information, including site names and locations, is provided in Appendix IV.*

4.2.DD.iii. Permitted Activities.

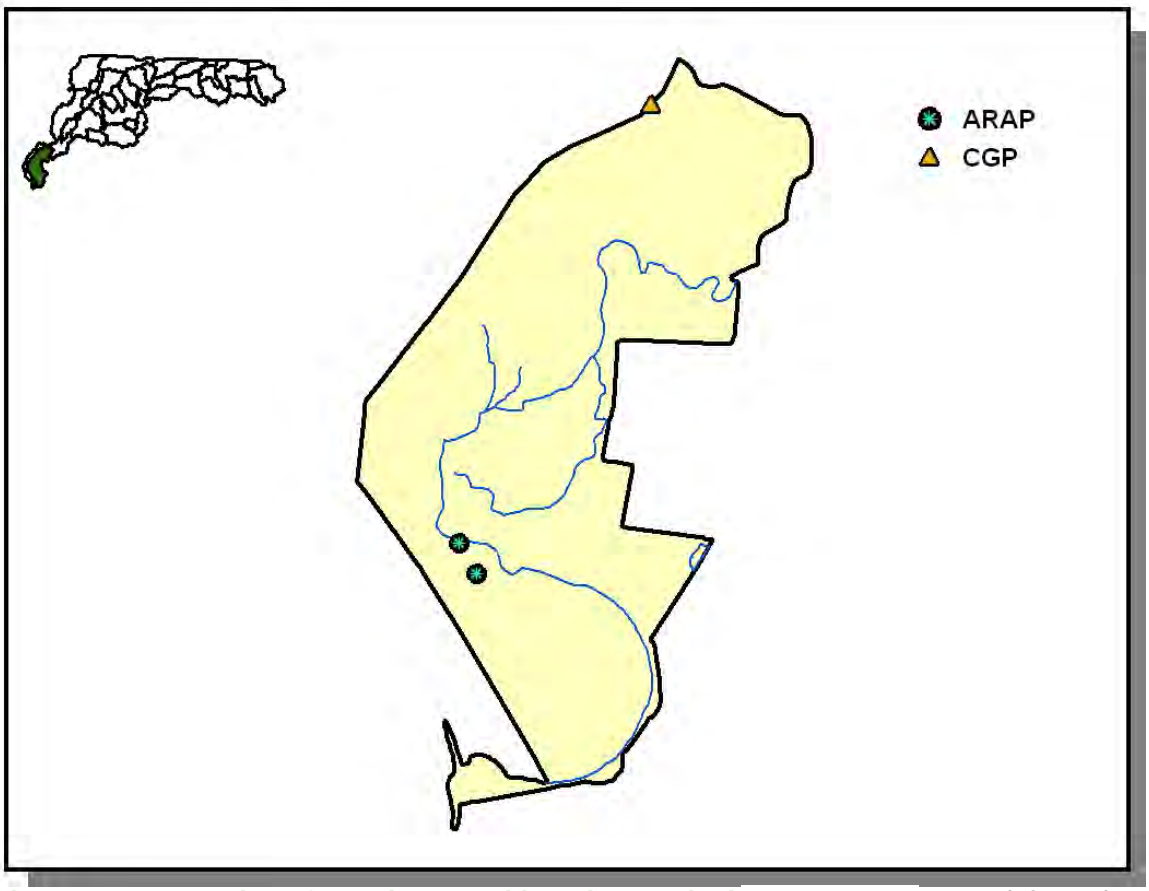


Figure 4-261. Location of Permits Issued in Subwatershed 080102020313. *More information, including the names of facilities, is provided in Appendix IV.*

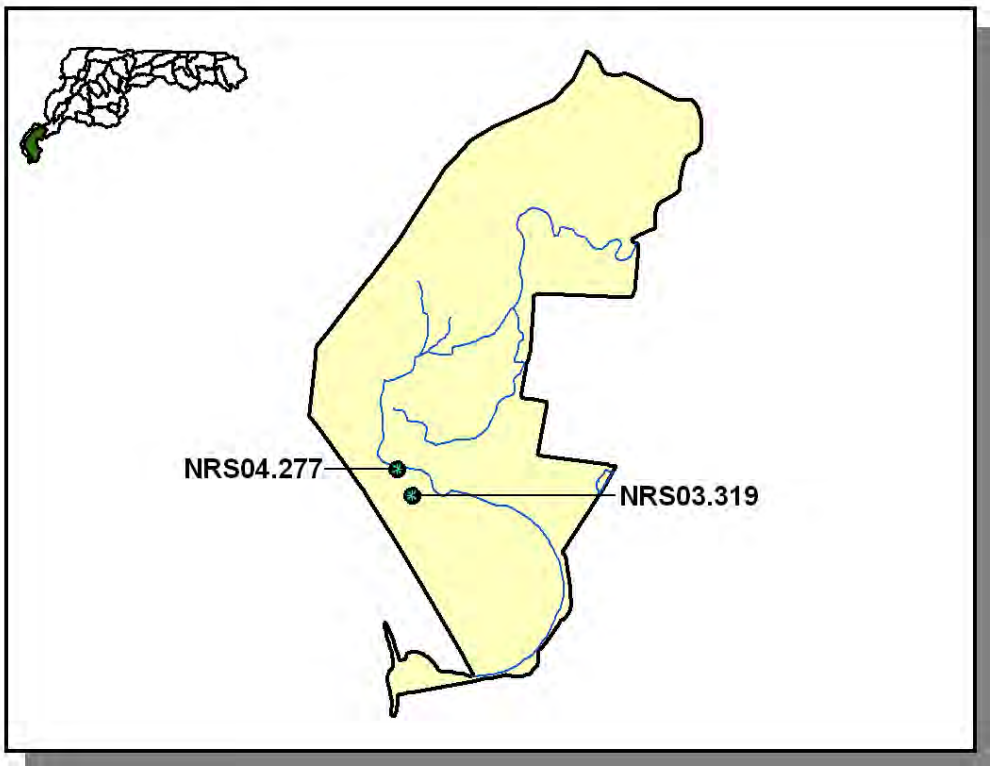


Figure 4-262. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020313. *More information is provided in Appendix IV.*

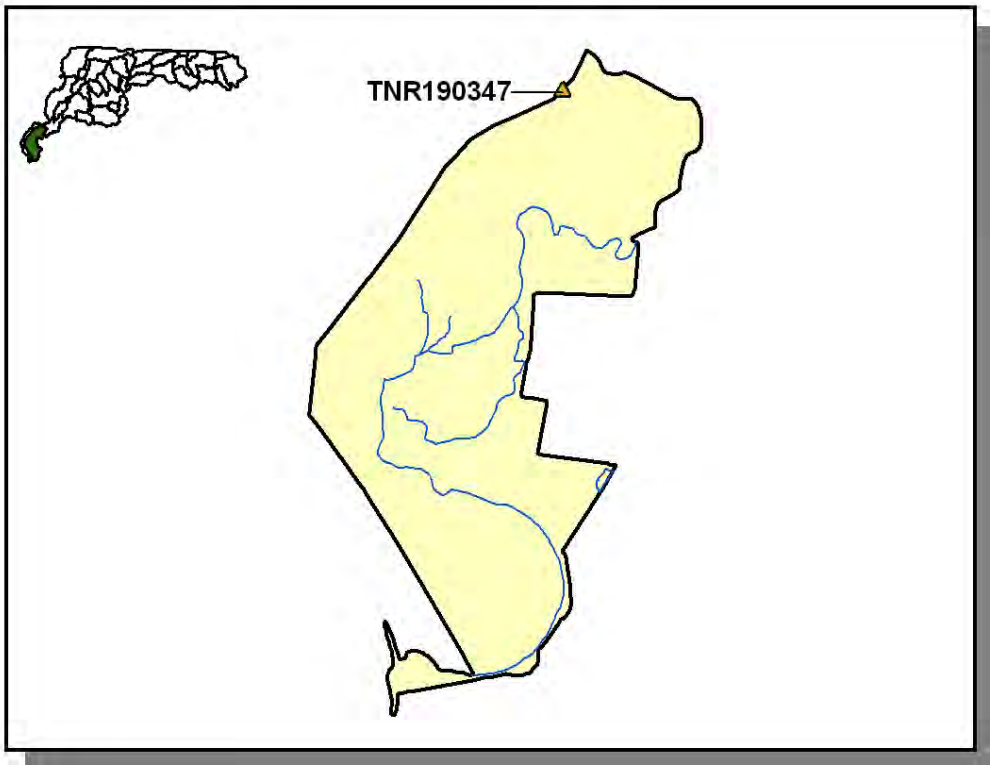


Figure 4-263. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020313. *More information is provided in Appendix IV.*

4.2.DD.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Dyer		10,982		12	1,311	
Lauderdale		8,739		243	2,355	11

Table 4-177. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Dyer	40.4	40.4	0.8	2.8

Table 4-178. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	8.70
Corn (Row Crops)	7.57
Sorghum (Row Crops)	5.90
Soybeans (Row Crops)	5.75
Cotton (Row Crops)	5.45
Other Vegetable and Truck Crop	4.00
Wheat (Close Grown Cropland)	3.98
Oats (Close Grown Cropland)	3.34
Grass (Pastureland)	1.67
Other Cropland not Planted	1.36
Farmsteads and Ranch Headquarters	1.21
Legume (Hayland)	0.65
Legume Grass (Hayland)	0.58
Conservation Reserve Program Land	0.41
Grass Forbs Legumes Mixed (Pastureland)	0.40
Grass (Hayland)	0.15
Other Land in Farms	0.05

Table 4-179. Annual Estimated Total Soil Loss in Subwatershed 080102020313.

4.2.EE. 080102020314 (West Levee Drainage).

4.2.EE.i. General Description.

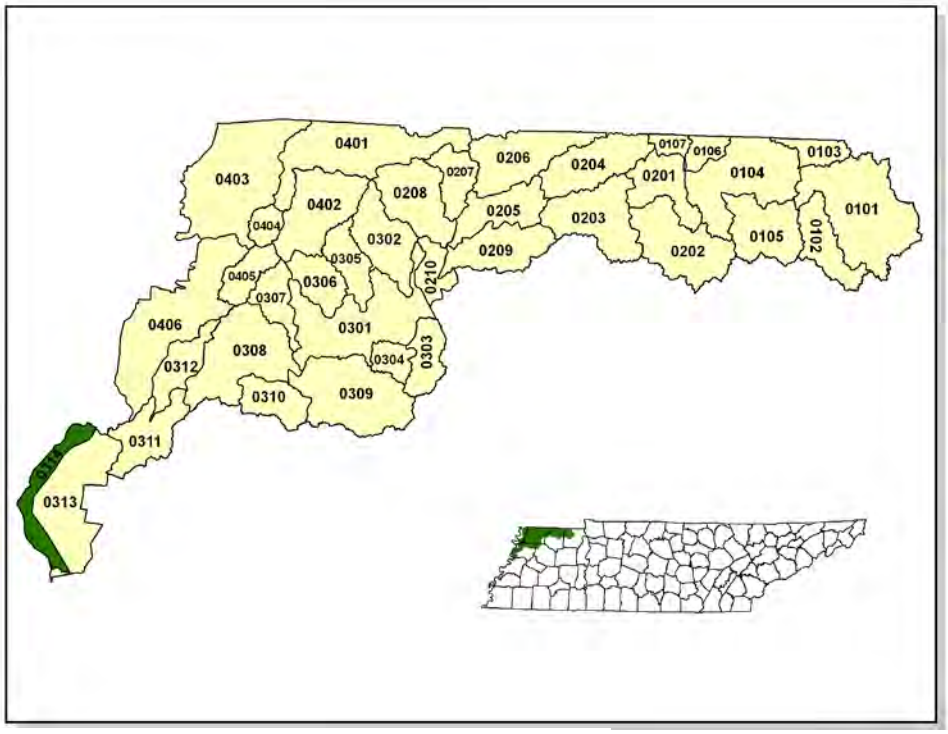


Figure 4-264. Location of Subwatershed 080102020314. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

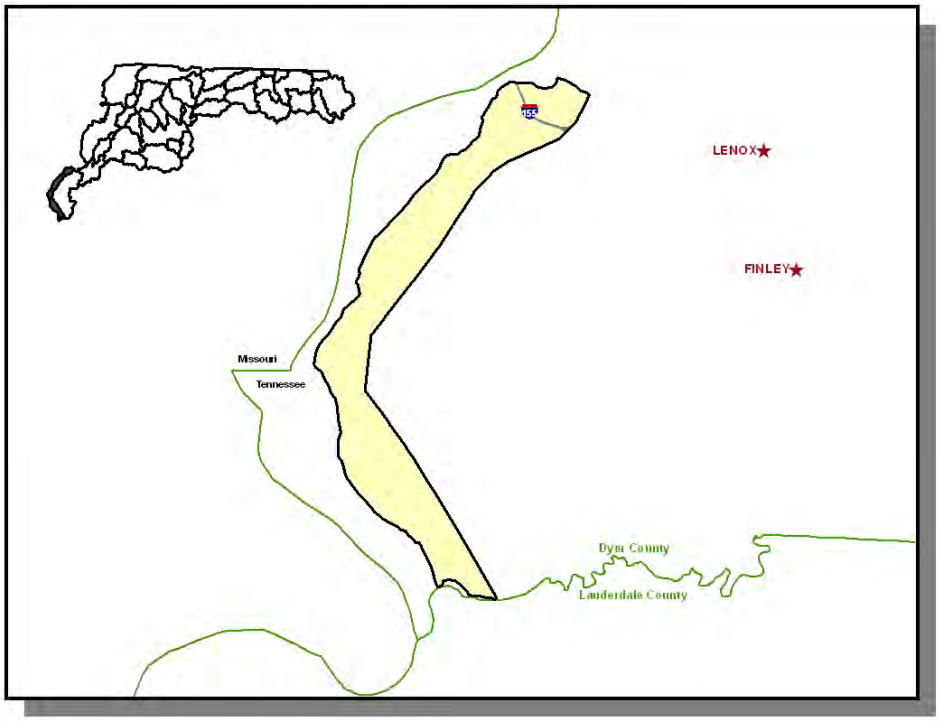


Figure 4-265. Locational Details of Subwatershed 080102020314.

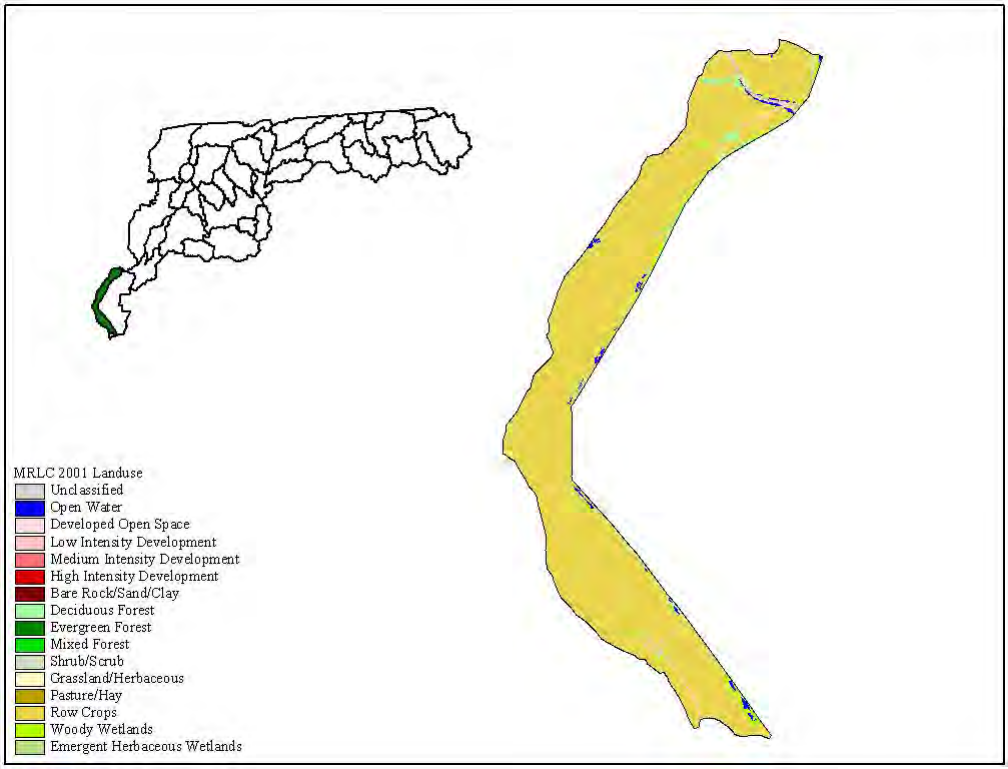


Figure 4-266. Illustration of Land Use Distribution in Subwatershed 080102020314.

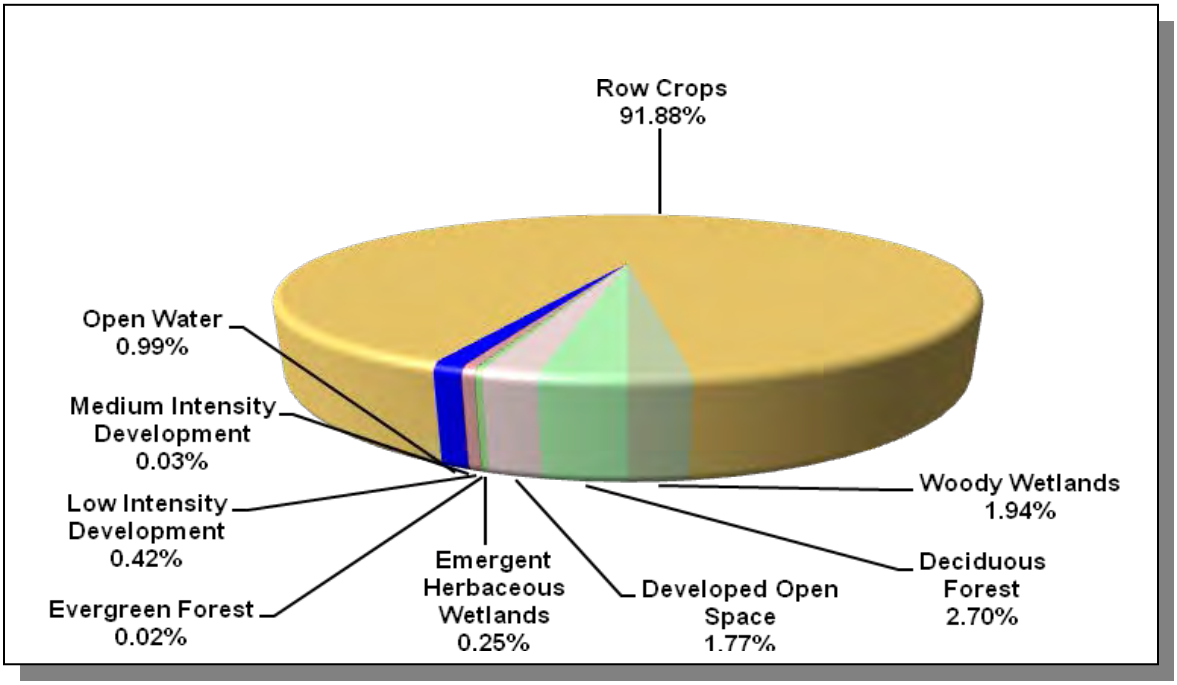


Figure 4-267. Land Use Distribution in Subwatershed 080102020314. *More information is provided in Appendix IV.*

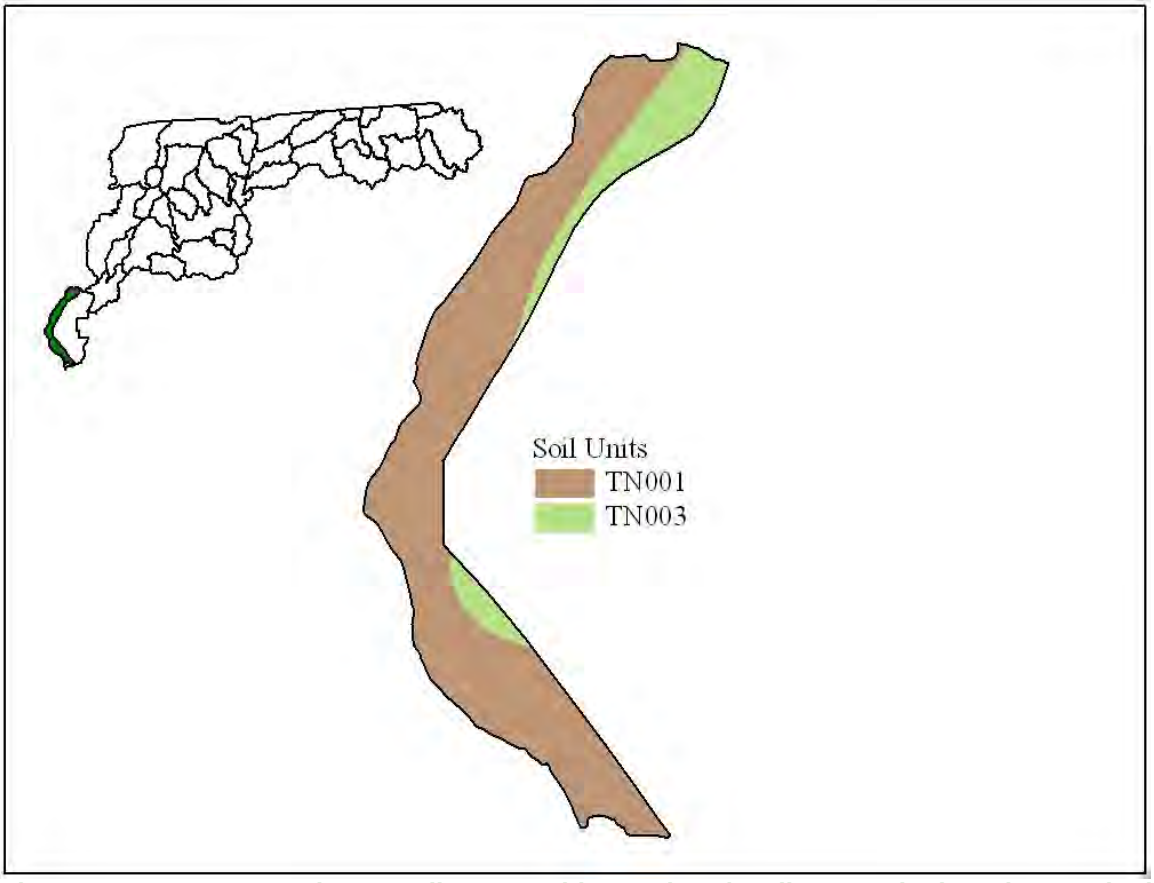


Figure 4-268. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020314

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN001	14.00	C	2.31	7.00	Silty Loam	0.33
TN003	62.00	C	0.50	6.65	Silty Clay	0.33

Table 4-180. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020314. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Dyer	34,854	36,465	37,279	3.67	1,278	1,338	1,367	7.00

Table 4-181. Population Estimates in Subwatershed 080102020314.

4.2.EE.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102020314.

4.2.EE.iii. Permitted Activities.

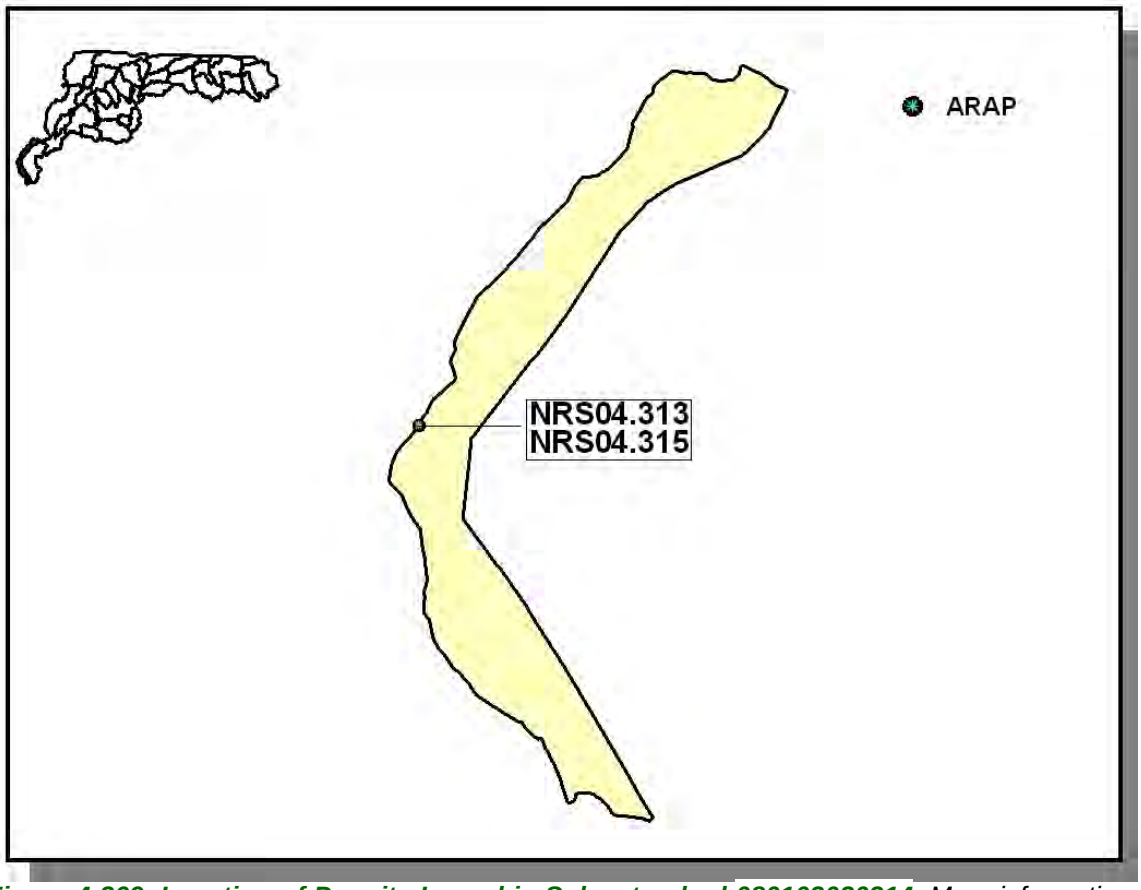


Figure 4-269. Location of Permits Issued in Subwatershed 080102020314. *More information, including the names of facilities, is provided in Appendix IV.*

4.2.EE.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Dyer		10,982		12	1,311	
Lauderdale		8,739		243	2,355	11

Table 4-182. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Dyer	40.4	40.4	0.8	2.8

Table 4-183. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	8.70
Corn (Row Crops)	7.49
Sorghum (Row Crops)	5.90
Soybeans (Row Crops)	5.66
Cotton (Row Crops)	5.36
Other Vegetable and Truck Crop	4.00
Wheat (Close Grown Cropland)	3.92
Oats (Close Grown Cropland)	3.34
Grass (Pastureland)	1.66
Other Cropland not Planted	1.36
Farmsteads and Ranch Headquarters	1.23
Legume (Hayland)	0.65
Legume Grass (Hayland)	0.58
Conservation Reserve Program Land	0.40
Grass Forbs Legumes Mixed (Pastureland)	0.38
Grass (Hayland)	0.15
Other Land in Farms	0.05

Table 4-184. Annual Estimated Total Soil Loss in Subwatershed 080102020314.

4.2.FF. 080102020401 (North Reelfoot Creek).

4.2.FF.i. General Description.

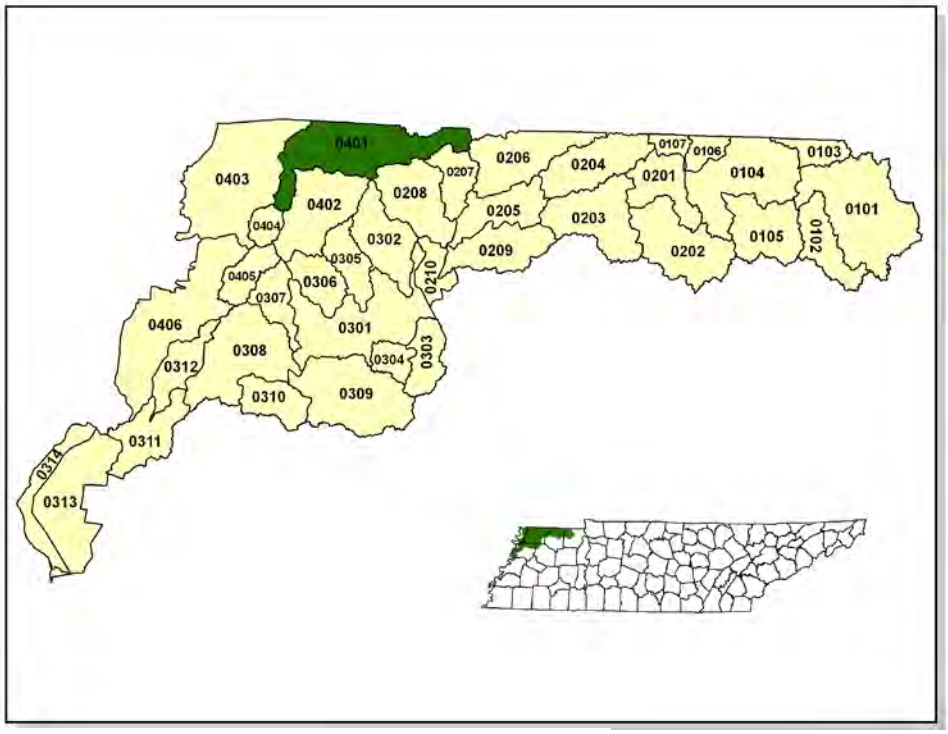


Figure 4-270. Location of Subwatershed 080102020401. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

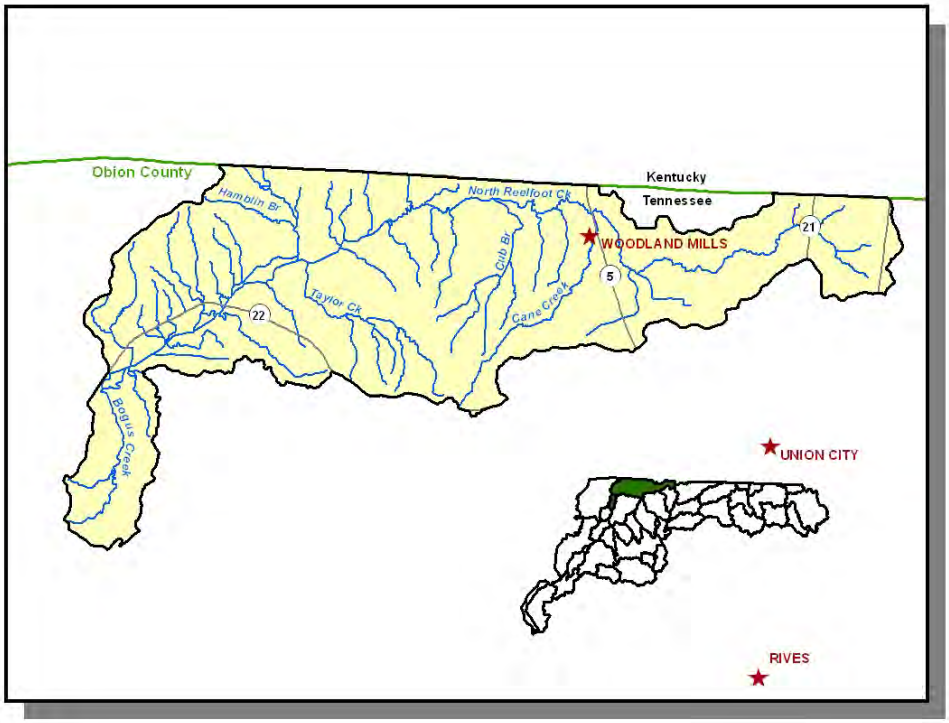


Figure 4-271. Locational Details of Subwatershed 080102020401.

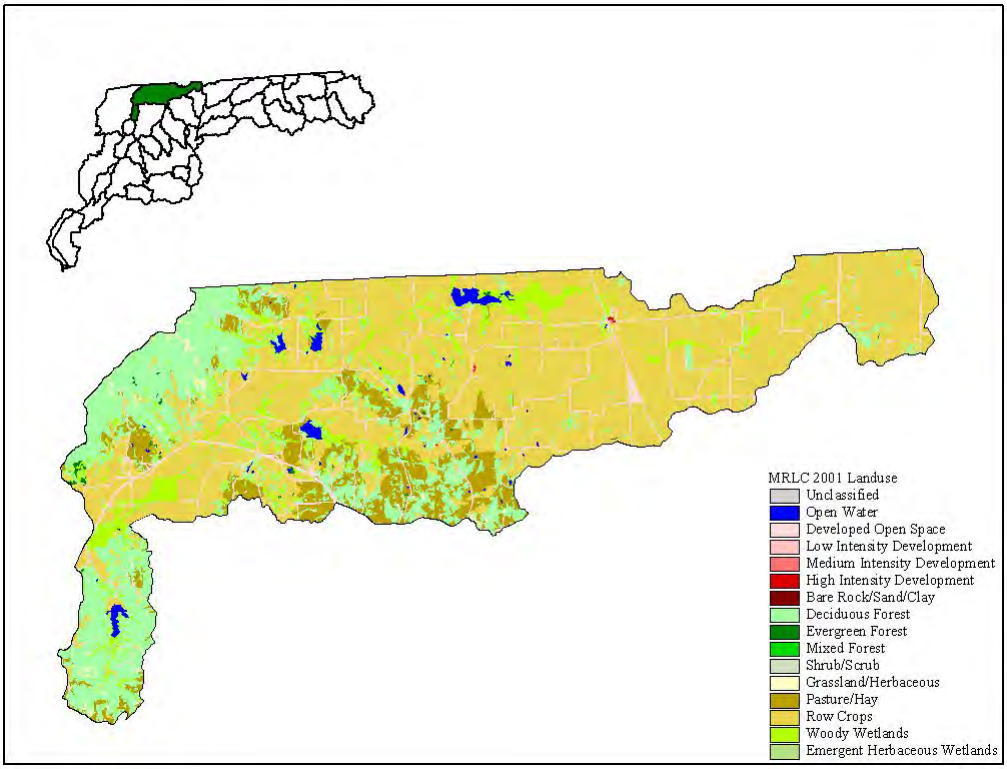


Figure 4-272. Illustration of Land Use Distribution in Subwatershed 080102020401.

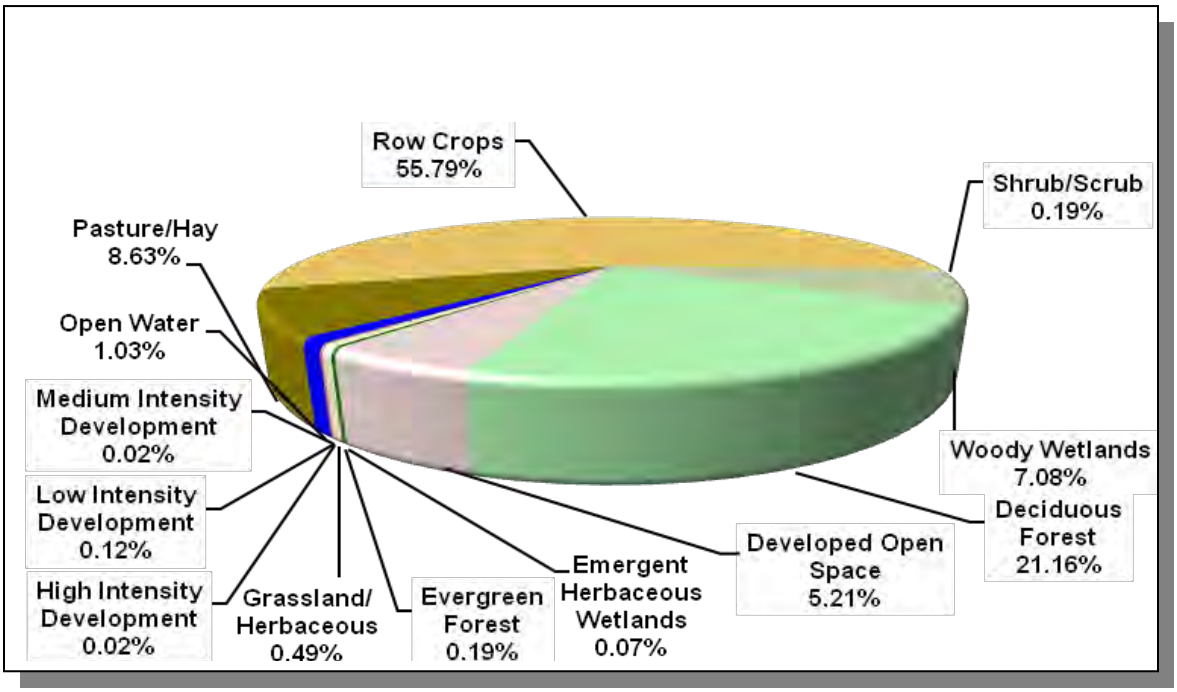


Figure 4-273. Land Use Distribution in Subwatershed 080102020401. *More information is provided in Appendix IV.*

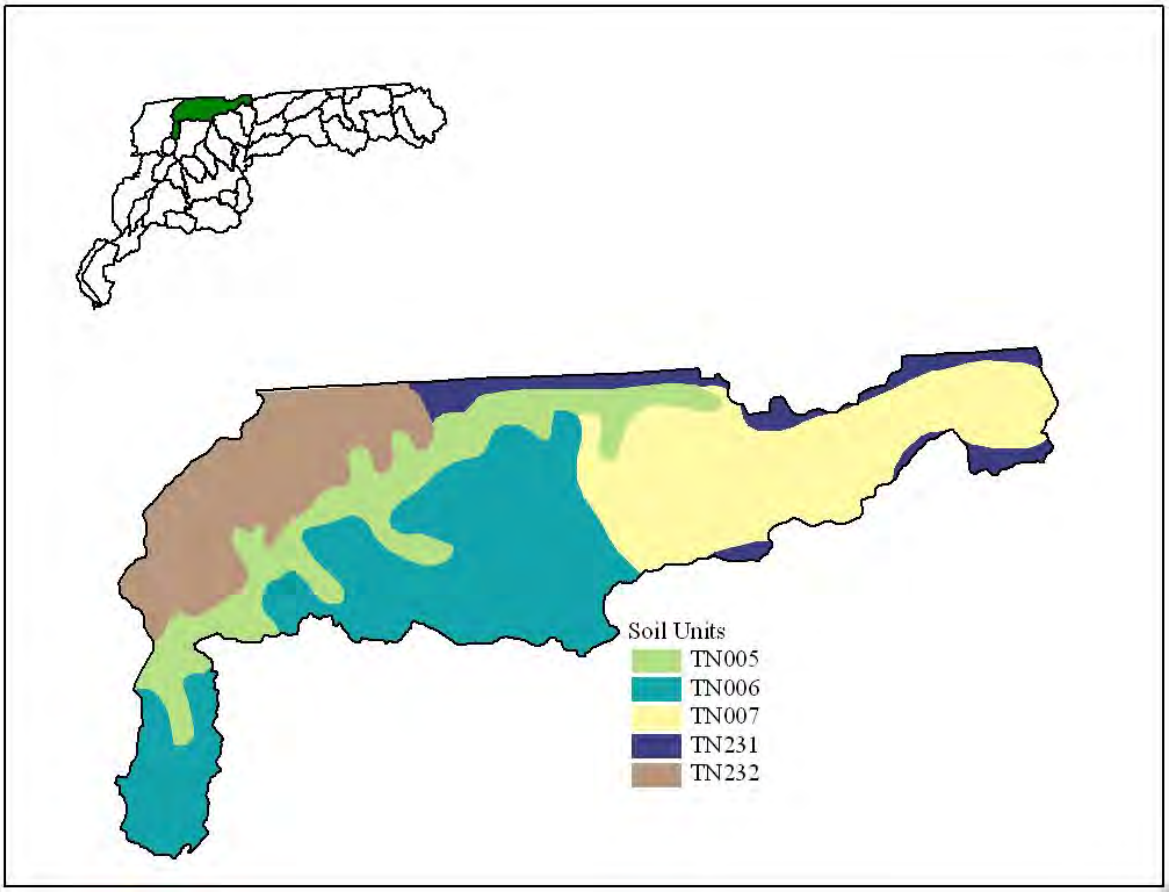


Figure 4-274. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020401.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN005	10.00	C	1.79	6.68	Silty Loam	0.41
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN007	29.00	C	1.30	5.36	Silty Loam	0.48
TN231	8.00	C	1.30	5.21	Silty Loam	0.48
TN232	5.00	B	1.30	5.35	Silty Loam	0.48

Table 4-185. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020401. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	10.35	3,283	3,320	3,359	2.30

Table 4-186. Population Estimates in Subwatershed 080102020401.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Woodland Mills	Obion	399	162	160	2	0

Table 4-187. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020401.

4.2.FF.ii. USGS Gaging Stations and STORET Sites.

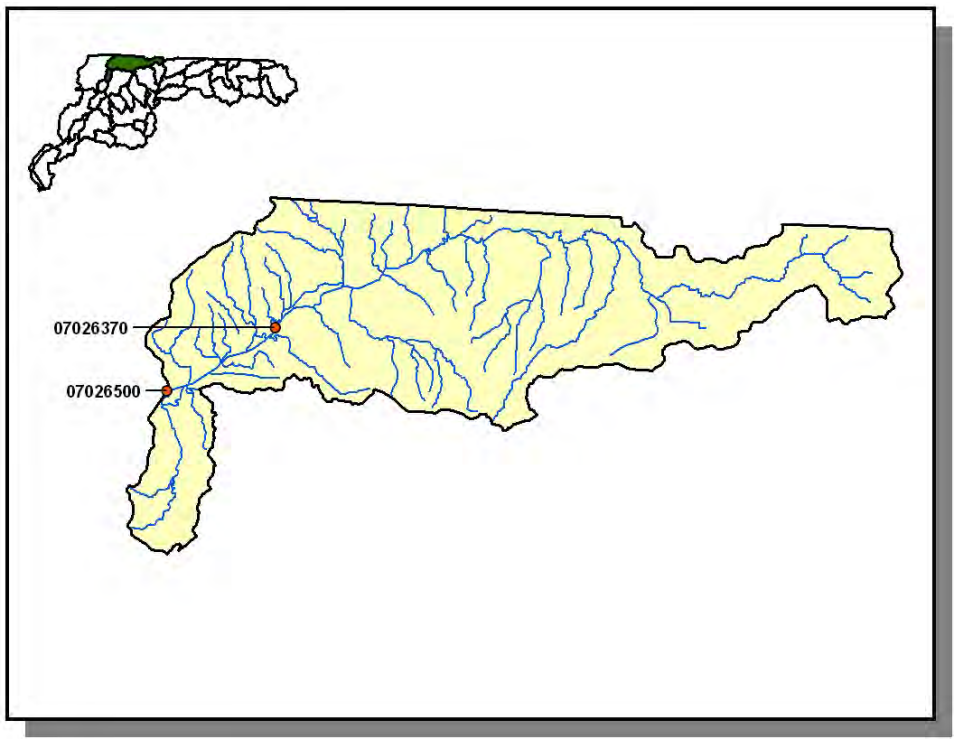


Figure 4-275. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102020401. *More information is provided in Appendix IV.*

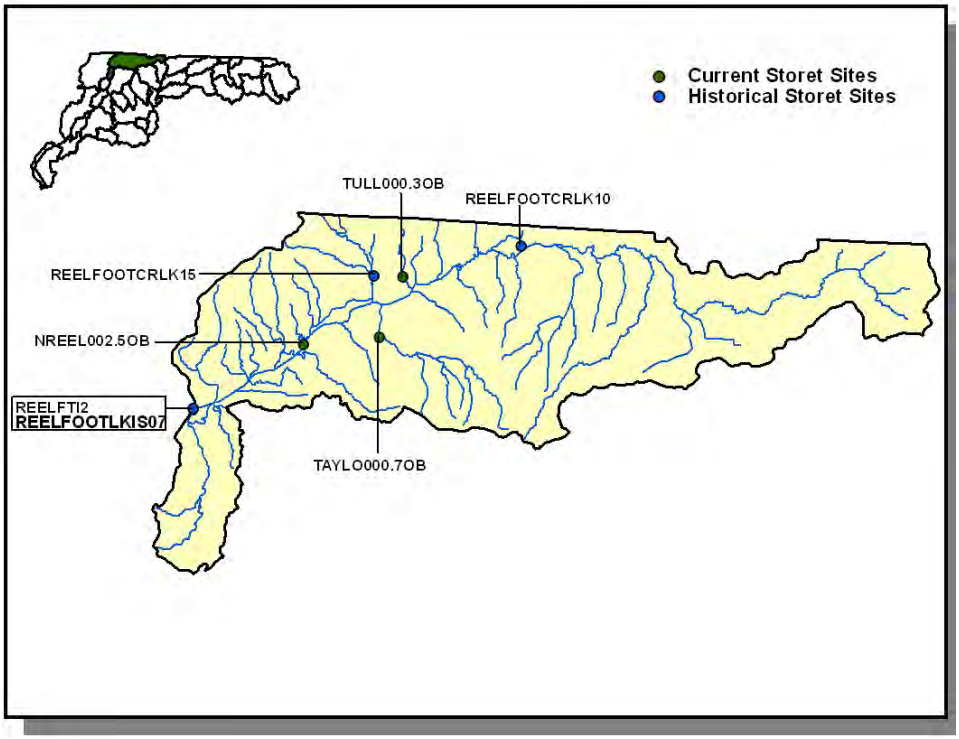


Figure 4-276. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020401. *More information, including site names and locations, is provided in Appendix IV.*

4.2.FF.iii. Permitted Activities.

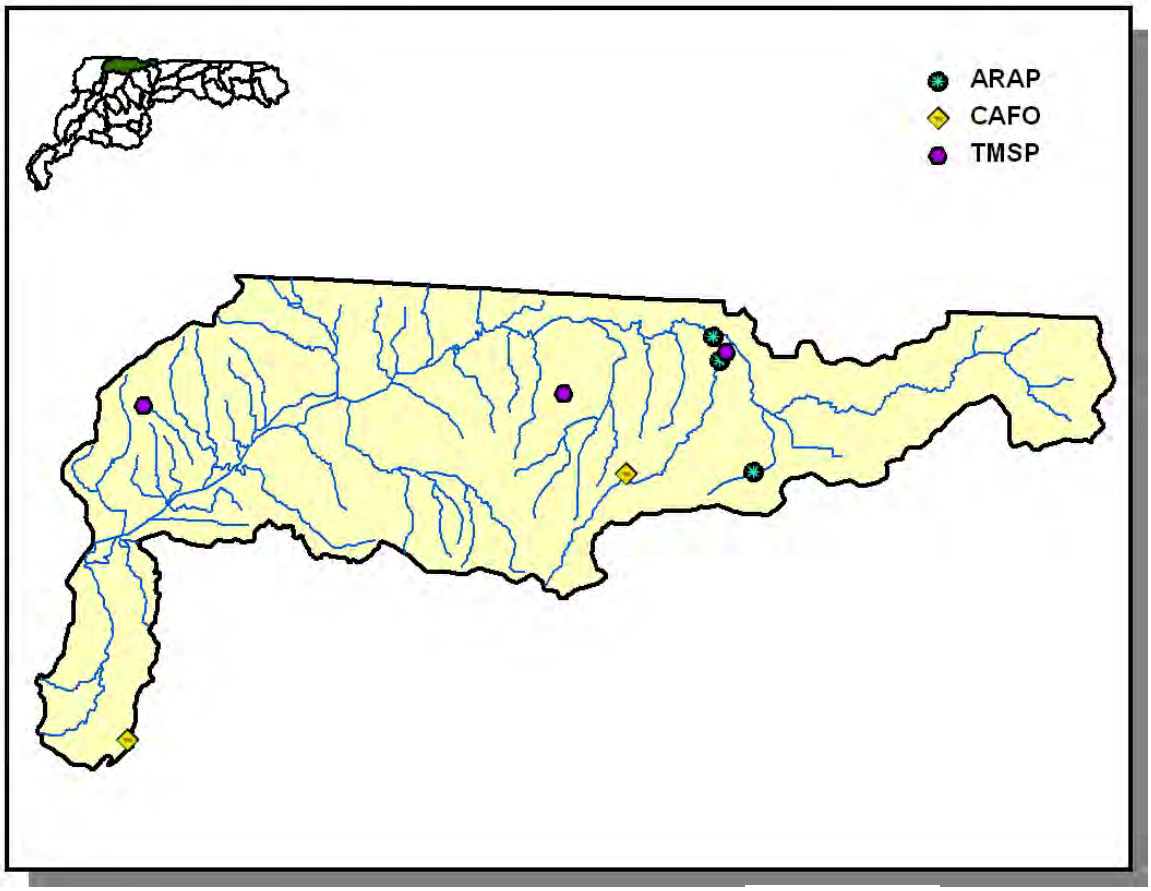


Figure 4-277. Location of Permits Issued in Subwatershed 080102020401. *More information, including the names of facilities, is provided in Appendix IV.*

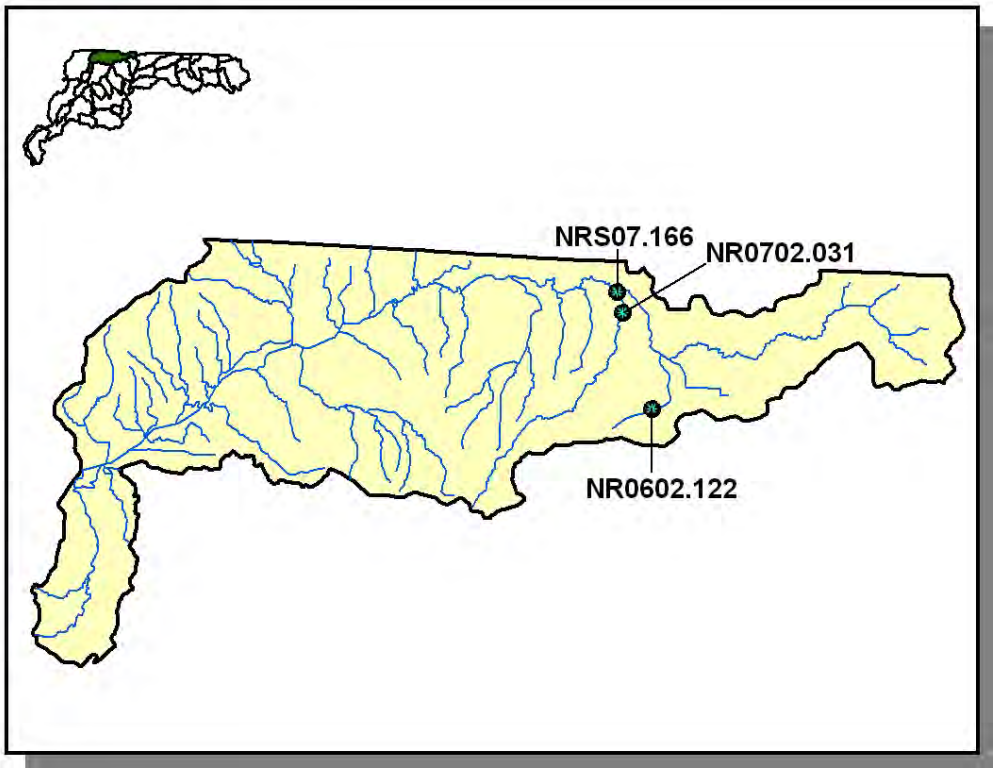


Figure 4-278. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020401. *More information is provided in Appendix IV.*

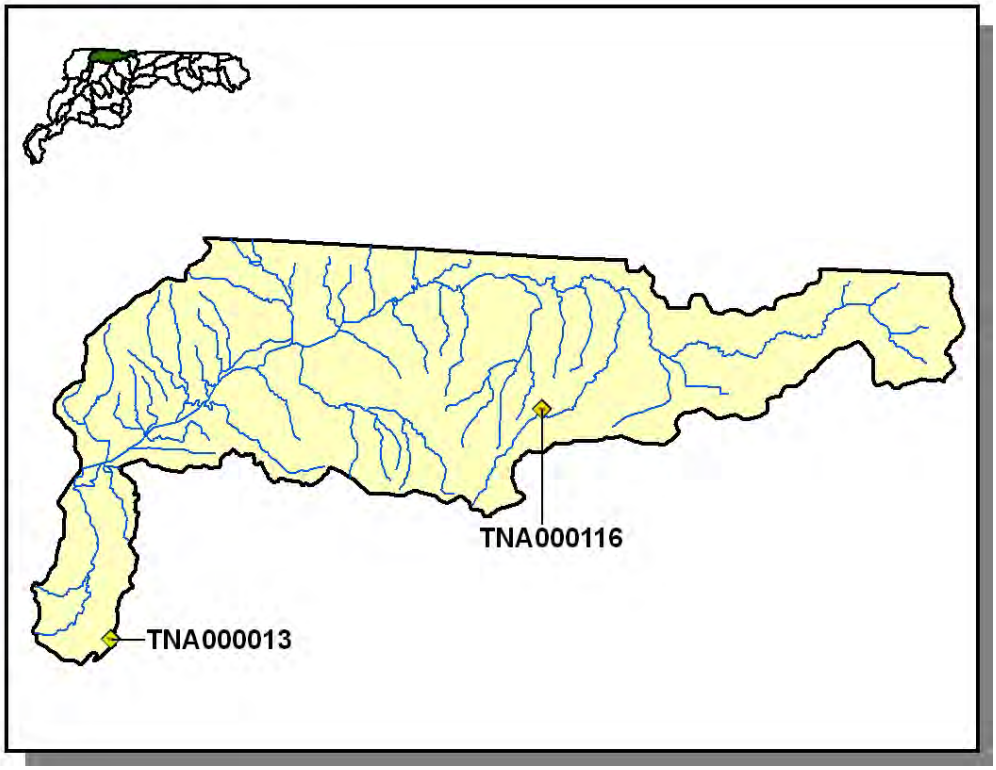


Figure 4-279. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102020401. *More information, including the names of facilities, is provided in Appendix IV.*

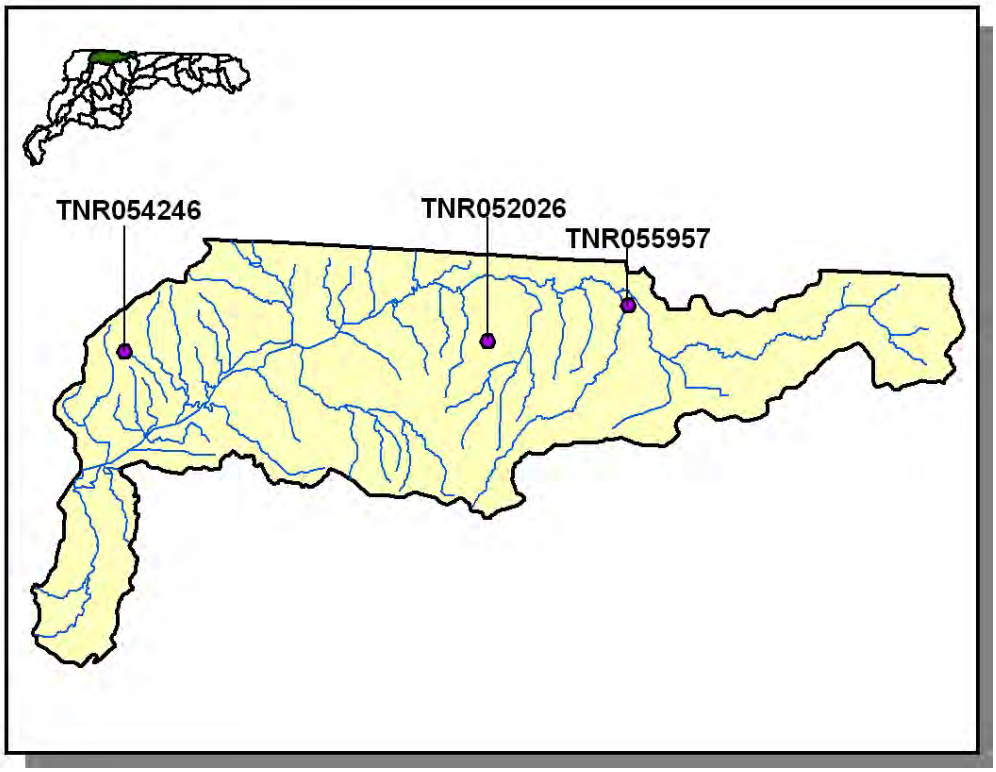


Figure 4-280. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020401. *More information is provided in Appendix IV.*

4.2.FF.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-188. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-189. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-190. Annual Estimated Total Soil Loss in Subwatershed 080102020401.

4.2.GG. 080102020402 (South Reelfoot Creek).

4.2.GG.i. General Description.

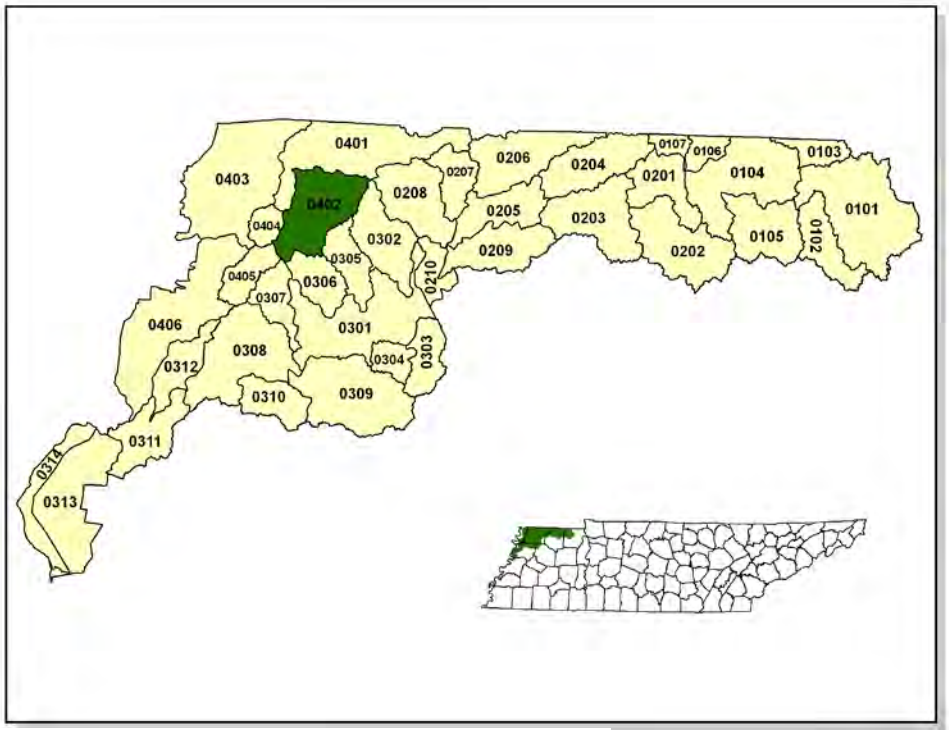


Figure 4-281. Location of Subwatershed 080102020402. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

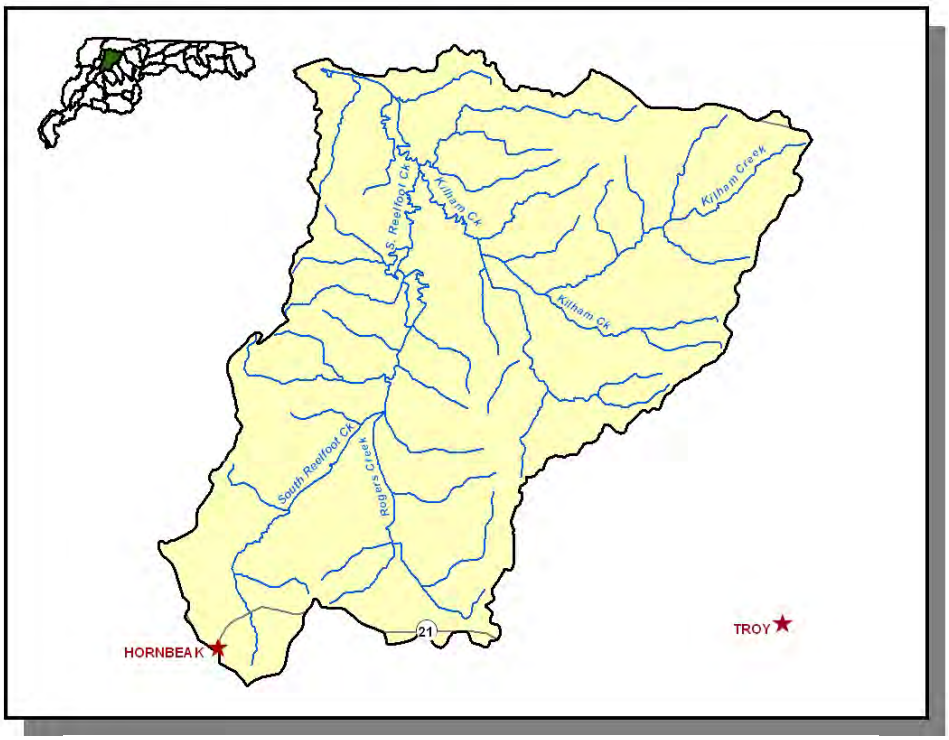


Figure 4-282. Locational Details of Subwatershed 080102020402.

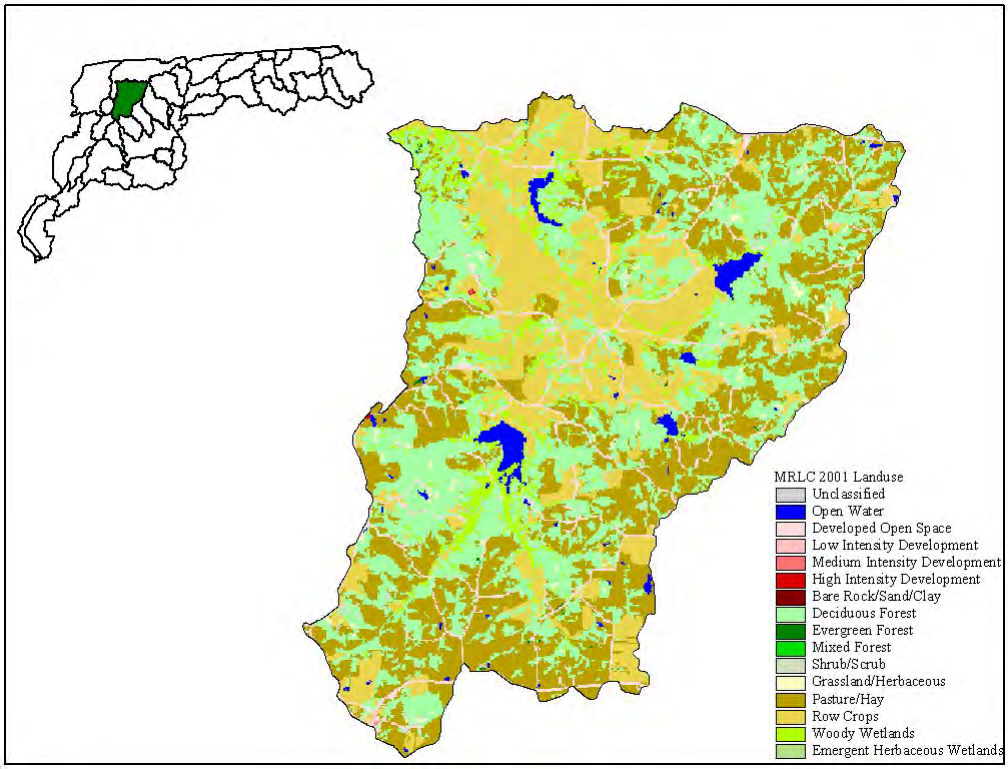


Figure 4-283. Illustration of Land Use Distribution in Subwatershed 080102020402.

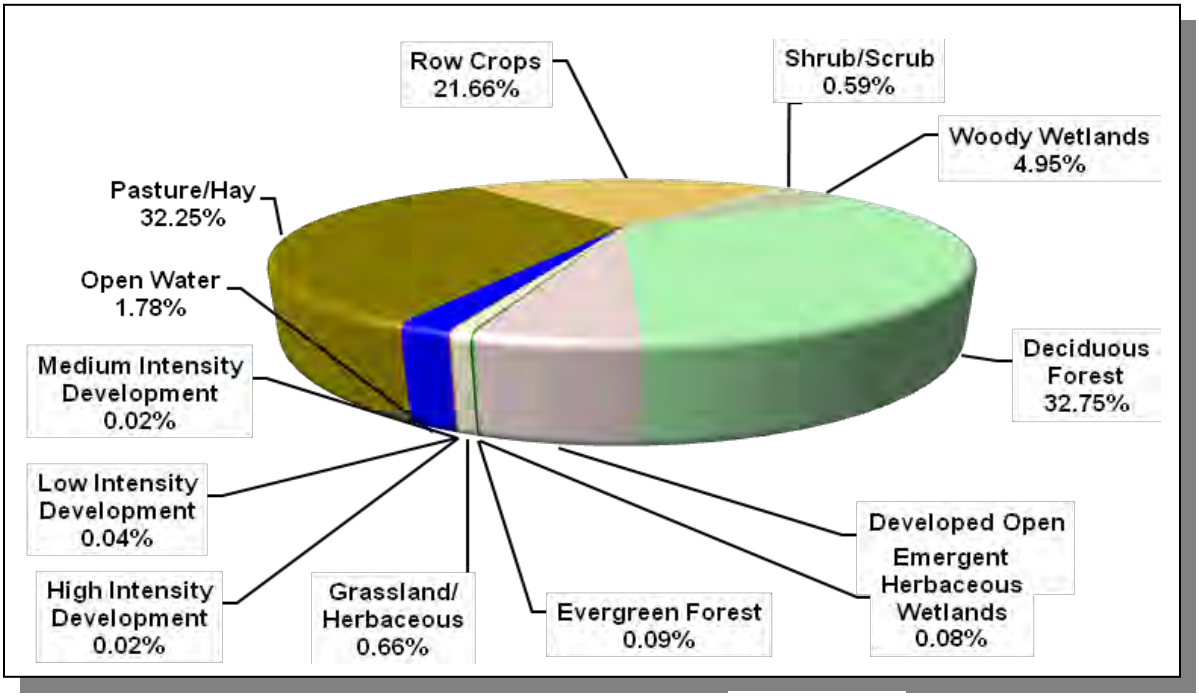


Figure 4-284. Land Use Distribution in Subwatershed 080102020402. *More information is provided in Appendix IV.*

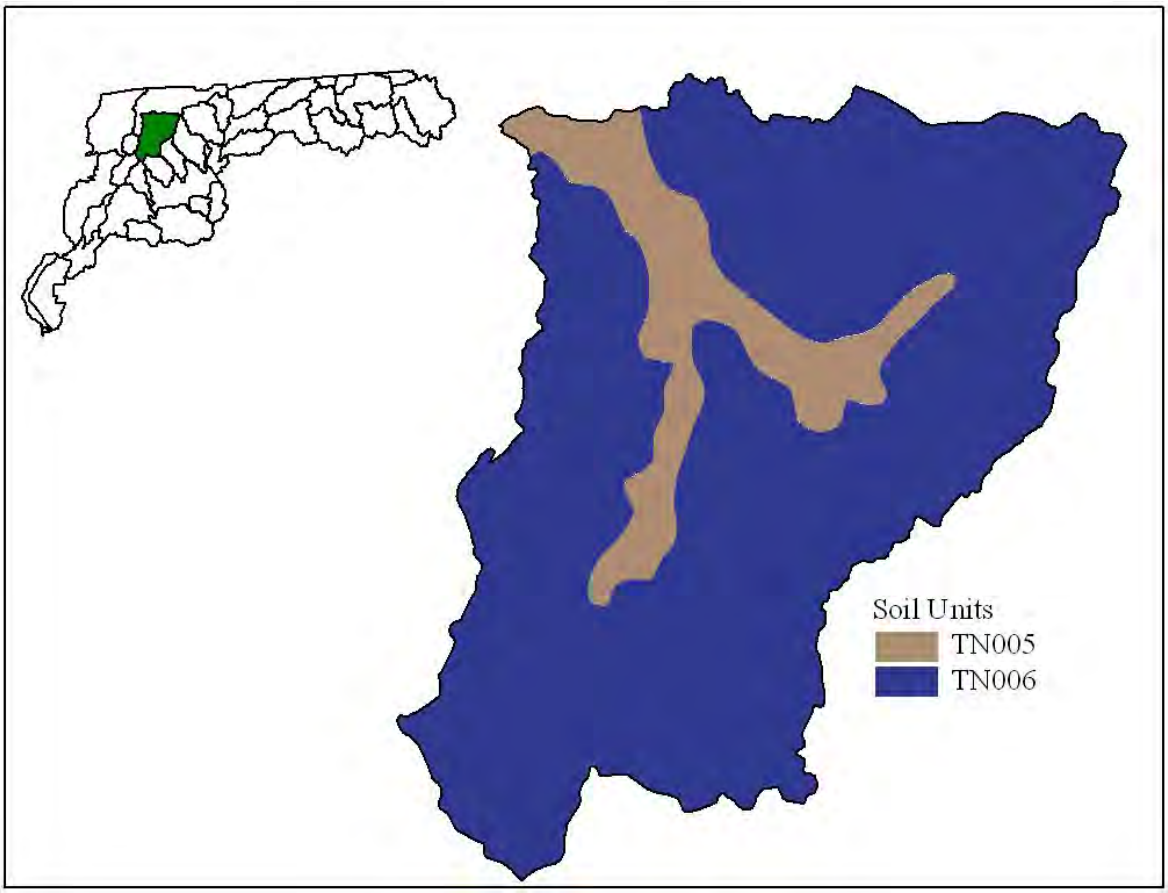


Figure 4-285. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020402.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN005	10.00	C	1.79	6.68	Silty Loam	0.41
TN006	0.00	C	1.30	5.42	Silty Loam	0.48

Table 4-191. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020402. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	7.05	2,236	2,261	2,287	2.30

Table 4-192. Population Estimates in Subwatershed 080102020402.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Hornbeak	Obion	472	194	12	180	2

Table 4-193. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020402.

4.2.GG.ii. USGS Gaging Stations and STORET Sites.

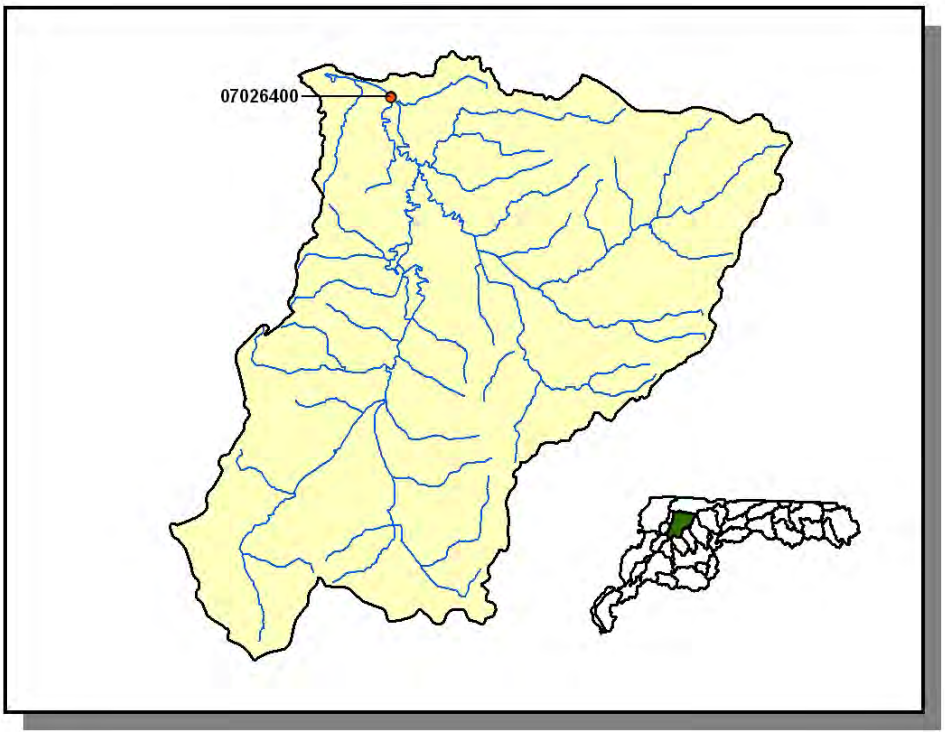


Figure 4-286. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102020402. *More information is provided in Appendix IV.*

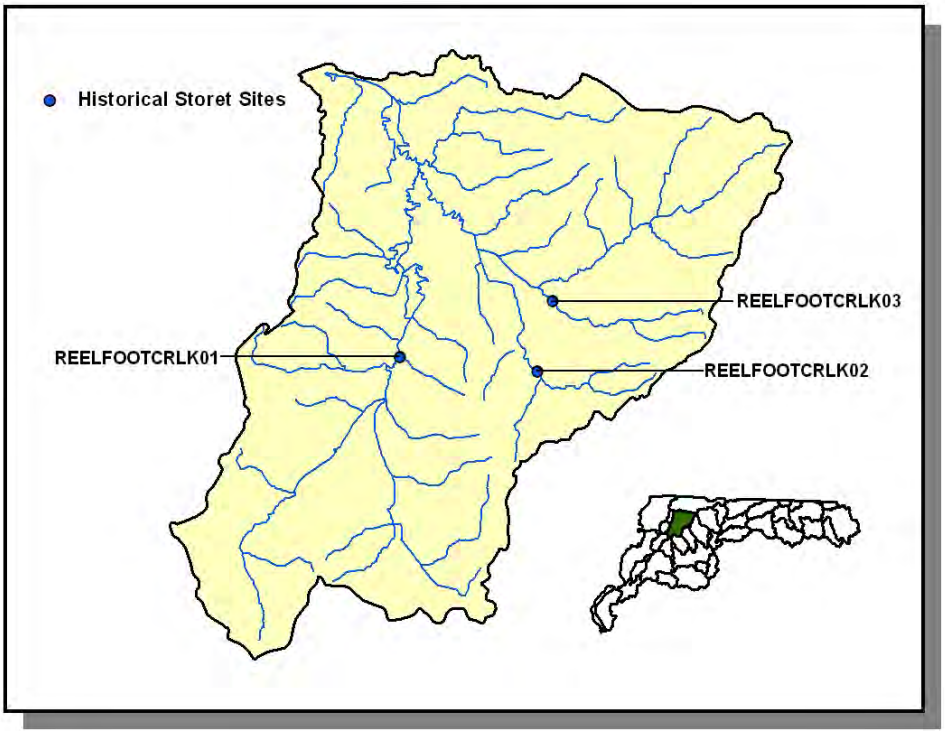


Figure 4-287. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020402. *More information, including site names and locations, is provided in Appendix IV.*

4.2.GG.iii. Permitted Activities.

Figure 4-288. Location of Permits Issued in Subwatershed 080102020402. *More information, including the names of facilities, is provided in Appendix IV.*

4.2.GG.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-194. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-195. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-196. Annual Estimated Total Soil Loss in Subwatershed 080102020402.

4.2.HH. 080102020403 (Reelfoot Lake).

4.2.HH.i. General Description.

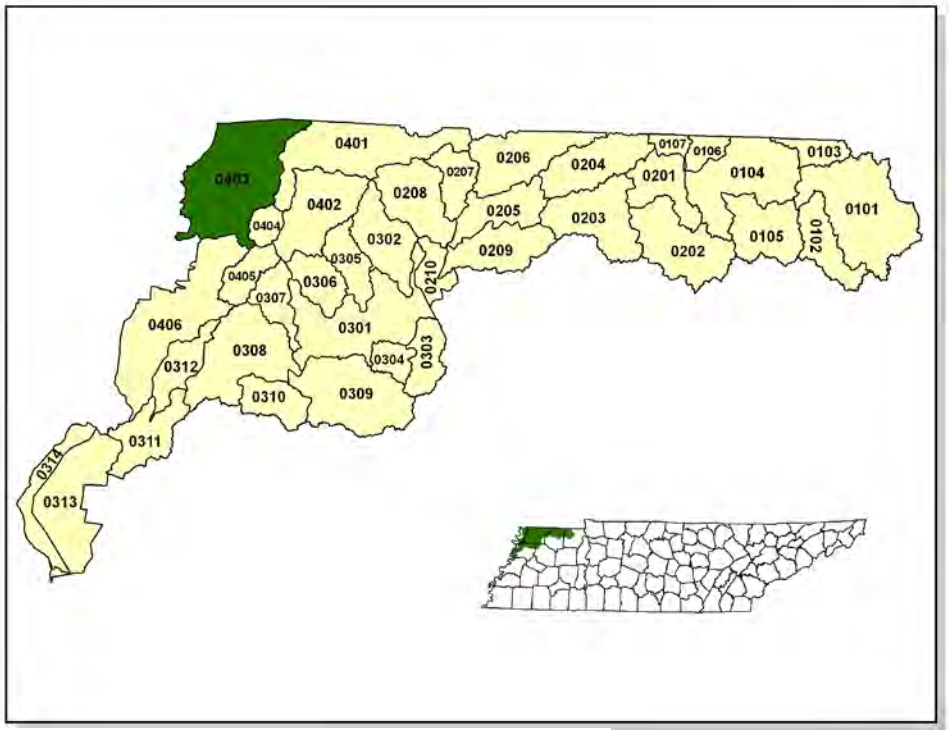


Figure 4-289. Location of Subwatershed 080102020403. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

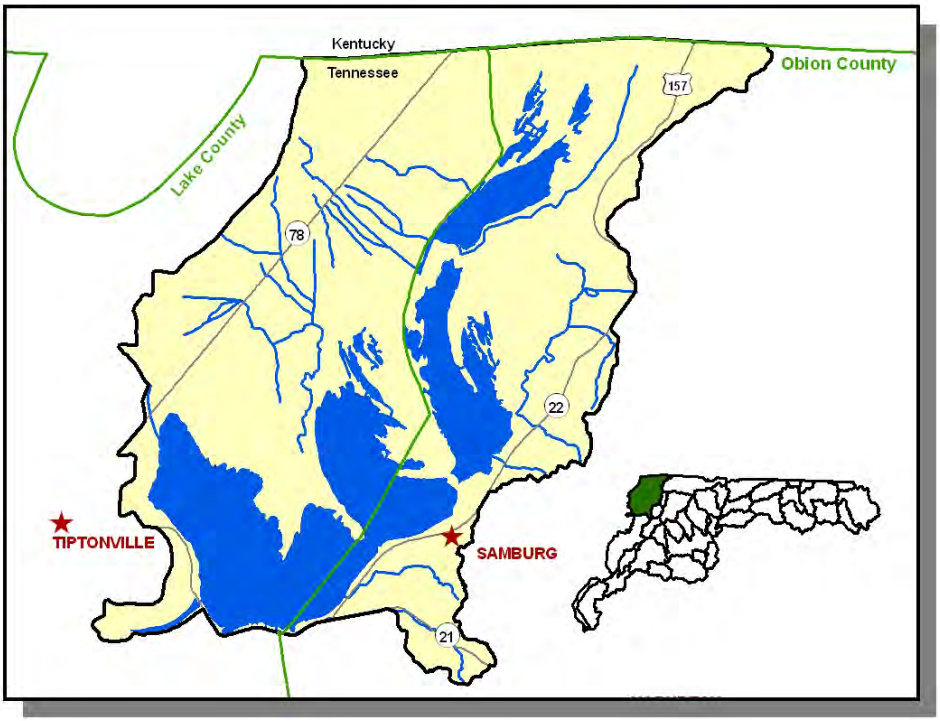


Figure 4-290. Locational Details of Subwatershed 080102020403.

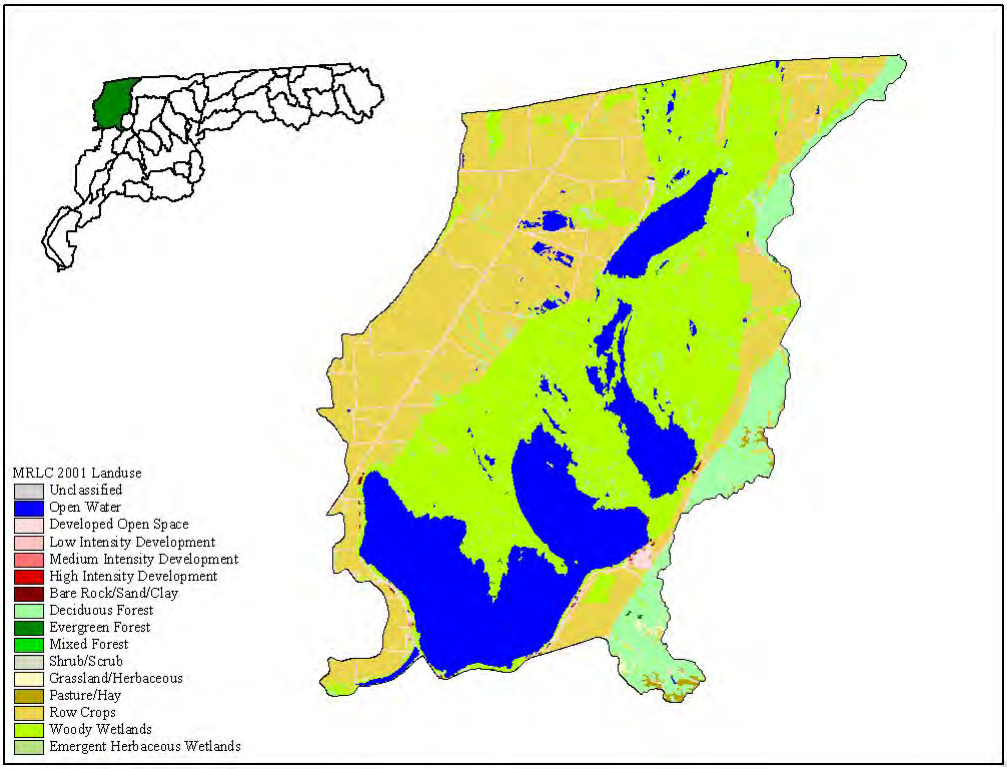


Figure 4-291. Illustration of Land Use Distribution in Subwatershed 080102020403.

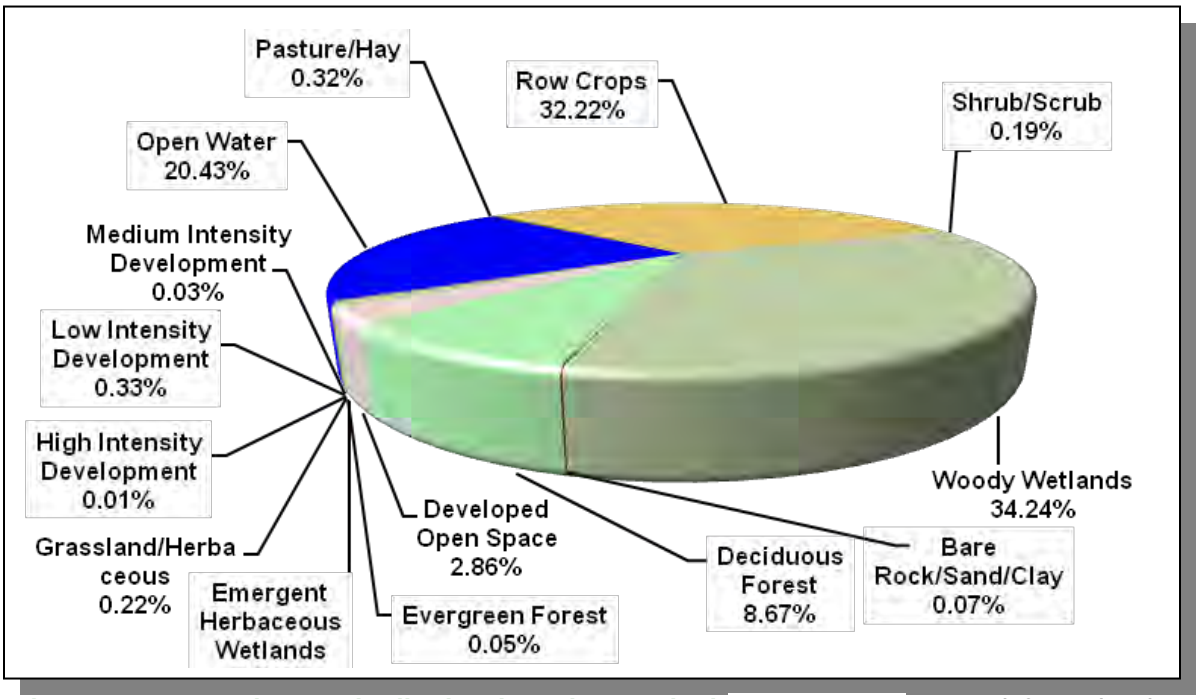


Figure 4-292. Land Use Distribution in Subwatershed 080102020403. *More information is provided in Appendix IV.*

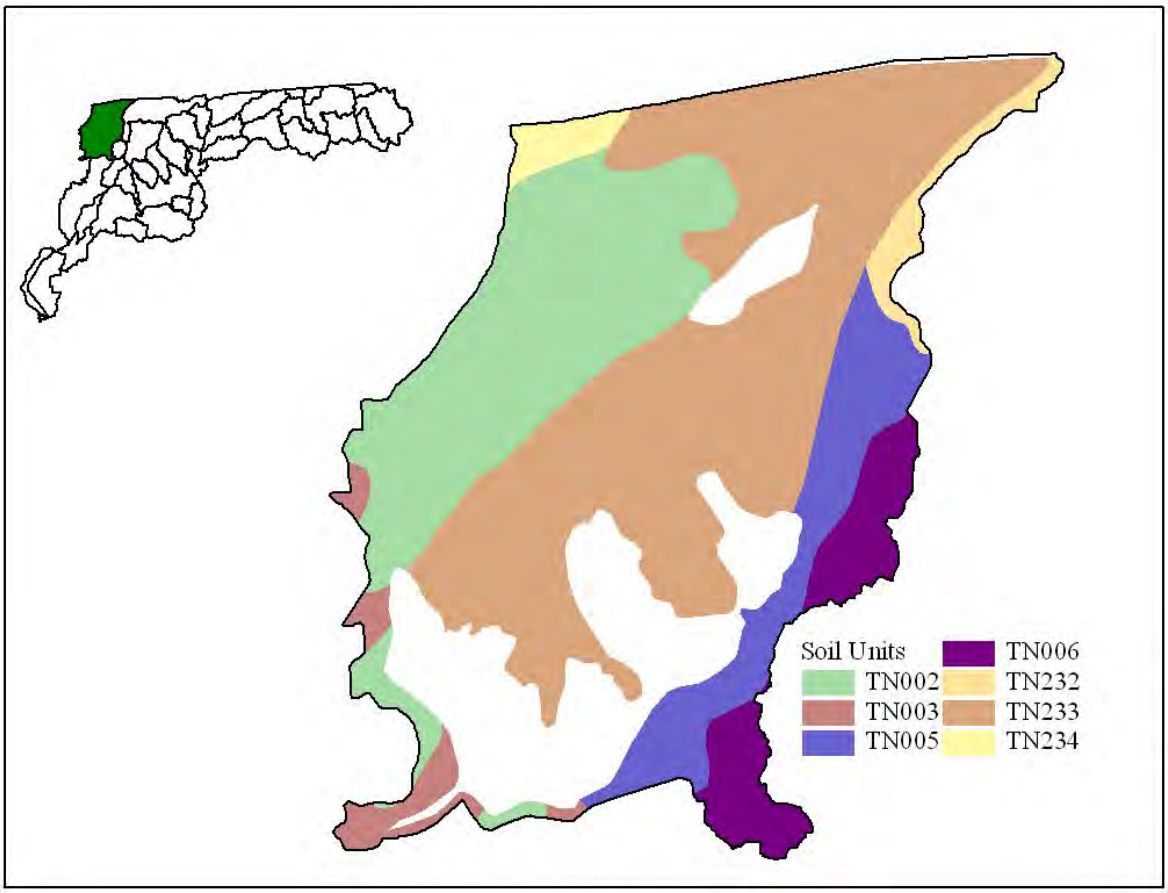


Figure 4-293. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020403.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN002	26.00	C	2.02	6.52	Silty Clay Loam	0.34
TN003	62.00	C	0.50	6.65	Silty Clay	0.33
TN005	10.00	C	1.79	6.68	Silty Loam	0.41
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN232	5.00	B	1.30	5.35	Silty Loam	0.48
TN233	100.00	C	0.35	6.67	Silty Clay	0.33

Table 4-197. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020403. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Lake	7,129	8,177	7,954	19.69	1,404	1,610	1,566	11.50
Obion	31,717	32,069	32,450	6.09	1,933	1,954	1,978	2.30
Totals	**38,846**	**40,246**	**40,404**		**3,337**	**3,564**	**3,544**	**6.20**

Table 4-198. Population Estimates in Subwatershed 080102020403.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Samburg	Obion	367	196	196	0	0
Tiptonville	Lake	2,208	868	802	44	22
Total		**2,575**	**1,064**	**998**	**44**	**22**

Table 4-199. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020403.

4.2.HH.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020403.

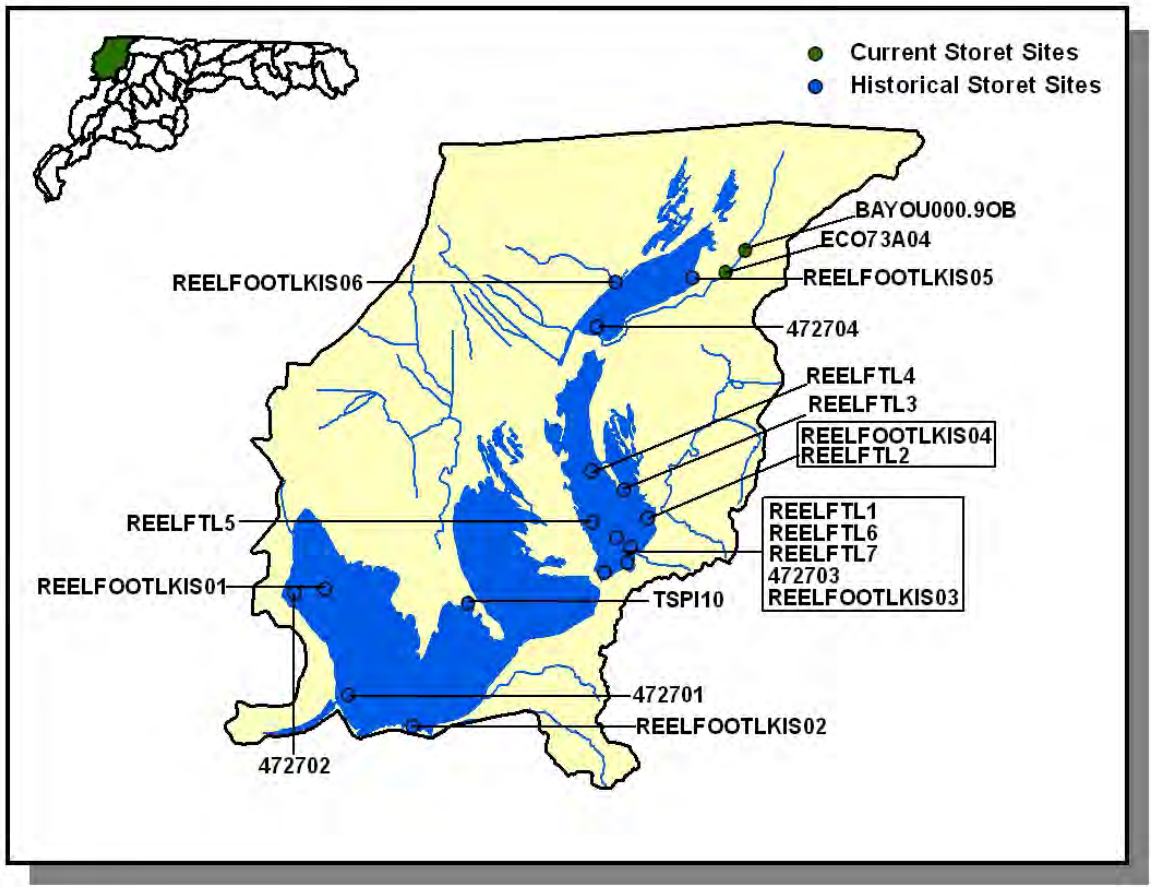


Figure 4-294. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020403. *More information, including site names and locations, is provided in Appendix IV.*

4.2.HH.iii. Permitted Activities.

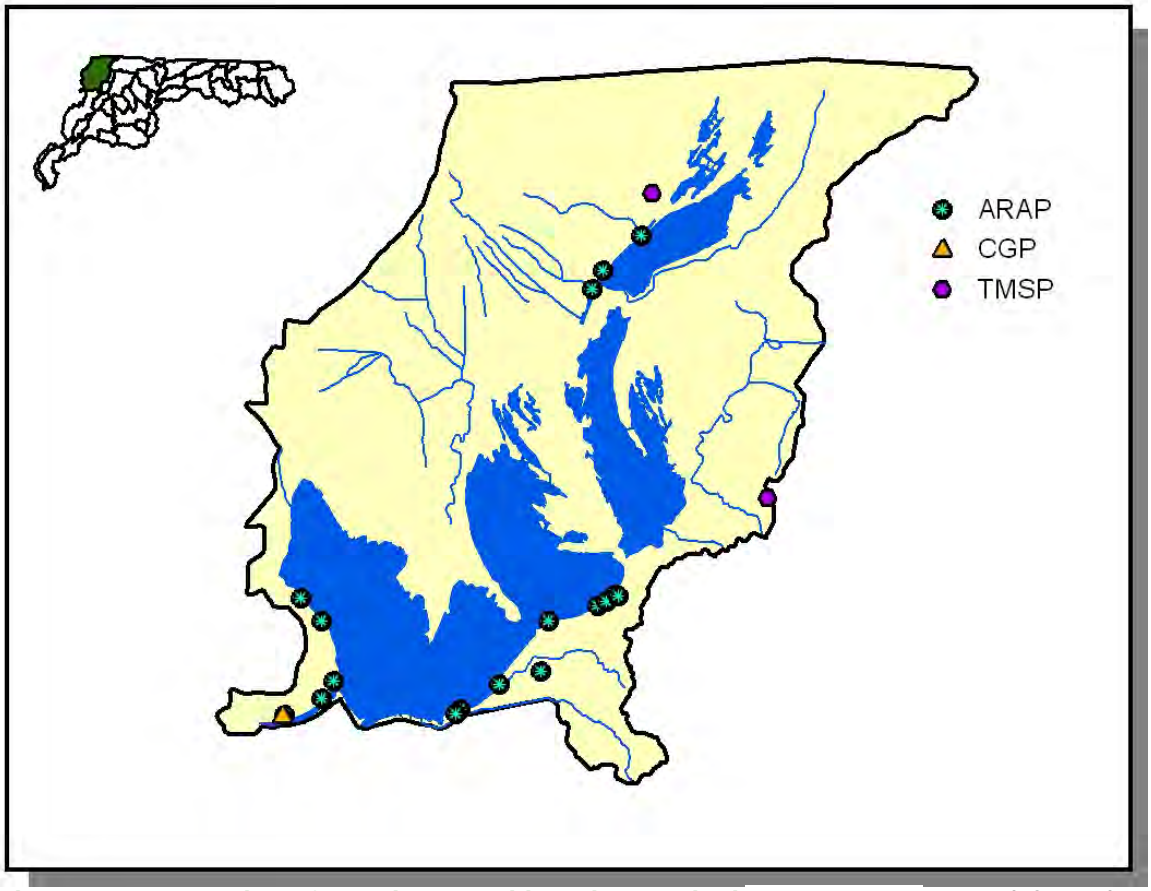


Figure 4-295. Location of Permits Issued in Subwatershed 080102020403. *More information, including the names of facilities, is provided in Appendix IV.*

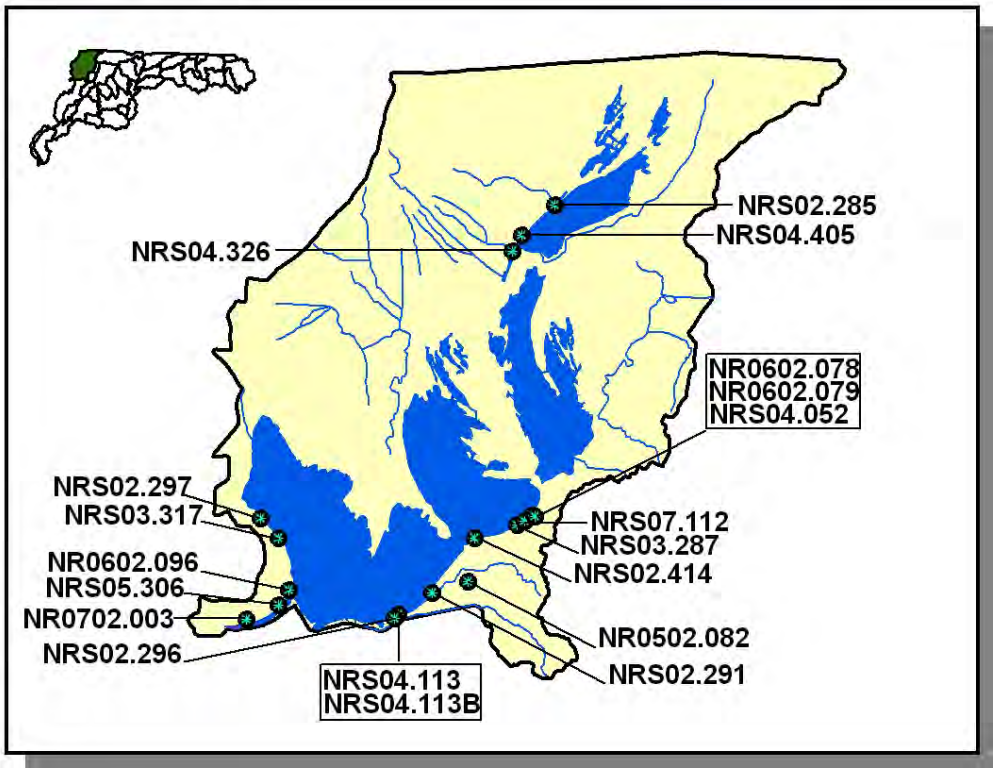


Figure 4-296. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020403. *More information is provided in Appendix IV.*

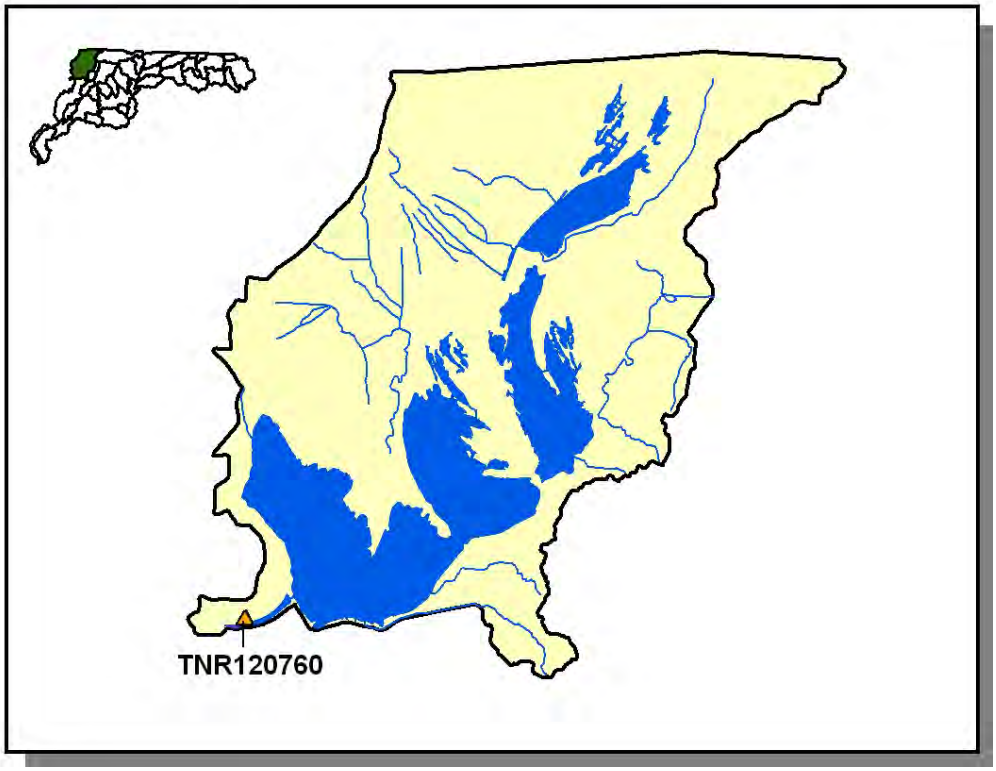


Figure 4-297. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020403. *More information is provided in Appendix IV.*

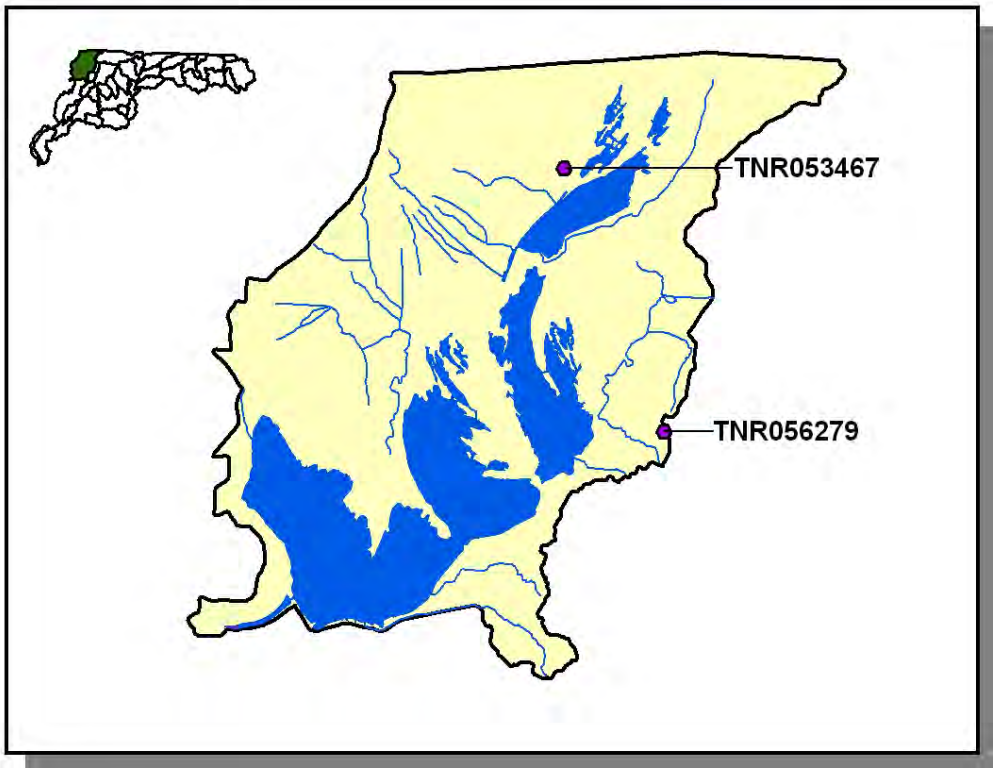


Figure 4-298. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020403. *More information is provided in Appendix IV.*

4.2.HH.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Lake	641	986				
Obion	8,033	18,503	118	<10	21149	205

Table 4-200. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Lake	18	18	3.3	15.6
Obion	67.6	67.6	4.4	20.8

Table 4-201. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.19
Wheat (Close Grown Cropland)	5.44
Soybeans (Row Crops)	5.06
Cotton (Row Crops)	3.99
Rice (Close Grown Cropland)	3.81
Corn (Row Crops)	2.92
Sorghum (Row Crops)	2.29
Farmsteads and Ranch Headquarters	1.86
Conservation Reserve Program Land	0.94
Grass (Pastureland)	0.69
Grass Forbs Legumes Mixed (Pastureland)	0.44
Grass (Hayland)	0.24
Legume (Pastureland)	0.07
Other Land in Farms	0.06

Table 4-202. Annual Estimated Total Soil Loss in Subwatershed 080102020403.

4.2.II. 080102020404 (Indian Creek).

4.2.II.i. General Description.

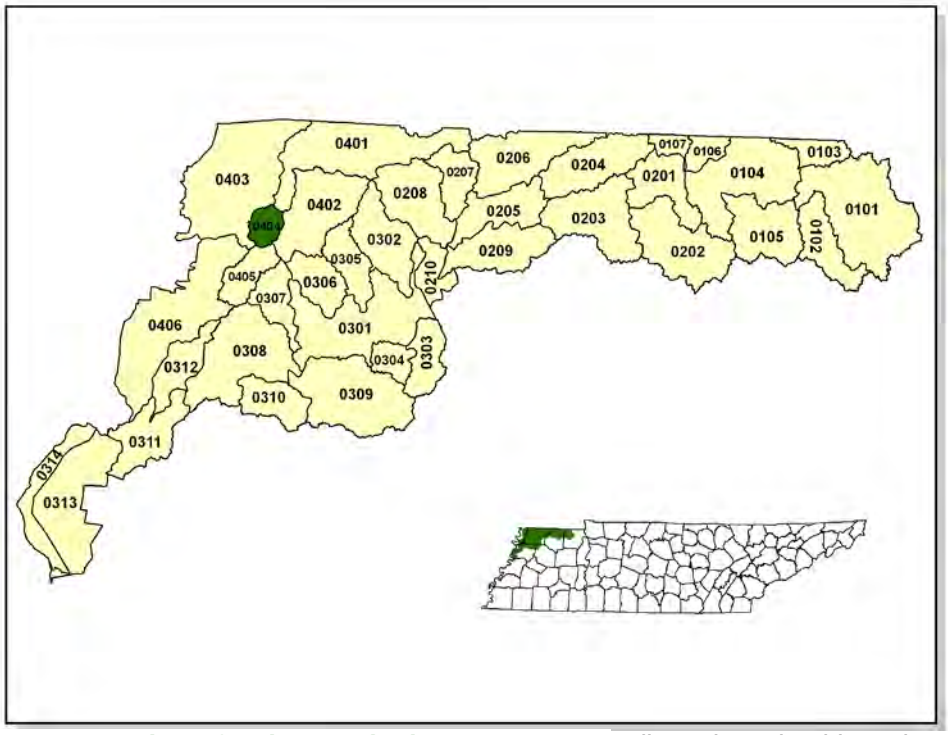


Figure 4-299. Location of Subwatershed 080102020404. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

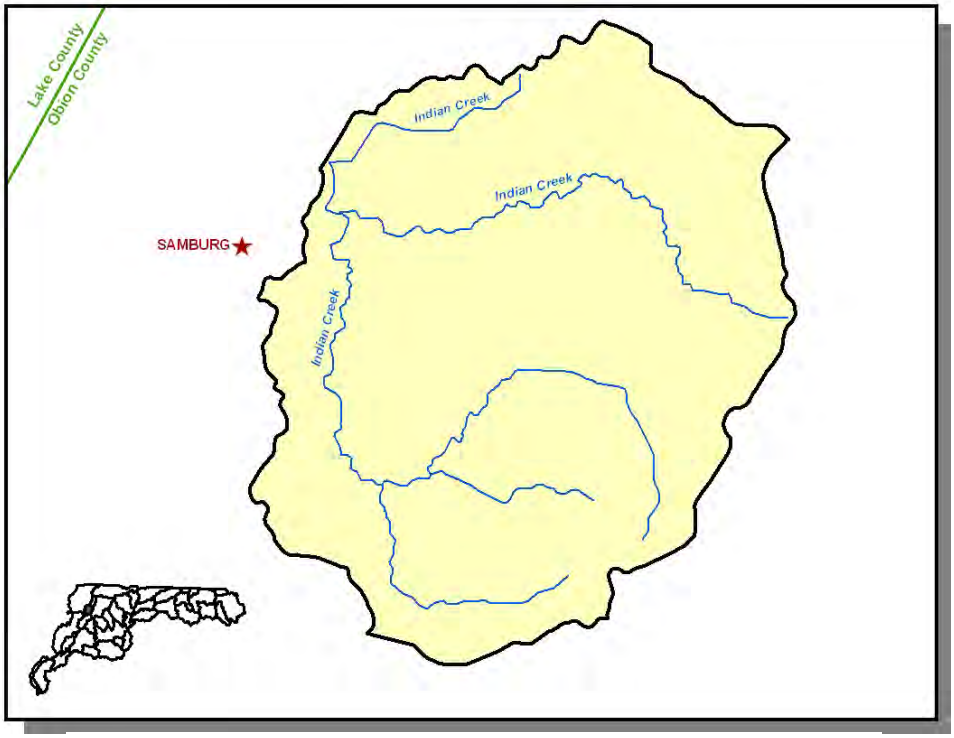


Figure 4-300. Locational Details of Subwatershed 080102020404.

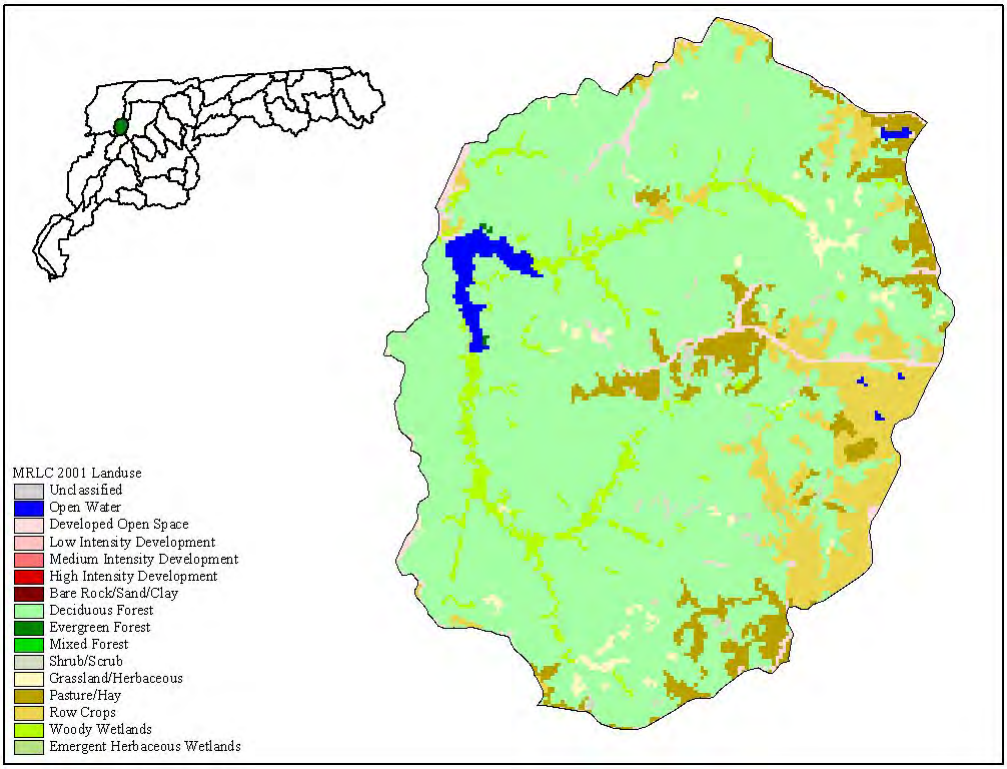


Figure 4-301. Illustration of Land Use Distribution in Subwatershed 080102020404.

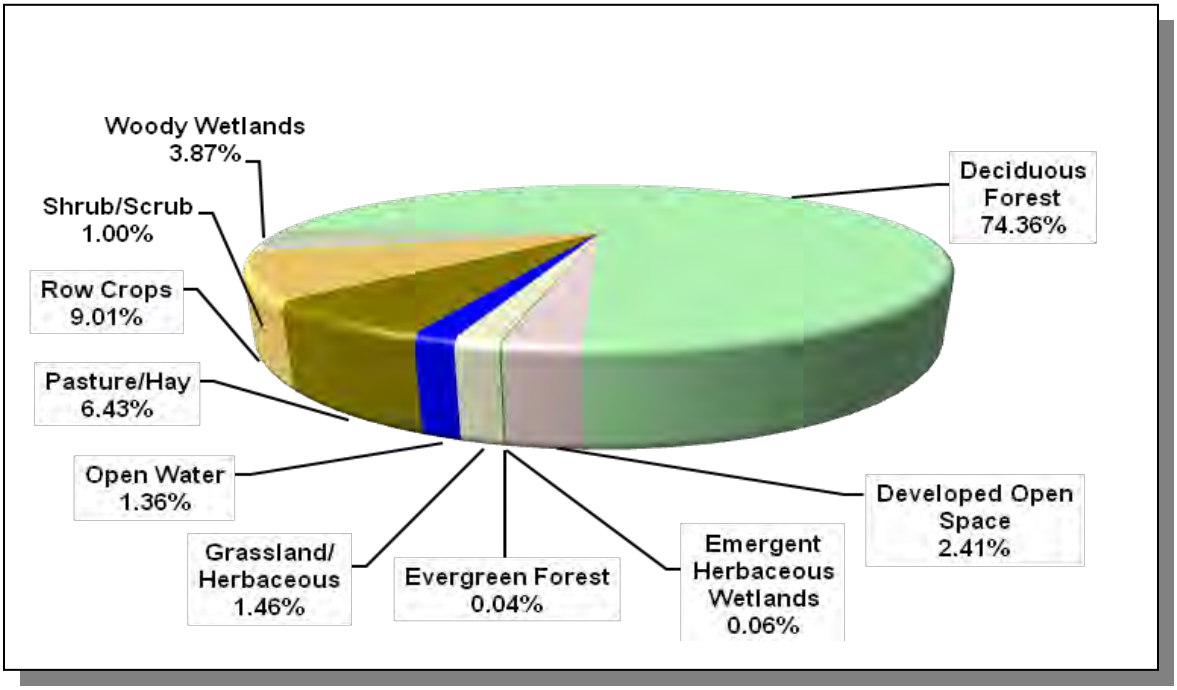


Figure 4-302. Land Use Distribution in Subwatershed 080102020404. *More information is provided in Appendix IV.*

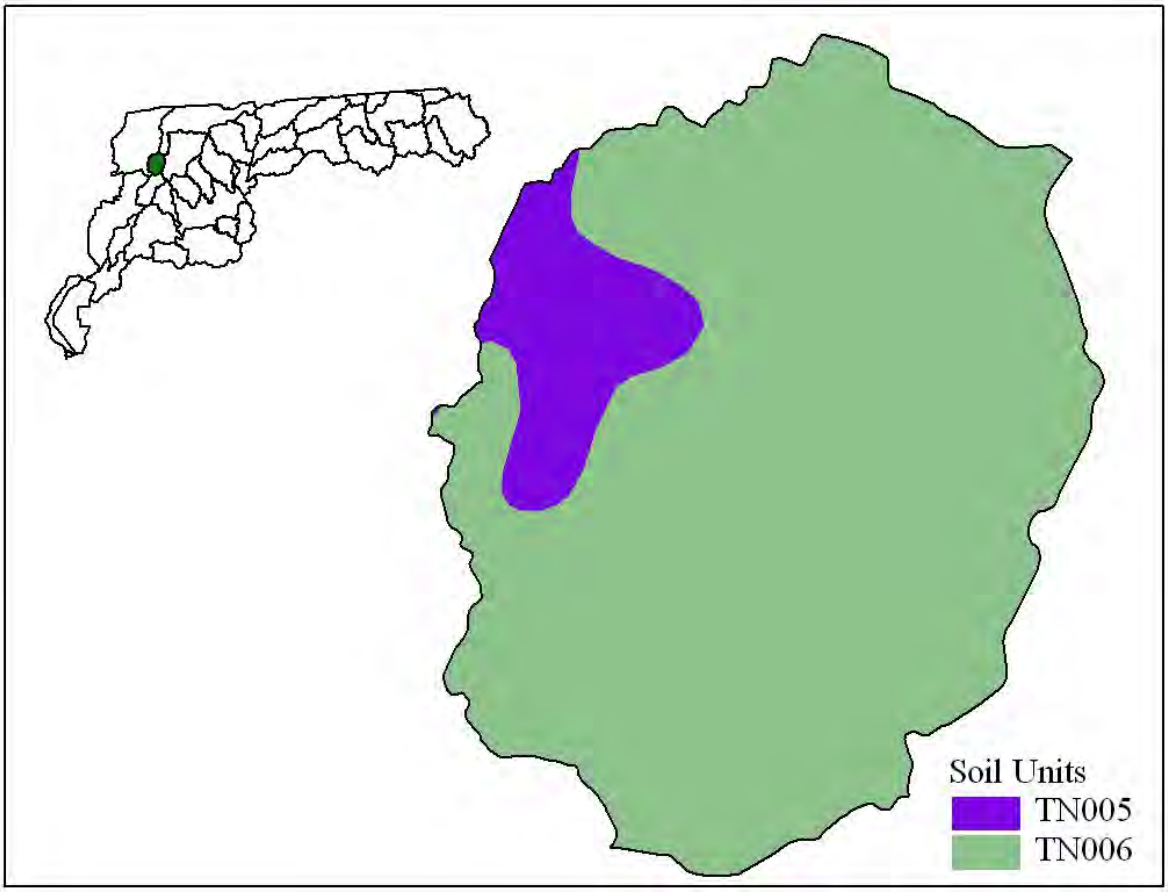


Figure 4-303. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020404.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN005	10.00	C	1.79	6.68	Silty Loam	0.41
TN006	0.00	C	1.30	5.42	Silty Loam	0.48

Table 4-203. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020404. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	1.5	476	481	487	2.3

Table 4-204. Population Estimates in Subwatershed 080102020404.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Samburg	Obion	367	196	196	0	0

Table 4-205. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020404.

4.2.II.ii. USGS Gaging Stations and STORET Sites.

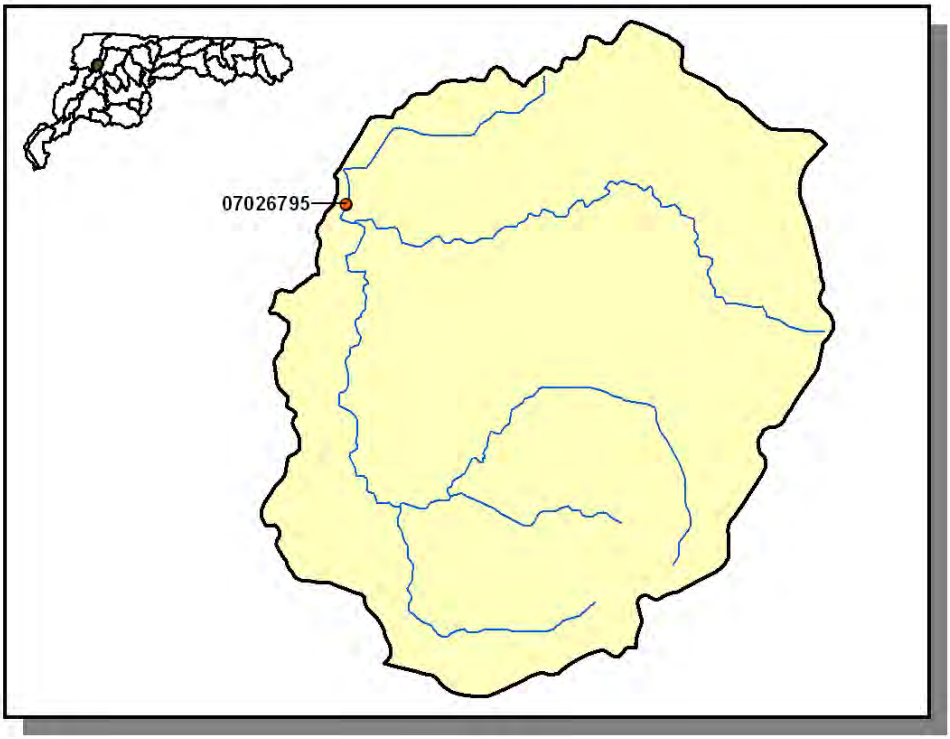


Figure 4-304. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102020404. *More information is provided in Appendix IV.*

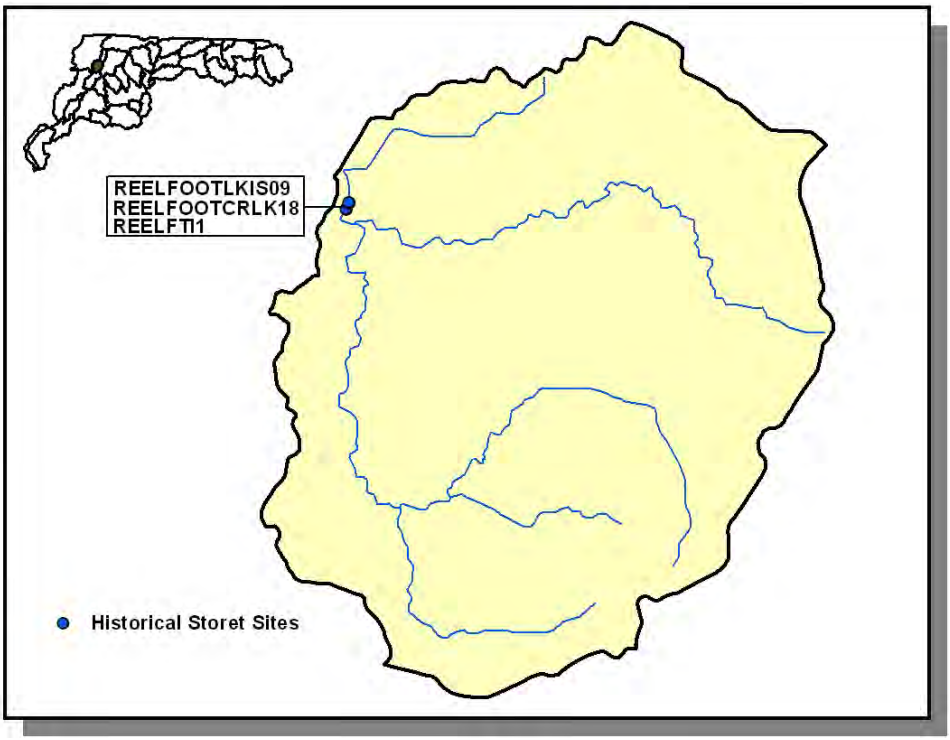


Figure 4-305. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020404. *More information, including site names and locations, is provided in Appendix IV.*

4.2.II.iiii. Permitted Activities.

There are no permitted activities located in subwatershed 080102020404 as of June 30th, 2007.

4.2.II.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-206. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-207. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-208. Annual Estimated Total Soil Loss in Subwatershed 080102020404.

4.2.JJ. 080102020405 (Pawpaw Creek).

4.2.JJ.i. General Description.

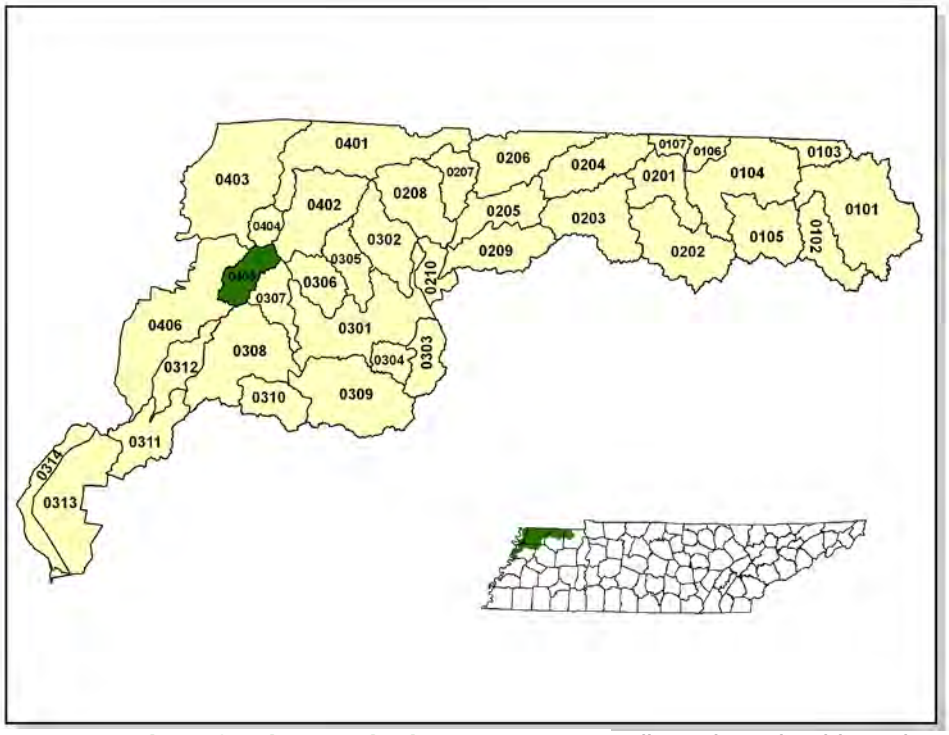


Figure 4-306. Location of Subwatershed 080102020405. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

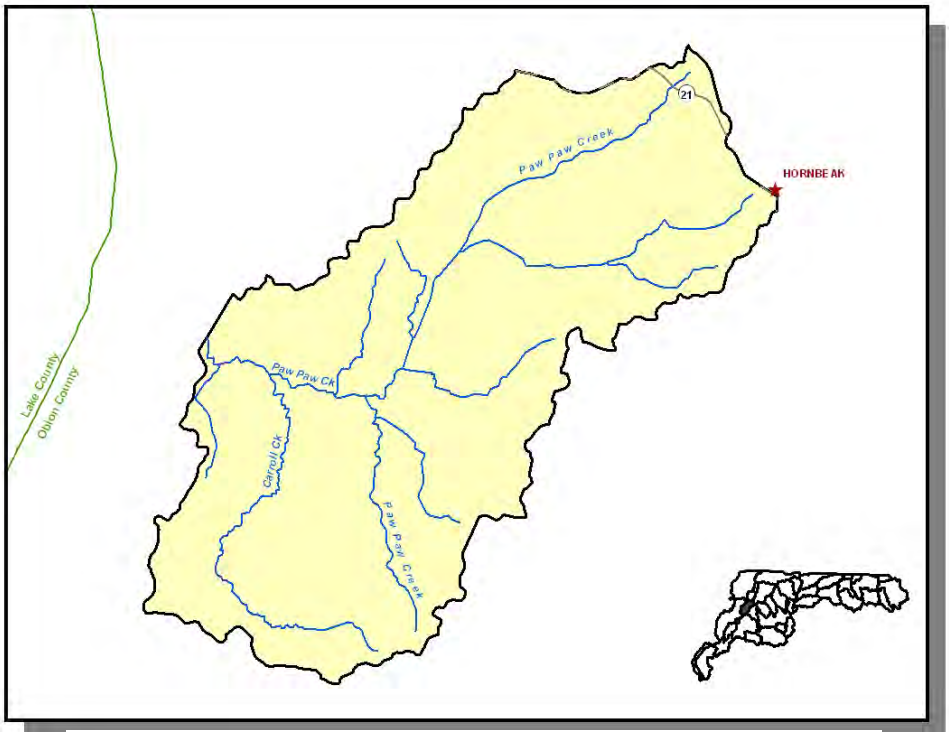


Figure 4-307. Locational Details of Subwatershed 080102020405.

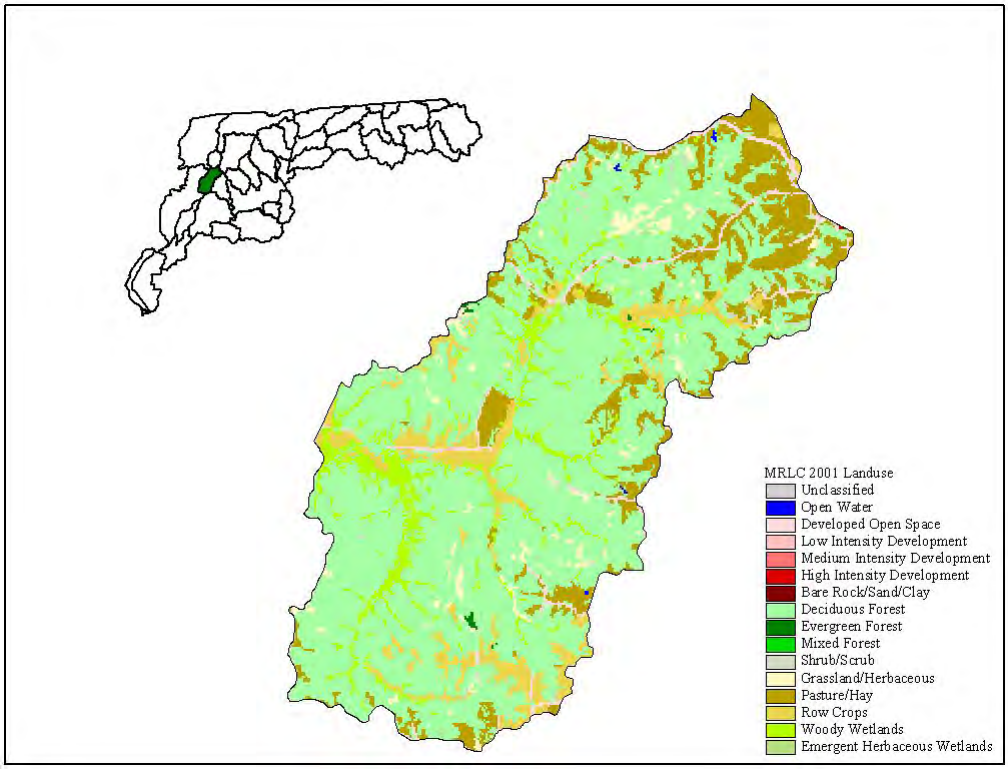


Figure 4-308. Illustration of Land Use Distribution in Subwatershed 080102020405.

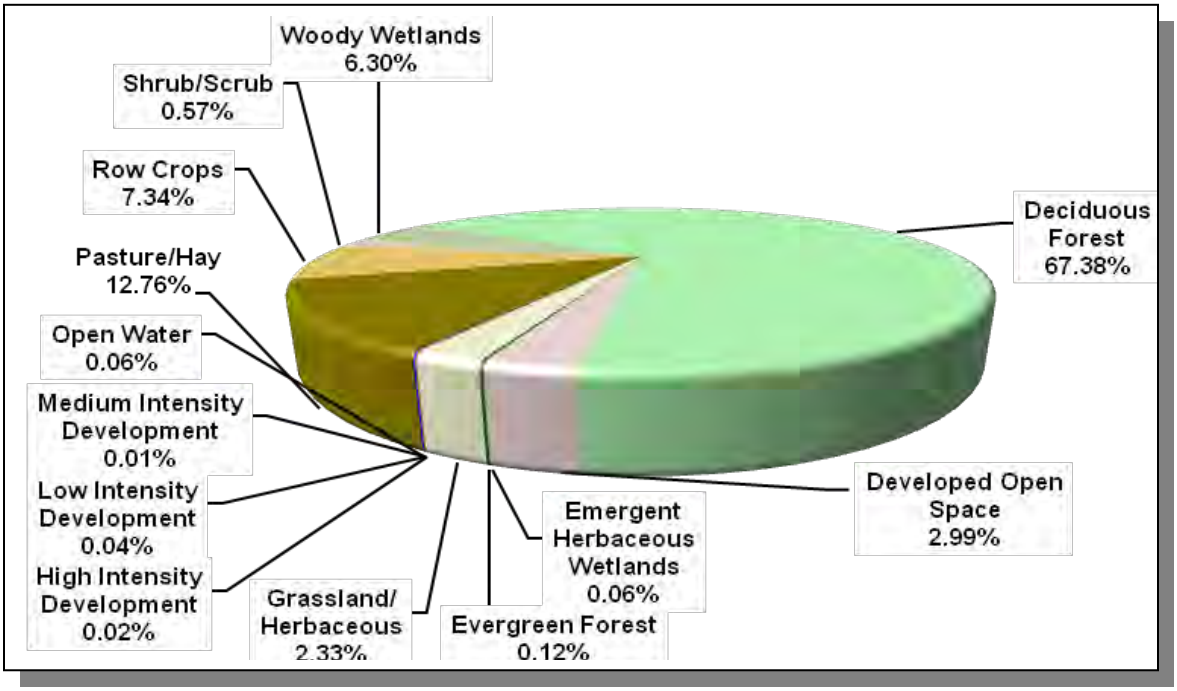


Figure 4-309. Land Use Distribution in Subwatershed 080102020405. *More information is provided in Appendix IV.*

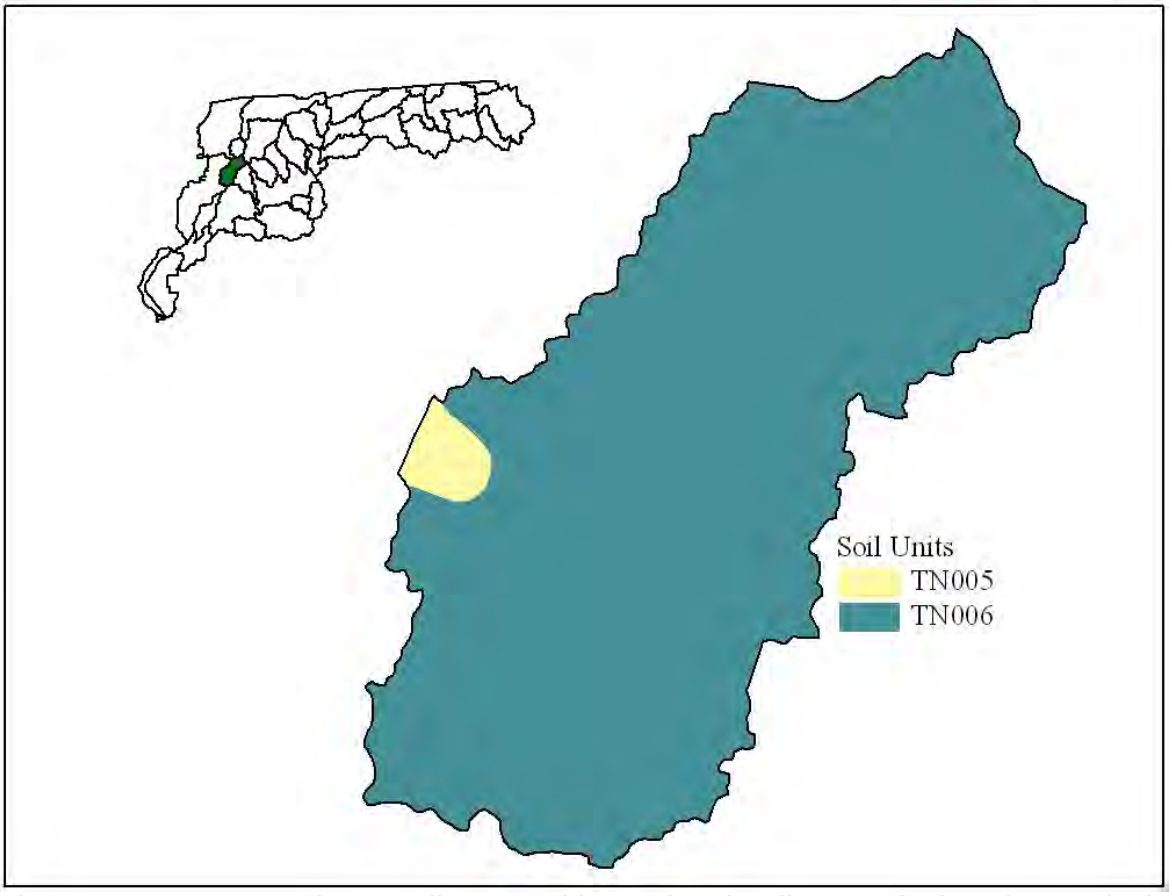


Figure 4-310. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020405.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN005	10.00	C	1.79	6.68	Silty Loam	0.41
TN006	0.00	C	1.30	5.42	Silty Loam	0.48

Table 4-209. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020405. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	2.66	844	853	863	2.30

Table 4-210. Population Estimates in Subwatershed 080102020405.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Hornbeak	Obion	472	194	12	180	2

Table 4-211. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020405.

4.2.JJ.ii. USGS Gaging Stations and STORET Sites.

There are no USGS continuous record gaging stations located in subwatershed 080102020405.

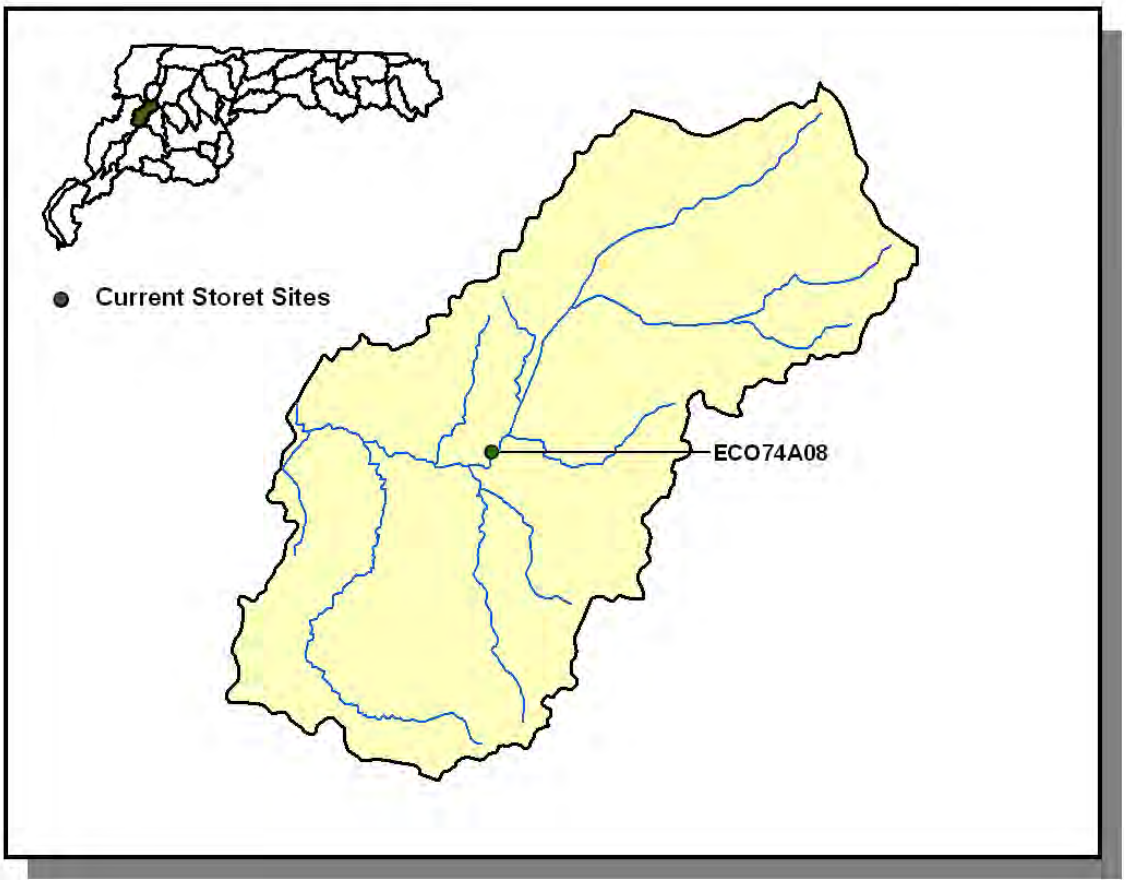


Figure 4-311. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020405. *More information, including site names and locations, is provided in Appendix IV.*

4.2.JJ.iii. Permitted Activities.

There are no permitted activities located in subwatershed 080102020405 as of June 30th, 2007.

4.2.J.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Obion	8,033	18,503	118	7	21,149	205

Table 4-212. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Obion	67.6	67.6	4.4	20.8

Table 4-213. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	14.24
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.05
Cotton (Row Crops)	5.74
Corn (Row Crops)	4.37
Sorghum (Row Crops)	2.76
Conservation Reserve Program Land	1.92
Grass Forbs Legumes Mixed (Pastureland)	0.86
Grass (Pastureland)	0.68
Grass (Hayland)	0.48
Farmsteads and Ranch Headquarters	0.16
Legume (Pastureland)	0.07

Table 4-214. Annual Estimated Total Soil Loss in Subwatershed 080102020405.

4.2.KK. 080102020406 (Running Reelfoot Bayou).

4.2.KK.i. General Description.

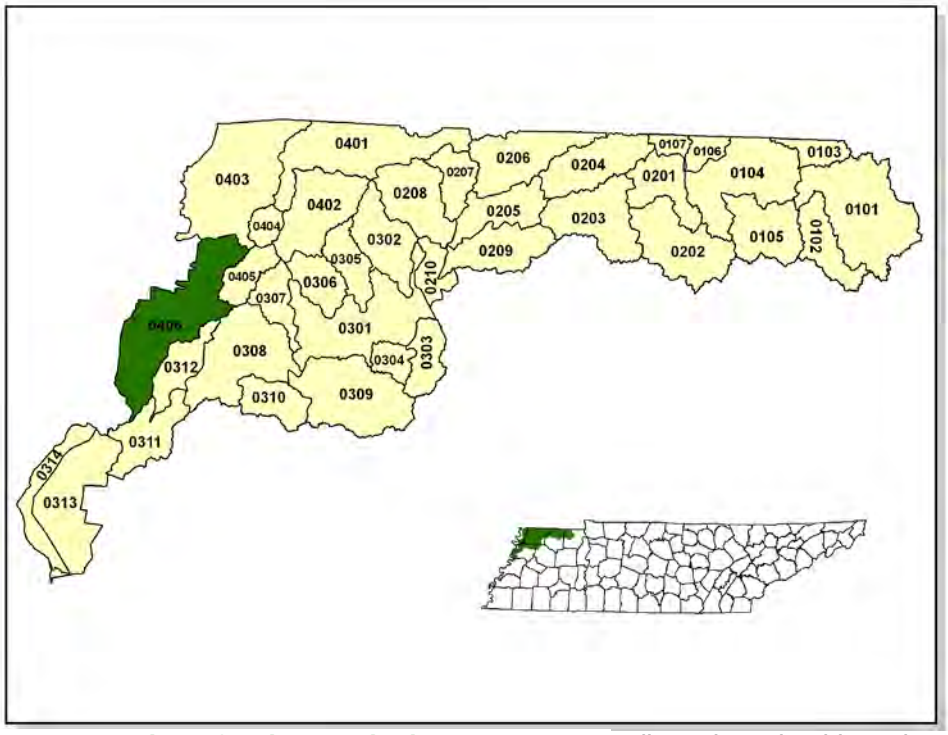


Figure 4-312. Location of Subwatershed 080102020406. *All North Fork Obion River HUC-12 subwatershed boundaries in Tennessee are shown for reference.*

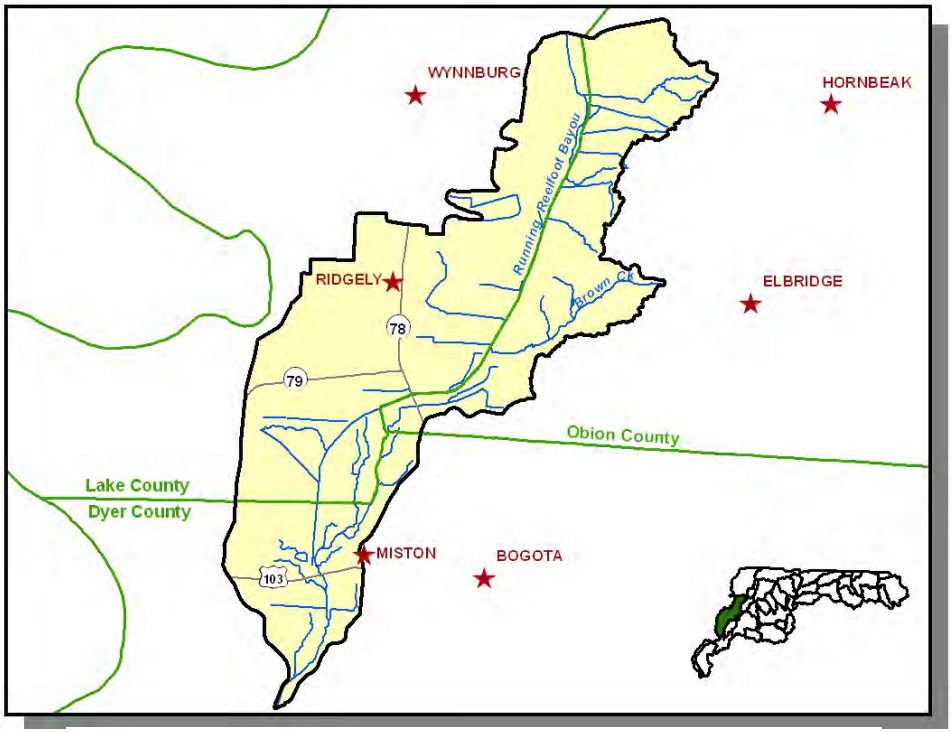


Figure 4-313. Locational Details of Subwatershed 080102020406.

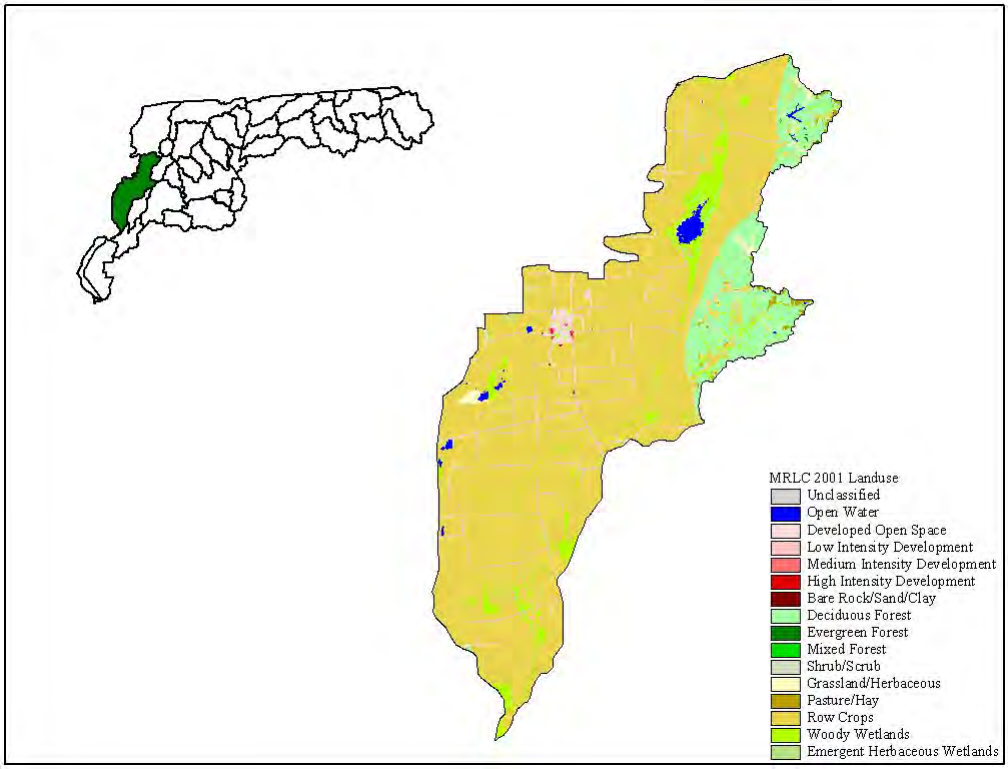


Figure 4-314. Illustration of Land Use Distribution in Subwatershed 080102020406.

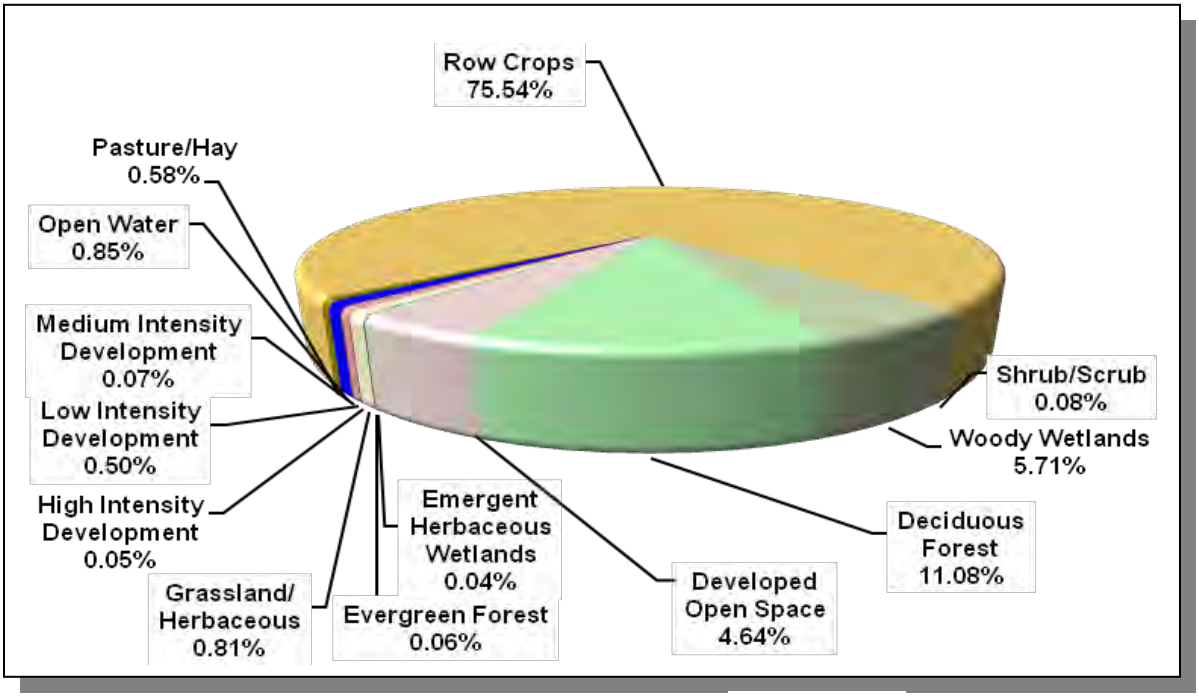


Figure 4-315. Land Use Distribution in Subwatershed 080102020406. *More information is provided in Appendix IV.*

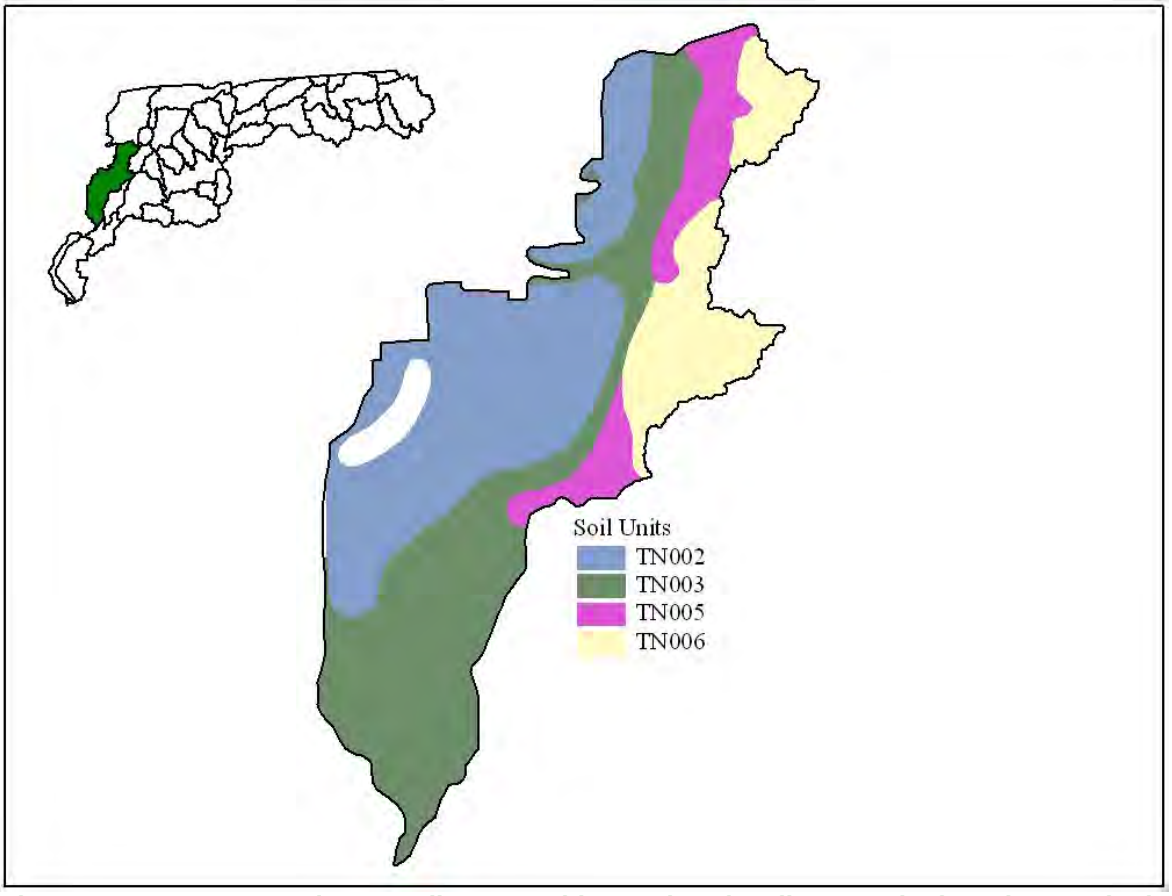


Figure 4-316. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020406.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN005	10.00	C	1.79	6.68	Silty Loam	0.41
TN006	0.00	C	1.30	5.42	Silty Loam	0.48
TN002	26.00	C	2.02	6.52	Silty Clay Loam	0.34

Table 4-215. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102020406. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	% of County in Watershed	1990	1997	2000	% Change (1990-2000)
Dyer	34,854	36,465	37,279	2.35	819	857	876	7.00
Lake	7,129	8,177	7,954	17.88	1,275	1,462	1,423	11.60
Obion	31,717	32,069	32,450	3.760	1,191	1,204	1,219	2.40
Totals	**73,700**	**76,711**	**77,683**		**3,285**	**3,523**	**3,518**	**7.10**

Table 4-216. Population Estimates in Subwatershed 080102020406.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Ridgely	Lake	1,775	723	721	2	0

Table 4-217. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102020406.

4.2.KK.ii. USGS Gaging Stations and STORET Sites.

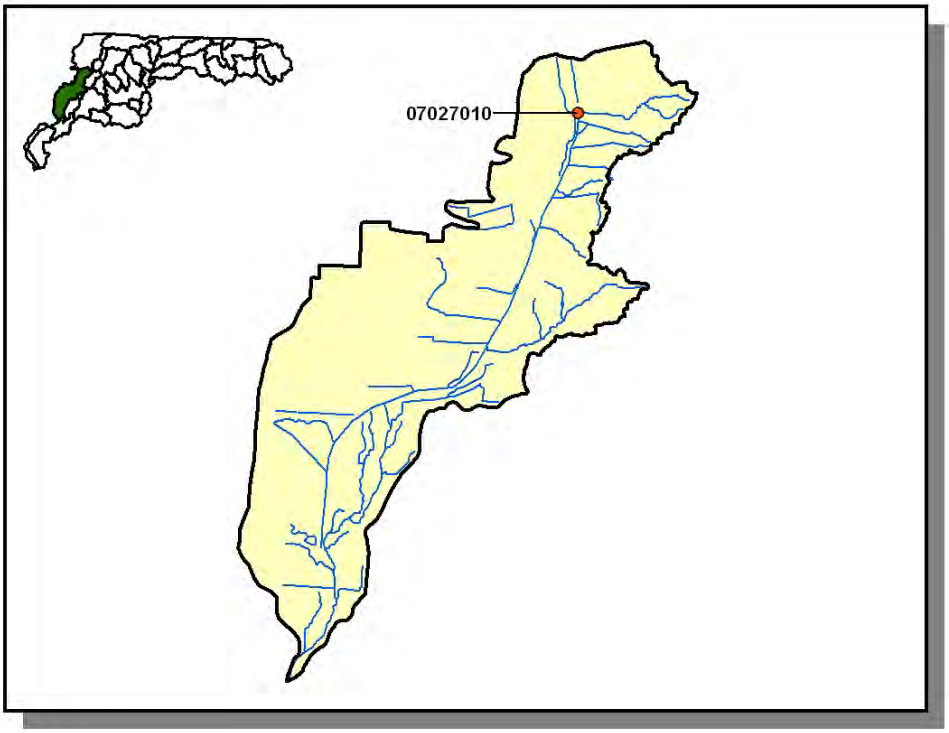


Figure 4-317. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102020406. *More information is provided in Appendix IV.*

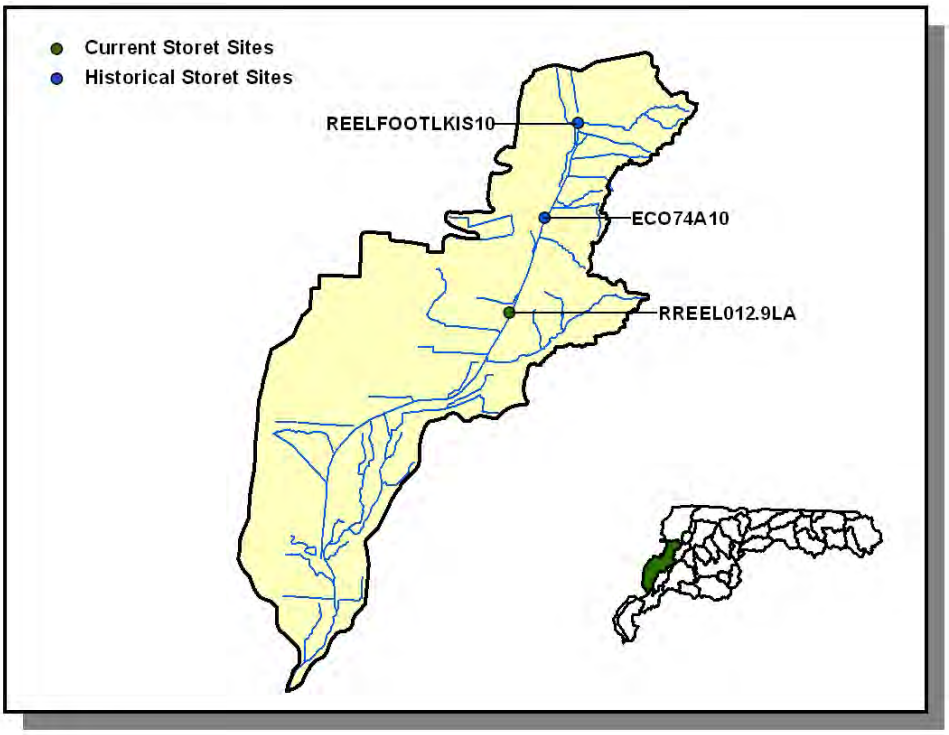


Figure 4-318. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102020406. *More information, including site names and locations, is provided in Appendix IV.*

4.2.KK.iii. Permitted Activities.

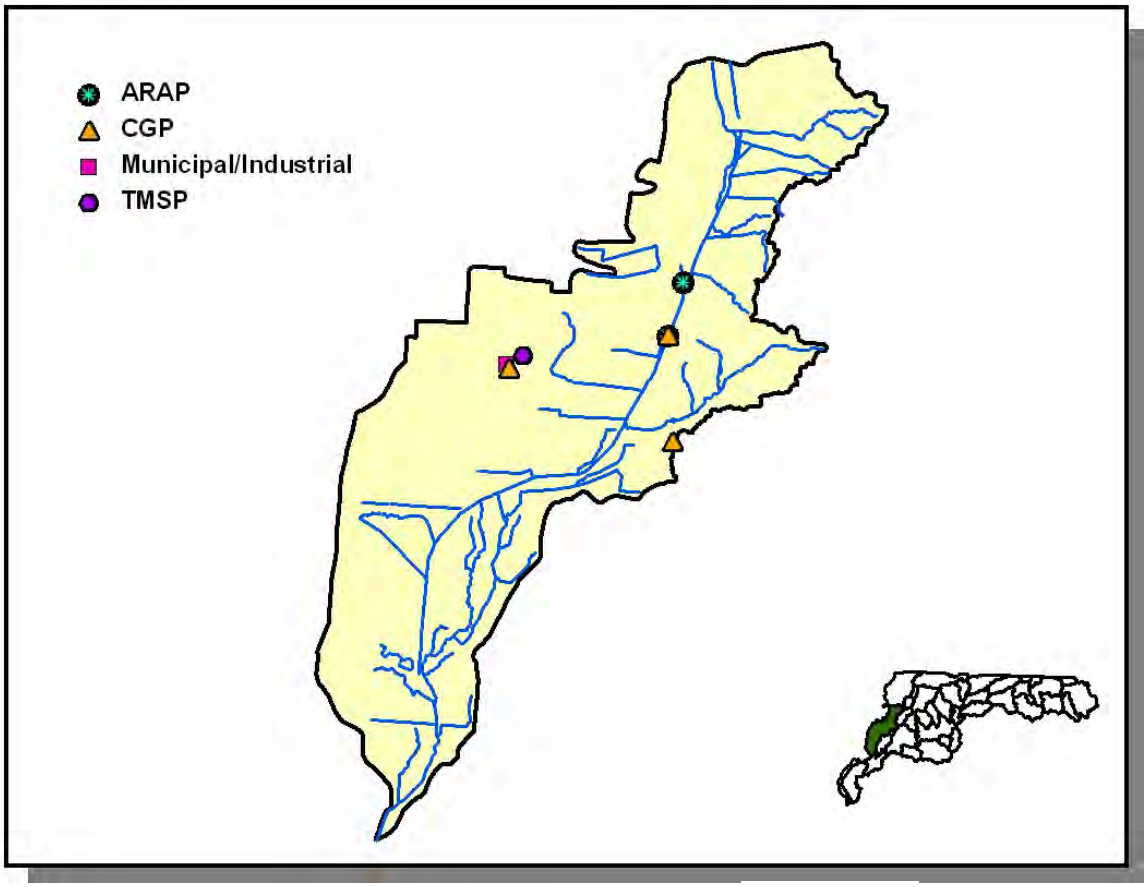


Figure 4-319. Location of Permits Issued in Subwatershed 080102020406. *More information, including the names of facilities, is provided in Appendix IV.*

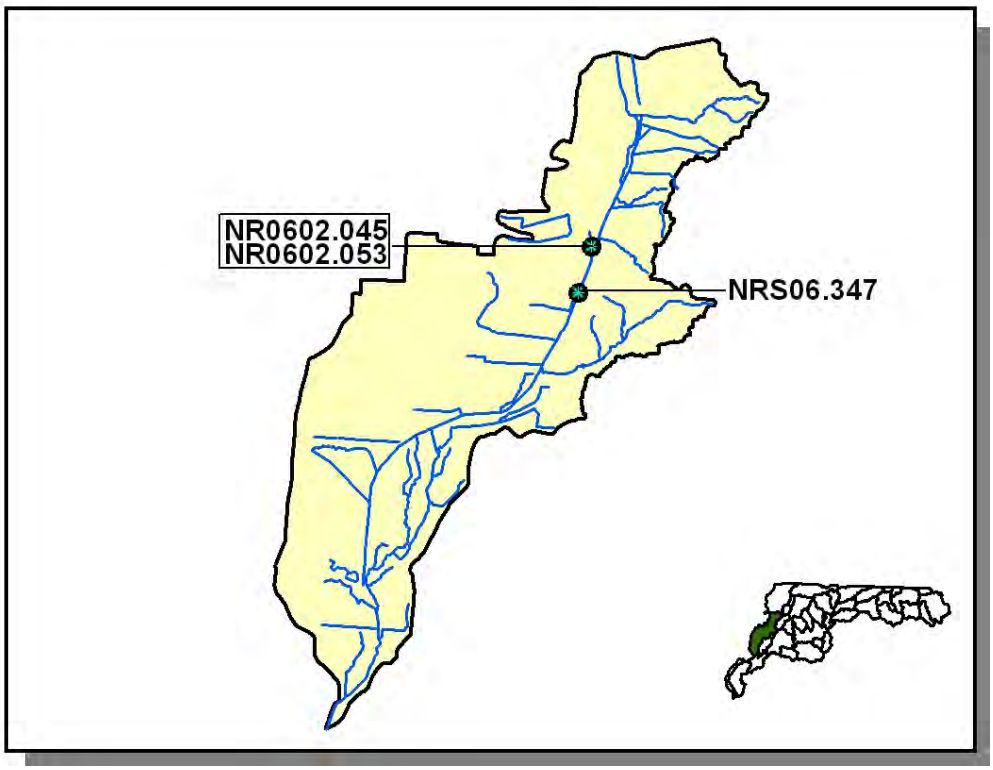


Figure 4-320. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102020406. *More information is provided in Appendix IV.*

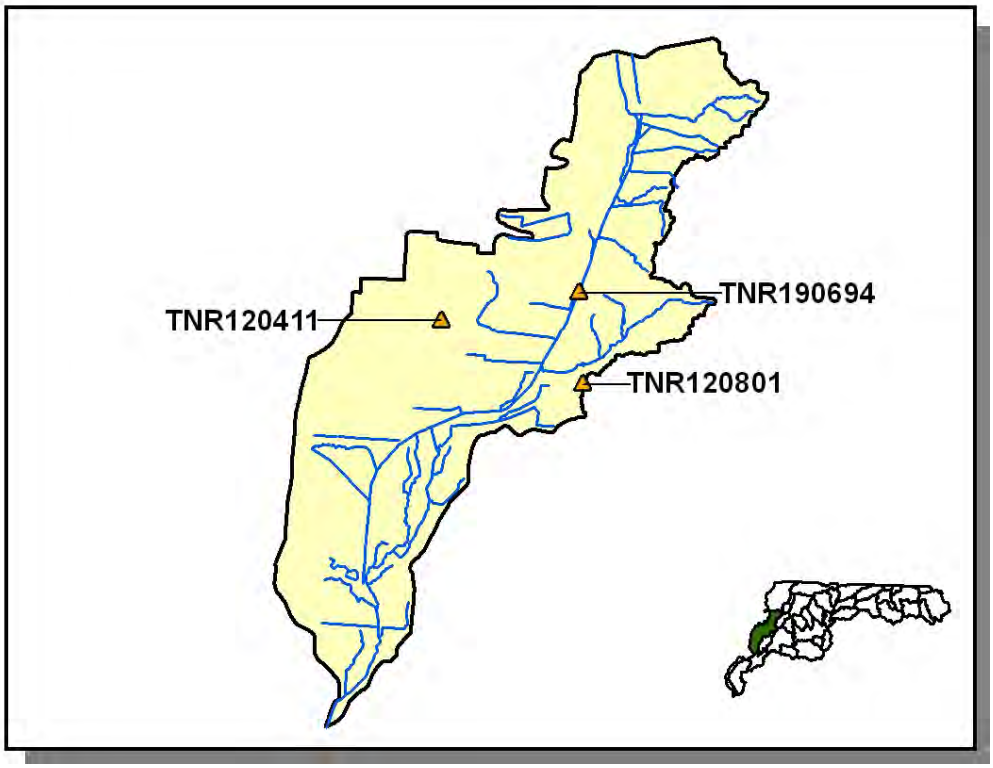


Figure 4-321. Location of CGP (Construction General Permit) Sites in Subwatershed 080102020406. *More information is provided in Appendix IV.*

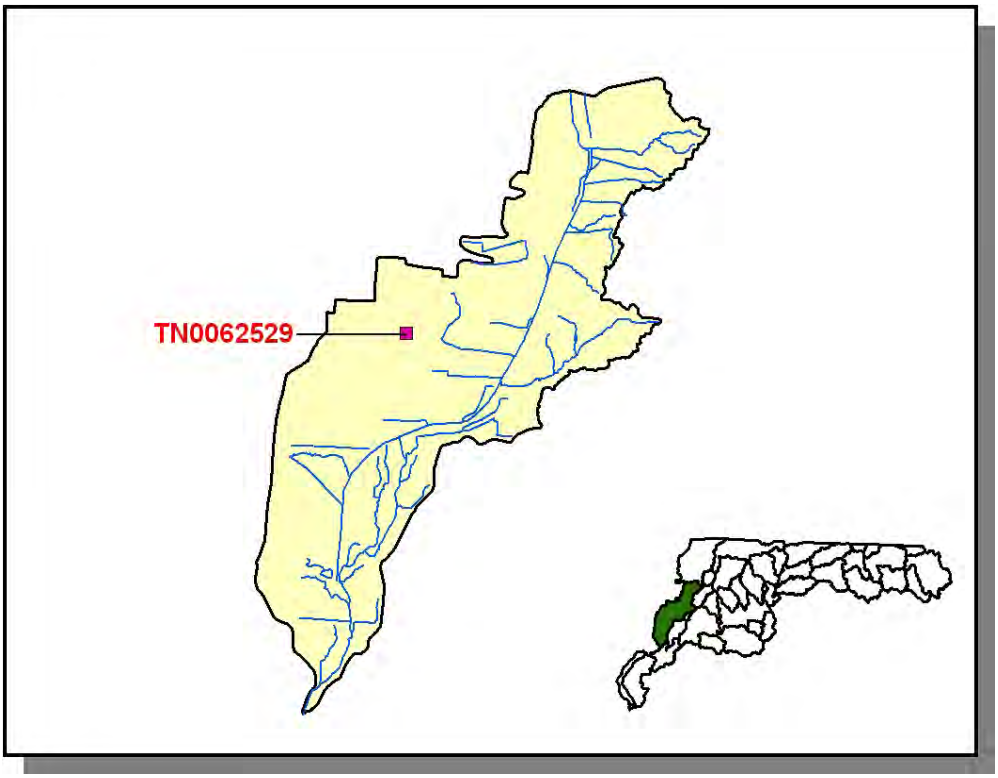


Figure 4-322. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102020406. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	1Q10	DISCHARGE FLOW
TN0062529	67,000.0	0.2

Table 4-218. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020406.

PERMIT #	BOD_5	BOD % REMOVAL	TRC	DO	SS	TSS	pH	E. *coli*	FLOW
TN0062529	X	X	X	X	X	X	X	X	X

Table 4-219. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102020406. *BOD_5, Biochemical Oxygen Demand (5-day); TRC, Total Residual Chlorine; DO, Dissolved Oxygen; SS, Settleable Solids; TSS, Total Suspended Solids.*

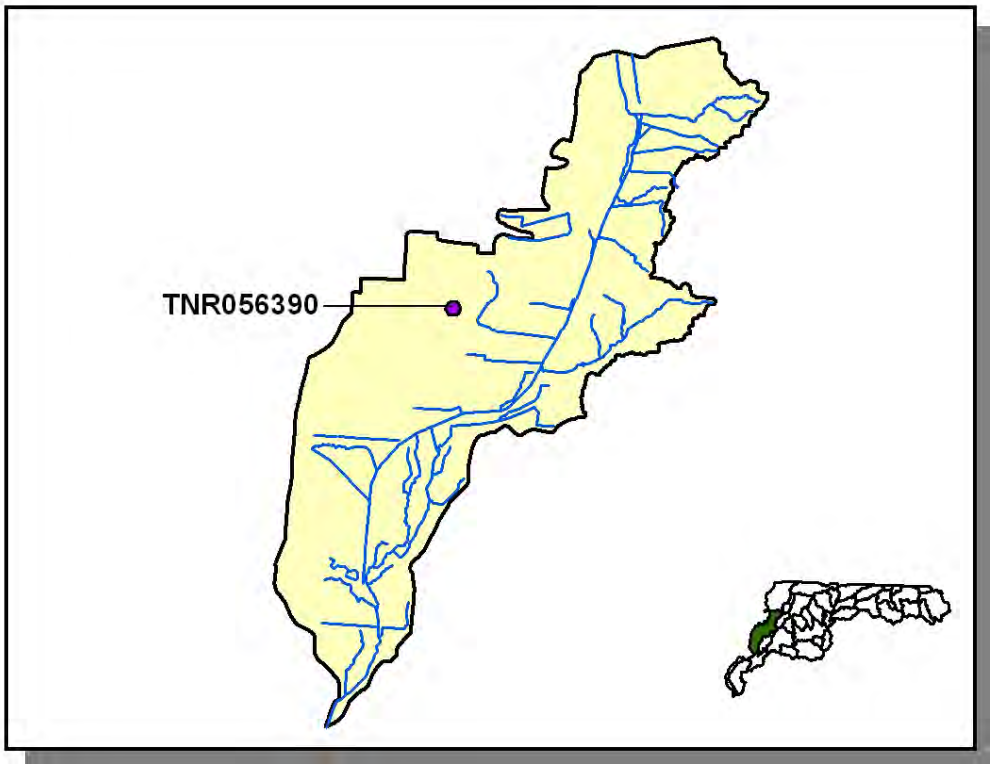


Figure 4-323. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102020406. *More information is provided in Appendix IV.*

4.2.KK.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Dyer		10,982		12	1,311	
Lake	641	986				
Obion	8,033	18,503	118	7	21,149	205

Table 4-220. Summary of Livestock Count Estimates by County. *According to the 1997 Census of Agriculture (http://www.agcensus.usda.gov/), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older.*

	INVENTORY		REMOVAL RATE	
County	Forest Land (thousand acres)	Timber Land (thousand acres)	Growing Stock (million cubic feet)	Sawtimber (million board feet)
Dyer	40.4	40.4	0.8	2.8

Table 4-221. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other Cropland not Planted	9.46
Soybeans (Row Crops)	4.72
Wheat (Close Grown Cropland)	4.53
Cotton (Row Crops)	3.97
Corn (Row Crops)	3.52
Oats (Close Grown Cropland)	3.34
Sorghum (Row Crops)	2.87
Farmsteads and Ranch Headquarters	1.99
Grass (Pastureland)	1.04
Conservation Reserve Program Land	0.70
Grass Forbs Legumes Mixed (Pastureland)	0.36
Grass (Hayland)	0.19
Legume (Pastureland)	0.07
Other Land in Farms	0.06

Table 4-222. Annual Estimated Total Soil Loss in Subwatershed 080102020406.

CHAPTER 5

WATER QUALITY PARTNERSHIPS IN THE OBION RIVER (NORTH FORK) WATERSHED

5.1. BACKGROUND. The Watershed Approach relies on participation at the federal, state, local and nongovernmental levels to be successful. Two types of partnerships are critical to ensure success:

- Partnerships between agencies
- Partnerships between agencies and landowners

This chapter describes both types of partnerships in the Tennessee Portion of the North Fork Obion River Watershed. The information presented is provided by the agencies and organizations described.

5.2. FEDERAL PARTNERSHIPS.

5.2.A. Natural Resources Conservation Service. The Natural Resources Conservation Service (NRCS), an agency of the U.S. Department of Agriculture, provides technical assistance, information, and advice to citizens in their efforts to conserve soil, water, plant, animal, and air resources on private lands.

Performance Results System (PRS) is a Web-based database application providing USDA Natural Resources Conservation Service, conservation partners, and the public fast and easy access to accomplishments and progress toward strategies and performance. The PRS may be viewed at http://prms.nrcs.usda.gov/prs. From the opening menu, select "Reports" in the top tool bar. You will select the time period that you are interested in and the conservation treatment of interest on the page that comes up. Depending on the time period of interest, you will have various report options to choose from, such as location, reporting period and program involved in the reporting. You may be required to "refresh" the page in order to get the current report to come up.

The data can be used to determine broad distribution trends in service provided to customers by NRCS conservation partnerships. These data do not show sufficient detail to enable evaluation of site-specific conditions (e.g., privately-owned farms and ranches) and are intended to reflect general trends.

CONSERVATION PRACTICE	FEET	ACRES
Conservation Buffers	128,564	138
Erosion Control		21,140
Irrigation Management		31
Nutrient Management		45,682
Pest Management		43,930
Grazing / Forages	1,300	2,921
Tree and Shrub Practices		7,698
Tillage and Cropping		71,426
Wildlife Habitat Management		12,139
Wetlands		2,273
Water Supply	220	7

Table 5-1. Landowner Conservation Practices in Partnership with NRCS in the Tennessee Portion of the North Fork Obion River Watershed. *Data are from PRMS for October 1, 2002 through September 30, 2006 reporting period. More information is provided in Appendix V.*

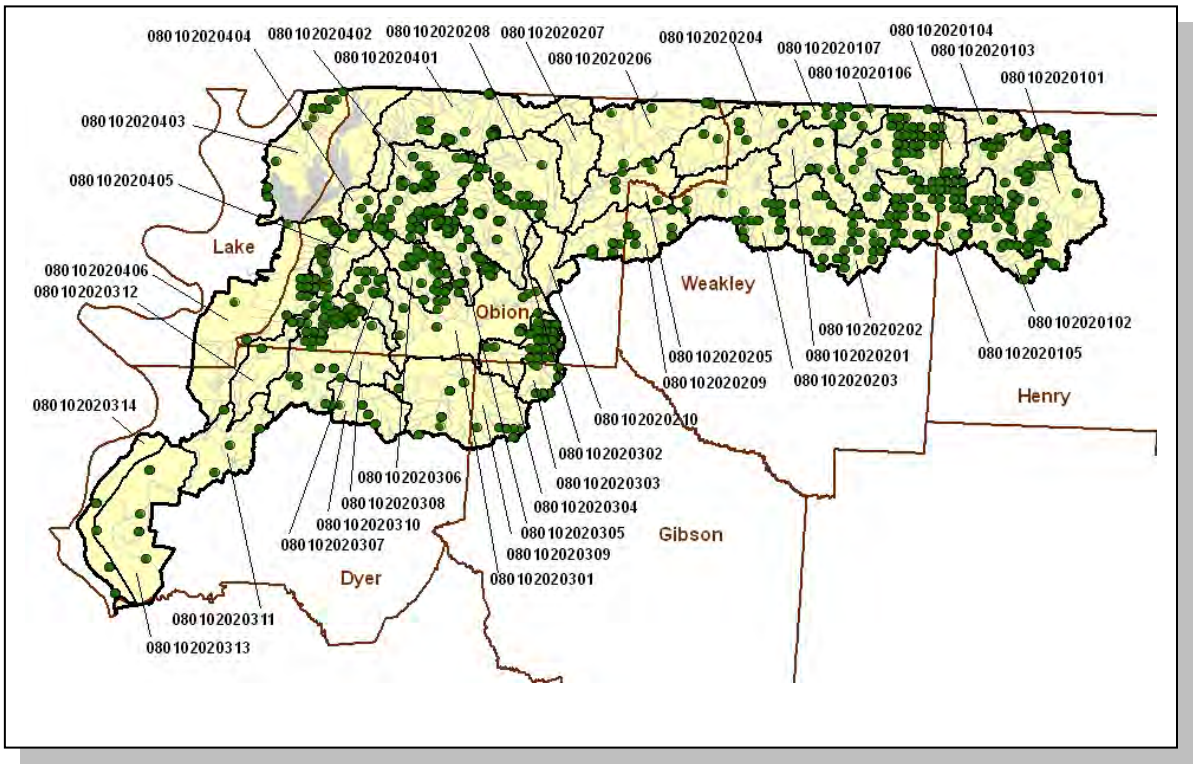


Figure 5-1. BMPs Installed by NRCS in the North Fork Obion River Watershed in 2006 and 2007. Information was provided as part of Conservation Technical Assistance Grant 060701T47. *Best Management Practices applied in the watershed may be found in Appendix V.*

5.2.B. United States Geological Survey – Tennessee Water Science Center Programs.

The United States Geological Survey (USGS) provides relevant and objective scientific information and data for public use in evaluation of the quantity, quality, and use of the Nation's water resources. National USGS water resource assessments include the National Streamflow Information Program (http://water.usgs.gov/nsip/), National Atmospheric Deposition Network (http://bqs.usgs.gov/acidrain/), the National Stream Quality Accounting Network (http://water.usgs.gov/nasqan/), and the National Water Quality Assessment Program (http://water.usgs.gov/nawqa). For a national overview of USGS water resources programs, please visit http://water.usgs.gov.

In addition to national assessments, the USGS also conducts hydrologic investigations and data collection in cooperation with numerous federal, state, and local agencies to address issues of national, regional, and local concern. Hydrologic investigations conducted by the USGS Tennessee Water Science Center address scientific questions pertaining to five general thematic topics:

1. Water Use and Availability,
2. Landforms and Ecology,
3. Watersheds and Land Use,
4. Occurrence, Fate, and Transport of Contaminants,
5. Floods and Droughts.

In support of these investigations, the USGS Tennessee Water Science Center records streamflow continuously at more than 100 gaging stations, makes instantaneous

measurements of streamflow at numerous other locations as needed or requested, monitors groundwater levels statewide, and analyzes the physical, chemical, and biologic characteristics of surface and groundwaters. In addition, the Water Science Center compiles annual water-use records for the State of Tennessee and collects a variety of data in support of national USGS baseline and other networks. More information pertaining to USGS activities in Tennessee can be accessed at http://tn.water.usgs.gov.

USGS Water Resources Information on the Internet. Real-time and historical streamflow, water-level, and water-quality data at sites operated by the USGS Tennessee Water Science Center can be accessed on-line at http://waterdata.usgs.gov/tn/nwis/nwis. Data can be retrieved by county, hydrologic unit code, or major river basin using drop-down menus on the web page. For specific information or questions about USGS streamflow data, contact Donna Flohr at (615)837-4730 or dfflohr@usgs.gov. Recent USGS Tennessee Water Science Center publications can be accessed by visiting http://tn.water.usgs.gov/pubpg.html. A searchable bibliographic database is also provided for locating other USGS reports and products addressing specific scientific topics.

5.2.C. U.S. Fish and Wildlife Service. The mission of the U.S. Fish and Wildlife Service is working with partners to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. Sustaining our nation's fish and wildlife resources is a task that can be accomplished only through the combined efforts of governments, businesses, and private citizens. The U.S. Fish and Wildlife Service (Service) works with state and federal agencies and tribal governments, helps corporate and private landowners conserve habitat, and cooperates with other nations to halt illegal wildlife trade. The Service also administers a Federal Aid Program that distributes funds annually to states for fish and wildlife restoration, boating access, hunter education, and related projects across America. The funds come from federal excise taxes on fishing, hunting, and boating equipment.

Endangered Species Program

Through the Endangered Species Program, the Service consults with other federal agencies concerning their program activities and their effects on endangered and threatened species. Other Service activities under the Endangered Species Program include the listing of rare species under the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended: 16 U.S.C. 1531 et seq.) and the recovery of listed species. Once listed, a species is afforded the full range of protections available under the ESA, including prohibitions on killing, harming, or otherwise taking a species. In some instances, species listing can be avoided by the development of Candidate Conservation Agreements, which may remove threats facing the candidate species, and funding efforts such as the Private Stewardship Grant Program.

Recovery is the process by which the decline of an endangered or threatened species is stopped and reversed, and threats to the species' survival are eliminated, so that long-term survival in nature can be ensured. The goal of the recovery process is to restore listed species to a point where they are secure and self-sustaining in the wild and can be removed from the endangered species list. Under the ESA, the Service and National Marine Fisheries Service were delegated the responsibility of carrying out the recovery program for all listed species.

In an effort to preclude the listing of a rare species, the Service engages in proactive conservation efforts for unlisted species. The program covers not only formal candidates but also other rare species that are under threat. Early intervention preserves management options and minimizes the cost of recovery.

The federally endangered pallid sturgeon (*Scaphirhynchus albus*) and threatened bald eagle (*Haliaeetus leucocephalus*) occur in the North Fork Obion River Watershed. For a complete listing of endangered and threatened species in Tennessee, please visit the Service's website at *http://www.fws.gov/cookeville/*

Partners for Fish and Wildlife Program

The U.S. Fish and Wildlife Service established the Partners for Fish and Wildlife Program to restore historic habitat types, which benefit native fishes and wildlife. The program adheres to the concept that restoring or enhancing habitats such as wetlands or other unique habitat types will substantially benefit federal trust species on private lands

by providing food and cover or other essential needs. Federal trust species include threatened and endangered species, as well as migratory birds (e.g. waterfowl, wading birds, shorebirds, neotropical migratory songbirds).

Participation is voluntary and various types of projects are available. Projects include livestock exclusion fencing, alternate water supply construction, streambank stabilization, restoration of native vegetation, wetland restoration/enhancement, riparian zone reforestation, and restoration of in-stream aquatic habitats.

HOW TO PARTICIPATE...

- Interested landowners contact a Partners for Fish and Wildlife Biologist to discuss the proposed project and establish a site visit.
- A visit to the site is then used to determine which activities the landowner desires and how those activities will enhance habitat for trust resources. Technical advice on proposed activities is provided by the Service, as appropriate.
- Proposed cost estimates are discussed by the Service and landowner.
- A detailed proposal which describes the proposed activities is developed by the Service biologist and the landowner. Funds are competitive, therefore the proposal is submitted to the Service's Ecosystem team for ranking and then to the Regional Office for funding.
- After funding is approved, the landowner and the Service co-sign a Wildlife Extension Agreement (minimum 10-year duration).
- Project installation begins.
- When the project is completed, the Service reimburses the landowner after receipts and other documentation are submitted according to the Wildlife Extension Agreement.

For more information regarding the Endangered Species and Partners for Fish and Wildlife programs, please contact the Cookeville Ecological Services Field Office at 931/528-6481 or visit their website at *http://www.fws.gov/cookeville/*

5.2.D. Unites States Army Corps of Engineers-Memphis District. Memphis is one of six districts in the Mississippi Valley Division of the Corps of Engineers. The District's area of responsibility encompasses 25,000 square miles, portions of six states, 15 major drainage basins, and approximately 3 million citizens. Responsibilities also include maintaining a 355-mile, 9-feet deep, and 300-feet wide Mississippi River channel from Cairo, Illinois to the mouth of the White River in Arkansas.

The Memphis District serves the nation by planning, designing, constructing and operating high quality and reasonably priced Civil Works water resource projects, primarily in the major mission areas of flood damage reduction, navigation, and

environmental restoration and stewardship. The Corps' ongoing Civil Works responsibilities date back to the early 1800's when Congress authorized the removal of navigation hazards and obstacles in the early years of the nation's development. Over the years, succeeding Administrations and Congresses have expanded the Corps' missions to include most all water-related planning, development, and construction areas where a Federal interest is involved. Funds for Civil Works are provided through annual Energy and Water Appropriations Acts and through contributions from non-Federal entities for planning and /or construction of specific projects. All Civil Works projects involve a non-Federal, cost sharing sponsor.

Civil Works projects may also be funded under the Continuing Authorities Program (CAP). Congress has provided the Corps with standing authorities to study and build specific water resource projects for specific purposes and with specified spending limits. The CAP projects are implemented in a faster time frame, are limited in complexity, have Federal cost limits determined by the specific authority, are approved by the Division Commander, and do not need Congressional authorization.

To obtain additional information about the District, please refer to the home page at: http://www.mvm.usace.army.mil, or contact the following offices:

Public Affairs Office (General Information): (901) 544-3348
Regulatory Branch: (901) 544-3473
Planning, Programs, and (901) 544- 0658
Project Management Branch:
Continuing Authorities Program: (901) 544-0798
Environmental Analysis Branch: (901) 544-3857

5.3. STATE PARTNERSHIPS.

5.3.A. TDEC Division of Water Supply. The Source Water Protection Program, authorized by the 1996 Amendments to the Safe Drinking Water Act, outline a comprehensive plan to achieve maximum public health protection. According to the plan, it is essential that every community take these six steps:

1) Delineate the drinking water source protection area
2) Inventory known and potential sources of contamination within these areas
3) Determine the susceptibility of the water supply system to these contaminants
4) Notify and involve the public about threats identified in the contaminant source inventory and what they mean to their public water system
5) Implement management measures to prevent, reduce or eliminate threats
6) Develop contingency planning strategies to deal with water supply contamination or service interruption emergencies (including natural disaster or terrorist activities).

Source water protection has a simple objective: to prevent the pollution of the lakes, rivers, streams, and ground water (wells and springs) that serve as sources of drinking water before they become contaminated. This objective requires locating and addressing potential sources of contamination to these water supplies. There is a growing recognition that effective drinking water system management includes addressing the quality and protection of the water sources.

Source Water Protection has a significant link with the Watershed Management Program goals, objectives and management strategies. Watershed Management looks at the health of the watershed as a whole in areas of discharge permitting, monitoring and protection. That same protection is important to protecting drinking water as well. Communication and coordination with a multitude of agencies is the most critical factor in the success of both Watershed Management and Source Water Protection.

Watershed management plays a role in the protection of both ground water and surface water systems. Watershed Management is particularly important in areas with karst (limestone characterized by solution features such as caves and sinkholes as well as disappearing streams and springs), since the differentiation between ground water and surface water is sometimes nearly impossible. What is surface water can become ground water in the distance of a few feet and vice versa.

Source water protection is not a new concept, but an expansion of existing wellhead protection measures for public water systems relying on ground water to now include surface water. This approach became a national priority, backed by federal funding, when the Safe Drinking Water Act amendments (SDWA) of 1996 were enacted. Under this Act, every public drinking water system in the country is scheduled to receive an assessment of both the sources of potential contamination to its water source of the threat these sources may pose by the year 2003 (extensions were available until 2004). The assessments are intended to enhance the protection of drinking water supplies within existing programs at the federal, state and local levels. Source water assessments were mandated and funded by Congress. Source water protection will be

left up to the individual states and local governments without additional authority from Congress for that progression.

Tennessee's Wellhead Protection Rules were revised as of October 29, 2005 to include requirements for similar protection for public water systems using surface water sources under the heading of Drinking Water Source Protection Rule (1200-5-1-.34) in addition to the previous requirements for wellhead protection for public water systems using ground water sources. The rule addresses surface or ground water withdrawals in the vicinity of public water sources as well as potential contaminant sources threatening public water sources to reflect the amended prohibitions in the 2002 Amendments to the Tennessee Safe Drinking Water Act, TCA 68-221-771. There are additional reporting requirements of potential contaminant source inventories and emergency response for the public water systems as well. The Division of Water Supply will be able to use the Drinking Water Source Protection Rule to work in complimentary fashion with the Division of Water Pollution Control and other Departmental agencies in activities to protect public water sources.

As a part of the Source Water Assessment Program, public water systems are evaluated for their susceptibility to contamination. These individual source water assessments with susceptibility analyses are available to the public at:
http://www.state.tn.us/environment/dws as well as other information regarding the Source Water Assessment Program and public water systems.

For further discussion on ground water issues in Tennessee, the reader is referred to the Ground Water Section of the 305(b) Water Quality Report at:

http://state.tn.us/environment/dws/pdf/2006gw305b.pdf

5.3.B. TDEC Clean Water State Revolving Fund Program. The Division of Water Pollution Control and the Division of Water Supply jointly administer the state's Clean Water State Revolving Fund Program. Amendment of the Federal Clean Water Act in 1987 created the Clean Water State Revolving Fund (SRF) Program to provide low-interest loans to cities, counties, and utility districts for the planning, design, and construction of wastewater facilities. The U.S. Environmental Protection Agency awards annual capitalization grants to fund the program and the State of Tennessee provides a twenty-percent funding match. TDEC has awarded loans totaling over $675 million since the creation of the SRF Program. SRF loan repayments are returned to the program and used to fund future SRF loans.

SRF loans are available for planning, design, and construction of wastewater facilities, or any combination thereof. Eligible projects include new construction or upgrading/expansion of existing facilities, including wastewater treatment plants, pump stations, force mains, collector sewers, interceptors, elimination of combined sewer overflows, and nonpoint source pollution remedies.

SRF loan applicants must pledge security for loan repayment, agree to adjust user rates as needed to cover debt service and fund depreciation, and maintain financial records that follow governmental accounting standards. SRF loan interest rates range from zero percent to market rate, depending on the community's per-capita income, taxable sales, and taxable property values. Most SRF loan recipients qualify for interest rates between 2 and 4 percent. Interest rates are fixed for the life of the term of the loan. The maximum loan term is 20 years or the design life of the proposed wastewater facility - whichever is shorter.

The SRF Program maintains a Priority Ranking System and Priority List for funding the planning, design, and construction of wastewater facilities. The Priority Ranking List forms the basis for funding eligibility determinations and allocation of Clean Water SRF loans. Each project's priority rank is generated from specific priority ranking criteria and the proposed project is then placed on the Project Priority List. Only projects identified on the Project Priority List may be eligible for SRF loans. The process of being placed on the Project Priority List must be initiated by a written request from the potential SRF loan recipient or their engineering consultant. SRF loans are awarded to the highest priority projects that have met SRF technical, financial, and administrative requirements and are ready to proceed.

Since SRF loans include federal funds, each project requires development of a Facilities Plan, an environmental review, opportunities for minority and women business participation, a State-approved sewer use ordinance and Plan of Operation, and interim construction inspections.

Communities in the Tennessee Portion of the North Fork Obion River Watershed that have received Clean Water State Revolving Fund Grants or Loans since the inception of the program are listed in Appendix V. For further information about Tennessee's Clean Water SRF Loan Program, contact the Clean Water SRF Loan Program by telephone at (615) 532-0445 or visit their Web site at http://tennessee.gov/environment/srf.

5.3.C. Tennessee Department of Agriculture. The Tennessee Department of Agriculture's Water Resources Section administers the federal Section 319 Nonpoint Source Program and the Agricultural Resources Conservation Fund Program. Both of these are grant programs which award funds to various agencies, non-profit organizations, and universities that undertake projects to improve the quality of Tennessee's waters and/or educate citizens about the many problems and solutions to water pollution. Both programs fund projects associated with what is commonly known as "nonpoint source pollution."

The Tennessee Department of Agriculture's Nonpoint Source Program (TDA-NPS) has the responsibility for management of the federal Nonpoint Source Program, funded by the US Environmental Protection Agency through the authority of Section 319 of the Clean Water Act. This program was created in 1987 as part of the reauthorization of the Clean Water Act, and it established funding for states, territories and Indian tribes to address NPS pollution. Nonpoint source funding is used for installing Best Management Practices (BMPs) to stop known sources of NPS pollution, training, education, demonstrations, and water quality monitoring. The TDA-NPS Program is a non-regulatory program, promoting voluntary, incentive-based solutions to NPS problems. The TDA-NPS Program funds three types of programs:

- BMP Implementation Projects. These projects aid in the improvement of an impaired waterbody, or prevent a non-impaired water from becoming listed on the 303(d) List.

- Monitoring Projects. Up to 20% of the available grant funds are used to assist the water quality monitoring efforts in Tennessee streams, both in the state's 5-year watershed monitoring program, and also in performing before-and-after BMP installation, so that water quality improvements can be verified. Some monitoring in the Tennessee portion of the North Fork Obion River Watershed was funded under an agreement with the Tennessee Department of Agriculture, Nonpoint Source Program (U.S. Environmental Protection Agency Assistance Agreement C99944674-04-0 and C99944674-04-0).

- Educational Projects. The intent of educational projects funded through TDA-NPS is to raise the awareness of landowners and other citizens about practical actions that can be taken to eliminate nonpoint sources of pollution to the waters of Tennessee.

The Tennessee Department of Agriculture Agricultural Resources Conservation Fund Program (TDA-ARCF) provides cost-share assistance to landowners across Tennessee to install BMPs that eliminate agricultural nonpoint source pollution. This assistance is provided through Soil Conservation Districts, Resource Conservation and Development Districts, Watershed Districts, universities, and other groups. Additionally, a portion of the TDA-ARCF is used to implement information and education projects statewide, with the focus on landowners, producers, and managers of Tennessee farms and forests.

Participating contractors in the program are encouraged to develop a watershed emphasis for their individual areas of responsibility, focusing on waters listed on the Tennessee 303(d) List as being impaired by agriculture. Current guidelines for the TDA-ARCF are available. Landowners can receive up to 75% of the cost of the BMP as a reimbursement.

Since January of 1999, the Department of Agriculture and the Department of Environment and Conservation have had a Memorandum of Agreement whereby complaints received by TDEC concerning agriculture or silviculture projects would be forwarded to TDA for investigation and possible correction. Should TDA be unable to obtain correction, they would assist TDEC in the enforcement against the violator. More information forestry BMPs is available at:

http://www.state.tn.us/agriculture/forestry/bmpmanual.html

The complaint form is available at:

http://www.state.tn.us/environment/wpc/forms/wqlogging_cn1274.doc

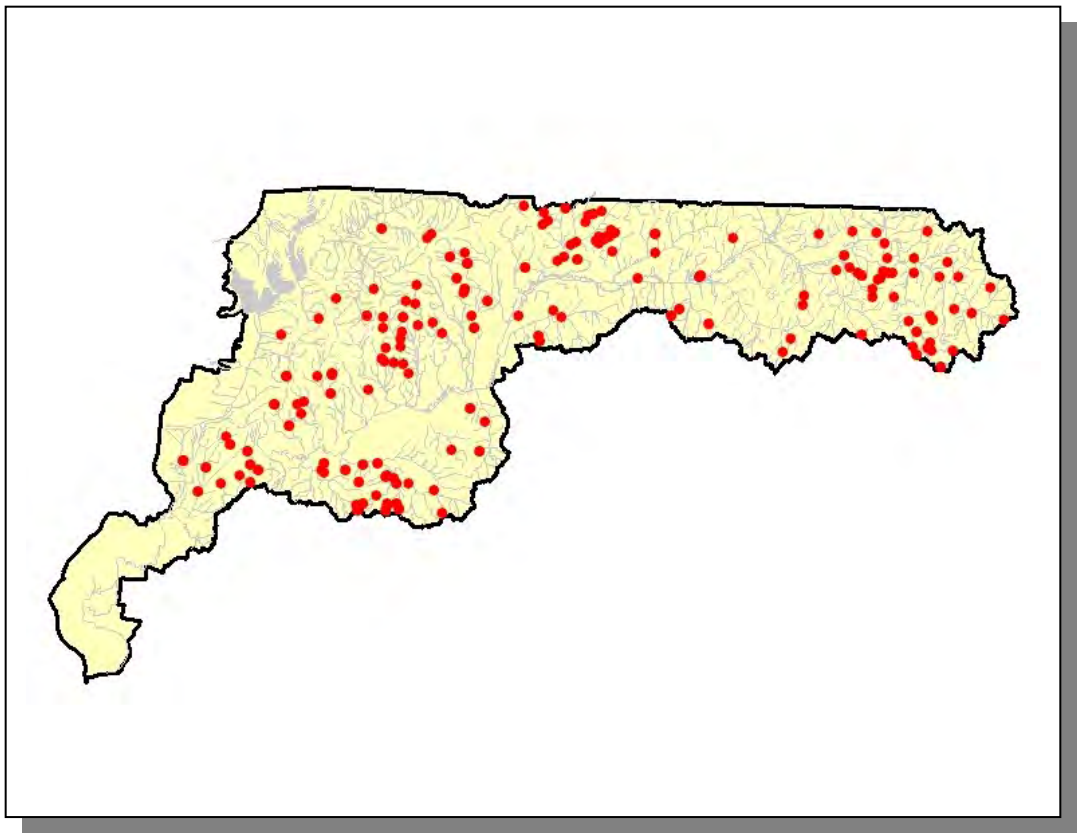


Figure 5-2. Location of BMPs installed from 2002 through 2006 in the Tennessee Portion of the North Fork Obion River Watershed with Financial Assistance from the Tennessee Department of Agriculture's Nonpoint Source and Agricultural Resources Conservation Fund Grant Programs. *More information is provided in Appendix V.*

5.3.D. West Tennessee River Basin Authority. The West Tennessee River Basin Authority, an agency of the Department of Environment and Conservation, is responsible for the preservation of the natural flow and function of rivers and streams in the Forked Deer, North Fork Obion River and South Fork Obion River Basins. As a Water Quality Partner, the Basin Authority conducts a variety of activities directly related to the conservation of resources in these river basins. In carrying out its mission the Basin Authority:

- Pursues and implements meandering stream and river restoration projects, with the goal of restoring natural floodplain dynamics and the associated riverine ecosystems.
- Implements watershed level projects designed to reduce the volume of sediment entering streams, and rivers. Excessive sedimentation can severely impair water quality as well as aquatic and floodplain habitats.
- Performs environmentally sensitive removal of logjams and obstructions to flow in streams and rivers, resulting in the preservation of environmental and economic resources.
- Maintains 120 Flood Control and Sediment Retention Structures, designed to increase flood storage capacity and to improve water quality through removal of suspended sediments.
- In support of its work, receives donations of Conservation Easements on Bottomland Hardwood Timber and other Wetlands. To date, over 23 square miles have been donated to the Basin Authority by private landowners.
- Maintains several large Bank Stabilization Projects, designed to prevent severe bank erosion. Where feasible, the Basin Authority utilizes bioengineering techniques to stabilize river banks, while, at the same time, reestablishing the riparian corridor.
- Maintains several Grade Control Structures designed to prevent further vertical degradation of altered streams and rivers. These structures, not only protect vital infrastructure, but also help prevent the release of large volumes of sediment.

Through its efforts, the West Tennessee River Basin Authority will remain a strong advocate for the conservation and sustainable utilization of the resources within the Forked Deer, North Fork Obion River and South Fork Obion River Basins.

The West Tennessee River Basin Authority office is located at 3628 East End Drive in Humboldt, Tennessee. For additional information or assistance, call 731/784-8173.

5.3.E. Tennessee Wildlife Resources Agency. The Tennessee Wildlife Resources Agency (TWRA) conducts a variety of activities related to watershed conservation and management. Fish management activities include documentation of fish and aquatic life through stream sampling and stocking of both warm water and coldwater sportfish. Fish data are managed in the Geographic Information System (GIS) project called Tennessee Aquatic Database System (TADS). TWRA nongame and endangered species projects include restoration of special status fish, aquatic life, and riparian wildlife. The Agency conducts a variety of freshwater mussel management, conservation, and restoration projects including the propagation and reintroduction of species once common in Tennessee streams. TWRA has been involved in riparian conservation projects since 1991 in partnership with state and federal agencies and conservation groups.

The Tennessee Aquatic Database System (TADS)

The Tennessee Aquatic Database System (TADS) originated in the mid-1980's as a geographically referenced fisheries database maintained with ESRI's GIS Arc/Info software. It consists of mapping coverages of streams, rivers and reservoirs along with relatable fisheries data files. These database files include stream and river fish distributions, sample site data, and Index of Biotic Integrity (IBI) data. The fish inventory data file contains over 15,000 records of fish occurrences from over 3,600 sample sites across the state. Fish data is referenced by river reach and a point coverage generated by latitude and longitude. Physical and chemical data and habitat evaluations from most of the sample sites have been entered into a database.

TWRA Fisheries stream survey data were consolidated, updated and entered into a Microsoft Access database to create the Tennessee Aquatic Database System 07 (TADS07), an updated version of the TADS. TADS07 contains fisheries stream survey data from 1987 to 2005.

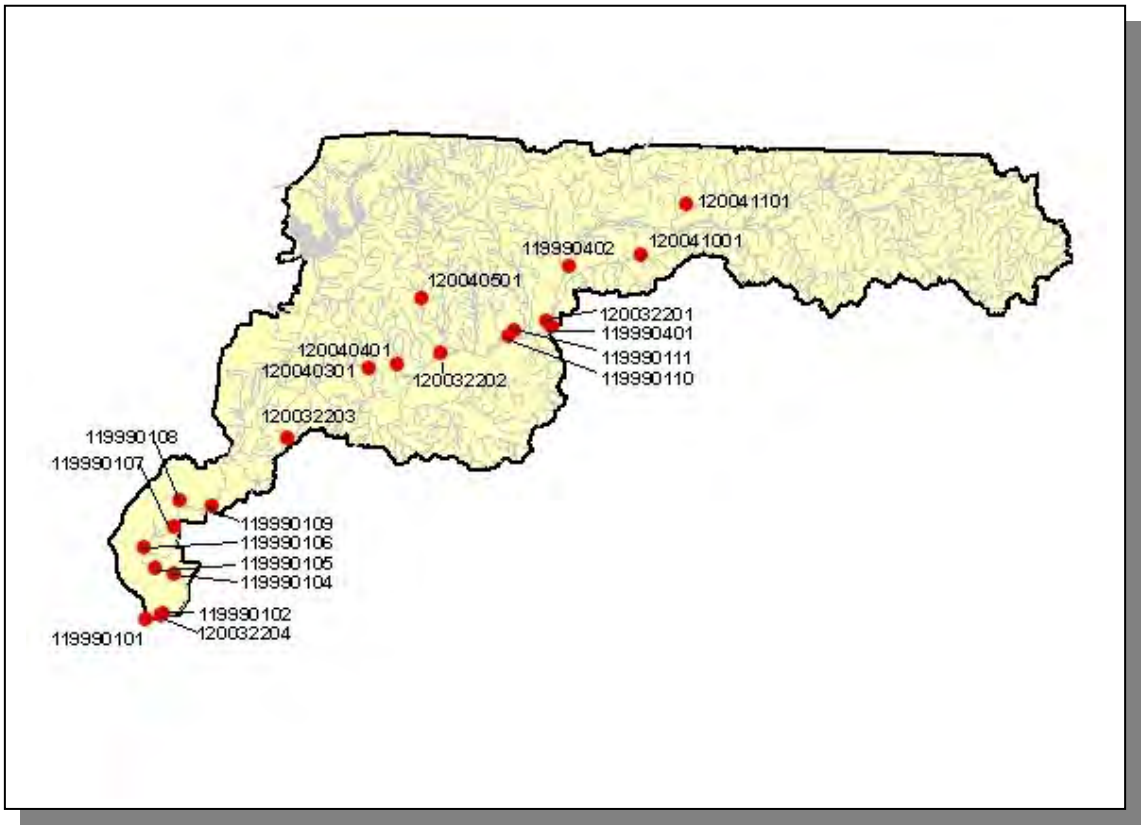


Figure 5-3. Location of TWRA TADS Sampling Sites in the Tennessee Portion of the North Fork Obion River Watershed from 1987-2005. *More information is provided in Appendix V.*

Tennessee State Wildlife Action Plan (SWAP)

The Tennessee State Wildlife Action Plan (SWAP), formerly known as the Comprehensive Wildlife Conservation Strategy (CWCS), was developed by the Tennessee Wildlife Resources Agency with assistance from The Nature Conservancy in 2005. Congress mandated that each state and territory in the United States develop a SWAP as a requirement for continued receipt of federal State Wildlife Grant funding. These plans require the completion of 8 key elements of wildlife planning: 1) a list of animal species of greatest conservation need, 2) information about the distribution and abundance of species targets, 3) locations and relative conditions of key habitats, 4) descriptions of problems affecting target species and their habitats, 5) descriptions of conservation actions and priorities for conserving target species and habitats, 6) details for monitoring target species, conservation actions, and adaptive management, 7) discussion of plans to review the SWAP at specific intervals, and 8) information about coordination and implementation of the SWAP with major stakeholders. In Tennessee, the SWAP was integrated into a spatial model using Geographic Information Systems (GIS) and other database technology. Priority aquatic, terrestrial, and subterranean areas for conservation were identified across the state. Priorities were determined in the GIS model based upon relative differences in species rarity, population viability, and potential mobility of species across habitat units.

Priority problems affecting species and needed conservation actions are detailed across each region of the state. For complete information about the Tennessee SWAP, please visit: http://www.state.tn.us/twra/cwcs/cwcsindex.html to read or download the full report.

For information on these and other water resources related activities, please contact your Regional TWRA office at the following phone numbers:

West Tennessee (Region I)	1-800-372-3928
Middle Tennessee (Region II)	1-800-624-7406
Cumberland Plateau (Region III)	1-800-262-6704
East Tennessee (Region IV)	1-800-332-0900

TDD services are available at 615-781-6691.
TWRA's website is http://www.state.tn.us/twra.

5.3.F. Kentucky Division Of Water The Kentucky Watershed Management Framework is a dynamic, flexible structure for coordinating watershed management across the Commonwealth of Kentucky.

The Watershed Management Framework is not a new program, but rather a way of coordinating existing programs and building new partnerships that will result in more effective and efficient management of the state's land and water resources. Inherent in the design of the Framework is the belief that many stakeholder groups and individuals must have ongoing opportunities to participate in the process of managing the abundant natural resources that characterize Kentucky's watersheds.
Benefits to the people of Kentucky include:

- Better information for decision making
- Increased ability to resolve complex water resource problems
- Improved coordination among governmental agencies
- More opportunities for citizens to get involved
- Increased ability to demonstrate results and benefits of environmental management
- More cost-effective use of public and private funds

Each major river basin in Kentucky is staffed with a Basin Coordinator. Basin Coordinators are staff assigned to serve as a liaison in a given basin management unit among the agencies, the local interests, and the resources concerns. Their job is to specialize in their watershed, to know what resources might be available to address the concerns, and facilitate the watershed process to implement plans that address the problems.

For more information about the KY Watershed Management Framework visit our website at http://www.watersheds.ky.gov/

Watershed Framework activities in the North Fork Obion River Watershed are coordinated through the Four Rivers Basin Team. The Four Rivers Basin Team is a multi-agency task force that meets regularly to help in development of monitoring strategies, education and outreach, prioritization of issues and watersheds within the basin, planning, and networking among technical staff and local leaders to apply agency

resources to implement fixes. For more info about the Four Rivers Basin Team contact Janet Miller, Four Rivers Basin Coordinator at (270)270-933-1317 or via email at janet.miller@jpf.org.The web address is :
http://www.watersheds.ky.gov/basins/four_rivers/

North Fork Obion River

Terrapin Creek (08010202020)
Hurricane Creek (08010202050)
Old Knob Creek (0801020207O)
Knob Creek (08010202090)
Hicks Branch (08010202170)
North Reelfoot Creek (08010202350)
Pond Slough or Running Slough (08010202330)

Geography
These subwatersheds represent primarily headwater sections of tributaries to the North Fork Obion River, but not the main stem itself. Much of the watershed terrain is comprised of narrow valleys that rise 50-150 feet along steep slopes to narrow ridges. However, the western subwatersheds are located in the Mississippi River floodplain where the land is generally flat with little elevation variance. A line of bluffs runs southwest along the eastern side of the watershed. Elevations vary from 100-150 feet from the Mississippi River floodplain to the top of the bluffs.

Waterways
This watershed drains about 144 square miles in Kentucky and contains about 371 total stream miles. Tributaries in Kentucky include West Fork of Terrapin Creek, East Fork of Terrapin Creek, Caldwell Creek, Cooter Creek and Sand Creek. Much of the valley in the lower portion of Terrapin Creek is wetland. A small tributary of Terrapin Creek near the Kentucky-Tennessee border is a Kentucky Outstanding Resource Water due to the presence of the relict darter (*Etheostoma chienense*).

The Pond Slough subwatershed is a maze of sloughs, ponds and wetlands. Other named sloughs include Owens Slough, Mud Slough and Pond Slough. Named ponds include Blue Pond, Lake No. 9, Fish Pond & Hamby Pond. Wetlands are most prevalent along the state line near the Reelfoot Lake National Wildlife Refuge.

There are 6 active KPDES permits recorded for this watershed, including the Fulton wastewater facility.

Land cover/land use
The watershed is a mix of forested and agricultural land. Forests are mostly confined to the steeper slopes and in wetland areas in the stream valleys. Agricultural production of row crops, dairy and poultry are common on ridge tops.

Agency Data Assessment

During the 2000 water quality assessment a 4.2-mile segment of Terrapin Creek was assessed for fish, macroinvertebrates, algae, water quality and fecal coliform bacteria. The segment was judged fully supporting for aquatic life and primary contact recreation.

A 3.1-mile segment of Caldwell Creek was assessed for fish and was judged not supporting for aquatic life.

A 3.6-mile segment of Sand Creek was assessed for fish and was judged fully supporting for aquatic life.

During the 2000 water quality assessment a 1.1-mile segment of Knob Creek was assessed for macroinvertebrates and was judged not supporting for aquatic life.

During the 2000 water quality assessment a 15.3-mile segment of Running Slough was assessed for fish, macroinvertebrates and algae. The segment was judged partially supporting for aquatic life.

Watershed Efforts in the Kentucky Portion of the North Fork Obion River

A State Tribal Wildlife Grant (STWG) has been awarded to Three Rivers, an environmental consulting group in Illinois to conduct a fish assembly study in Terrapin Creek during 2007.

Since 1999, Four Rivers Watershed Watch has been monitoring approximately 4 sites in the North Fork Obion River Watershed. Three times per year, water samples are collected at sites on Obion Creek, and Hurricane Creek. In addition to collecting physical measurements, such as temperature, pH, and dissolved oxygen, macro-invertebrate and habitat assessments are also conducted. Water samples are routinely tested for *E.coli*, fecal coliform, selected pesticides, and nutrients.

The Wetland Reserve Program (WRP) is also active in the water protection efforts in the Obion River watershed. According to USDA Natural Resources Conservation Service (NRCS), the Wetlands Reserve Program is a voluntary program that offers landowners an opportunity to establish long-term conservation and wildlife practices and protection. NRCS provides technical and financial support to help landowners with their wetland restoration efforts. Efforts involve the restoration of hydrologic functions and tree planting. The goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. Along Obion Creek, approximately 579 acres are permanently enrolled in WRP.

5.4. LOCAL INITIATIVES.

5.4.A. Friends of West TN Refuges. The Friends of West TN Refuges is a non-profit organization designed to help the refuges of Tennessee through fundraising and volunteer work. Their mission is to promote and enhance the integrity of the West Tennessee National Wildlife Refuges through activities that advance public understanding, awareness, appreciation, and enjoyment of the natural environment. Their goals are to support refuge activities and events, increase awareness of West Tennessee Refuges, educate the public about The U.S. Fish & Wildlife Service's mission, and to increase fundraising to support refuge programs. They have achieved funding for our Backyard Habitat, Junior Ranger Program, water delivery systems, and 3 observation towers.

Contact : Dick Preston (901) 837-3360

CHAPTER 6

RESTORATION STRATEGIES IN THE OBION RIVER (NORTH FORK) WATERSHED

6.1. BACKGROUND.

The Watershed Water Quality Management Plan serves as a comprehensive inventory of resources and stressors in the watershed, a recommendation for control measures, and a guide for planning activities in the next five-year watershed cycle and beyond. Water quality improvement will be a result of implementing both regulatory and nonregulatory programs.

In addition to the NPDES program, some state and federal regulations, such as the TMDL and ARAP programs, address point and nonpoint issues. Construction and MS4 storm water rules (implemented under the NPDES program) have transitioned from Phase 1 to Phase 2. More information on storm water rules may be found at: http://www.state.tn.us/environment/wpc/stormh2o/.

This Chapter addresses point and nonpoint source approaches to water quality problems in the Tennessee Portion of the North Fork Obion River Watershed as well as specific NPDES permittee information.

6.2. COMMENTS FROM PUBLIC MEETINGS. Watershed meetings are open to the public, and most meetings were represented by citizens who live in the watershed, NPDES permitees, business people, farmers, and local river conservation interests. Locations for meetings were chosen after consulting with people who live and work in the watershed. Everyone with an interest in clean water is encouraged to be a part of the public meeting process. The times and locations of watershed meetings are posted at: http://www.state.tn.us/environment/wpc/watershed/public.shtml.

6.2.A. Year 1 Public Meeting. The first North Fork Obion River Watershed public meeting was held jointly with the South Fork Obion River and Mississippi River Watersheds on October 9, 2000, at the Union City Municipal Building. The goals of the meeting were to: (1) present, and review the objectives of, the Watershed Approach, (2) introduce local, state, and federal agency and nongovernmental organization partners, (3) review water quality monitoring strategies, and (4) solicit input from the public.

Major Concerns/Comments Voiced at Public Meeting

- Silt and sediment in Relfoot Lake and Bayou du Chien should be monitored

6.2.B. Year 3 Public Meeting. The second North Fork Obion River Watershed public meeting was held jointly with the South Fork Obion River and Mississippi River Watersheds on October 24, 2002, at the University of Tennessee-Martin campus. The goals of the meeting were to: (1) provide an overview of the watershed approach, (2) review the monitoring strategy, (3) summarize the most recent water quality assessment, (4) discuss the TMDL schedule and citizens' role in commenting on draft TMDLs, and (5) discuss BMPs and other nonpoint source tools available through the Tennessee Department of Agriculture 319 Program and NRCS conservation assistance programs.

Major Concerns/Comments Voiced at Public Meeting

- Flooding occurs more often
- Flooding occurs less often
- The COE allows levees without concern for the river (does not allow for return of natural meander) or people down stream (increased flooding).
- Rainwater (storm water) clears off the land quickly, but silt from upstream (where there are levees) comes later and persists.
- Chicken litter application stinks and puts nutrients in streams, especially near Dresden (Mud Creek)
- The Obion River is getting shallower (due to siltation), so it floods nearby woodlands and farms.

6.2.C. Year 5 Public Meeting. The third scheduled Obion River (North Fork) Watershed public meeting was held October 7, 2008 at the UT-Martin Reed Center in Martin. The meeting was held jointly with the Obion River (South Fork) and the Mississippi River Watersheds and featured six educational components:

- Overview of watershed approach flash video
- Benthic macroinvertebrate specimens and interpretation
- "Is Your Stream Healthy" self-guided slide show
- "Why We Do Biological Sampling" self-guided slide show
- GIS (Geographic Information Systems) inventory of the watershed
- Water quality and land use maps

In addition, citizens had the opportunity to make formal comments on the draft Watershed Water Quality Management Plan.

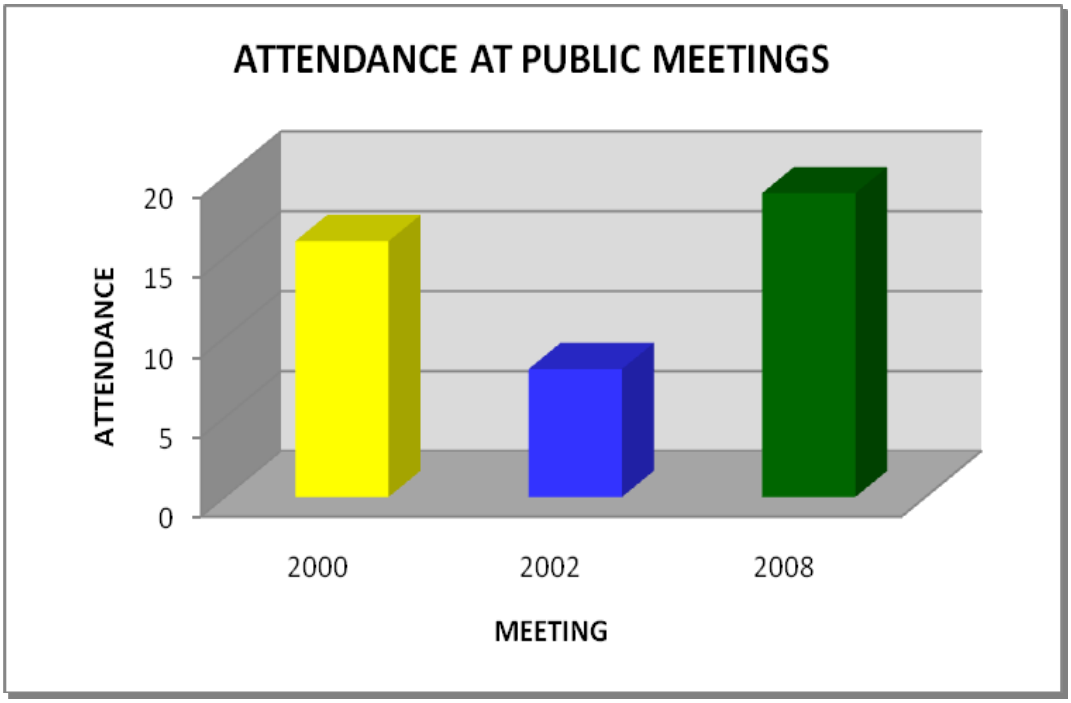


Figure 6-1. Attendance at the North Fork Obion River, South Fork Obion River, and Mississippi Watershed Joint Public Meetings. *Attendance numbers do not include TDEC personnel.*

Figure 6-2. Jackson Environmental Field Office Manager Pat Patrick Brings the Watershed Meeting to Order.

Figure 6-3. At Watershed Meetings, Citizens Learn About Benthic Macroinvertebrates (Small Invertebrates that Live on the Bottom of the Streams) in Their Watershed.

Figure 6-4. At Watershed Meetings, Participants from the Private Sector Have an Opportunity to Talk Informally with the Jackson Environmental Field Office Manager.

Figure 6-5. Maps are an Effective Way to Illustrate Water Quality Improvements in the Watershed.

6.3. APPROACHES USED.

6.3.A. Point Sources. Point source contributions to stream impairment are primarily addressed by NPDES and ARAP permit requirements and compliance with the terms of the permits. Notices of NPDES and ARAP draft permits available for public comment can be viewed at http://www.state.tn.us/environment/wpc/wpcppo/. Discharge monitoring data submitted by NPDES-permitted facilities may be viewed at http://www.epa.gov/enviro/html/pcs/pcs_query_java.html.

The purpose of the TMDL program is to identify remaining sources of pollution and allocate pollution control needs in places where water quality goals are still not being achieved. TMDL studies are tools that allow for a better understanding of load reductions necessary for impaired streams to return to compliance with water quality standards. More information about Tennessee's TMDL program may be found at:
http://www.state.tn.us/environment/wpc/tmdl/.

Approved TMDL:

> **Obion River Watershed** - Total Maximum Daily Load for E. Coli in the Obion River Watershed in Dyer, Gibson, Henry, Lake, Lauderdale, Obion, and Weakley Counties. Approved 03/05/2007.
>
> http://www.state.tn.us/environment/wpc/tmdl/approvedtmdl/ObionEcoli.pdf

TMDLs are prioritized for development based on many factors.

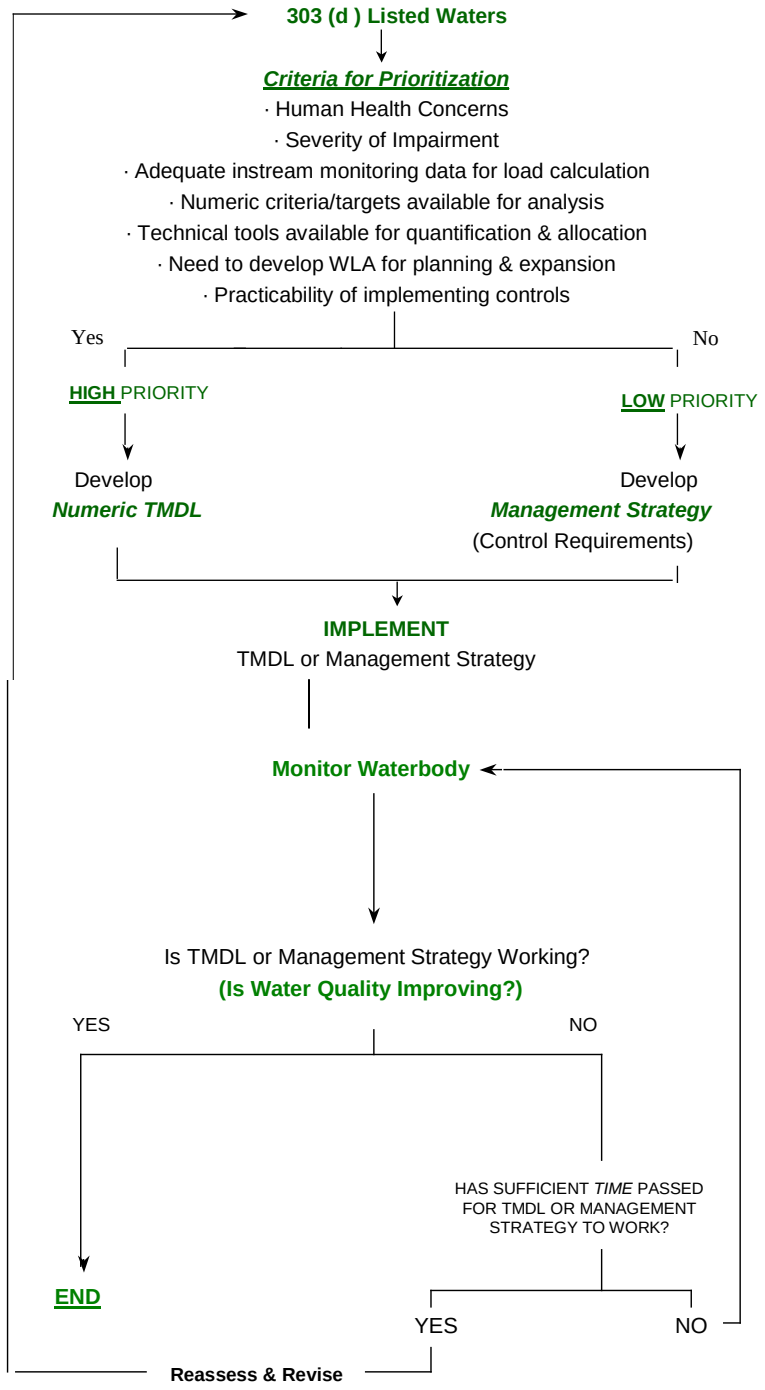


Figure 6-2. Prioritization Scheme for TMDL Development.

Several permitted discharges within the Obion and North Fork of the Obion discharge suspended solids under the conditions of an NPDES permit and are reviewed during the watershed cycle for reissuance. A few will also have limits on settleable solids. Some facilities with solids restrictions are Union City, South Fulton, Newbern and Troy.

6.3.B. Nonpoint Sources

Common nonpoint sources of pollution in the Tennessee Portion of the North Fork Obion River Watershed include urban storm water runoff, riparian vegetation removal, other habitat alterations, inappropriate land development, and agricultural practices. Since nonpoint pollution exists essentially everywhere rain falls, existing point source regulations can have only a limited effect.

There are several state and federal regulations that address contaminants impacting waters in the Tennessee Portion of the North Fork Obion River Watershed. Most of these are limited to point sources: a pipe or ditch. Often, controls of point sources are not sufficient to protect waters, so other measures are necessary. Some measures include efforts by landowners and volunteer groups and the possible implementation of new regulations. Many agencies, such as the Tennessee Department of Agriculture (TDA) and the Natural Resources Conservation Service (NRCS), offer financial assistance to landowners for corrective actions (like Best Management Practices) that may be sufficient for recovery of impacted streams. Many nonpoint problems will require an active civic involvement at the local level geared towards establishment of improved zoning guidelines, building codes, streamside buffer zones and greenways, and general landowner education.

The following text describes types of impairments, possible causes, and suggested improvement measures. Restoration efforts should not be limited to only those streams and measures suggested below.

6.3.B.i. Sedimentation.

6.3.B.i.a. From Construction Sites. Construction activities have historically been considered “nonpoint sources.” In the late 1980’s, EPA designated them as being subject to NPDES regulation if more than 5 acres were being disturbed. In the spring of 2003, that threshold became 1 acre or less than 1 acre if it’s part of a larger development. The general permit issued for such construction sites establishes conditions for maintenance of the sites to minimize pollution from storm water runoff, including requirements for installation and inspection of erosion prevention and sediment controls. Also, the general permit imposes more stringent inspection, design criteria and sediment control measures on sites in the watershed of streams that are already impaired due to siltation or are considered high quality. Regardless of the size, no construction site is allowed to cause a condition of pollution.

Beginning in 2003, the state began requiring some municipalities to obtain coverage under a permit designed to address nonpoint runoff issues: the General NPDES Municipal Separate Storm Sewer System Permit, commonly known as MS4. This permit requires the holder to develop a comprehensive storm water management program, including the adoption of local regulatory ordinances, regular inspection of construction sites and other discharges into their storm sewers, and a variety of educational, mapping, and monitoring activities. The state audits and oversees these local MS4 programs. Due to the rural nature of much of the area, and lack of large high density population centers, the only portion of the Tennessee Portion of the North Fork Obion River Watershed in Tennessee currently covered by an active MS4 program is Union City.

Construction sites within a sediment-impaired watershed may also have higher priority for inspections by WPC and MS4 personnel, and are likely to have enforcement actions for failure to control erosion.

6.3.B.i.b. From Channel and/or Bank Erosion. Many streams within the Tennessee Portion of the North Fork Obion River Watershed suffer from varying degrees of streambank erosion. When steam channels are altered, banks can become unstable and highly erodable. Heavy livestock traffic can also severely disturb banks. When large tracts of land are cleared of vegetation (especially trees) and replaced with less permeable surfaces like row crops, pasture, asphalt and rooftops, the large increases in the velocities and volumes of storm water runoff can also overwhelm channel and bank integrity. Destabilized banks contribute to sediment loadings and to the loss of beneficial riparian vegetation.

Some inappropriate agricultural practices have impacted the hydrology and morphology of stream channels in the Tennessee Portion of the North Fork Obion River Watershed. Land development along the shore of Reelfoot Lake in the Samburg area has impacted Blue Basin.

Several agencies such as the NRCS, TVA, and TDA, as well as citizen watershed groups, are working to stabilize portions of stream banks using bioengineering and other techniques. Many of the affected streams, including Hoosier Creek and Stephens Creek, would benefit from these types of projects. Bioengineering could also be used along the shore of Blue Basin.

Some methods or controls that might be necessary to address common problems are:

Voluntary Activities

- Re-establish bank vegetation (Hoosier Creek).
- Establish off-channel watering areas for livestock by moving watering troughs and feeders back from stream banks, or at least limit cattle access to restricted areas with armored banks entry (Davidson Creek).

Regulatory Strategies

- Increase efforts in the Master Logger program to recognize impaired streams and require more effective management practices.

- Require post-construction run-off rates to be no greater than pre-construction rates in order to avoid in-channel erosion (Harris Fork Creek).
- Limit clearing of stream and ditch banks or other alterations (Hoosier Creek). *Note: Permits may be required for any work along streams.*
- Encourage or require strong local buffer ordinances.

Additional Strategies

- Better community planning and MS4 oversight for the impacts of development on small streams, especially development in growing areas such as Union City.

6.3.B.i.c. From Agriculture and Silviculture. The Water Quality Control Act exempts normal agricultural and silvicultural practices that do not result in a point source discharge. Nevertheless, efforts are being made to address impacts due to these exempted practices.

The Master Logger Program has been in place for several years to train loggers how to install Best Management Practices that lessen the impact of logging activities on streams. Recently, laws and regulations established the authority for the Commissioners of the Departments of Environment and Conservation and of Agriculture to stop the logging operation that, upon failing to install these BMPs, is causing impacts to streams.

Since the Dust Bowl era, the agriculture community has strived to protect the soil from wind and water erosion. Agencies such as the Natural resources Conservation Service (NRCS), the University of Tennessee Agricultural Extension Service, and the Tennessee Department of Agriculture are striving to identify better ways of farming, to educate the farmers, and to install the methods that address the sources of some of the impacts due to agriculture. Cost sharing is available for many of these measures.

Many sediment problems traceable to agricultural practices also involve riparian loss due to close row cropping or pasture clearing for grazing. Lack of vegetated buffers along stream corridors is a problem in most areas of the Tennessee portion of the North Fork Obion River Watershed, due both to agricultural and residential/commercial land uses. Many streams, like Hoosier Creek, Dry Creek, Parker Branch and Spring Hill Creek could benefit from the establishment of more extensive riparian buffer zones.

6.3.B.ii. Pathogen Contamination.

Possible sources of pathogens are inadequate or failing septic tank systems, overflows or breaks in public sewer collection systems, poorly disinfected discharges from sewage treatment plants, and fecal matter from pets, livestock and wildlife washed into streams and storm drains. When fecal bacterial levels are shown to be consistently elevated to dangerously high levels, especially in streams with high potential for recreational uses, the division must post signage along the creek warning the public to avoid contact. Once pathogen sources have been identified and corrected, and pathogen level reductions are documented, the posting is lifted.

Permits issued by the Division of Water Pollution Control regulate discharges from point sources and require adequate control for these sources. Individual homes are required to have subsurface, on-site treatment (i.e., septic tank and field lines) if public sewers are not available. The Division of Ground Water Protection within the Jackson Environmental Field Office regulates septic tanks and field lines. In addition to discharges to surface waters, businesses may employ subsurface treatment for domestic wastewater or surface discharge of treated process wastewater. The Division of Water Pollution Control regulates surface water discharges and near-surface land application of treated wastewater.

Currently, four stream systems in the Tennessee portion of the North Fork Obion River Watershed are known to have excessive pathogen contamination. Often in urban areas, bacterial contamination comes from storm water runoff, sewage collection system leaks, or treatment plant operation failures. Biggs Creek, Hurricane Creek, Reelfoot Creek, and the Obion River are in more agricultural watersheds with pasture, animal feeding operations or Concentrated Animal Feeding Operations. Failing septic tank systems and wildlife may also be sources of pathogens.

Some measures that may be necessary to control pathogens are:

Voluntary Activities

- Clean up pet waste.
- Repair failed septic systems.
- Establish off-channel watering of livestock (Davidson Creek)
- Limit livestock access to streams and restrict stream crossings (Davidson Creek)
- Improve and educate on the proper management of animal waste from concentrated feeding operations.

Regulatory Strategies

- Strengthen enforcement of regulations governing on-site wastewater treatment.
- Identify Concentrated Animal Feeding Operations not currently permitted.
- Extend permit requirements to third party utilizers of chicken litter.
- Develop and enforce leash laws and controls on pet fecal material.

Additional Strategies

- Develop intensive planning in areas where sewer is not available and treatment by subsurface disposal is not an option due to poor soils, floodplains, or high water tables.
- Develop and enforce leash laws and controls on pet fecal material.
- Greater efforts by sewer utilities to identify leaking lines or overflowing manholes
- Review the current regulations concerning the disposal of animal waste to address smaller, currently unregulated facilities and third party users of chicken waste.

6.3.B.iii. Excessive Nutrients and/or Dissolved Oxygen Depletion.

These two impacts are usually listed together because high nutrients often contribute to low dissolved oxygen within a stream. Since nutrients often have the same source as pathogens, the measures previously listed can also address many of these problems.

Elevated nutrient loadings are also often associated with urban runoff from impervious surfaces, from fertilized lawns and croplands, and faulty sewage disposal processes. Nutrients are often transported with sediment, so many of the measures designed to reduce sediment runoff will also aid in preventing organic enrichment of streams and lakes.

Dissolved oxygen depletion can also be due to the discharge of other biodegradable materials. These are limited in NPDES permits as ammonia and as either Biological Oxygen Demand (BOD) or Carbonaceous Oxygen Demand (CBOD).

Some sources of nutrients can be addressed by:

Voluntary Activities

- Educate homeowners and lawn care companies in the proper application of fertilizers.
- Encourage landowners, developers, and builders to leave stream buffer zones. Streamside vegetation can filter out many nutrients and other pollutants before they reach the stream. These riparian buffers are also vital along livestock pastures. Many streams in the Tennessee Portion of the North Fork Obion River Watershed within agricultural areas would benefit from additional riparian buffers.
- Use grassed drainage ways that can remove fertilizer before it enters streams.
- Use native plants for landscaping since they don't require as much fertilizer and water.
- Develop better overall storm water management in urban and residential areas, including retrofitting existing commercial lots, homes, and roadways with storm water quality and quantity BMPs. This would especially improve the urban streams and lakes currently polluted by excessive nutrient inputs, such as Blue Basin near Samburg.

Physical changes to streams can prevent them from providing enough oxygen to biodegrade the materials that are naturally present. A few additional actions can address this problem:

- Maintain shade over a stream. Cooler water can hold more oxygen and retard the growth of algae. As a general rule, all stream channels suffer from some canopy removal. An intact riparian zone also acts as a buffer to filter out nutrient loads before they enter the water.
- Discourage impoundments. Ponds and lakes do not aerate water, and cause many water quality problems downstream. Many lakes, often referred to as watershed lakes, were built in the Reelfoot Creek and Indian Creek watersheds to retain sediment. They are now being found to produce an oxygen deficient discharge which can impact the stream. *Note: Permits may be required for any work on a stream, including impoundments.*

Regulatory Strategies.

- Strengthen enforcement of regulations governing on-site wastewater treatment.
- Impose more stringent permit limits for nutrients discharged from sewage treatment plants.

- Identify Concentrated Animal Feeding Operations (CAFO) not currently permitted.
- Identify any Animal Feeding Operations (AFO) that contribute to stream impacts and declare them as a CAFO requiring a permit.
- Support and train local MS4 programs within municipalities to deal with storm water pollution issues and require additional storm runoff quality control measures. Efforts by Union City are expected to improve Harris Fork Creek.
- Require nutrient management plans for all golf courses and other large fertilizer users as are currently required of CAFO's.

Additional Strategies

- Encourage TDA- and NRCS-sponsored educational programs targeted to agricultural landowners and aimed at better nutrient management, as well as information on technology-based application tools.

6.3.B.iv. Toxins and Other Materials.

Although some toxic substances are discharged directly into waters of the state from a point source, much of these materials are washed in during rainfalls from an upland location, or via improper waste disposal that contaminates groundwater. In the Tennessee portion of the North Fork Obion River Watershed, no streams are known to be damaged by toxins in storm water runoff from industrial facilities or urban areas. Inspection and regulation of permitted industrial facilities, and local storm water quality initiatives and regulations, have reduced the amount of contaminated runoff reaching state waters.

Individuals may also cause contaminants to enter streams by activities that may be attributed to apathy or the lack of knowledge or civility. Litter in roadside ditches, garbage bags tossed over bridge railings, paint brushes washed off over storm drains, and oil drained into ditches are all blatant examples of pollution in streams.

Some of these problems can be addressed by:

Voluntary Activities

- Provide public education.
- Paint warnings on storm drains that connect to a stream.
- Sponsor community clean-up days.
- Landscape public areas.
- Encourage public surveillance of their streams and reporting of dumping activities to their local authorities.

Regulatory Strategies

- Continue to prohibit illicit discharges to storm drains and to search them out.
- Strengthen litter law enforcement at the local level.
- Increase the restrictions on storm water runoff from industrial facilities.

6.3.B.v. Habitat Alteration.

The alteration of the habitat within a stream can have severe consequences. Whether it is the removal of the vegetation providing a root system network for holding soil particles together, the release of sediment, which increases the bed load and covers benthic life and fish eggs, the removal of gravel bars, "cleaning out" creeks with heavy equipment, or the impounding of the water in ponds and lakes, many alterations impair the use of the stream for designated uses. Habitat alteration also includes the draining or filling of wetlands.

Many streams within the Tennessee Portion of the North Fork Obion River Watershed suffer from some degree of habitat alteration, especially riparian loss and bank disturbances from agricultural practices. Some notable streams in the watershed that have suffered significant harm from being impounded include Running Reelfoot Bayou and Reelfoot Creek.

Although large-scale public projects such as highway construction can alter significant portions of streams, individual landowners and developers are responsible for the vast majority of stream alterations. Some measures that can help address these problems are:

Voluntary Activities

- Sponsor litter pickup days to remove litter that might enter streams.
- Organize stream cleanups removing trash, limbs and debris before they cause blockage.
- Avoid use of heavy equipment to "clean out" streams as was recently done on Hoosier Creek. *Instream work other than debris removal will require an Aquatic Resource Alteration Permit (ARAP).*
- Plant native vegetation along streams to stabilize banks and provide habitat.
- Encourage developers to avoid extensive use of culverts in streams.

Regulatory Strategies

- Restrict modification of streams by means such as culverting, lining, or impounding.
- Require mitigation for impacts to streams and wetlands when modifications are allowed.
- Increased enforcement may be needed when violations of current regulations occur.

6.3.B.vi. Storm Water.

MS4 discharges are regulated through the Phase I or II NPDES-MS4 permits. These permits require the development and implementation of a Storm Water Management Program (SWMP) that will reduce the discharge of pollutants to the maximum extent practicable and not cause or contribute to violations of state water quality standards. The NPDES General Permit for Discharges from Phase I and II MSF facilities can be found at http://www.state.tn.us/environment/wpc/stormh2o/.

For discharges into impaired waters, the MS4 General Permit requires that SWMPs include a section describing how discharges of pollutants of concern will be controlled to ensure that they do not cause or contribute to instream exceedences of water quality standards. Specific measurements and BMPs to control pollutants of concern must also be identified. In addition, MS4s must implement the proposed waste load allocation provisions of an applicable TMDL (i.e., siltation/habitat alteration, pathogens) and describe methods to evaluate whether storm water controls are adequate to meet the waste load allocation. In order to evaluate SWMP effectiveness and demonstrate compliance with specified waste load allocations, MS4s are encouraged to develop and implement appropriate monitoring programs by the designated date.

Some storm sewer discharges are not regulated through the NPDES MS4 program. Strategies to address runoff from in these urban areas include adapting Tennessee Growth Readiness Program (TGRP) educational materials to the watershed. TGRP is a statewide program built on existing best management practices from the Nonpoint Education for Municipal Officials program and the Center for Watershed Protection. TGRP developed the program to provide communities and counties with tools to design economically viable and watershed friendly developments. The program assists community leaders in reviewing current land use practices, determining impacts of imperviousness on watershed functions, and allowing them to understand the economics of good watershed management and site design.

6.4. PERMIT REISSUANCE PLANNING

Under the *Tennessee Water Quality Control Act*, municipal, industrial and other dischargers of wastewater must obtain a permit from the Division. Approximately 1,700 permits have been issued in Tennessee under the federally delegated National Pollutant Discharge Elimination System (NPDES). These permits establish pollution control and monitoring requirements based on protection of designated uses through implementation of water quality standards and other applicable state and federal rules.

The following two sections provide specific information on municipal and industrial active permit holders in the Tennessee Portion of the North Fork Obion River Watershed. Compliance information was obtained from EPA's Permit Compliance System (PCS). All data was queried for a five-year period between January 1, 2001 and December 31, 2006. PCS can be accessed publicly through EPA's Envirofacts website. This website provides access to several EPA databases to provide the public with information about environmental activities that may affect air, water, and land anywhere in the United States:

http://www.epa.gov/enviro/html/ef_overview.html

Stream Segment information, including designated uses and impairments, are described in detail in Chapter 3, *Water Quality Assessment of the Tennessee Portion of the North Fork Obion River Watershed.*

6.4.A. Municipal Permits

TN0062120 Trimble STP

Discharger rating: Minor
City: Trimble
County: Dyer
EFO Name: Jackson
Issuance Date: 5/31/05
Expiration Date: 5/31/10
Receiving Stream(s): Obion River at mile 55.2
HUC-12: 080102020301
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Lagoon system

SEGMENT	TN08010202001_3000
Name	Obion River
Size	14
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Supporting), Fish and Aquatic Life (Non-Supporting)
Causes	Physical substrate habitat alterations, Sedimentation/Siltation
Sources	Channelization, Non-irrigated Crop Production

Table 6-1. Stream Segment Information for Trimble STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD % removal	All Year	65	Percent	MAvg % Removal	Weekly	Calculated	% Removal
BOD5	All Year	70	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	117	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	45	mg/L	MAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	60	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	100	lb/day	WAvg Load	Weekly	Grab	Effluent
BOD5	All Year	75	lb/day	MAvg Load	Weekly	Grab	Effluent
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	183	lb/day	WAvg Load	Weekly	Grab	Effluent
TSS	All Year	200	lb/day	DMax Load	Weekly	Grab	Effluent
TSS	All Year	100	mg/L	MAvg Conc	Weekly	Grab	Effluent
TSS	All Year	167	lb/day	MAvg Load	Weekly	Grab	Effluent
TSS	All Year	110	mg/L	WAvg Conc	Weekly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-2. Permit Limits for Trimble STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 6 Biological Oxygen Demand (BOD)
- 11 pH
- 3 Suspended Solids % Removal
- 1 Total Chlorine
- 1 Overflow
- 77 Bypasses

EFO Comments:
The City has inflow and infiltration problems with the collection system.

TN0062111 Newbern STP

Discharger rating: Major
City: Newbern
County: Dyer
EFO Name: Jackson
Issuance Date: 10/31/05
Expiration Date: 4/30/10
Receiving Stream(s): Obion River at mile 46.0
HUC-12: 080102020308
Effluent Summary: Treated municipal and industrial wastewater
Treatment system: Waste Activated Sludge to aerobic dig to land application

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
D.O.	All Year	3	mg/L	DMin Conc	Weekdays	Grab	Effluent
IC25 7day *Ceriodaphnia dubia*	All Year	1.2	Percent	MAvg Min	Annually	Composite	Effluent
IC25 7day Fathead Minnows	All Year	1.2	Percent	MAvg Min	Annually	Composite	Effluent

Table 6-3. Permit Limits for Outfall 001 at Newbern STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year	20	mg/L	DMax Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	150	lb/day	WAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	15	mg/L	WAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	10	mg/L	MAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	100	lb/day	MAvg Load	3/Week	Composite	Effluent
Bypass of Treatment (Occurrences)	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
CBOD % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
CBOD % Removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
CBOD5	All Year	40	mg/L	DMax Conc	3/Week	Composite	Effluent
CBOD5	All Year	25	mg/L	MAvg Conc	3/Week	Composite	Effluent
CBOD5	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
CBOD5	All Year	250	lb/day	MAvg Load	3/Week	Composite	Effluent
CBOD5	All Year	35	mg/L	WAvg Conc	3/Week	Composite	Effluent
CBOD5	All Year	350	lb/day	WAvg Load	3/Week	Composite	Effluent
CBOD5	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
E. coli	All Year	941	#/100mL	DMax Conc	3/Week	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	3/Week	Grab	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Influent (Raw Sewage)
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Non Wet Weather
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Grab	Effluent
TRC	All Year	1.5	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
TSS	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	400	lb/day	WAvg Load	3/Week	Composite	Effluent
TSS	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent
TSS	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	300	lb/day	MAvg Load	3/Week	Composite	Effluent
TSS	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent

Table 6-4a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
TSS % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
TSS % Removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-4b.

Tables 6-4a-b. Permit Limits for Outfall 01A at Newbern STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year	25	mg/L	DMax Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	125	lb/day	WAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	15	mg/L	WAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	10	mg/L	MAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	All Year	83	lb/day	MAvg Load	3/Week	Composite	Effluent
Bypass of Treatment (occurrences)	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
CBOD % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
CBOD % Removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
CBOD5	All Year	40	mg/L	DMax Conc	3/Week	Composite	Effluent
CBOD5	All Year	25	mg/L	MAvg Conc	3/Week	Composite	Effluent
CBOD5	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
CBOD5	All Year	209	lb/day	MAvg Load	3/Week	Composite	Effluent
CBOD5	All Year	35	mg/L	WAvg Conc	3/Week	Composite	Effluent
CBOD5	All Year	292	lb/day	WAvg Load	3/Week	Composite	Effluent
CBOD5	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
E. coli	All Year	941	#/100mL	DMax Conc	3/Week	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	3/Week	Grab	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Influent (Raw Sewage)
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Non Wet Weather
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Grab	Effluent
TRC	All Year	1.5	mg/L	DMax Conc	Weekdays	Grab	Effluent

Table 6-5a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
TSS	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
TSS	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	334	lb/day	WAvg Load	3/Week	Composite	Effluent
TSS	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent
TSS	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	250	lb/day	MAvg Load	3/Week	Composite	Effluent
TSS	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent
TSS % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
TSS % Removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-5b.

Tables 6-5a-b. Permit Limits for Outfall 01B at Newbern STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 24 TSS
- 12 Ammonia
- 13 Suspended Solids % Removal
- 13 Escherichia coli
- 1 Carbonaceous Oxygen Demand (COD)
- 1 Carbonaceous Biological Oxygen Demand (CBOD)
- 1 Fecal coliform
- 1 pH
- 75 Overflows
- 4 Bypasses

Enforcement:
NOV issued April 27, 2007, for permit non-compliance. NOV issued on June 25, 2007 for failure to submit the Pretreatment Semiannual Report.

Agreed Order #06-0196: Newbern was on EPA's Watch List for NPDES permit effluent violations. WWTP Corrective Action Plan/Engineering report CAP/ER received on 06/20/06, approved 07/27/06.

Comments:
The City is doing better since the Agreed Order and is in the process of upgrading the STP. Compliance Evaluation Inspection June 25, 2007: City (STE) has obtained a new plant and collection system certified operator. Also hired an area supervisor. Effluent was clear with no solids.

TN0021580 Union City STP (A.L. Strub WWTP)

Discharger rating: Major
City: Union City
County: Obion
EFO Name: Jackson
Issuance Date: 12/30/05
Expiration Date: 4/30/10
Receiving Stream(s): North Fork Obion River at mile 8.2
HUC-12: 080102020207
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Waste Activated Sludge to aerobic digesters to spray irrigation

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	Summer	4	mg/L	MAvg Conc	2/Week	Composite	Effluent
Ammonia as N (Total)	Summer	167	lb/day	MAvg Load	2/Week	Composite	Effluent
Ammonia as N (Total)	Summer		mg/L	MAvg Conc	2/Month	Composite	Influent (Raw Sewage)
Ammonia as N (Total)	Summer		mg/L	DMax Conc	2/Month	Composite	Influent (Raw Sewage)
Ammonia as N (Total)	Winter		mg/L	DMax Conc	2/Week	Composite	Influent (Raw Sewage)
Ammonia as N (Total)	Winter	325	lb/day	MAvg Load	2/Week	Composite	Effluent
Ammonia as N (Total)	Winter	6	mg/L	MAvg Conc	2/Week	Composite	Effluent
Ammonia as N (Total)	Winter		mg/L	MAvg Conc	2/Month	Composite	Influent (Raw Sewage)
Bypass of Treatment (Occurrences)	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
CBOD % Removal	All Year	85	Percent	MAvg % Removal	2/Week	Calculated	% Removal
CBOD5	All Year		mg/L	DMax Conc	2/Week	Composite	Influent (Raw Sewage)
CBOD5	All Year		mg/L	MAvg Conc	2/Week	Composite	Influent (Raw Sewage)
CBOD5	Summer	40	mg/L	DMax Conc	2/Week	Composite	Effluent
CBOD5	Summer	25	mg/L	MAvg Conc	2/Week	Composite	Effluent
CBOD5	Summer	1042	lb/day	MAvg Load	2/Week	Composite	Effluent
CBOD5	Summer	35	mg/L	WAvg Conc	2/Week	Composite	Effluent
CBOD5	Summer	1668	lb/day	DMax Load	2/Week	Composite	Effluent
CBOD5	Summer	1460	lb/day	WAvg Load	2/Week	Composite	Effluent
CBOD5	Winter	40	mg/L	DMax Conc	2/Week	Composite	Effluent
CBOD5	Winter	25	mg/L	MAvg Conc	2/Week	Composite	Effluent
CBOD5	Winter	35	mg/L	WAvg Conc	2/Week	Composite	Effluent
CBOD5	Winter	1355	lb/day	MAvg Load	2/Week	Composite	Effluent
CBOD5	Winter	1897	lb/day	WAvg Load	2/Week	Composite	Effluent
CBOD5	Winter	2168	lb/day	DMax Load	2/Week	Composite	Effluent
D.O.	All Year	5	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	Weekdays	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekdays	Grab	Effluent

Table 6-6a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
IC25 7day *Ceriodaphnia dubia*	Summer	7.8	Percent	DMin Conc	Continuous	Composite	Effluent
IC25 7day *Ceriodaphnia dubia*	Winter	9.9	Percent	DMin Conc	Continuous	Composite	Effluent
IC25 7day Fathead Minnows	Summer	7.8	Percent	DMin Conc	Continuous	Composite	Effluent
IC25 7day Fathead Minnows	Winter	9.9	Percent	DMin Conc	Continuous	Composite	Effluent
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Non Wet Weather
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Composite	Effluent
TRC	Summer	0.24	mg/L	DMax Conc	Weekdays	Grab	Effluent
TRC	Winter	0.19	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year		mg/L	DMax Conc	2/Week	Composite	Influent (Raw Sewage)
TSS	All Year		mg/L	MAvg Conc	2/Week	Composite	Influent (Raw Sewage)
TSS	Summer	45	mg/L	DMax Conc	2/Week	Composite	Effluent
TSS	Summer	1668	lb/day	WAvg Load	2/Week	Composite	Effluent
TSS	Summer	40	mg/L	WAvg Conc	2/Week	Composite	Effluent
TSS	Summer	1251	lb/day	MAvg Load	2/Week	Composite	Effluent
TSS	Summer	30	mg/L	MAvg Conc	2/Week	Composite	Effluent
TSS	Summer	1877	lb/day	DMax Load	2/Week	Composite	Effluent
TSS	Winter	45	mg/L	DMax Conc	2/Week	Composite	Effluent
TSS	Winter	2439	lb/day	DMax Load	2/Week	Composite	Effluent
TSS	Winter	2168	lb/day	WAvg Load	2/Week	Composite	Effluent
TSS	Winter	40	mg/L	WAvg Conc	2/Week	Composite	Effluent
TSS	Winter	1626	lb/day	MAvg Load	2/Week	Composite	Effluent
TSS	Winter	30	mg/L	MAvg Conc	2/Week	Composite	Effluent
TSS % Removal	All Year	85	Percent	MAvg % Removal	2/Week	Calculated	% Removal
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Week	Grab	Effluent

Table 6-6b.

Table 6-6a-b. Permit Limits for Union City STP (A.L. Strub WWTP).

Compliance History:
The following numbers of exceedences were noted in PCS:

2 Total Suspended Solids
4 Settleable Solids
4 Carbonaceous Biological Oxygen Demand
7 Escherichia coli
6 Suspended Solids % Removal
4 Fecal coliform
13 Total Chlorine
11 Carbonaceous Oxygen Demand
8 overflows

Enforcement:
Commissioner's Order # 05-0106: 65 permit violations from April 1, 2002, to September 30, 2004 including discharging wastewater effluent from the STP and discharging from a location other than through a permitted outfall.

EFO Comments:
Union City has inflow and infiltration problems with their collection system. The City is addressing problems. Union City STP, Tyson Foods, and Griffin Industries are supposed to participate in a study together since the limits are tight for that same stretch of river (North Fork Obion River at mile 8.2).

Compliance Evaluation Inspection on March 30, 2007: Current 20 ton accuator, that lowers and raises the decanters, will be replaced with a 25-ton accuator. Additional bracing on the decanters will also relieve the tension on the accuator. The drive units will also be replaced. Work will probably begin during season low flow conditions.

SCADA system will be programmed to lower the decanters at exactly the same time. This will insure equal decanting and provide a more consistent flow rate to the chlorination process.

April 7, 2007: Two out of three submersible pumps have been installed to replace influent screw pumps. One pump will pump 3.0-3.5 MGD. When all three have been installed they will alternate pumping the influent. Preliminary treatment will be partially replaced.

TN0064912 South Fulton STP

Discharger rating: Minor
City: South Fulton
County: Obion
EFO Name: Jackson
Issuance Date: 8/31/05
Expiration Date: 4/30/10
Receiving Stream(s): North Fork Obion River at mile 18.0
HUC-12: 080102020203
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Sludge to anaerobic digester to drybeds to landfill

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
48hr LC50: *Ceriodaphnia dubia*	All Year	3.6	Percent	DMin Conc	Annually	Grab	Effluent
48hr LC50: Fathead Minnows	All Year	3.6	Percent	DMin Conc	Annually	Grab	Effluent
BOD % removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
BOD % removal	All Year	65	Percent	MAvg % Removal	3/Week	Calculated	% Removal
BOD5	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
BOD5	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
BOD5	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent
BOD5	All Year	123	lb/day	MAvg Load	3/Week	Composite	Effluent
BOD5	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent
BOD5	All Year	163	lb/day	WAvg Load	3/Week	Composite	Effluent
Bypass of Treatment (Occurrences)	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	3/Week	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	3/Week	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Influent (Raw Sewage)
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Non Wet Weather
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Grab	Effluent
TRC	All Year	1.8	mg/L	DMax Conc	Weekdays	Grab	Effluent

Table 6-7a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
TSS	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	123	lb/day	MAvg Load	3/Week	Composite	Effluent
TSS	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
TSS	All Year	163	lb/day	WAvg Load	3/Week	Composite	Effluent
TSS	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent
TSS	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent
TSS % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	% Removal
TSS % Removal	All Year	65	Percent	MAvg % Removal	3/Week	Calculated	% Removal
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-7b

Tables 6-7a-b. Permit Limits for South Fulton STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 4 Biological Oxygen Demand (BOD)
- 1 pH
- 11 Total Chlorine
- 1 Total Suspended Solids (TSS)
- 2 Suspended Solids % Removal
- 1 Escherichia coli
- 1 Dissolved Oxygen
- 33 Overflows
- 1 Bypass

Comments:
Inflow and infiltration are major problems. The City is making repairs as they get funding. The City wants to keep pretreatment program if toxicity tests are kept minimized. Compliance Evaluation Inspection on May 5, 2007: System in process of hiring two people to be used partially in wastewater. Now have full time lab tech. One trickling filter recirculation pump is down and will be replaced or repaired. Intermediate pump impeller broke. New impeller has been purchased and will be installed next week. The No. 2 effluent pump is scheduled for repair this summer during low flow conditions.

TN0064777 Troy Wastewater Lagoon

Discharger rating: Minor
City: Troy
County: Obion
EFO Name: Jackson
Issuance Date: 3/31/05
Expiration Date: 4/30/10
Receiving Stream(s): Obion River at mile 61.2
HUC-12: 080102020301
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Lagoon system

SEGMENT	TN08010202001_4000
Name	Obion River
Size	7.6
Unit	Miles
First Year on 303(d) List	1990
Designated Uses	Recreation (Non-Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Fish and Aquatic Life (Non-Supporting)
Causes	Physical substrate habitat alterations, Sedimentation/Siltation, Escherichia coli
Sources	Channelization, Non-irrigated Crop Production, Source Unknown

Table 6-8. Stream Segment Information for Troy Wastewater Lagoon.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD % removal	All Year	65	Percent	MAvg % Removal	Weekly	Calculated	% Removal
BOD5	All Year	83	lb/day	WAvg Load	Weekly	Grab	Effluent
BOD5	All Year	65	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	108	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	75	lb/day	MAvg Load	Weekly	Grab	Effluent
BOD5	All Year	45	mg/L	MAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	50	mg/L	WAvg Conc	Weekly	Grab	Effluent
Bypass of Treatment (Occurrences)	All Year		Occurences/Year		Daily	Visual	Effluent
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Min	Weekly	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	Weekly	Grab	Effluent
Flow	All Year			MAvg Load			Effluent
Flow	All Year						Effluent
Flow	All Year		MGD	MAvg Conc	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	DMax Conc	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Conc	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Conc	Daily	Continuous	Effluent
Overflow (Duration)	All Year		Occurences/Year		See Permit	Visual	Effluent
Overflow Use Occurences	All Year						Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekdays	Instantaneous	Effluent
TSS	All Year	183	lb/day	WAvg Load	Weekly	Grab	Effluent
TSS	All Year	167	lb/day	MAvg Load	Weekly	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	200	lb/day	DMax Load	Weekly	Grab	Effluent
TSS	All Year	110	mg/L	WAvg Conc	Weekly	Grab	Effluent
TSS	All Year	100	mg/L	MAvg Conc	Weekly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Week	Grab	Effluent

Table 6-9. Permit Limits for Troy Wastewater Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 4 Biological Oxygen Demand (BOD)
- 1 pH

Enforcement:
NOV for incomplete application on 11/29/05.

Comments:
Inflow and infiltration problems with the collection system.

TN0062171 Obion Wastewater Lagoon

Discharger rating: Minor
City: Obion
County: Obion
EFO Name: Jackson
Issuance Date: 3/31/05
Expiration Date: 4/30/10
Receiving Stream(s): Obion River Mile 56.2
HUC-12: 080102020301
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Lagoon system

SEGMENT	TN08010202001_3000
Name	Obion River
Size	14
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Supporting), Fish and Aquatic Life (Non-Supporting)
Causes	Physical substrate habitat alterations, Sedimentation/Siltation
Sources	Channelization, Non-irrigated Crop Production

Table 6-10. Stream Segment Information for Obion Wastewater Lagoon.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD % removal	All Year	65	Percent	MAvg % Removal	3/Week	Calculated	Percent Removal
BOD5	All Year	45	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	67	lb/day	WAvg Load	Weekly	Grab	Intake
BOD5	All Year	75	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	50	lb/day	MAvg Load	Weekly	Grab	Effluent
BOD5	All Year		MGD	MAvg Conc	Weekly	Composite	Influent (Raw Sewage)
BOD5	All Year	40	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	Weekly	Grab	Effluent
Bypass of Treatment (occurrences)	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
E. coli	All Year	941	#/100mL	MAvg Ari Mean	Weekly	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Calculated	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Calculated	Influent (Raw Sewage)
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Wet Weather
Overflow Use Occurences	All Year		Occurences/Month	MAvg Load	Continuous	Visual	Non Wet Weather
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	2	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	183	lb/day	WAvg Load	Weekly	Grab	Intake
TSS	All Year	199	lb/day	DMax Load	Weekly	Grab	Effluent
TSS	All Year	100	mg/L	MAvg Conc	Weekly	Grab	Effluent
TSS	All Year	167	lb/day	MAvg Load	Weekly	Grab	Effluent
TSS	All Year	110	mg/L	WAvg Conc	Weekly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Week	Grab	Effluent

Table 6-11. Permit Limits for Obion Wastewater Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 31 Biological Oxygen Demand (BOD)
- 4 Total Suspended Solids (TSS)
- 5 Escerichia coli
- 1 pH
- 1 Fecal coliform

Comments:
Inflow and infiltration problems with the collection system. The access road to the lagoon is not high enough and gets flooded. There is bank erosion in the lagoon and the effluent flow reading is not acceptable. The lab needs equipment replacement. Compliance Evaluation Inspection 2/23/07: Air relief valve on effluent line was leaking for an undetermined amount of time. Valve was replaced stopping the leakage. Overflow on 15th street was corrected by removing four blockages in the line.

6.4.B. Industrial Permits

TN0001139 Goodyear Tire and Rubber Company

Discharger rating: Minor
City: Union City
County: Obion
EFO Name: Jackson
Issuance Date: 5/31/05
Expiration Date: 5/31/10
Receiving Stream(s): First Creek at mile 2.3 (Outfalls 001 and SW1), and mile 1.1 of an unnamed tributary to First Creek at mile 1.2 (Outfalls 002 and SW2)
HUC-12: 080102020208
Effluent Summary: Contact and non-contact cooling water from Outfalls 001 and 002 and storm water runoff from Outfalls SW1 and SW2
Treatment system: -

SEGMENT	TN08010202419_0200
Name	Unnamed Trib to Hoosier Creek
Size	6
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Recreation (Not Assessed), Irrigation (Not Assessed), Livestock Watering and Wildlife (Not Assessed), Fish and Aquatic Life (Not Assessed)
Causes	N/A
Sources	N/A

***Table 6-12**. Stream Segment Information for Goodyear Tire and Rubber Company.*

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Cu (T)	All Year	0.028	mg/L	DMax Conc	2/Month	Composite	Effluent
Cu (T)	All Year	0.019	mg/L	MAvg Conc	2/Month	Composite	Effluent
Flow	All Year		MGD	DMax Load	Weekly	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Weekly	Instantaneous	Effluent
Hardness Total (as CaCO3)	All Year		mg/L	MAvg Conc	2/Month	Composite	Effluent
Hardness Total (as CaCO3)	All Year		mg/L	MAvg Conc	2/Month	Composite	Influent (Raw Sewage)
IC25 7day Ceriodaphnia Dubia	All Year	100	Percent	DMin Conc	Quarterly	Composite	Effluent
IC25 7day Fathead Minnows	All Year	100	Percent	DMin Conc	Quarterly	Composite	Effluent
Oil and Grease (Freon EM)	All Year	15	mg/L	DMax Conc	Weekly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	10	mg/L	MAvg Conc	Weekly	Grab	Effluent
TRC	All Year	0.019	mg/L	DMax Conc	Weekly	Grab	Effluent
TRC	All Year	0.011	mg/L	MAvg Conc	Weekly	Grab	Effluent
TSS	All Year	20	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	15	mg/L	MAvg Conc	Weekly	Grab	Effluent
Temperature (°C)	All Year	30.5	Deg. C	DMax Conc	Weekly	Grab	Effluent
Zn (T)	All Year	0.308	mg/L	DMax Conc	2/Month	Composite	Effluent
Zn (T)	All Year	0.311	mg/L	MAvg Conc	2/Month	Composite	Effluent
pH	All Year	9	SU	DMax Conc	Weekly	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Weekly	Grab	Effluent

Table 6-13. Permit Limits for Outfall 001 at Goodyear Tire and Rubber Company.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Cu (T)	All Year	0.028	mg/L	DMax Conc	2/Month	Composite	Effluent
Cu (T)	All Year	0.019	mg/L	MAvg Conc	2/Month	Composite	Effluent
Flow	All Year		MGD	DMax Load	Weekly	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Weekly	Instantaneous	Effluent
IC25 7day *Ceriodaphnia dubia*	All Year	100	Percent	DMin Conc	Quarterly	Composite	Effluent
IC25 7day Fathead Minnows	All Year	100	Percent	DMin Conc	Quarterly	Composite	Effluent
Oil and Grease (Freon EM)	All Year	15	mg/L	DMax Conc	Weekly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	10	mg/L	MAvg Conc	Weekly	Grab	Effluent
TRC	All Year	0.019	mg/L	DMax Conc	Weekly	Grab	Effluent
TRC	All Year	0.011	mg/L	MAvg Conc	Weekly	Grab	Effluent
TSS	All Year	20	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	15	mg/L	MAvg Conc	Weekly	Grab	Effluent
Temperature (°C)	All Year	30.5	Deg. C	DMax Conc	Weekly	Grab	Effluent
Zn (T)	All Year	0.308	mg/L	DMax Conc	2/Month	Composite	Effluent
Zn (T)	All Year	0.311	mg/L	MAvg Conc	2/Month	Composite	Effluent
pH	All Year	9	SU	DMax Conc	Weekly	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Weekly	Grab	Effluent

Table 6-14. Permit Limits for Outfall 002 at Goodyear Tire and Rubber Company.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
BOD5	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Flow	All Year		MGD	DMax Load	Annually	Estimate	Effluent
Oil and Grease (Freon EM)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
TSS	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Zn (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
pH	All Year		SU	DMax Conc	Annually	Grab	Effluent

Table 6-15. Permit Limits for Outfalls SW1 and SW2 at Goodyear Tire and Rubber Company.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 21 Total Chlorine
- 3 Zinc
- 1 pH

Comments:
Manufacturing radial passenger and light truck tires. Proactive, but currently hampered by budget. Needs a higher capacity flow measuring device for storm water events.

TN0000931 Griffin Industries, Inc.

Discharger rating: Minor
City: Union City
County: Obion
EFO Name: Jackson
Issuance Date: 3/31/06
Expiration Date: 5/31/10
Receiving Stream(s): North Fork Obion River at mile 9.5
HUC-12: 080102020205
Effluent Summary: Treated process wastewater, treated domestic wastewater and storm water runoff through Outfalls 001, 002 and 003, and storm water runoff through outfalls SW3 and SW4
Treatment system: -

SEGMENT	TN08010202009_1000
Name	North Fork Obion River
Size	14.61
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Fish and Aquatic Life (Non-Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Supporting), Irrigation (Supporting)
Causes	Physical substrate habitat alterations, Sedimentation/Siltation
Sources	Channelization, Non-irrigated Crop Production

Table 6-16. Stream Segment Information for Griffin Industries, Inc.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year		mg/L	DMax Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	8.8	lb/day	DMax Load	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	5.3	lb/day	MAvg Load	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	5.3	lb/day	MAvg Load	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	8.8	lb/day	DMax Load	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	5.3	lb/day	MAvg Load	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year		mg/L	DMax Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year	8.8	lb/day	DMax Load	2/Month	Grab	Effluent
Ammonia as N (Total)	All Year		mg/L	DMax Conc	2/Month	Grab	Effluent
BOD5	All Year		mg/L	DMax Conc	2/Month	Grab	Effluent
BOD5	All Year	15.8	lb/day	DMax Load	2/Month	Grab	Effluent
BOD5	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
BOD5	All Year	10.5	lb/day	MAvg Load	2/Month	Grab	Effluent
BOD5	All Year		mg/L	DMax Conc	2/Month	Grab	Effluent
BOD5	All Year	15.8	lb/day	DMax Load	2/Month	Grab	Effluent

Table 6-17a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
BOD5	All Year	10.5	lb/day	MAvg Load	2/Month	Grab	Effluent
BOD5	All Year		mg/L	DMax Conc	2/Month	Grab	Effluent
BOD5	All Year	15.8	lb/day	DMax Load	2/Month	Grab	Effluent
BOD5	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
BOD5	All Year	10.5	lb/day	MAvg Load	2/Month	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	2/Month	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	2/Month	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	2/Month	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	2/Month	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	2/Month	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	2/Month	Grab	Effluent
Fecal Coliform	All Year	400	#/100mL	DMax Conc	2/Month	Grab	Effluent
Fecal Coliform	All Year	400	#/100mL	DMax Conc	2/Month	Grab	Effluent
Fecal Coliform	All Year	400	#/100mL	DMax Conc	2/Month	Grab	Effluent
Flow	All Year		MGD	MAvg Load	2/Month	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	2/Month	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	2/Month	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	2/Month	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	2/Month	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	2/Month	Instantaneous	Effluent
Nitrogen, Inorganic Total	All Year	134	mg/L	MAvg Conc	2/Month	Grab	Effluent
Nitrogen, Inorganic Total	All Year	134	mg/L	MAvg Conc	2/Month	Grab	Effluent
Nitrogen, Inorganic Total	All Year	194	mg/L	DMax Conc	2/Month	Grab	Effluent
Nitrogen, Inorganic Total	All Year	134	mg/L	MAvg Conc	2/Month	Grab	Effluent
Nitrogen, Inorganic Total	All Year	194	mg/L	DMax Conc	2/Month	Grab	Effluent
Nitrogen, Inorganic Total	All Year	194	mg/L	DMax Conc	2/Month	Grab	Effluent
Oil and Grease (Freon EM)	All Year	200	lb/day	DMax Load	2/Month	Grab	Effluent
Oil and Grease (Freon EM)	All Year	60	lb/day	MAvg Load	2/Month	Grab	Effluent
Oil and Grease (Freon EM)	All Year	20	lb/day	MAvg Load	2/Month	Grab	Effluent
Oil and Grease (Freon EM)	All Year	40	lb/day	DMax Load	2/Month	Grab	Effluent
Oil and Grease (Freon EM)	All Year	120	lb/day	DMax Load	2/Month	Grab	Effluent
Oil and Grease (Freon EM)	All Year	100	lb/day	MAvg Load	2/Month	Grab	Effluent
TSS	All Year	440	lb/day	DMax Load	2/Month	Grab	Effluent
TSS	All Year	220	lb/day	MAvg Load	2/Month	Grab	Effluent
TSS	All Year	132	lb/day	MAvg Load	2/Month	Grab	Effluent
TSS	All Year	44	lb/day	MAvg Load	2/Month	Grab	Effluent
TSS	All Year	88	lb/day	DMax Load	2/Month	Grab	Effluent
TSS	All Year	264	lb/day	DMax Load	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Month	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Month	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Month	Grab	Effluent
pH	All Year	9	SU	DMax Conc	2/Month	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Month	Grab	Effluent

Table 6-17b.

Tables 6-17a-b. Permit Limits for Outfall 001 at Griffin Industries, Inc.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
COD	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
E. coli	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Quarterly	Estimate	Effluent
Flow	All Year		MGD	DMax Load	Quarterly	Estimate	Effluent
Nitrite + Nitrate Total (as N)	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
Oil and Grease (Hexane Extraction)	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
TSS	All Year		mg/L	DMax Conc	Quarterly	Grab	Effluent
pH	All Year		SU	DMax Conc	Quarterly	Grab	Effluent

Table 6-18. Permit Limits for Outfalls SW3 and SW4 at Griffin Industries, Inc.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 1 Biological Oxygen Demand (BOD).

Comments:
Recycles inedible animal byproducts and spent restaurant cooking oils into ingredients used in the manufacturing of animal feed. Union City STP, Tyson Industries, and Griffin Industries are supposed to participate in a study together since the limits are tight for that same stretch of river (North Fork Obion River).

TN0073563 Tyson Foods, Inc.

Discharger rating: Minor
City: Union City
County: Obion
EFO Name: Jackson
Issuance Date: 12/30/06
Expiration Date: 4/30/10
Receiving Stream(s): North Fork Obion River at mile 10.0
HUC-12: 080102020207
Effluent Summary: Treated process waterwater through Outfall 001
Treatment system: -

SEGMENT	TN08010202009_1000
Name	North Fork Obion River
Size	14.61
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Fish and Aquatic Life (Non-Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Supporting), Irrigation (Supporting)
Causes	Physical substrate habitat alterations, Sedimentation/Siltation
Sources	Channelization, Non-irrigated Crop Production

Table 6-19. Stream Segment Information for Tyson Foods, Inc.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	Summer	24.3	lb/day	MAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	6	mg/L	DMax Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	3	mg/L	MAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	48.5	lb/day	DMax Load	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	32.4	lb/day	MAvg Load	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	64.7	lb/day	DMax Load	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	8	mg/L	DMax Conc	Weekly	Composite	Effluent
Ammonia as N (Total)	Winter	4	mg/L	MAvg Conc	3/Week	Composite	Effluent
BOD5	All Year	129	lb/day	MAvg Load	2/Week	Composite	Effluent
BOD5	All Year	26	mg/L	DMax Conc	2/Week	Composite	Effluent
BOD5	All Year	210	lb/day	DMax Load	2/Week	Composite	Effluent
BOD5	All Year	16	mg/L	MAvg Conc	2/Week	Composite	Effluent
CBOD5	All Year		mg/L	MAvg Conc	Quarterly	Composite	Effluent
D.O.	All Year	6.5	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Conc	2/Week	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	2/Week	Grab	Effluent
Fecal Coliform	All Year	400	#/100mL	DMax Conc	2/Week	Grab	Effluent
Fecal Coliform	All Year	200	#/100mL	MAvg Conc	2/Week	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Continuous	Recorder	Effluent

Table 6-20a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Flow	All Year		MGD	DMax Load	Continuous	Recorder	Effluent
IC25 7day Ceriodaphnia Dubia	Summer	1.6	Percent	MAvg Geo Mean	Semi-annually	Composite	Effluent
IC25 7day Ceriodaphnia Dubia	Winter	1.2	Percent	MAvg Geo Mean	Semi-annually	Composite	Effluent
IC25 7day Fathead Minnows	Summer	1.6	Percent	MAvg Geo Mean	Semi-annually	Composite	Effluent
IC25 7day Fathead Minnows	Winter	1.2	Percent	MAvg Geo Mean	Semi-annually	Composite	Effluent
Oil and Grease (Freon EM)	All Year	14	mg/L	DMax Conc	Monthly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	8	mg/L	MAvg Conc	Monthly	Grab	Effluent
Settleable Solids	All Year	0.5	mL/L	DMax Conc	3/Week	Grab	Effluent
TRC	All Year	0.57	mg/L	DMax Conc	Weekly	Grab	Effluent
TRC	All Year	0.33	mg/L	MAvg Conc	Weekly	Grab	Effluent
TSS	All Year	30	mg/L	DMax Conc	Monthly	Composite	Effluent
TSS	All Year		lb/day	MAvg Load	Monthly	Composite	Effluent
TSS	All Year		lb/day	DMax Load	Monthly	Composite	Effluent
TSS	All Year	20	mg/L	MAvg Conc	Monthly	Composite	Effluent
pH	All Year	9	SU	DMax Conc	3/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	3/Week	Grab	Effluent

Table 6-20b.

Tables 6-20a-b. Permit Limits for Tyson Foods, Inc.

Comments:

Poultry Slaughtering and Processing. Union City STP, Tyson Industries, and Griffin Industries are supposed to participate in a study together since the limits are tight for that same stretch of river (North Fork Obion River). Compliance Evaluation Inspection on 12/19/06: Facility performing exceptionally well, as usual. Great care taken in all areas evaluated.

APPENDIX II

Id	NAME	Hazard		Id	NAME	Hazard
407041	JENKINS	0		927016	CYPRESS CREEK #12	3
237004	PIONEER #1	1		927017	CYPRESS CREEK #7	S
667013	LAKE GRAHAM	2		927025	MIDDLE FORK OBION #11	L
667014	HOUSER CREEK #1	1		927026	PRITCHETT	3
667015	GLADY HOLLOW	2		487001	BARKER BRANCH	F
927002	TATLOCK	1		407019	WINDSTONE LAKE	3
667016	KIRK #60-11-1	2		667017	COLUMBIA	2
667001	HUGHES CREEK	L		667018	REELFOOT-INDIAN CREEK	2
667002	BOTTS	L		667019	REELFOOT-INDIAN CREEK	1
667003	COLE LAKE	B		407020	MYERS	2
667004	CATFISH LAKE	L		667020	PERKINS FARM POND	0
667005	TURNER	S		407023	CITY LAKE	3
667006	WHITE	0		667022	MCNAIRY CYPRESS CREEK	3
667007	HUTCHESON	3		407021	CROCKETT CREEK	2
667008	ENGLEWOOD LAKE	3		667023	BRUCE CREEK	1
667009	REELFOOT-INDIAN CREEK	2		407024	WILLOUGHBY WOODS	3
667010	REELFOOT-INDIAN CREEK	0		407025	COUNTRY VILLAGE	3
667011	OLIVER	2		407026	PARKLAND ACRES LAKE	3
667012	REELFOOT-INDIAN CREEK	3		407027	LURAY	3
927003	THOMPSON CREEK #2	1		667024	WITHEROW	0
927004	CYPRESS CREEK #4	3		407032	NEW BOSTON	3
927007	THOMPSON CREEK #8	3		667025	CAMPGROUND	2
927008	CYPRESS CREEK #2	3		667026	REELFOOT-INDIAN CREEK	1
927009	CYPRESS CREEK #10	3		667027	NO. FORK FORKED DEER	2
927010	CYPRESS CREEK #8	1		667028	HENRY	1
927011	CYPRESS CREEK #3	3		407037	YOUNG MILL #2	L
927012	CYPRESS CREEK #1	3		407038	CLOAR	L
927014	THOMPSON CREEK #4 (GA	2		667029	DAVIS	N
927015	CYPRESS CREEK #11	2				

Table A2-1. Inventoried Dams in the Tennessee Portion of the Obion River (North Fork) Watershed. *Hazard Codes: (H, 1), High; (S, 2), Significant; (L, 3), Low. TDEC only regulates dams indicated by a numeric hazard score.*

LAND COVER/LAND USE	ACRES	% OF WATERSHED
Row Crops	391495	52.30%
Deciduous Forest	139381	18.60%
Wetlands	86197	11.50%
Pasture/Hay	59674	8%
Low Intensity Residential	37463	5%
Open Water	14600	2%
Evergreen Forest	6156	0.80%
Grassland/Herbaceous	5760	0.80%
High Intensity Residential	3693	0.50%
Evergreen Shrubland	2075	0.30%
High Intensity Commercial	1221	0.20%
Emergent Herbaceous Wetlands	804	0.10%
Total	748573	100

Table A2-2. Land Use Distribution in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Multi-Resolution Land Characterization (MRLC) derived by applying a generalized Anderson level II system to mosaics of Landsat thematic mapper images collected every five years.*

ECOREGION	REFERENCE STREAM	WATERSHED	(HUC)
Southeastern Plains and Hills (65e)	Blunt Creek (65e04)	TN Western Valley (KY Lake)	06040005
	Griffin Creek (65e06)	North Fork Forked Deer	08010204
	Harris Creek (65e08)	South Fork Forked Deer	08010205
	Marshall Creek (65e10)	Hatchie River	08010208
	West Fork Spring Creek (65e11)	Hatchie River	08010208
Northern Mississippi Alluvial Plain (73a)	Cold Creek (73a01)	Mississippi River	08010100
	Middle Fork, Forked Deer River (73a02)	Mississippi River	08010100
	Cold Creek (73a03)	Mississippi River	08010100
	Bayou du Chien (73a04)	Obion River	08010202
Bluff Hills (74a)	Sugar Creek (74a06)	Mississippi River	08010100
	Paw Paw Creek (74a08)	Obion River	08010202
Loess Plains (74b)	Terrapin Creek (74b01)	Obion River	08010202
	Powell Creek (74b04)	Obion River	08010202
	Wolf River (74b12)	Wolf River	08010210
	Wolf River (74b12a)	Wolf River	08010210

Table A2-3. Ecoregion Monitoring Sites in Ecoregions 65e, 73a, 74a, and 74b.

CODE	NAME	AGENCY	AGENCY ID
41	TDEC/DNH BRUNDIGE BOTTOMLAND HARDWOOD FOREST SITE	TDEC/DNH	S.USTNHP 98
43	TDEC/DNH BLUE POND SITE	TDEC/DNH	S.USTNHP 112
134	TDEC/DNH LAKE ISOM NATIONAL WILDLIFE REFUGE SITE	TDEC/DNH	M.USTNHP 79
865	USFWS JERRY CARTER WRP SITE	USFWS	TRACT 799
902	USFWS ROBERT BEARD WRP SITE	USFWS	TRACT 9167
912	USFWS MOSS ISLAND CO. WRP SITE	USFWS	TRACT 9567
913	USFWS MOSS ISLAND CO. WRP SITE	USFWS	TRACT 9563
1099	BRAD BINGHAM THESIS: SITE 6 KNOB CREEK QUAD	USFWS	BINGHAM-KNOB CREEK.6
1100	BRAD BINGHAM THESIS: SITE 7 KNOB CREEK QUAD	USFWS	BINGHAM-KNOB CREEK.7
1112	BRAD BINGHAM THESIS: SITE 19 KNOB CREEK QUAD	USFWS	BINGHAM-KNOB CREEK.19
1113	BRAD BINGHAM THESIS: SITE 20 KNOB CREEK QUAD	USFWS	BINGHAM-KNOB CREEK.20
1114	BRAD BINGHAM THESIS: SITE 21 KNOB CREEK QUAD	USFWS	BINGHAM-KNOB CREEK.21
1115	BRAD BINGHAM THESIS: SITE 22 KNOB CREEK QUAD	USFWS	BINGHAM-KNOB CREEK.22
1117	BRAD BINGHAM THESIS: SITE 24 KNOB CREEK QUAD	USFWS	BINGHAM-KNOB CREEK.24
1227	TWRA GOOCH SITE	TWRA	
1229	TWRA SITE	TWRA	
1234	TWRA SITE	TWRA	
1262	USACOE-MEMPHIS BIRDS CREEK SITE	USACOE-MEMPHIS	
1343	USACOE MISSISSIPPI RIVER 95-063 [TD] SITE	USACOE-MEMPHIS	
1377	USACOE NORTH FORK OBION RIVER SITE	USACOE-MEMPHIS	
1378	USACOE N. FORK OBION RIVER (TN) 95-001 [TF] SITE	USACOE-MEMPHIS	
1379	USACOE N. FORK OBION RIVER 9TN0 96-000 [TS] SITE	USACOE-MEMPHIS	
1380	USACOE OBION RIVER-31-TD SITE	USACOE-MEMPHIS	
1381	USACOE OBION RIVER 9TN0 94-001 [TF] SITE	USACOE-MEMPHIS	
1382	USACOE OBION RIVER 9TN0 95-004 [TS] SITE	USACOE-MEMPHIS	
1494	USACOE-LMM OBION RIVER 95-008 [JTS] SITE	USFWS	
1514	USACOE-LMM OBION RIVER (TN) 96-001 [TD] SITE	USFWS	
1609	USACOE NORTH FORK OBION RIVER-12 SITE	USACOE-MEMPHIS	
1621	USACOE OBION RIVER-20 SITE	USACOE-MEMPHIS	
1622	USACOE OBION RIVER-23 SITE	USACOE-MEMPHIS	
1623	USACOE OBION RIVER-31-TD SITE	USACOE-MEMPHIS	
1624	USACOE OBION RIVER-32 (RC) SITE	USACOE-MEMPHIS	
1630	USACOE NORTH FORK OBION RIVER-3 SITE	USACOE-MEMPHIS	
1631	USACOE NORTH FORK OBION RIVER-4 SITE	USACOE-MEMPHIS	
1632	USACOE NORTH FORK OBION RIVER-5 SITE	USACOE-MEMPHIS	
1633	USACOE NORTH FORK OBION RIVER-11 SITE	USACOE-MEMPHIS	
1634	USACOE OBION RIVER-7 SITE	USACOE-MEMPHIS	
1635	USACOE OBION RIVER-8 SITE	USACOE-MEMPHIS	
1636	USACOE OBION RIVER-9 SITE	USACOE-MEMPHIS	
1638	USACOE OBION RIVER-11 SITE	USACOE-MEMPHIS	
1639	USACOE OBION RIVER-12 SITE	USACOE-MEMPHIS	
1640	USACOE OBION RIVER-13 SITE	USACOE-MEMPHIS	
1641	USACOE OBION RIVER-15 SITE	USACOE-MEMPHIS	
1643	USACOE OBION RIVER-17 SITE	USACOE-MEMPHIS	

Table A2-4a.

CODE	NAME	AGENCY	AGENCY ID
1644	USACOE OBION RIVER-18 SITE	USACOE-MEMPHIS	
1645	USACOE OBION RIVER-16	USACOE-MEMPHIS	
1658	USACOE OBION RIVER 25-A (TF) SITE	USACOE-MEMPHIS	
1769	USACOE RUNNING REELFOOT BAYOU-1 SITE	USACOE-MEMPHIS	
1779	USACOE REELFOOT LAKE-1 SITE	USACOE-MEMPHIS	
1780	USACOE REELFOOT LAKE-10 SITE	USACOE-MEMPHIS	
1781	USACOE REELFOOT LAKE-11 SITE	USACOE-MEMPHIS	
1782	USACOE REELFOOT LAKE-12 SITE	USACOE-MEMPHIS	
1783	USACOE REELFOOT LAKE-14 SITE	USACOE-MEMPHIS	
1784	USACOE REELFOOT LAKE-20 SITE	USACOE-MEMPHIS	
1785	USACOE REELFOOT LAKE-21 SITE	USACOE-MEMPHIS	
1786	USACOE REELFOOT LAKE-23 SITE	USACOE-MEMPHIS	
1812	NRCS SITE	NRCS STATE OFFICE	
1813	NRCS SITE	NRCS STATE OFFICE	
1821	NRCS SITE	NRCS STATE OFFICE	
1834	NRCS SITE	NRCS STATE OFFICE	
1835	NRCS SITE	NRCS STATE OFFICE	
1836	NRCS SITE	NRCS STATE OFFICE	
1860	NRCS SITE	NRCS STATE OFFICE	
1870	NRCS SITE	NRCS STATE OFFICE	
1891	TWRA REELFOOT EAST BANK SITE	TWRA	
1931	TWRA WHITE LAKE SITE	TWRA	
1952	TWRA GOOCH SITE	TWRA	
1953	TWRA GOOCH SITE	TWRA	
1954	TWRA GOOCH SITE	TWRA	
1955	TWRA GOOCH SITE	TWRA	
1956	TWRA GOOCH SITE	TWRA	
2003	TWRA BOGOTA SITE	TWRA	
2004	TWRA BOGOTA SITE	TWRA	
2005	TWRA BOGOTA SITE	TWRA	
2006	TWRA BOGOTA SITE	TWRA	
2007	TWRA BOGOTA SITE	TWRA	
2008	TWRA BOGOTA SITE	TWRA	
2009	TWRA BOGOTA SITE	TWRA	
2010	TWRA BOGOTA SITE	TWRA	
2032	TWRA WEST BANK SITE	TWRA	
2033	TWRA WEST BANK SITE	TWRA	
2034	TWRA WEST BANK SITE	TWRA	
2035	TWRA WEST BANK SITE	TWRA	
2046	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2047	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2048	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2057	TWRA BOGOTA SITE	TWRA	
2058	TWRA BOGOTA SITE	TWRA	
2087	TWRA REELFOOT EAST BANK SITE	TWRA	
2088	TWRA REELFOOT EAST BANK SITE	TWRA	
2089	TWRA REELFOOT EAST BANK SITE	TWRA	

Table A2-4b.

CODE	NAME	AGENCY	AGENCY ID
2090	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2091	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2092	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2093	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2094	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2095	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2096	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2097	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2098	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2099	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2100	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2101	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2102	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2103	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2104	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2229	TWRA CHICKASAW SITE	TWRA	
2230	TWRA CHICKASAW SITE	TWRA	
2231	TWRA CHICKASAW SITE	TWRA	
2232	TWRA CHICKASAW SITE	TWRA	
2233	TWRA CHICKASAW SITE	TWRA	
2285	TWRA GOOCH 2 SITE	TWRA	
2286	TWRA GOOCH 2 SITE	TWRA	
2287	TWRA GOOCH 2 SITE	TWRA	
2288	TWRA GOOCH 2 SITE	TWRA	
2289	TWRA GOOCH 2 SITE	TWRA	
2290	TWRA GOOCH 2 SITE	TWRA	
2291	TWRA GOOCH 2 SITE	TWRA	
2292	TWRA GOOCH 2 SITE	TWRA	
2293	TWRA GOOCH 2 SITE	TWRA	
2294	TWRA GOOCH 2 SITE	TWRA	
2295	TWRA GOOCH 2 SITE	TWRA	
2296	TWRA GOOCH 2 SITE	TWRA	
2297	TWRA GOOCH 2 SITE	TWRA	
2298	TWRA GOOCH 2 SITE	TWRA	
2299	TWRA GOOCH 2 SITE	TWRA	
2300	TWRA GOOCH 2 SITE	TWRA	
2301	TWRA GOOCH 2 SITE	TWRA	
2302	TWRA GOOCH 2 SITE	TWRA	
2303	TWRA GOOCH 2 SITE	TWRA	
2304	TWRA GOOCH 2 SITE	TWRA	
2305	TWRA GOOCH 2 SITE	TWRA	
2375	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2401	TWRA MOSS 2 SITE	TWRA	
2402	TWRA MOSS 2 SITE	TWRA	
2403	TWRA MOSS 2 SITE	TWRA	
2404	TWRA MOSS 2 SITE	TWRA	

Table A2-4c.

CODE	NAME	AGENCY	AGENCY ID
2405	TWRA MOSS 2 SITE	TWRA	
2406	TWRA MOSS ISLAND SITE	TWRA	
2407	TWRA MOSS ISLAND SITE	TWRA	
2408	TWRA MOSS ISLAND SITE	TWRA	
2409	TWRA MOSS ISLAND SITE	TWRA	
2410	TWRA MOSS ISLAND SITE	TWRA	
2411	TWRA MOSS ISLAND SITE	TWRA	
2412	TWRA MOSS ISLAND SITE	TWRA	
2413	TWRA MOSS ISLAND SITE	TWRA	
2414	TWRA MOSS ISLAND SITE	TWRA	
2415	TWRA THORNY CYPRESS SITE	TWRA	
2416	TWRA THORNY CYPRESS SITE	TWRA	
2417	TWRA THORNY CYPRESS SITE	TWRA	
2418	TWRA THORNY CYPRESS SITE	TWRA	
2419	TWRA TERRELL BOTTOMS SITE	TWRA	
2420	TWRA TERRELL BOTTOMS SITE	TWRA	
2421	TWRA TERRELL BOTTOMS SITE	TWRA	
2422	TWRA TERRELL BOTTOMS SITE	TWRA	
2437	TWRA WEST BANK SITE	TWRA	
2438	TWRA WEST BANK SITE	TWRA	
2439	TWRA WEST BANK SITE	TWRA	
2440	TWRA WEST BANK SITE	TWRA	
2445	TWRA WHITE LAKE SITE	TWRA	
2497	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2498	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2499	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2500	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2501	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2502	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2503	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2504	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2505	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2506	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2507	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2508	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2509	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2510	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2511	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2512	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2513	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2514	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2515	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	
2516	TWRA REELFOOT SEDIMENT BASIN SITE	TWRA	

Table A2-4d.

CODE	NAME	AGENCY	AGENCY ID
2590	TWRA RICE WILDLIFE MANAGEMENT AREA SITE	TWRA	
2591	TWRA REELFOOT LAKE EAST BANK SITE	TWRA	
2592	TWRA GOOCH SITE	TWRA	
2787	USACOE NORTH FORK OBION RIVER 96-053 [TD] SITE	USACOE-MEMPHIS	960580530

Table A2-4e.

Table A2-4a-d. Wetland Sites in the Tennessee Portion of the Obion River (North Fork) Watershed in TDEC Database. *TDEC, Tennessee Department of Environment and Conservation; USACOE-Nashville, United States Army Corps of Engineers-Nashville District; TWRA, Tennessee Wildlife Resources Agency; DNH, Division of Natural Heritage.* ***This table represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands in the watershed.***

APPENDIX III

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
North Fork Obion River	TN08010202009_2000	8.9
North Fork Obion River	TN08010202009_4000	11.8
North Fork Obion River	TN08010202009_1000	14.6
North Fork Obion River	TN08010202009_3000	19.6
Obion River	TN08010202001_3000	14.0
Obion River	TN08010202001_2000	23.0
Obion River	TN08010202001_1000	28.6
Paw Paw Creek	TN08010202029_0100	20.9
Powell Creek	TN08010202009_0600	14.7
Reeds Creek	TN08010202003_1000	8.3
Rock Branch	TN08010202029_0200	1.6
Running Reelfoot Bayou	TN08010202029_1000	23.8
Terrapin Creek	TN08010202009_0800	15.7

Table A3-1. Streams Fully Supporting the Designated Use of Recreation in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Biggs Creek	TN08010202009_0700	2.2
Hurricane Creek	TN08010202009_0710	13.6
Obion River	TN08010202001_4000	7.6
Reelfoot Creek	TN08010202036_1000	8.0

Table A3-2. Streams Not Supporting the Designated Use of Recreation in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Aldridge Creek	TN08010202001_0300	6.9
Benson Branch	TN08010202009_0610	3.3
Biffle Creek	TN08010202054_1000	7.8
Big Ronaldson Slough	TN08010202040T_0100	7.3
Big Sandy Creek	TN08010202040T_0300	4.8
Birds Creek	TN08010202009_1600	10.7
Black Bayou	TN08010202040T_0200	7.5
Black Slough	TN08010202040T_0400	2.2
Blackamore Creek	TN08010202009_0500	3.3
Bogus Creek	TN08010202036_0300	6.9
Brown Creek	TN08010202029_0300	7.9

Table A3-3a.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Brundige Branch	TN08010202009_2200	3.4
Burnt Mill Hollow Creek	TN08010202001_0500	6.8
Camp Ground Creek	TN08010202009_2400	20.5
Cane Creek	TN08010202018_1000	6.3
Cane Creek	TN08010202036_0140	5.9
Cane Creek Branch	TN08010202018_0100	6.6
Carroll Creek	TN08010202029_0110	4.4
Claypit Branch	TN08010202014_0300	3.8
Clear Creek	TN08010202009_1300	12.5
Clover Creek	TN08010202028_1000	11.7
Cloverdale Creek	TN08010202048_1000	8.7
Cool Springs Branch	TN08010202003_0100	22.1
Coon Creek	TN08010202001_1100	11.1
Cub Branch	TN08010202036_0150	8.9
Cupp Branch	TN08010202018_0300	4.1
Cypress Creek	TN08010202014_1000	10.7
Cypress Creek	TN08010202500_1000	12.1
Cypress Creek Branch	TN08010202014_0100	6.3
Daugherty Creek	TN08010202029_0400	4.8
Davidson Creek	TN08010202026_1000	14.6
Deer Creek	TN08010202025_0100	15.7
Dillard Creek	TN08010202001_0800	12.7
Dry Creek	TN08010202001_0600	6.8
Dry Creek	TN08010202009_1100	6.3
Flat Branch	TN08010202001_0400	4.9
Grass Creek	TN08010202001_0700	31.7
Hamblin Branch	TN08010202036_0110	5.1
Harris Fork Creek	TN08010202025_1000	9.6
Hicks Branch	TN08010202025_0200	7.1
Hoosier Creek	TN08010202419_1000	10.3
Johnson Creek	TN08010202001_0200	10.9
Jones Branch	TN08010202024_0400	5.2
Jones Creek	TN08010202009_2500	2.6
Kilham Creek	TN08010202036_0220	28.6
Little Cane Creek	TN08010202018_0200	7.4
Little Cypress Creek	TN08010202500_0100	14.4
Little Richland Creek	TN08010202027_0100	14.6
Mayo Branch	TN08010202009_1900	7.4
Mill Creek	TN08010202009_1200	12.8
Mill Creek	TN08010202948_1000	17.2
Misc Tribs to Biffle Creek	TN08010202054_0999	20.4
Misc Tribs to Cane Creek	TN08010202018_0999	25.3

Table A3-3b.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Misc tribs to Clover Creek	TN08010202028_0999	18.7
Misc Tribs to Cypress Creek	TN08010202014_0999	30.2
Misc Tribs to Cypress Creek	TN08010202500_0999	19.3
Misc Tribs to Davidson Creek	TN08010202026_0999	22.2
Misc Tribs to Harris Fork Creek	TN08010202025_0999	15.2
Misc Tribs to Hoosier Creek	TN08010202419_0999	16.4
Misc Tribs to Mill Creek	TN08010202948_0999	26.0
Misc Tribs to North Fork Obion River	TN08010202009_0999	161.2
Misc Tribs to North Reelfoot Creek	TN08010202036_0199	47.8
Misc Tribs to Obion River	TN08010202001_0999	54.0
Misc Tribs to Reeds Creek	TN08010202003_0999	28.7
Misc Tribs to Reelfoot Lake	TN08010202040T_0999	16.2
Misc Tribs to Richland Creek	TN08010202024_0999	16.1
Misc Tribs to Richland Creek	TN08010202027_0999	11.2
Misc Tribs to Running Reelfoot Bayou	TN08010202029_0999	36.4
Misc Tribs to South Reelfoot Creek	TN08010202036_0299	26.4
Mulherin Creek	TN08010202003_0300	12.0
Murray Creek	TN08010202001_0900	6.4
North Reelfoot Creek	TN08010202036_0100	20.6
Opossum Branch	TN08010202036_0170	3.3
Parker Branch	TN08010202003_0200	10.0
Phillips Creek	TN08010202009_1400	4.3
Raccoon Creek	TN08010202009_0510	3.8
Richland Creek	TN08010202024_1000	12.2
Richland Creek	TN08010202027_1000	11.2
Rockspring Branch	TN08010202026_0200	4.2
Rogers Creek	TN08010202036_0230	9.8
Rowe Creek	TN08010202009_1500	9.0
Rush Slough	TN08010202001_1200	5.6
Sandy Branch	TN08010202009_0300	8.2
Sandy Branch	TN08010202009_0900	6.9
Simpson Branch	TN08010202009_0400	3.9
Snapneck Creek	TN08010202036_0130	1.0
South Reelfoot Creek	TN08010202036_0200	13.7
Spring Hill Creek	TN08010202009_1700	11.6
Stephens Creek	TN08010202009_2300	9.2
Sugar Creek	TN08010202009_0810	6.5
Sugar Creek	TN08010202036_0210	7.4
Taylor Creek	TN08010202036_0160	10.5
Thompson Branch	TN08010202009_2100	4.9
Tommy Creek	TN08010202009_0200	7.4

Table A3-3c.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Town Creek	TN08010202054_0100	5.2
Trouble Creek	TN08010202024_0300	4.7
Troy Creek	TN08010202026_0100	25.1
Tull Creek	TN08010202036_0120	1.1
Unnamed trib to Harris Fork Creek	TN08010202025_0300	9.8
Unnamed Trib to Hoosier Creek	TN08010202419_0100	17.2
Unnamed Trib to Hoosier Creek	TN08010202419_0200	6.0
Unnamed Trib to Hoosier Creek	TN08010202419_0300	6.3
Unnamed Trib to Hurricane Creek	TN08010202009_0711	5.2
Unnamed Trib to Mill Creek	TN08010202948_0100	3.5
Unnamed Trib to North Fork Obion River	TN08010202009_0100	20.6
Unnamed Trib to Obion River	TN08010202001_0100	25.8
Vowell Branch	TN08010202009_2600	2.6
Walnut Fork Creek	TN08010202009_1800	37.1
Walnut Grove Branch	TN08010202024_0200	6.2
Wolf Creek	TN08010202024_0100	5.3
Wright Branch	TN08010202014_0200	9.9
Zion Creek	TN08010202048_0100	11.8

Table A3-3d.

Table A3-3a-d. Streams Not Assessed for the Designated Use of Recreation in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Birds Creek	TN08010202009_1600	10.7
Blackamore Creek	TN08010202009_0500	3.3
Burnt Mill Hollow Creek	TN08010202001_0500	6.8
Cane Creek	TN08010202018_1000	6.3
Clear Creek	TN08010202009_1300	12.5
Cypress Creek	TN08010202014_1000	10.7
Mill Creek	TN08010202009_1200	12.8
North Fork Obion River	TN08010202009_2000	8.9
North Fork Obion River	TN08010202009_3000	19.6
North Fork Obion River	TN08010202009_4000	11.8
Paw Paw Creek	TN08010202029_0100	20.9
Powell Creek	TN08010202009_0600	14.7
Rock Branch	TN08010202029_0200	1.6
Rowe Creek	TN08010202009_1500	9.0
Terrapin Creek	TN08010202009_0800	15.7

Table A3-4. Streams Fully Supporting for the Designated Use of Fish & Aquatic life in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Bayou Du Chien	TN08010202041_1000	5.3
Biffle Creek	TN08010202054_1000	7.8
Camp Ground Creek	TN08010202009_2400	20.5
Clover Creek	TN08010202028_1000	11.7
Cloverdale Creek	TN08010202048_1000	8.7
Cypress Creek	TN08010202500_1000	12.1
Davidson Creek	TN08010202026_1000	14.6
Dry Creek	TN08010202001_0600	6.8
Dry Creek	TN08010202009_1100	6.3
Harris Fork Creek	TN08010202025_1000	9.6
Hoosier Creek	TN08010202419_1000	10.3
Hurricane Creek	TN08010202009_0710	13.6
Indian Creek	TN08010202040T_0500	11.5

Table A3-5a.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Mayo Branch	TN08010202009_1900	7.4
Mill Creek	TN08010202948_1000	17.2
Murray Creek	TN08010202001_0900	6.4
North Fork Obion River	TN08010202009_1000	14.6
Obion River	TN08010202001_1000	28.6
Obion River	TN08010202001_2000	23.0
Obion River	TN08010202001_3000	14.0
Obion River	TN08010202001_4000	7.6
Parker Branch	TN08010202003_0200	10.0
Reeds Creek	TN08010202003_1000	8.3
Reelfoot Creek	TN08010202036_1000	8.0
Richland Creek	TN08010202024_1000	12.2
Richland Creek	TN08010202027_1000	11.2
Running Reelfoot Bayou	TN08010202029_1000	23.8
Spring Hill Creek	TN08010202009_1700	11.6
Stephens Creek	TN08010202009_2300	9.2
Tommy Creek	TN08010202009_0200	7.4
Unnamed Trib to Obion River	TN08010202001_0100	25.8

Table A3-5b.

Table A3-5a-b. Streams Not Supporting the Designated Use of Fish & Aquatic life in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Aldridge Creek	TN08010202001_0300	6.9
Benson Branch	TN08010202009_0610	3.3
Big Ronaldson Slough	TN08010202040T_0100	7.3
Big Sandy Creek	TN08010202040T_0300	4.8
Biggs Creek	TN08010202009_0700	2.2
Black Bayou	TN08010202040T_0200	7.5
Black Slough	TN08010202040T_0400	2.2
Bogus Creek	TN08010202036_0300	6.9
Brown Creek	TN08010202029_0300	7.9
Brundige Branch	TN08010202009_2200	3.4
Cane Creek	TN08010202036_0140	5.9
Cane Creek Branch	TN08010202018_0100	6.6
Carroll Creek	TN08010202029_0110	4.4
Claypit Branch	TN08010202014_0300	3.8
Cool Springs Branch	TN08010202003_0100	22.1
Coon Creek	TN08010202001_1100	11.1
Cub Branch	TN08010202036_0150	8.9
Cupp Branch	TN08010202018_0300	4.1
Cypress Creek Branch	TN08010202014_0100	6.3
Daugherty Creek	TN08010202029_0400	4.8
Deer Creek	TN08010202025_0100	15.7
Dillard Creek	TN08010202001_0800	12.7
Flat Branch	TN08010202001_0400	4.9
Grass Creek	TN08010202001_0700	31.7
Hamblin Branch	TN08010202036_0110	5.1
Hicks Branch	TN08010202025_0200	7.1
Johnson Creek	TN08010202001_0200	10.9
Jones Branch	TN08010202024_0400	5.2
Jones Creek	TN08010202009_2500	2.6
Kilham Creek	TN08010202036_0220	28.6
Little Cane Creek	TN08010202018_0200	7.4
Little Cypress Creek	TN08010202500_0100	14.4
Little Richland Creek	TN08010202027_0100	14.6
Misc Tribs to Biffle Creek	TN08010202054_0999	20.4
Misc Tribs to Cane Creek	TN08010202018_0999	25.3
Misc tribs to Clover Creek	TN08010202028_0999	18.7
Misc Tribs to Cypress Creek	TN08010202014_0999	30.2
Misc Tribs to Cypress Creek	TN08010202500_0999	19.3
Misc Tribs to Davidson Creek	TN08010202026_0999	22.2
Misc Tribs to Harris Fork Creek	TN08010202025_0999	15.2
Misc Tribs to Hoosier Creek	TN08010202419_0999	16.4
Misc Tribs to Mill Creek	TN08010202948_0999	26.0

Table A3-6a.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Misc Tribs to North Fork Obion River	TN08010202009_0999	161.2
Misc Tribs to North Reelfoot Creek	TN08010202036_0199	47.8
Misc Tribs to Obion River	TN08010202001_0999	54.0
Misc Tribs to Reeds Creek	TN08010202003_0999	28.7
Misc Tribs to Reelfoot Lake	TN08010202040T_0999	16.2
Misc Tribs to Richland Creek	TN08010202024_0999	16.1
Misc Tribs to Richland Creek	TN08010202027_0999	11.2
Misc Tribs to Running Reelfoot Bayou	TN08010202029_0999	36.4
Misc Tribs to South Reelfoot Creek	TN08010202036_0299	26.4
Mulherin Creek	TN08010202003_0300	12.0
North Reelfoot Creek	TN08010202036_0100	20.6
Opossum Branch	TN08010202036_0170	3.3
Phillips Creek	TN08010202009_1400	4.3
Raccoon Creek	TN08010202009_0510	3.8
Rockspring Branch	TN08010202026_0200	4.2
Rogers Creek	TN08010202036_0230	9.8
Rush Slough	TN08010202001_1200	5.6
Sandy Branch	TN08010202009_0300	8.2
Sandy Branch	TN08010202009_0900	6.9
Simpson Branch	TN08010202009_0400	3.9
Snapneck Creek	TN08010202036_0130	1.0
South Reelfoot Creek	TN08010202036_0200	13.7
Sugar Creek	TN08010202009_0810	6.5
Sugar Creek	TN08010202036_0210	7.4
Taylor Creek	TN08010202036_0160	10.5
Thompson Branch	TN08010202009_2100	4.9
Town Creek	TN08010202054_0100	5.2
Trouble Creek	TN08010202024_0300	4.7
Troy Creek	TN08010202026_0100	25.1
Tull Creek	TN08010202036_0120	1.1
Unnamed trib to Harris Fork Creek	TN08010202025_0300	9.8
Unnamed Trib to Hoosier Creek	TN08010202419_0100	17.2
Unnamed Trib to Hoosier Creek	TN08010202419_0200	6.0
Unnamed Trib to Hoosier Creek	TN08010202419_0300	6.3
Unnamed Trib to Hurricane Creek	TN08010202009_0711	5.2
Unnamed Trib to Mill Creek	TN08010202948_0100	3.5
Unnamed Trib to North Fork Obion River	TN08010202009_0100	20.6
Vowell Branch	TN08010202009_2600	2.6
Walnut Fork Creek	TN08010202009_1800	37.1
Walnut Grove Branch	TN08010202024_0200	6.2
Wolf Creek	TN08010202024_0100	5.3

Table A3-6b.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Wright Branch	TN08010202014_0200	9.9
Zion Creek	TN08010202048_0100	11.8

Table A3-6c.

Table A3-6a-c. Streams Not Assessed for the Designated Use of Fish & Aquatic Life in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Blue Basin	TN08010202040_1000	10950

Table A3-7. Lake Fully Supporting the Designated Use of Recreation in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (ACRES)
Buck Basin	TN08010202040_2000	2900
Upper Blue Basin	TN08010202040_3000	1650

Table A3-8. Lakes Not Supporting the Designated Use of Recreation in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Blue Basin	TN08010202040_1000	10950
Buck Basin	TN08010202040_2000	2900
Upper Blue Basin	TN08010202040_3000	1650

Table A3-9. Lakes Not Supporting the Designated Use of Fish & Aquatic life in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Bayou Du Chien	TN08010202041_1000	5.3
Hurricane Creek	TN08010202009_0710	13.6
Reelfoot Creek	TN08010202036_1000	8.0
Running Reelfoot Bayou	TN08010202029_1000	23.8

Table A3-10. Stream Segments Impaired Due to Nutrients in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Biggs Creek	TN08010202009_0700	2.2
Hurricane Creek	TN08010202009_0710	13.6
Obion River	TN08010202001_4000	7.6
Reelfoot Creek	TN08010202036_1000	8.0

Table A3-11. Stream Segments Impaired Due to Escherichia coli in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Bayou Du Chien	TN08010202041_1000	5.3
Biffle Creek	TN08010202054_1000	7.8
Camp Ground Creek	TN08010202009_2400	20.5
Clover Creek	TN08010202028_1000	11.7
Cloverdale Creek	TN08010202048_1000	8.7
Cypress Creek	TN08010202500_1000	12.1
Davidson Creek	TN08010202026_1000	14.6
Dry Creek	TN08010202001_0600	6.8
Dry Creek	TN08010202009_1100	6.3
Harris Fork Creek	TN08010202025_1000	9.6
Hoosier Creek	TN08010202419_1000	10.3
Hurricane Creek	TN08010202009_0710	13.6
Indian Creek	TN08010202040T_0500	11.5
Mayo Branch	TN08010202009_1900	7.4
Mill Creek	TN08010202948_1000	17.2
Murray Creek	TN08010202001_0900	6.4
North Fork Obion River	TN08010202009_1000	14.6
Obion River	TN08010202001_1000	28.6
Obion River	TN08010202001_2000	23.0
Obion River	TN08010202001_3000	14.0
Obion River	TN08010202001_4000	7.6
Parker Branch	TN08010202003_0200	10.0
Reeds Creek	TN08010202003_1000	8.3
Reelfoot Creek	TN08010202036_1000	8.0
Richland Creek	TN08010202024_1000	12.2
Richland Creek	TN08010202027_1000	11.2
Running Reelfoot Bayou	TN08010202029_1000	23.8
Spring Hill Creek	TN08010202009_1700	11.6
Stephens Creek	TN08010202009_2300	9.2
Tommy Creek	TN08010202009_0200	7.4
Unnamed Trib to Obion River	TN08010202001_0100	25.8

Table A3-12. Table A3-12a. Stream Segments Impaired Due to Siltation in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (ACRES)
Buck Basin	TN08010202040_2000	2900
Upper Blue Basin	TN08010202040_3000	1650

Table A3-13. Lake Impairment Due to Nutrients in the Tennessee Portion of the Obion River (North Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (ACRES)
Buck Basin	TN08010202040_2000	2900
Upper Blue Basin	TN08010202040_3000	1650

Table A3-14. Lake Impairment Due to Siltation in the Tennessee Portion of the Obion River (North Fork) Watershed.

WATERBODY ID	WATERBODY NAME	TOTAL SEGMENT MILES IMPAIRED	HUC-12
TN08010202014_0300	Claypit Branch	3.80	080102020202
TN08010202014_0400	Strawberry Branch	1.92	080102020202
TN08010202014_0500	Owl Branch	2.73	080102020202
TN08010202024_0100	Wolf Creek	5.30	080102020204
TN08010202024_0200	Walnut Grove Branch	6.20	080102020204
TN08010202024_0400	Jones Branch	5.20	080102020204
TN08010202024_0300	Trouble Creek	4.70	080102020204
TN08010202001_0200	Johnson Creek	10.90	080102020308
TN08010202048_0100	Zion Creek	11.80	080102020308
TN08010202003_0100	Cool Springs Branch	22.10	080102020309
TN08010202036_0100	North Reelfoot Creek	20.60	080102020401
TN08010202036_0120	Tull Creek	1.10	080102020401
TN08010202036_0160	Taylor Creek	10.50	080102020401
TN08010202036_0200	South Reelfoot Creek	13.70	080102020401
TN08010202036_1000	Reelfoot Creek	8.00	080102020401
TN08010202036_0200	South Reelfoot Creek	13.70	080102020402

Table A3-15. Streams Added to the 2008 303(d) List in the Tennessee Portion of the Obion River (North Fork) Watershed. *For more information see Tennessee's 2008 303(d) List at: http://www.state.tn.us/environment/wpc/publications/2008_303d.pdf .*

WATERBODY ID	WATERBODY NAME	TOTAL SEGMENT MILES/ACRES IMPAIRED	CAUSE/POLLUTANT	HUC-12
TN08010202009_2300	Stephens Creek	9.2	Loss of Biological Integrity due to Siltation, Alteration in Stream-Side or Littoral Vegetative Cover	080102020201
TN08010202009_2400	Camp Ground Creek	20.5	Alteration in Stream-Side or Littoral Vegetative Cover	080102020203
TN08010202001_0600	Dry Creek	6.8	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102020301
TN08010202026_1000	Davidson Creek	14.6	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102020301
TN08010202948_1000	Mill Creek	17.2	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102020301
TN08010202026_1000	Davidson Creek	14.6	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102020302
TN08010202948_1000	Mill Creek	17.2	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102020305
TN08010202001_0900	Murray Creek	6.4	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102020308
TN08010202003_0200	Parker Branch	10.0	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102020309
TN08010202001_0100	UT to Obion River	25.8	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102020311
TN08010202001_0100	UT to Obion River	25.8	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102020312
TN08010202040_1000	Blue Basin of Reelfoot Lake	10950.0ac	pH	080102020403
TN08010202041_1000	Bayou Du Chien	5.3	Nutrients, Loss of Biological Integrity due to Siltation, Low Dissolved Oxygen	080102020403

Table A3-16. Streams (or pollutants) Delisted Since the 2006 303(d) List in the Tennessee Portion of the Obion River (North Fork) Watershed. *UT, Unnamed Tributary. For more information see Tennessee's 2008 303(d) List at: http://www.state.tn.us/environment/wpc/publications/2008_303d.pdf .*

WATERBODY	DESCRIPTION	BASIS FOR	HUC-12
Bayou du Chien	Portion in Tennessee from Upper Blue Basin of Reelfoot Lake to Kentucky state line.	Reelfoot State Natural Area, Reelfoot National Wildlife Refuge, WPC ecoregion reference stream for 73a, state threatened Yellow Water-crowfoot, Copper Iris and Bristly Sedge	080102020403
Big Ronaldson Slough	Portion within state natural areas and NWR. Through Reelfoot State Natural Area to Willow Bar Cutoff.	Reelfoot National Wildlife Refuge, Reelfoot State Natural Area, Small Lake State Natural Area, state threatened Yellow Water-crowfoot and Bristly Sedge.	080102020403
Big Sandy Creek	Portion in Reelfoot Lake Wildlife Refuge and Reelfoot Lake State Natural Area from the wildlife refuge boundary to confluence of Reelfoot Lake's Upper Blue Basin.	Reelfoot Lake Wildlife Refuge and Reelfoot State Natural Area	080102020403
Black Bayou	Portions in Black Bayou Wildlife Refuge and Reelfoot State Natural area from Black Bayou Wildlife Refuge boundary near Hwy 78 to confluence of Big Ronaldson Slough including four intermittent tributaries to Black Bayou within the Wildlife Refuge.	Black Bayou Wildlife Refuge, Reelfoot State Natural Area, state threatened Yellow Water-crowfoot	080102020403
Black Slough	Portions in Reelfoot Lake State Park and Reelfoot NWR from state park boundary to confluence of Reelfoot Lake's Upper Blue Basin.	Reelfoot Lake State Park, Reelfoot National Wildlife Refuge, state threatened Bristly Sedge	080102020403
Buzzard Slough	Entire slough is ONRW in Reelfoot NWR and Reelfoot State Natural Area. Slough is located along the east side of Horse Island in Buck Basin of Reelfoot Lake.	Included in Reelfoot Lake ONRW, Reelfoot National Wildlife Refuge and Reelfoot State Natural Area.	080102020403
Donaldson Ditch	Entire ditch is Outstanding National Resource Waters (ONRW) connecting Goose Pen of Reelfoot Lake and Upper Blue Basin of Reelfoot Lake.	Included in Reelfoot Lake ONRW, Reelfoot Lake State Wildlife Refuge, Reelfoot Lake National Wildlife Refuge and Reelfoot State Natural Area	080102020403
Green Island Cutoff	Entire waterbody is ONRW connecting Grooms Pocket of Reelfoot Lake through Reelfoot State Natural Area to Rat Island Pocket of Reelfoot Lake.	Included in Reelfoot Lake ONRW, Reelfoot National Wildlife Refuge and Reelfoot State Natural Area	080102020403
Horse Island Ditch	Entire waterbody is ONRW connecting Starve Pond of Reelfoot Lake through Horse Island of Reelfoot State Natural Area into Buzzard Slough in Reelfoot Lake.	Included in Reelfoot Lake ONRW, Reelfoot National Wildlife Refuge and Reelfoot State Natural Area	080102020403
Indian Creek	Portions in Reelfoot Lake Wildlife Refuge and Reelfoot State Natural area from the Natural Area boundary to Reelfoot Lake's Buck Basin.	Reelfoot Lake Wildlife Refuge and Reelfoot State Natural Area	080102020403

Table A3-17a.

WATERBODY	DESCRIPTION	BASIS FOR	HUC-12
Lake Isom	Entire lake.	Lake Isom National Wildlife Refuge	080102020406
North Fork Obion River	From Cane Creek to Headwaters.	State threatened Water Purslane (Didiplis diandra) and Halberd-leaf Tearthumb (Polygonum arifolium). Numerous records of firebelly darter (deemed in need of management).	080102020101
North Fork Obion River	From Cane Creek to Headwaters.	State threatened Water Purslane (Didiplis diandra) and Halberd-leaf Tearthumb (Polygonum arifolium). Numerous records of firebelly darter (deemed in need of management).	080102020102
North Fork Obion River	From Cane Creek to Headwaters.	State threatened Water Purslane (Didiplis diandra) and Halberd-leaf Tearthumb (Polygonum arifolium). Numerous records of firebelly darter (deemed in need of management).	080102020104
Obion River	From Mississippi River to the ecoregion break near Lane.	Federal and state endangered Pallid Sturgeon.	080102020308
Obion River	From Mississippi River to the ecoregion break near Lane.	Federal and state endangered Pallid Sturgeon.	080102020311
Obion River	From Mississippi River to the ecoregion break near Lane.	Federal and state endangered Pallid Sturgeon.	080102020313
Paw Paw Creek	From Running Reelfoot Bayou to headwaters including North and South Branches.	Exceptional biological diversity. WPC ecoregion reference stream for 74a.	080102020405
Paw Paw Creek	From Running Reelfoot Bayou to headwaters including North and South Branches.	Exceptional biological diversity. WPC ecoregion reference stream for 74a.	080102020406
Rag Point Ditch	Entire ditch is Outstanding National Resource Waters connecting Rushing Pond of Reelfoot Lake to Buck Basin of Reelfoot Lake.	Included in Reelfoot Lake ONRW, Reelfoot Lake Wildlife Refuge, Reelfoot State Natural Area	080102020403
Reelfoot Lake including Upper Blue Basin, Buck Basin, Blue Basin, surrounding wetlands and associated waters connecting these basins.	Tennessee portion of the lake and its associated basins, pockets, sloughs, ditches, bayous and wetlands is ONRW.	Outstanding National Resource Water (ONRW). Reelfoot Lake National Wildlife Refuge, Reelfoot Lake State Park, Reelfoot Lake State Wildlife Refuge, Reelfoot State Natural Area, state threatened Yellow Water-crowfoot and Copper Iris.	080102020403
Running Reelfoot Bayou	Portion from Reelfoot Lake's Blue Basin in Reelfoot Lake State Park to the south boundary of Reelfoot NWR near Isom Lake Rd.	Lake Isom National Wildlife Refuge, Reelfoot Lake State Park	080102020403
Running Reelfoot Bayou	Portion from Reelfoot Lake's Blue Basin in Reelfoot Lake State Park to the south boundary of Reelfoot NWR near Isom Lake Rd.	Lake Isom National Wildlife Refuge, Reelfoot Lake State Park	080102020406
Rushing Pond	Entire pond is connected to Reelfoot Lake and is Outstanding National Resource Waters.	Included in Reelfoot Lake ONRW, Reelfoot Lake Wildlife Refuge and Reelfoot State Natural Area	080102020403

Table A3-17b.

WATERBODY	DESCRIPTION	BASIS FOR	HUC-12
Samburg Ditch	Entire ditch is Outstanding National Resource Waters connecting Forked Pond of Reelfoot Lake through First Pocket of Reelfoot Lake into Joe Basin of Reelfoot Lake.	Included in Reelfoot Lake ONRW, Reelfoot State Natural Area and Reelfoot Lake Wildlife Refuge	080102020403
Sandy Branch	From Terrapin Creek to unnamed tributary near Kuykendall Road.	State threatened Halberd-Leaf Tearthumb.	080102020103
Terrapin Creek UT	From Terrapin Creek to origin.	State threatened Halberd-Leaf Tearthumb.	080102020103
Walnut Log Ditch	Entire ditch is Outstanding National Resource Waters connecting Upper Blue Basin of Reelfoot Lake to Bayou du Chien.	Included in Reelfoot Lake ONRW, Reelfoot Lake State Natural Area, state threatened Yellow Water-crowfoot	080102020403
Willow Bar Cutoff	Entire waterbody is ONRW connecting Rat Island Pocket of Reelfoot Lake through Reelfoot State Natural Area into Reelfoot Lake on the northeast side of Willow Towhead.	Included in Reelfoot Lake ONRW, Reelfoot National Wildlife Refuge and Reelfoot State Natural Area	080102020403

Table A3-17c.

Table A3-17a-c. Known High Quality Waters in the Tennessee Portion of the Obion River (North Fork) Watershed as of September 2008. *The most recently published list is available at www.state.tn.us/environment/wpc/publications/hqwlist.mht. NWR, National Wildlife Refuge; ONRW, Outstanding National Resource Water.*

APPENDIX IV

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0101	0102	0103	0104	0105
Bare Rock/Sand/Clay	4				1
Deciduous Forest	19,440	4,744	3,969	10,428	7919
Developed Open Space	1,772	553	183	1,189	936
Emergent Herbaceous Wetlands	11	5	1	22	1
Evergreen Forest	736	85	107	722	1065
Grassland/Herbaceous	1291	167	328	467	570
High Intensity Development	12	6	1	3	15
Low Intensity Development	27	5	2	5	6
Medium Intensity Development	12	10		6	8
Mixed Forest	1	1			
Open Water	182	52	2	27	17
Pasture/Hay	6619	2,350	484	2,744	2,473
Row Crops	11,482	6,173	1,154	12,983	6,355
Shrub/Scrub	112	34	89	107	178
Woody Wetlands	1,268	378	491	4,473	732
Total	**43,469**	**14,563**	**6,811**	**33,176**	**20,276**

Table A4-1a.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0106	0107	0201	0202	0203
Bare Rock/Sand/Clay					
Deciduous Forest	1,627	1,060	4,177	10,188	5,612
Developed Open Space	142	165	721	1,452	1205
Emergent Herbaceous Wetlands	1		52	18	41
Evergreen Forest	440	30	272	1,162	604
Grassland/Herbaceous	117	12	124	532	205
High Intensity Development					
Low Intensity Development		1	4	11	79
Medium Intensity Development		3	1	2	8
Mixed Forest					
Open Water	1	2	18	169	151
Pasture/Hay	206	406	991	3,753	2,375
Row Crops	1,430	1,759	5,130	7,284	10,608
Shrub/Scrub	14	27	30	206	42
Woody Wetlands	1428	273	3,807	1,832	4,337
Total	**5,406**	**2,738**	**15,327**	**26,609**	**25,267**

Table A4-1b.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0204	0205	0206	0207	0208
Bare Rock/Sand/Clay					
Deciduous Forest	4,619	811	2,575	490	1,252
Developed Open Space	1,259	754	1,858	1,488	2,032
Emergent Herbaceous Wetlands	10	23	18	16	39
Evergreen Forest	107	19	89	38	120
Grassland/Herbaceous	11		1		9
High Intensity Development	3	19	35	45	257
Low Intensity Development	86	119	336	564	727
Medium Intensity Development	5	15	53	88	337
Mixed Forest					
Open Water	57	198	57	45	19
Pasture/Hay	2,623	313	2,070	742	857
Row Crops	10,816	10,717	14,373	6,445	15,412
Shrub/Scrub	66	18	69	8	13
Woody Wetlands	1,384	3,354	2,278	763	745
Total	**21,046**	**16,360**	**23,812**	**10,732**	**21,819**

Table A4-1c.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0209	0210	0301	0302	0303
Bare Rock/Sand/Clay				7	
Deciduous Forest	1,047	266	1,538	3,040	342
Developed Open Space	1,463	505	1,607	1,139	771
Emergent Herbaceous Wetlands	20	66	58	10	11
Evergreen Forest	48	1	18	56	3
Grassland/Herbaceous			10	85	
High Intensity Development		4	5	23	2
Low Intensity Development	70	36	149	113	4
Medium Intensity Development	4	2	25	43	
Mixed Forest					
Open Water	25	151	358	71	5
Pasture/Hay	745	247	1,178	2,989	41
Row Crops	14,298	5,949	20,720	11,146	9,613
Shrub/Scrub	42	28	31	58	16
Woody Wetlands	1,502	835	12,691	582	391
Total	**19,264**	**8,090**	**38,388**	**19,362**	**11,199**

Table A4-1d.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0304	0305	0306	0307	0308
Bare Rock/Sand/Clay		1	2		
Deciduous Forest	196	2,135	2,796	2,661	3,797
Developed Open Space	424	773	670	511	1,408
Emergent Herbaceous Wetlands	1	1	3	3	31
Evergreen Forest	29	34	22	22	33
Grassland/Herbaceous		51	80	72	186
High Intensity Development			1		
Low Intensity Development	3	82	73	7	36
Medium Intensity Development	3	15	2		4
Mixed Forest					
Open Water	8	36	34	17	232
Pasture/Hay	62	2,651	2,390	2,471	2,501
Row Crops	5,526	5,472	4,804	4,296	21,376
Shrub/Scrub	9	22	47	116	52
Woody Wetlands	213	449	661	439	4,011
Total	**6,474**	**11,722**	**11,585**	**10,615**	**33,667**

Table A4-1e.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0309	0310	0311	0312	0313
Bare Rock/Sand/Clay					
Deciduous Forest	1,064	499	3,352	703	366
Developed Open Space	2,123	1,063	675	621	685
Emergent Herbaceous Wetlands	26	7	25	8	13
Evergreen Forest	70	17	40	2	5
Grassland/Herbaceous		2	311	10	
High Intensity Development	6	4			
Low Intensity Development	154	114	125	59	202
Medium Intensity Development	14	15	2		3
Mixed Forest					
Open Water	79	26	326	4	1,118
Pasture/Hay	330	715	346	565	
Row Crops	27,952	9,116	9,571	9,235	22,191
Shrub/Scrub	59	37	28	40	22
Woody Wetlands	2,363	689	2,264	882	6,928
Total	**34,240**	**12,304**	**17,065**	**12,129**	**31,533**

Table A4-1f.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0314	0401	0402	0403	0404
Bare Rock/Sand/Clay				34	
Deciduous Forest	340	7,918	8,347	4,111	4,035
Developed Open Space	223	1,950	1,304	1,356	131
Emergent Herbaceous Wetlands	31	27	20	162	3
Evergreen Forest	2	71	22	25	2
Grassland/Herbaceous		185	167	105	79
High Intensity Development		7	6	4	
Low Intensity Development	53	44	10	158	
Medium Intensity Development	4	6	4	16	
Mixed Forest					
Open Water	125	387	454	9,687	74
Pasture/Hay		3,228	8,221	151	349
Row Crops	11,575	20,876	5,520	15,280	489
Shrub/Scrub		71	151	92	54
Woody Wetlands	245	2,648	1,262	16,238	210
Total	**12,598**	**37,418**	**25,488**	**47,419**	**5,426**

Table A4-1g.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)	
	0405	0406
Bare Rock/Sand/Clay		2
Deciduous Forest	6,480	4,938
Developed Open Space	288	2,066
Emergent Herbaceous Wetlands	6	16
Evergreen Forest	12	27
Grassland/Herbaceous	224	360
High Intensity Development	2	21
Low Intensity Development	4	224
Medium Intensity Development	1	30
Mixed Forest		
Open Water	6	380
Pasture/Hay	1,227	259
Row Crops	706	33,663
Shrub/Scrub	55	34
Woody Wetlands	606	2,545
Total	**9,617**	**44,565**

Table A4-1h.

Tables A4-1a-h. Land Use Distribution in the Tennessee Portion of the Obion River (North Fork) Watershed by HUC-12. *Data are from 2001 Multi-Resolution Land Characterization (MRLC) derived by applying a generalized Anderson Level II system to mosaics of Landsat thematic mapper images collected every five years.*

HYDROLOGIC SOIL GROUPS
GROUP A SOILS have low runoff potential and high infiltration rates even when wet. They consist chiefly of sand and gravel and are well to excessively drained.
GROUP B SOILS have moderate infiltration rates when wet and consist chiefly of soils that are moderately deep to deep, moderately to well drained, and moderately coarse to coarse textures.
GROUP C SOILS have low infiltration rates when wet and consist chiefly of soils having a layer that impedes downward movement of water with moderately fine to fine texture.
GROUP D SOILS have high runoff potential, very low infiltration rates, and consist chiefly of clay soils.

Table A4-2. Hydrologic Soil Groups in Tennessee as Described in WCS. *Soils are grouped into four hydrologic soil groups that describe a soil's permeability and, therefore, its susceptibility to runoff.*

STATION	LOCATION	HUC 12	AREA (SQ MILES)	LOW FLOW (CFS)		
				1Q10	7Q10	3Q20
07025400	North Fork Obion River	080102020203	372.00			
07025500	North Fork Obion River	080102020205	480.00			
07026000	Obion River	080102020301	1,852.00		265.5560	241.0180
07026040	Obion River	080102020301				
07026300	Obion River	080102020308				
07026370	North Reelfoot Creek	080102020401				
07026500	Reelfoot Creek	080102020401	110.00		0.0000	0.0000
07026400	South Reelfoot Creek	080102020402				
07026795	Indian Creek	080102020404				
07027010	Running Reelfoot Bayou	080102020406				

Table A4-3. United States Geological Survey Continuous Record Gaging Stations in the Tennessee Portion of the Obion River (North Fork) Watershed. *Additional information may be found at:* http://water.usgs.gov/osw/streamstats/

AGENCY	STATION	LOCATION	HUC 12
TDEC	BEAVE001.5HN	Beaverdam Creek @ RM 1.5	080102020101
TDEC	BIRDS001.8HN	Birds Creek @ RM 1.8	080102020101
TDEC	CLEAR001.2HN	Clear Creek @ RM 1.2	080102020101
TDEC	DRY000.3HN	Dry Creek @ RM 0.3	080102020101
TDEC	ECO74B01	Terrapin Creek	080102020103
TDEC	HURRI000.7WY	Hurricane Creek @ RM 0.7	080102020104
USCOE	I	North Fork Obion River	080102020104
TDEC	CANE001.8WY	Cane Creek @ RM 1.8	080102020105
TDEC	ECO74B04	Powell Creek	080102020106
TDEC	BLACK001.8WY	Blackmore Creek @RM 1.8	080102020107
TDEC	BLACK002.2WY	Balckmore Creek @ RM 2.2	080102020107
TDEC	CYPRE000.6WY	Cypress Creek @ RM 0.6	080102020202
TDEC	CYPRE003.8WY	Cypress Creek @ RM 3.8	080102020202
TDEC	CGROU001.2WY	Campground Creek @ RM 1.2	080102020203
TDEC	1997	North Fork Obion @ RM 18.0	080102020205
TDEC	1998	North Fork Obion @ RM 10.0	080102020205
TDEC	1999	North Fork Obion @ RM 5.9	080102020205
USCOE	J	North Fork Obion River	080102020205
TDEC	1410	Harris Fork @ RM 8.9	080102020206
TDEC	CYPRE002.7OB	Cypress Creek @ RM 2.7	080102020209
TDEC	2000	North Fork Obion @ RM 4.6	080102020210
TDEC	2026	Obion River @ RM 62.4	080102020301
TDEC	BMHOL002.2OB	Burnt Mill Hollow Creek @ RM 2.2	080102020301
TDEC	DRY000.9OB	Dry Creek @ RM 0.9	080102020301
TDEC	DAVID002.6OB	Davidson Creek @ RM 2.6	080102020302
TDEC	CLOVE001.4OB	Clover Creek @ RM 1.4	080102020307
TDEC	CSPRI002.4DY	Cool Springs Branch @ RM 2.4	080102020309
TDEC	BIFFL003.0DY	Biffle Creek @ RM 3.0	080102020310
TDEC	OBION020.9DY	Obion River @ RM 20.9	080102020311
TDEC	2027	Obion River @ RM 20.9	080102020313
TDEC	2030	Obion River @ RM 8.4	080102020313
TDEC	TSPI7	Forked Deer River	080102020313
TDEC	TSPI9	Obion River	080102020313
TDEC	NREEL002.5OB	North Reelfoot Creek @ RM 2.5	080102020401
TDEC	REELFOOTCRLK07	Reelfoot Creek Lake	080102020401
TDEC	REELFOOTCRLK10	Reelfoot Creek Lake	080102020401
TDEC	REELFOOTCRLK15	Reelfoot Creek Lake	080102020401
TDEC	REELFOOTLKIS07	Reelfoot Creek Lake	080102020401
TDEC	REELFTI2	Reelfoot Creek Lake	080102020401

Table A4-4a.

AGENCY	STATION	LOCATION	HUC 12
TDEC	TAYLO000.7OB	Taylor Creek @ RM 0.7	080102020401
TDEC	TULL000.3OB	Tull Creek @ RM 0.3	080102020401
TDEC	REELFOOTCRLK01	Reelfoot Creek Lake	080102020402
TDEC	REELFOOTCRLK02	Reelfoot Creek Lake	080102020402
TDEC	REELFOOTCRLK03	Reelfoot Creek Lake	080102020402
USEPA	472701	Reelfoot Lake	080102020403
USEPA	472702	Reelfoot Lake	080102020403
USEPA	472703	Reelfoot Lake	080102020403
USEPA	472704	Reelfoot Lake	080102020403
TDEC	BAYOU000.9OB	Bayou Du Chien @ RM 0.9	080102020403
TDEC	ECO73A04	Bayou Du Chien	080102020403
TDEC	REELFOOTLKIS01	Lower Blue Basin	080102020403
TDEC	REELFOOTLKIS02	Lower Blue Basin	080102020403
TDEC	REELFOOTLKIS03	Lower Buck Basin	080102020403
TDEC	REELFOOTLKIS04	Upper Buck Basin	080102020403
TDEC	REELFOOTLKIS05	Bayou Du Chien	080102020403
TDEC	REELFOOTLKIS06	Black Slough	080102020403
TDEC	REELFTL1	Buck Basin	080102020403
TDEC	REELFTL2	Buck Basin	080102020403
TDEC	REELFTL3	Buck Basin	080102020403
TDEC	REELFTL4	Buck Basin	080102020403
TDEC	REELFTL5	Buck Basin	080102020403
TDEC	REELFTL6	Buck Basin	080102020403
TDEC	REELFTL7	Buck Basin	080102020403
TDEC	TSPI10	Reelfoot Lake	080102020403
TDEC	REELFOOTCRLK18	Reelfoot Lake	080102020404
TDEC	REELFOOTLKIS09	Indian Creek	080102020404
TDEC	REELFTI1	Indian Creek	080102020404
TDEC	ECO74A08	Paw Paw Creek	080102020405
TDEC	ECO74A10	UT to Running Reelfoot Bayou	080102020406
TDEC	REELFOOTLKIS10	Running Reelfoot Bayou	080102020406
TDEC	RREEL012.9LA	Running Reelfoot Bayou	080102020406

Table A4-4b.

Tables A4-4a-b. STORET Water Quality Monitoring Stations in the Tennessee Portion of the Obion River (North Fork) Watershed. *TDEC, Tennessee Department of Environment and Conservation; USCOE, United States Army Corps of Engineers; USEPA, United States Environmental Protection Agency; UT, Unnamed Tributary.*

PERMIT NUMBER	COUNTY	DESCRIPTION	WATERBODY	HUC-12
NR0502.078	Henry	Bridge Replacement	Dry Creek	080102020101
NR0602.020	Henry	Utility Line Crossing and Bank Stabilization	Dry Creek	080102020101
NR0602.022	Weakley	Culvert Installation	UT to Cane Creek	080102020105
NRS06.221	Weakley	Bridge and Approaches	Powell Creek	080102020106
NRS03.149	Weakley	SR 118 Bridge Repair	North Fork Obion River	080102020201
NRS03.149B	Weakley	SR 118 Bridge Repair	North Fork Obion River	080102020201
NRS03.149C	Weakley	SR 118 Bridge Repair	North Fork Obion River	080102020201
NRS04.030	Weakley	Bridge and Approaches	Cypress Creek	080102020202
NRS03.386	Weakley	Bridge and Approaches	North Fork Obion River	080102020203
NRS04.385	Weakley	Bridge and Approaches	Mud Creek	080102020203
NRS04.385B	Weakley	Bridge and Approaches	Mud Creek	080102020203
NR0702.038	Obion	Bridge Replacement	Harris Fork Creek	080102020206
NR0602.013	Obion	Utility Line Crossings	UT to Grove Creek	080102020207
NRS02.220	Obion	Bridge Repair	Hoosier Creek	080102020208
NR0602.041	Obion	Utility Line Relocation	Cypress Creek	080102020209
NRS05.190	Weakley	Stream Restoration and Relocation	Little Cypress Creek	080102020209
NR0602.052	Obion	Temporary Stream Relocation	UT to Davidson Creek	080102020301
NR0602.118	Obion	Construction of Intake and Outfall Structures	Dry Creek	080102020301
NR0602.119	Obion	Construction and Removal of Minor Road Crossings	UT to Dry Creek	080102020301
NR0602.066	Obion	Utility Line Crossings	UT to Davidson Creek	080102020302
NR0502.091	Obion	Bridge and Approaches	UT to Mill Creek	080102020305
NRS06.384	Gibson	Bridge and Approaches	UT to Reeds Creek	080102020309
NRS02.449	Dyer	Lift Pump Relocation	Obion River	080102020311
NRS03.349	Dyer	Bridge and Approaches	Coon Creek	080102020311
NRS03.319	Dyer	Bridge and Approaches	Pond Creek	080102020313
NRS04.277	Dyer	Bank Stabilization	Obion River	080102020313
NRS04.313	Dyer	Construction of Barge Slide	Not Identified	080102020314
NRS04.315	Dyer	Construction of Barge Slide	Mississippi River	080102020314
NR0602.122	Obion	Utility Line Crossings	North Fork Hoosier Creek & Black Branch	080102020401
NR0702.031	Obion	Utility Line Crossings	Cane Creek	080102020401
NRS07.166	Obion	Wetland Impact for Bridge Replacement	Wetlands, North Reelfoot Creek, & Cane Creek	080102020401
NR0502.082	Obion	Bank Stabilization	Reelfoot Lake	080102020403
NR0602.078	Obion	Bank Stabilization	Reelfoot Lake	080102020403
NR0602.079	Obion	Bank Stabilization	Reelfoot Lake	080102020403
NR0602.096	Lake	Bank Stabilization	Not Identified	080102020403
NR0702.003	Lake	Water Line Crossing	UT to Washout Area of Reelfoot Lake	080102020403
NRS02.285	Lake	Boat Shed and Boardwalk Construction	Reelfoot Lake	080102020403
NRS02.291	Obion	Rip Rap and Launching Ramp	Reelfoot Lake	080102020403

Table A4-5a.

PERMIT NUMBER	COUNTY	DESCRIPTION	WATERBODY	HUC-12
NRS02.296	Obion	Maintenance Dredging and Launching Ramp Repair	Reelfoot Lake	080102020403
NRS02.297	Lake	Maintenance Dredging and Launching Ramp Repair	Reelfoot Lake	080102020403
NRS02.414	Obion	Pontoon Lift Shed Construction	Reelfoot Lake	080102020403
NRS03.287	Obion	Navigation Permit	Reelfoot Lake	080102020403
NRS03.317	Lake	Navigation Permit	Reelfoot Lake	080102020403
NRS04.052	Obion	Navigation Permit/Sediment Removal	Reelfoot Lake	080102020403
NRS04.113	Obion	Bank Stabilization	Reelfoot Lake	080102020403
NRS04.113B	Obion	Boat Ramp and Dock Construction	Reelfoot Lake	080102020403
NRS04.326	Lake	Pier Rebuild and Expansion	Reelfoot Lake	080102020403
NRS04.405	Lake	Boat House Construction	Reelfoot Lake	080102020403
NRS05.306	Lake	Retaining Wall Construction	Reelfoot Lake	080102020403
NRS07.112	Obion	Boat House and Shoreline Repair	Reelfoot Lake	080102020403
NR0602.045	Lake	Culvert Replacement and Construction of Outfall Structure	Lake Isom	080102020406
NR0602.053	Lake	Culvert Replacement	Running Reelfoot Bayou	080102020406
NRS06.347	Lake	Bridge and Approaches	Running Reelfoot Bayou	080102020406

Table A4-5b.

Tables A4-5a-b. ARAPs (Aquatic Resource Alteration Permit) issued June 2002 through June 2007 in the Tennessee Portion of the Obion River (North Fork) Watershed. *UT, Unnamed Tributary.*

PERMIT NUMBER	PERMITTEE	COUNTY	LIVESTOCK	WATERBODY	HUC-12
TN0074918	Hidden Acres, LLC - Tosh	Henry	Hogs	UT to North Fork Obion River	080102020104
TN0074951	Perry Finishers	Henry	Hogs	UT to North Fork Obion River	080102020104
TNA000074	Pine Grove Poultry	Henry	Poultry	Terrapin Creek	080102020104
TNA000091	James C. Morris Poultry Operation	Weakley	Poultry	North Fork Obion River	080102020104
TNA000199	Louise O. Morris Trust	Weakley	Poultry	UT to North Fork Obion River	080102020104
TN0078735	Walters Farm	Weakley	Hogs	UT to Cane Creek	080102020105
TN0078468	T & S Farm	Weakley	Poultry	Raccoon Creek	080102020107
TN0078425	Van Nickel Poultry Farm	Weakley	Poultry	UT to Stephens Creek	080102020201
TNA000189	Dirks Poultry Farm	Weakley	Poultry	Stephens Creek	080102020201
TN0074900	Turbeville Finishers	Weakley	Hogs	UT to Cypress Creek	080102020202
TN0079022	R & R Farms Bennett Facility	Weakley	Hogs	Cypress Creek & Wright Branch	080102020202
TN0079031	Rea Farms Damron Bottom Facility	Weakley	Hogs	North Fork Obion River	080102020203
TN0078620	Tosh Farms - Martin	Weakley	Hogs	Not Identified	080102020205
TNA000184	Joe & Lori Morrow	Obion	Poultry	UT to Cypress Creek	080102020209
TNA000195	Troy Doster	Obion	Poultry	UT to Cypress Creek	080102020209
TNA000020	G & T Farm	Obion	Poultry	UT to Obion River	080102020301
TNA000013	Hutchinson Poultry Farm	Obion	Poultry	Reelfoot Creek	080102020401
TNA000116	William R. Shelton	Obion	Poultry	Cane Creek	080102020401

Table A4-6. CAFO (Concentrated Animal Feed Operation) Permittees in the Tennessee Portion of the Obion River (North Fork) Watershed. *UT, Unnamed Tributary.*

PERMIT NUMBER	PERMITTEE: DESCRIPTION	COUNTY	WATERBODY	AREA	HUC-12
TNR120500	Henry County: Hwy 641 Widening	Henry	UT Phillips Creek, Phillips Creek & North Fork Obion River	2.00	080102020101
TNR120624	Jeremy Walters: Hog Barn	Weakley	Cane Creek	3.00	080102020105
TNR190698	TDOT: Austin Springs Road Bridge Replacement	Weakley	Powell Creek	1.80	080102020106
TNR120819	Lane Dirks: Austin Springs Poultry Farm	Weakley	Blackamore Creek	5.00	080102020107
TNR120294	Keith Swafford: Swafford Chicken Houses	Weakley	Not Identified	4.90	080102020201
TNR120405	Ralph and Virginia Dirks: Poultry Barn	Weakley	Not Identified	2.00	080102020201
TNR120689	Rea Farms: Hog Barn	Weakley	UT to Wright Branch & Cypress Creek	1.50	080102020202
TNR190412	TDOT: Burlie Smith Road	Weakley	Branch of Cypress Creek	1.19	080102020202

Table A4-7a.

PERMIT NUMBER	PERMITTEE: DESCRIPTION	COUNTY	WATERBODY	AREA	HUC-12
TNR120733	Rea Farms: Hog Barns	Weakley	Tommy Creek	4.10	080102020203
TNR190410	TDOT: Old Rutherford Road	Weakley	North Fork Obion River Overflow	3.01	080102020203
TNR120582	Obion County Joint Economic Development: Building and Parking Area	Obion	Pursley Branch	5.30	080102020207
TNR120672	West Tennessee River Basin Authority: Levee Improvements and Spillway Construction	Obion	Grove Creek	7.30	080102020207
TNR120318	Robert Berner: Berner Farms	Obion	Not Identified	10.00	080102020208
TNR120798	Tanner Farms: Sasafraz Restaurant	Obion	UT to Hoosier Creek	1.13	080102020208
TNR120385	Martin Meadows L.P.: Shady Lane Residential Community	Weakley	Not Identified	23.00	080102020209
TNR120485	Second Baptist Church: Church Addition and Parking Area	Obion	First Creek to Hoosier Creek	5.82	080102020209
TNR120522	Wal-Mart Supercenter	Weakley	UT to Cypress Creek	32.52	080102020209
TNR190292	TDOT: SR 5	Obion	North Fork Obion River	4.49	080102020210
TNR120725	Ethanol Grain Processors, LLC: Manufacturing Plant	Obion	Dry Creek & Obion River	1.10	080102020301
TNR120408	Obion County School District: Obion County Central High School	Obion	Not Identified	19.00	080102020302
TNR120453	Northwest Tennessee Disposal Corporation: Landfill and Barrow Pit Operations	Obion	Not Identified	57.00	080102020302
TNR190534	TDOT: Jack Long Road	Obion	Mill Creek	2.28	080102020305
TNR190728	TDOT: Claude McKnight Road	Gibson	Parker Branch, Reeds Creek, & UT	1.72	080102020309
TNR120307	Bill Parks: Crowne Point Subdivision	Dyer	Not Identified	10.00	080102020310
TNR190233	TDOT:SR 124 Bridge & Approaches	Weakley	UT to Spring Creek	4.06	080102020310
TNR190347	TDOT: I 155 & SR 181	Dyer	Not Identified	8.00	080102020313
TNR190431	TDOT: Possum Trot Road Bridges & Approaches	Obion	South Reelfoot Creek, Reelfoot Creek, & Reelfoot Lake	4.61	080102020402
TNR120760	Reelfoot Utility District: Water System Improvements	Lake	Reelfoot Lake	4.90	080102020403

Table A4-7b.

PERMIT NUMBER	PERMITTEE: DESCRIPTION	COUNTY	WATERBODY	AREA	HUC-12
TNR120411	City of Ridgely: Water System Improvements	Lake	Not Identified	6.50	080102020406
TNR120801	David Hutcheson: Borrow Pit for Ford Construction	Obion	UT to Daughtery Creek to Running Reelfoot Bayou to Obion River	4.90	080102020406
TNR190694	TDOT: Madie Thompson Road, Bridge and Approaches	Lake	Running Reelfoot Bayou	1.53	080102020406

Table A4-7c.

Tables 4-7a-c. CGPs (Construction General Permit) issued June 2002 through June 2007 in the Tennessee Portion of the Obion River (North Fork) Watershed. *Area, acres of property associated with construction activity; UT, Unnamed Tributary.*

PERMIT NUMBER	PERMITTEE	SIC	SIC NAME	WATERBODY	HUC-12
TN0030465	H. C. Spinks Clay Company, Inc. (Mine #10- Black Charm)	1455	Kaolin & Ball Clay	UT to North Fork Obion River	080102020101
TN0046281	Kentucky-Tennessee Clay Company (Mine #13-Shankle)	1455	Kaolin & Ball Clay	UT to North Fork Obion River	080102020101
TN0045837	Old Hickory Clay Company (Cottage Grove Mine #4)	1455	Kaolin & Ball Clay	Walnut Fork Creek	080102020102
TN0046221	Kentucky-Tennessee Clay Company (Mine #5-Collier)	1455	Kaolin & Ball Clay	Walnut Fork Creek	080102020102
TN0065641	Kentucky-Tennessee Clay Company (Mine #20-Moore)	1455	Kaolin & Ball Clay	Terrapin Creek	080102020103
TN0071820	Hank Riley Excavating and Haul (Vaughn Mine)	1442	Construction Sand & Gravel	Davidson Creek	080102020302
TN0071129	Ford Construction Company (Troy Plant)	1442	Construction Sand & Gravel	Mill Creek & Little Richland Creek	080102020305
TN0071137	Waterland Trucking Service, Inc. (Waterland Mine)	1442	Construction Sand & Gravel	Mill Creek	080102020305
TN0071242	Ford Construction Company, Inc. (Orr Pit)	1442	Construction Sand & Gravel	Richland Creek	080102020306
TN0072001	Roberson Rock (Roberson Pit)	1442	Construction Sand & Gravel	Richland Creek	080102020306

Table A4-8a.

PERMIT NUMBER	PERMITTEE	SIC	SIC NAME	WATERBODY	HUC-12
TN0072052	Ford Construction Company, Inc. (Old London Pit)	1442	Construction Sand & Gravel	UT to Richland Creek	080102020306
TN0071595	T. Y. Farming Company, Inc. (Yarbro Gravel Mine)	1442	Construction Sand & Gravel	Coon Creek Watershed Lake	080102020311

Table A4-8b.

Tables 4-8a-b. Permitted Mining Facilities in the Tennessee Portion of the Obion River (North Fork) Watershed. *SIC, Standard Industrial Code; UT Unnamed Tributary.*

PERMIT NUMBER	PERMITTEE	SIC	SIC NAME	MADI	WATERBODY	HUC-12
TN0064912	South Fulton STP	4952	Sewerage Systems	Minor	North Fork Obion River @ RM 18.0	080102020203
TN0000931	Griffin Industries, Inc.	2077	Animal and Marine Fats and Oils	Minor	North Fork Obion River @ RM 9.5	080102020205
TN0021580	Union City STP	4952	Sewerage Systems	Major	North Fork Obion River @ RM 8.2	080102020207
TN0073563	Tyson Foods, Inc.	2015	Poultry Slaughtering and Processing	Minor	North Fork Obion River @ RM 10.0	080102020207
TN0001139	Goodyear Tire and Rubber Company	3011	Tires and Inner Tubes	Minor	First Creek @ RM 2.3 & UT @ RM 1.1 to First Creek @ RM 1.2	080102020208
TN0062120	Trimble STP	4952	Sewerage Systems	Minor	Obion River @ RM 55.2	080102020301
TN0062171	Obion Wastewater Lagoon	4952	Sewerage Systems	Minor	Obion River @ RM 56.2	080102020301
TN0064777	Troy Wastewater Lagoon	4952	Sewerage Systems	Minor	Obion River @ RM 61.2	080102020301
TN0062111	Newbern STP	4952	Sewerage Systems	Major	Obion River @ RM 46.0	080102020309
TN0062529	Ridgely STP	4952	Sewerage Systems	Minor	Mississippi River @ RM 857.5	080102020406

Table A4-9. Municipal and Industrial Permittees in the Tennessee Portion of the Obion River (North Fork) Watershed. *SIC, Standard Industrial Code; MADI, Major Discharge Indicator; UT, Unnamed Tributary.*

PERMIT NUMBER	PERMITTEE	WATERBODY	HUC-12
TNG110077	Federal Materials Company, Inc.	First Creek	080102020207
TNG110156	Southern Concrete Products, Inc.	UT (First Creek) to Hoosier Creek to North Fork Obion River	080102020208

Table A4-10. RMCP (Ready Mix Concrete Plant) Permittees in the Tennessee Portion of the Obion River (North Fork) Watershed. *UT, Unnamed Tributary.*

PERMIT NUMBER	PERMITTEE	SECTOR	AREA	WATERBODY	HUC-12
TNR050461	Middleton Lumber Company, LLC	A	15.00	Rowe Creek	080102020101
TNR053088	Henry County Airport	AB	0.99	Birds Creek to North Fork Obion River	080102020102
TNR054389	Miller's Country Hams, Inc.	U	14.29	Little Cane Creek @ RM 3.7	080102020105
TNR051293	Ford Construction Company Union City	D	13.00	North Fork Obion River	080102020205
TNR053193	Everett-Stewart Airport	S	5.00	Obion River	080102020205
TNR050053	Waymatic, Inc.	AA	17.55	Harris Fork Creek to North Fork Obion River	080102020206
TNR052063	Tyson Foods, Inc. Feedmill South Fulton	U	11.10	Harris Fork Creek	080102020206
TNR053362	City of South Fulton Landfill	L	40.00	UT to Harris Ford Creek	080102020206
TNR056111	Duke & Riley Trucking & Leasing, Inc.	M	5.00	Not Identified	080102020206
TNR052111	Tyson Foods, Inc.	U	30.00	Harris Fork Creek	080102020207
TNR056411	A.L. Strub Wastewater Treatment Plant	T	5.00	UT to Grove Creek	080102020207
TNR050129	Lennox Hearth Products	AA	8.65	WWC to First Creek to Obion River	080102020208
TNR050203	Kohler Company	F	13.04	Unnamed Ditch to First Creek to Hoosier Creek to North Fork Obion River	080102020208
TNR053891	Goodyear Tire and Rubber Company	Y	2.40	UT @ RM 0.7 to Grove Creek @ RM 6.9	080102020208
TNR054438	H & O Tool & Die Company	AA	5.00	First Creek	080102020208
TNR056367	Troy, Tennessee Transfer Station and MRF	P	15.00	Hoosier Creek	080102020208
TNR050834	C & H Auto Salvage II	M	37.00	Little Cypress Creek	080102020209
TNR050971	Doyle Sims & Sons Truck, Inc.	P	4.00	UT to Cane Creek	080102020209
TNR050214	Younger and Son Salvage	M	5.00	Troy Creek to Obion River	080102020302
TNR050371	Northwest Tennessee Disposal Corporation	L	2.84	Rockspring Branch to Davidson Creek	080102020302

Table A4-11a.

PERMIT NUMBER	PERMITTEE	SECTOR	AREA	WATERBODY	HUC-12
TNR050473	Storey Sawmill & Lumber Company, Inc.	A	8.00	Troy Creek	080102020302
TNR050592	Hanafee Bros. Sawmill Company, Inc.	A	5.00	Troy Creek	080102020302
TNR052080	Northwest Tennessee Disposal Corporation	L	1.96	Rockspring Creek to Davidson Creek	080102020302
TNR053883	Stacks Salvage Recyclers	N	2.80	Troy Creek & Obion River	080102020302
TNR056016	A & J Salvage	M	26.00	Not Identified	080102020302
TNR051290	Ford Construction Company Troy	D	29.00	Mill Creek	080102020305
TNR051538	Holloway Repair Facility	P	12.00	Reed Creek	080102020309
TNR053137	Eaton Corporation, Hydraulics Fluid Conveyance	Y	20.00	Mulherin Creek to Biffle Creek	080102020309
TNR053411	Jimmy Dean Foods	U	1.60	Biffle Creek	080102020310
TNR052026	Williams Sausage Company, Inc.	U	5.00	UT to North Reelfoot Creek	080102020401
TNR054246	Roberson Brothers Sawmill, Inc.	A	15.00	UT to North Reelfoot Creek	080102020401
TNR055957	Speed Farms	J	4.00	Not Identified	080102020401
TNR053467	Reelfoot Lake Airpark	S	1.00	Upper Blue Basin & Reelfoot Lake	080102020403
TNR056279	Shawtown Auto Salvage	M	10.00	Not Identified	080102020403
TNR056390	C & H Auto Salvage	M	30.00	Storm Sewer to UT to Running Reelfoot Bayou	080102020406

Table 4-11b.

Tables 4-11a-b. TMSPs (Tennessee Multi Sector Permit) issued in the Tennessee Portion of the Obion River (North Fork) Watershed. *Area, acres of property associated with industrial activity; UT Unnamed Tributary. See Table 4-12 for Sector Details.*

SECTOR	TMSP SECTOR NAME
A	Timber Products Facilities
AA	Facilities That Manufacture Metal Products including Jewelry, Silverware and Plated Ware
AB	Facilities That Manufacture Transportation Equipment, Industrial or Commercial Machinery
AC	Facilities That Manufacture Electronic and Electrical Equipment and Components, Photographic and Optical Goods
AD	Facilities That Are Not Covered Under Sectors A Thru AC (Monitoring Required)
AE	Facilities That Are Not Covered Under Sectors A Thru AC (Monitoring Not Required)
B	Paper and Allied Products Manufacturing Facilities
C	Chemical and Allied Products Manufacturing Facilities
D	Asphalt Paving, Roofing Materials, and Lubricant Manufacturing Facilities
E	Glass, Clay, Cement, Concrete, and Gypsum Product Manufacturing Facilities
F	Primary Metals Facilities
G	Metal Mines (Ore Mining and Dressing) (RESERVED)
H	Inactive Coal Mines and Inactive Coal Mining-Related Facilities
I	Oil or Gas Extraction Facilities
J	Construction Sand and Gravel Mining and Processing and Dimension Stone Mining and Quarrying Facilities
K	Hazardous Waste Treatment Storage or Disposal Facilities
L	Landfills and Land Application Sites
M	Automobile Salvage Yards
N	Scrap Recycling and Waste and Recycling Facilities
O	Steam Electric Power Generating Facilities
P	Vehicle Maintenance or Equipment Cleaning areas at Motor Freight Transportation Facilities, Passenger Transportation Facilities, Petroleum Bulk Oil Stations and Terminals, the United States Postal Service, or Railroad Transportation Facilities
Q	Vehicle Maintenance Areas and Equipment Cleaning Areas of Water Transportation Facilities
R	Ship or Boat Building and Repair Yards
S	Vehicle Maintenance Areas, Equipment Cleaning Areas or From Airport Deicing Operations located at Air Transportation Facilities
T	Wastewater Treatment Works
U	Food and Kindred Products Facilities
V	Textile Mills, Apparel and other Fabric Product Manufacturing Facilities
W	Furniture and Fixture Manufacturing Facilities
X	Printing and Platemaking Facilities
Y	Rubber and Miscellaneous Plastic Product Manufacturing Facilities
Z	Leather Tanning and Finishing Facilities

Table A4-12. TMSP Sectors and Descriptions.

APPENDIX V

LAND TREATMENT – CONSERVATION BUFFERS			
	Field Borders (feet)	Filter Strip (feet)	Riparian Forest Buffer (acres)
FY 2002		102	12
FY 2003		112	16
FY 2004		4	20
FY 2005	50935	183	90
FY 2006	77130	98	

Table A5-1a. Land Treatment Conservation Practices (Conservation Buffers), in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

EROSION CONTROL		
	Est. soil saved (tons/year)	Land Treated with erosion control measures (acres)
FY 2002	114991	9710
FY 2003	135186	11430

Table A5-1b. Erosion Control Conservation Practices, in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

IRRIGATION MANAGEMENT	
	Irrigation Mgmt. Systems (acres)
FY 2002	31

Table A5-1c. Irrigation Management Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

NUTRIENT MANAGEMENT			
	AFO Nutrient Mgmt Applied (acres)	Non-AFO Nutrient Mgmt. Applied (acres)	Total Applied (acres)
FY 2002		6433	6433
FY 2003	2934	2936	5870
FY 2004	5519		5519
FY 2005	16998		16998
FY 2006	10862		10862

Table A5-d. Nutrient Management Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

PEST MANAGEMENT	
	Pest Mgmt. Systems (acres)
FY 2002	5826
FY 2003	5469
FY 2004	5521
FY 2005	16970
FY 2006	10144

Table A5-1e. Pest Management Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

GRAZING/FORAGES			
	Prescribed Grazing (acres)	Fencing (feet)	Pasture and Hay Planting (acres)
FY 2002	93		
FY 2003	165		
FY 2004	910		121
FY 2005	835		61
FY 2006	401	1300	335

Table A5-1f. Grazing/Forages Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

TREE AND SHRUB PRACTICES					
	Land Prepared for revegetation of Forest (acres)	Land Improved through Forest Stand improvement (acres)	Total Tree & Shrub Estab. (acres)	Forestland Re-established or improved (acres)	Use Exclusion (acres)
FY 2002			91		
FY 2003	9	160	767		
FY 2004		194	75	269	2293
FY 2005		174	110	284	1808
FY 2006		255	946	1201	816

Table A5-1g. Tree and Shrub Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

LAND TREATMENT – TILLAGE AND CROPPING						
	Residue Mgmt, No-till, Strip till (acres)	Residue Mgmt - Mulch Till (acres)	Tillage & Residue Mgmt Systems (acres)	Conservation Crop Rotation (acres)	Contour Farming (acres)	Cover Crop (acres)
FY 2002	5353	1530	6883			
FY 2003	7541		7541			
FY 2004	3097	1962	5059	1499		103
FY 2005	15030	2740	17770	12310		
FY 2006	9647	3776	13423	6726		112

Table A5-1h. Land Treatment Conservation Practices (Tillage and Cropping), in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

WETLANDS	
	Wetlands Created or Restored (acres)
FY 2002	1
FY 2003	683
FY 2004	145
FY 2005	542
FY 2006	902

Table A5-1i. Wetland Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

WILDLIFE HABITAT MANAGEMENT			
	Upland Habitat Mgmt (acres)	Wetland Habitat Mgmt (acres)	Total Wildlife Habitat Mgmt Applied (acres)
FY 2003	1806	36	1842
FY 2004	3098	187	3284
FY 2005	1846	889	2735
FY 2006	2241	2037	4278

Table A5-1j. Wildlife Habitat Management Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

WATER SUPPLY			
	Pipeline (ft)	Pond (number)	Watering Facility (number)
FY 2005		2	2
FY 2006	220	1	2

Table A5-1k. Water Supply Conservation Practices in Partnership with NRCS in the Tennessee Portion of the Obion River (North Fork) Watershed. *Data are from Performance & Results Measurement System (PRMS) for each fiscal year reporting period (October 1 through September 30) from 2002 to 2006.*

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020101	327	Conservation Cover	1	Crop
	328	Conservation Crop Rotation	1	Crop
	342	Critical Area Planting	1	Crop
	350	Sediment Basin	2	Crop
	386	Field Border	11	Crop
	393	Filter Strip	4	Crop
	410	Grade Stabilization Structure	2	Crop (1) Hay (1)
	412	Grassed Waterway	1	Crop (1)
	472	Use Exclusion	1	Crop (1)
	484	Mulching	1	Crop (1)
	511	Forage Harvest Management	4	Hay (4)
	512	Pasture and Hay Planting	1	Hay (1)
	590	Nutrient Management	58	Crop (53) Hay (4) Pasture (1)
	595	Pest Management	58	Crop (50) Forest (3) Hay (4) Pasture (1)
	638	Water and Sediment Control Basin	2	Crop (1) Pasture (1)
	645	Upland Wildlife Habitat Management	17	Crop (16) Forest (1)
	666	Forest Stand Improvement	1	Forest (1)
080102020102	327	Conservation Cover	29	Crop
	328	Conservation Crop Rotation	4	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	15	Crop
	344	Residue Management, Seasonal	11	Crop
	350	Sediment Basin	1	Crop
	386	Field Border	4	Crop
	393	Filter Strip	2	Crop
	410	Grade Stabilization Structure	11	Crop (5) Forest (3) Pasture (3)
	412	Grassed Waterway	2	Crop
	472	Use Exclusion	21	Crop
	511	Forage Harvest Management	7	Crop (2) Hay (5)

Table A5-2a.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020102	512	Pasture and Hay Planting	4	Crop (3) Pasture (1)
	528	Prescribed Grazing	6	Pasture
	590	Nutrient Management	97	Crop (85) Hay (5) Pasture (7)
	595	Pest Management	104	Crop (83) Forest (9) Hay (5) Pasture (7)
	612	Tree/Shrub Establishment	4	Crop
	620	Underground Outlet	6	Crop
	638	Water and Sediment Control Basin	7	Crop
	645	Upland Wildlife Habitat Management	14	Crop (9) Forest (5)
	658	Wetland Creation	1	Forest
	666	Forest Stand Improvement	6	Forest
080102020103	362	Diversion	1	Crop
	590	Nutrient Management	6	Crop
	595	Pest Management	6	Crop
	620	Underground Outlet	4	Crop
	638	Water and Sediment Control Basin	2	Crop
080102020104	327	Conservation Cover	1	Crop
	328	Conservation Crop Rotation	3	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	2	Crop
	330	Contour Farming	3	Crop
	344	Residue Management, Seasonal	5	Crop
	528	Prescribed Grazing	4	Pasture
	590	Nutrient Management	9	Crop (5) Pasture (4)
	595	Pest Management	9	Crop (5) Pasture (4)
080102020105	327	Conservation Cover	66	Crop
	328	Conservation Crop Rotation	12	Crop
	344	Residue Management, Seasonal	8	Crop
	386	Field Border	19	Crop
	393	Filter Strip	9	Crop
	410	Grade Stabilization Structure	1	Forest

Table A5-2b.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020105	472	Use Exclusion	7	Crop
	511	Forage Harvest Management	25	Crop (19) Hay (4) Pasture (2)
	512	Pasture and Hay Planting	1	Pasture
	528	Prescribed Grazing	6	Hay (1) Pasture (5)
	590	Nutrient Management	97	Crop (86) Hay (4) Pasture (7)
	595	Pest Management	98	Crop (87) Hay (4) Pasture (7)
	620	Underground Outlet	24	Crop
	638	Water and Sediment Control Basin	18	Crop
	645	Upland Wildlife Habitat Management	84	Crop (81) Forest (3)
	666	Forest Stand Improvement	3	Forest
080102020106	100	Comprehensive Nutrient Management Plan	1	Headquarters
	327	Conservation Cover	16	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	2	Crop
	344	Residue Management, Seasonal	2	Crop
	472	Use Exclusion	6	Crop
	528	Prescribed Grazing	2	Pasture
	590	Nutrient Management	4	Crop (2) Pasture (2)
	595	Pest Management	4	Crop (2) Pasture (2)
	645	Upland Wildlife Habitat Management	4	Crop
	647	Early Successional Habitat Development/Management	5	Wildlife
080102020107	100	Comprehensive Nutrient Management Plan	2	Hay (1) Headquarters (1)
	327	Conservation Cover	61	Crop
	328	Conservation Crop Rotation	33	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	4	Crop
	344	Residue Management, Seasonal	35	Crop
	391	Riparian Forest Buffer	1	Crop
	472	Use Exclusion	11	Crop

Table A5-2c.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020107	511	Forage Harvest Management	4	Crop (2) Hay (1) Pasture (1)
	512	Pasture and Hay Planting	2	Hay (1) Pasture (1)
	516	Pipeline	1	Pasture
	528	Prescribed Grazing	1	Pasture
	561	Heavy Use Area Protection	1	Pasture
	590	Nutrient Management	104	Crop (101) Hay (1) Pasture (2)
	595	Pest Management	104	Crop (101) Hay (1) Pasture (2)
	612	Tree/Shrub Establishment	2	Crop (1) Wildlife (1)
	614	Watering Facility	1	Pasture
	620	Underground Outlet	1	Crop
	638	Water and Sediment Control Basin	1	Crop
	644	Wetland Wildlife Habitat Management	2	Crop (1) Wildlife (1)
	645	Upland Wildlife Habitat Management	28	Crop (27) Forest (1)
	657	Wetland Restoration	2	Crop (1) Wildlife (1)
	666	Forest Stand Improvement	1	Forest
080102020201	100	Comprehensive Nutrient Management Plan	1	Headquarters
	327	Conservation Cover	4	Crop
	472	Use Exclusion	2	Crop
	511	Forage Harvest Management	1	Hay
	512	Pasture and Hay Planting	5	Crop (3) Hay (2)
	528	Prescribed Grazing	6	Pasture
	590	Nutrient Management	7	Hay (1) Pasture (6)
	595	Pest Management	7	Hay (1) Pasture (6)
	612	Tree/Shrub Establishment	3	Wildlife
	645	Upland Wildlife Habitat Management	1	Hay

Table A5-2d.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020202	100	Comprehensive Nutrient Management Plan	1	Headquarters
	327	Conservation Cover	82	Crop
	328	Conservation Crop Rotation	22	Crop (20) Pasture (2)
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	4	Crop
	344	Residue Management, Seasonal	18	Crop
	393	Filter Strip	3	Crop
	410	Grade Stabilization Structure	2	Crop
	472	Use Exclusion	14	Crop
	511	Forage Harvest Management	26	Crop (11) Hay (10) Pasture (5)
	512	Pasture and Hay Planting	5	Crop (2) Hay (1) Pasture (2)
	516	Pipeline	4	Pasture
	528	Prescribed Grazing	13	Pasture
	561	Heavy Use Area Protection	4	Pasture
	590	Nutrient Management	56	Crop (30) Hay (10) Pasture (16)
	595	Pest Management	56	Crop (30) Hay (10) Pasture (16)
	614	Watering Facility	4	Pasture
	645	Upland Wildlife Habitat Management	72	Crop (69) Wildlife (3)
	910	TA Planning	1	Headquarters
	911	TA Design	1	Headquarters
080102020203	327	Conservation Cover	8	Crop
	328	Conservation Crop Rotation		Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	1	Crop
	344	Residue Management, Seasonal	3	Crop
	472	Use Exclusion	4	Crop
	511	Forage Harvest Management	1	Hay
	528	Prescribed Grazing	2	Pasture
	561	Heavy Use Area Protection	1	Pasture
	590	Nutrient Management	14	Crop (12) Pasture (2)
	595	Pest Management	16	Crop (14) Pasture (2)

Table A5-2e.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020203	645	Upland Wildlife Habitat Management	3	Crop
	666	Forest Stand Improvement	2	Crop
080102020204	327	Conservation Cover	8	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	1	Crop
	410	Grade Stabilization Structure	5	Crop
	511	Forage Harvest Management	5	Crop
	512	Pasture and Hay Planting	4	Hay
	528	Prescribed Grazing	1	Hay
	590	Nutrient Management	5	Crop (4) Hay (1)
	595	Pest Management	5	Crop (4) Hay (1)
	612	Tree/Shrub Establishment	2	Crop
	620	Underground Outlet	1	Crop
	645	Upland Wildlife Habitat Management	8	Crop
080102020205	327	Conservation Cover	6	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	1	Crop
	393	Filter Strip	2	Crop
	410	Grade Stabilization Structure	2	Crop
	472	Use Exclusion	2	Crop
	511	Forage Harvest Management	2	Crop (1) Hay (1)
	590	Nutrient Management	2	Crop (1) Hay (1)
	595	Pest Management	5	Crop (4) Hay (1)
	645	Upland Wildlife Habitat Management	6	Crop
080102020206	393	Filter Strip	2	Crop
	410	Grade Stabilization Structure	5	Crop
	512	Pasture and Hay Planting	1	Crop
	528	Prescribed Grazing	1	Crop
	590	Nutrient Management	2	Crop
	595	Pest Management	3	Crop
	644	Wetland Wildlife Habitat Management	1	Crop
	645	Upland Wildlife Habitat Management	3	Crop (2) Forest (1)

Table A5-2f.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020208	327	Conservation Cover	3	Crop
	328	Conservation Crop Rotation	11	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	2	Crop
	344	Residue Management, Seasonal	11	Crop
	393	Filter Strip	7	Crop
	410	Grade Stabilization Structure	2	Crop
	472	Use Exclusion	1	Crop
	511	Forage Harvest Management	2	Crop
	590	Nutrient Management	23	Crop (21) Pasture (2)
	595	Pest Management	25	Crop (23) Pasture (2)
	645	Upland Wildlife Habitat Management	10	Crop
080102020209	327	Conservation Cover	11	Crop
	328	Conservation Crop Rotation	3	Crop
	344	Residue Management, Seasonal	5	Crop
	472	Use Exclusion	1	Crop
	511	Forage Harvest Management	2	Crop
	512	Pasture and Hay Planting	1	Crop
	528	Prescribed Grazing	7	Hay (1) Pasture (6)
	590	Nutrient Management	20	Crop (15) Pasture (5)
	595	Pest Management	22	Crop (17) Pasture (5)
	645	Upland Wildlife Habitat Management	3	Crop
080102020301	328	Conservation Crop Rotation	19	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	11	Crop
	344	Residue Management, Seasonal	4	Crop
	345	Residue and Tillage Management, Mulch Till	9	Crop
	511	Forage Harvest Management	1	Hay
	512	Pasture and Hay Planting	1	Hay
	528	Prescribed Grazing	2	Hay (1) Pasture (1)
	590	Nutrient Management	66	Crop (64) Hay (1) Pasture (1)

Table A5-2g.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020301	595	Pest Management	68	Crop (64) Hay (1) Headquarters (2) Pasture (1)
	620	Underground Outlet	3	Crop
	638	Water and Sediment Control Basin	8	Crop
	666	Forest Stand Improvement	1	Forest
080102020302	328	Conservation Crop Rotation	2	Crop
	344	Residue Management, Seasonal	1	Crop
	590	Nutrient Management	3	Crop
	595	Pest Management	3	Crop
080102020303	327	Conservation Cover	17	Crop
	328	Conservation Crop Rotation	1	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	2	Crop
	344	Residue Management, Seasonal	1	Crop
	393	Filter Strip	3	Crop
	410	Grade Stabilization Structure	1	Crop
	472	Use Exclusion	1	Crop
	511	Forage Harvest Management	6	Crop (4) Hay (2)
	512	Pasture and Hay Planting	1	Hay
	528	Prescribed Grazing	6	Pasture
	590	Nutrient Management	26	Crop (6) Hay (2) Pasture (18)
	595	Pest Management	30	Crop (10) Hay (2) Pasture (18)
	645	Upland Wildlife Habitat Management	11	Crop
080102020304	327	Conservation Cover	47	Crop
	342	Critical Area Planting	1	Hay
	393	Filter Strip	10	Crop
	410	Grade Stabilization Structure	7	Crop (6) Hay (1)
	472	Use Exclusion	15	Crop
	511	Forage Harvest Management	8	Crop (6) Hay (2)
	516	Pipeline	1	Pasture
	528	Prescribed Grazing	21	Pasture

Table A5-2h.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020304	561	Heavy Use Area Protection	3	Pasture
	590	Nutrient Management	32	Crop (10) Hay (1) Pasture (21)
	595	Pest Management	38	Crop (16) Hay (1) Pasture (21)
	614	Watering Facility	1	Pasture
	620	Underground Outlet	4	Crop
	645	Upland Wildlife Habitat Management	25	Crop
080102020305	327	Conservation Cover	5	Crop
	328	Conservation Crop Rotation	4	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	13	Crop
	340	Cover Crop	2	Crop
	342	Critical Area Planting	1	Crop
	344	Residue Management, Seasonal	5	Crop
	393	Filter Strip	1	Crop
	472	Use Exclusion	1	Crop
	511	Forage Harvest Management	1	Crop
	528	Prescribed Grazing	19	Pasture
	561	Heavy Use Area Protection	1	Pasture
	590	Nutrient Management	48	Crop (29) Pasture (19)
	595	Pest Management	49	Crop (30) Pasture (19)
	638	Water and Sediment Control Basin	2	Crop
	645	Upland Wildlife Habitat Management	3	Crop
080102020306	327	Conservation Cover	13	Crop
	328	Conservation Crop Rotation	1	Crop
	345	Residue and Tillage Management, Mulch Till	1	Crop
	410	Grade Stabilization Structure	6	Hay (1) Pasture (5)
	472	Use Exclusion	3	Crop
	511	Forage Harvest Management	2	Crop
	528	Prescribed Grazing	10	Pasture
	590	Nutrient Management	11	Crop (1) Pasture (10)
	595	Pest Management	13	Crop (3) Pasture (10)
	645	Upland Wildlife Habitat Management	11	Crop

Table A5-2i.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020307	327	Conservation Cover	9	Crop
	328	Conservation Crop Rotation	8	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	3	Crop
	344	Residue Management, Seasonal	1	Crop
	345	Residue and Tillage Management, Mulch Till	9	Crop
	410	Grade Stabilization Structure	5	Crop
	472	Use Exclusion	4	Crop
	528	Prescribed Grazing	4	Pasture
	590	Nutrient Management		Crop
	595	Pest Management	22	Pasture (4) Crop (18)
	612	Tree/Shrub Establishment	3	Crop
	644	Wetland Wildlife Habitat Management	4	Crop
	645	Upland Wildlife Habitat Management	1	Crop
	657	Wetland Restoration	3	Crop
080102020308	328	Conservation Crop Rotation	13	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	1	Crop
	344	Residue Management, Seasonal	3	Crop
	382	Fence	1	Crop
	386	Field Border	1	Crop
	511	Forage Harvest Management	3	Crop
	512	Pasture and Hay Planting	11	Crop (8) Hay (3)
	561	Heavy Use Area Protection	2	Pasture
	590	Nutrient Management	12	Crop (11) Hay (1)
	595	Pest Management	11	Crop
	606	Subsurface Drain	1	Forest
	620	Underground Outlet	3	Crop
	638	Water and Sediment Control Basin	9	Crop
	645	Upland Wildlife Habitat Management	1	Crop
080102020309	327	Conservation Cover	7	Crop
	512	Pasture and Hay Planting	1	Crop
	590	Nutrient Management	16	Pasture
080102020310	327	Conservation Cover	27	Crop
	328	Conservation Crop Rotation	18	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	13	Crop
	345	Residue and Tillage Management, Mulch Till	15	Crop

Table A5-2j.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020310	386	Field Border	5	Crop (1) Wildlife (4)
	391	Riparian Forest Buffer	1	Forest
	410	Grade Stabilization Structure	5	Crop (2) Forest (1) Pasture (2)
	472	Use Exclusion	20	Crop
	511	Forage Harvest Management	3	Crop (2) Hay (1)
	512	Pasture and Hay Planting	3	Pasture
	528	Prescribed Grazing	22	Pasture
	590	Nutrient Management	62	Crop (35) Hay (1) Pasture (26)
	595	Pest Management	60	Crop (37) Hay (1) Pasture (22)
	612	Tree/Shrub Establishment	46	Crop (39) Wildlife (7)
	644	Wetland Wildlife Habitat Management	46	Crop (36) Forest (2) Wildlife (8)
	645	Upland Wildlife Habitat Management	25	Crop (24) Forest (1)
	647	Early Successional Habitat Development/Management	6	Wildlife
	657	Wetland Restoration	32	Crop (22) Forest (1) Wildlife (9)
	666	Forest Stand Improvement	1	Forest
080102020311	327	Conservation Cover	31	Crop
	328	Conservation Crop Rotation	13	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	3	Crop
	344	Residue Management, Seasonal	11	Crop
	345	Residue and Tillage Management, Mulch Till	2	Crop
	472	Use Exclusion	2	Crop
	511	Forage Harvest Management	5	Crop (3) Hay (2)
	590	Nutrient Management	12	Crop (10) Hay (2)
	595	Pest Management	17	Crop (15) Hay (2)

Table A5-2k.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
	645	Upland Wildlife Habitat Management	10	Crop
080102020312	100	Comprehensive Nutrient Management Plan	1	Crop
	313	Waste Storage Facility	1	Crop
	327	Conservation Cover	68	Crop
	328	Conservation Crop Rotation	5	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	1	Crop
	344	Residue Management, Seasonal	1	Crop
	410	Grade Stabilization Structure	8	Crop (2) Hay (5) Pasture (1)
	472	Use Exclusion	12	Crop
	511	Forage Harvest Management	21	Crop (14) Hay (4) Pasture (3)
	512	Pasture and Hay Planting	6	Hay (2) Pasture (4)
	528	Prescribed Grazing	33	Pasture
	590	Nutrient Management	71	Crop (11) Hay (5) Pasture (55)
	595	Pest Management	85	Crop (25) Hay (5) Pasture (55)
	633	Waste Utilization	1	Crop
	645	Upland Wildlife Habitat Management	38	Crop
080102020313	327	Conservation Cover	8	Crop
	590	Nutrient Management	1	Crop
	595	Pest Management	1	Crop
	645	Upland Wildlife Habitat Management	2	Crop
080102020314	327	Conservation Cover	14	Crop
	328	Conservation Crop Rotation	7	Crop
	344	Residue Management, Seasonal	4	Crop
	345	Residue and Tillage Management, Mulch Till	18	Crop
	386	Field Border	9	Crop
	393	Filter Strip	2	Crop
	472	Use Exclusion	4	Crop
	511	Forage Harvest Management	1	Crop
	590	Nutrient Management	2	Crop
	595	Pest Management	3	Crop
	645	Upland Wildlife Habitat Management	20	Crop

Table A5-2l.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020401	327	Conservation Cover	20	Crop
	472	Use Exclusion	5	Crop
	511	Forage Harvest Management	2	Crop
	528	Prescribed Grazing	11	Pasture
	590	Nutrient Management	11	Pasture
	595	Pest Management	13	Crop (2) Pasture (11)
	645	Upland Wildlife Habitat Management	19	Crop
080102020402	327	Conservation Cover	26	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	1	Crop
	342	Critical Area Planting	1	Crop
	344	Residue Management, Seasonal	1	Crop
	345	Residue and Tillage Management, Mulch Till	2	Crop
	410	Grade Stabilization Structure	5	Crop
	472	Use Exclusion	12	Crop
	511	Forage Harvest Management	3	Crop
	528	Prescribed Grazing	10	Pasture
	590	Nutrient Management	11	Crop (1) Pasture (10)
	595	Pest Management	14	Crop (4) Pasture (10)
	645	Upland Wildlife Habitat Management	25	Crop
080102020403	327	Conservation Cover	8	Crop
	345	Residue and Tillage Management, Mulch Till	13	Crop
	472	Use Exclusion	3	Crop
	645	Upland Wildlife Habitat Management	10	Crop
080102020404	344	Residue Management, Seasonal	38	Crop
	345	Residue and Tillage Management, Mulch Till	37	Crop
	410	Grade Stabilization Structure	1	Pasture
	442	Irrigation System, Sprinkler	1	Crop
	464	Irrigation Land Leveling	1	Crop
	638	Water and Sediment Control Basin	1	Pasture
080102020405	328	Conservation Crop Rotation	39	Crop
	344	Residue Management, Seasonal	16	Crop
	442	Irrigation System, Sprinkler	9	Crop
	449	Irrigation Water Management	1	Crop
	533	Pumping Plant	1	Crop

Table A5-m.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102020406	327	Conservation Cover	2	Crop
	328	Conservation Crop Rotation	16	Crop
	344	Residue Management, Seasonal	1	Crop
	345	Residue and Tillage Management, Mulch Till	27	Crop
	378	Pond	1	Crop
	382	Fence	1	Crop
	410	Grade Stabilization Structure	3	Crop
	442	Irrigation System, Sprinkler	2	Crop
	512	Pasture and Hay Planting	1	Crop
	612	Tree/Shrub Establishment	2	Crop
	645	Upland Wildlife Habitat Management	3	Crop(2) Forest (1)

Table A5-2n.

Tables A5-2a-n. Best Management Practices Installed in Partnership with NRCS (2006-2007) in the Tennessee Portion of the Obion River (North Fork) Watershed*. Information was provided as part of Conservation Technical Assistance Grant 060701T47.*

COMMUNITY	AWARD DATE	AWARD AMOUNT
Reelfoot Utility District	09/28/05	$1,000,000
Reelfoot Utility District	03/21/07	$190,850

Table A5-3. Communities in the Obion River (North Fork) Watershed that have received Drinking Water State Revolving Fund Grants or Loans since the inception of the program.

PRACTICE	NRCS CODES	NUMBER OF BMPs
Waste Management System	312	1
Critical Area Planting	342	3
Sediment Basin	350	1
Dike	356	19
Fence	382	3
Grade Stabilization Structure	410	27
Cropland Conversion	512	6
Heavy Use Area	561	3
Water/Sediment Control Basin	638	19
Well	642	2
Total BMPs		**84**

Table A5-4. Best Management Practices Installed by Tennessee Department of Agriculture and Partners in the Tennessee Portion of the Obion River (North Fork) Watershed.

SITE ID	WATER BODY	YEAR
120040401	Clover Creek	2004
120041001	Cypress Creek	2004
119990101	Obion River	1999
119990102	Obion River	1999
119990104	Obion River	1999
119990105	Obion River	1999
119990106	Obion River	1999
119990107	Obion River	1999
119990108	Obion River	1999
119990109	Obion River	1999
119990110	Obion River	1999
119990111	Obion River	1999
120032201	Obion River	2003
120032202	Obion River	2003
120032203	Obion River	2003
120032204	Obion River	2003
119990401	Obion River North Fork	1999
119990402	Obion River North Fork	1999
120041101	Richland Creek	2004
120040501	Richland Creek	2004
120040301	Zion Creek	2004

Table A5-5. TWRA TADS Sampling Sites in the Obion River (North Fork) Watershed.