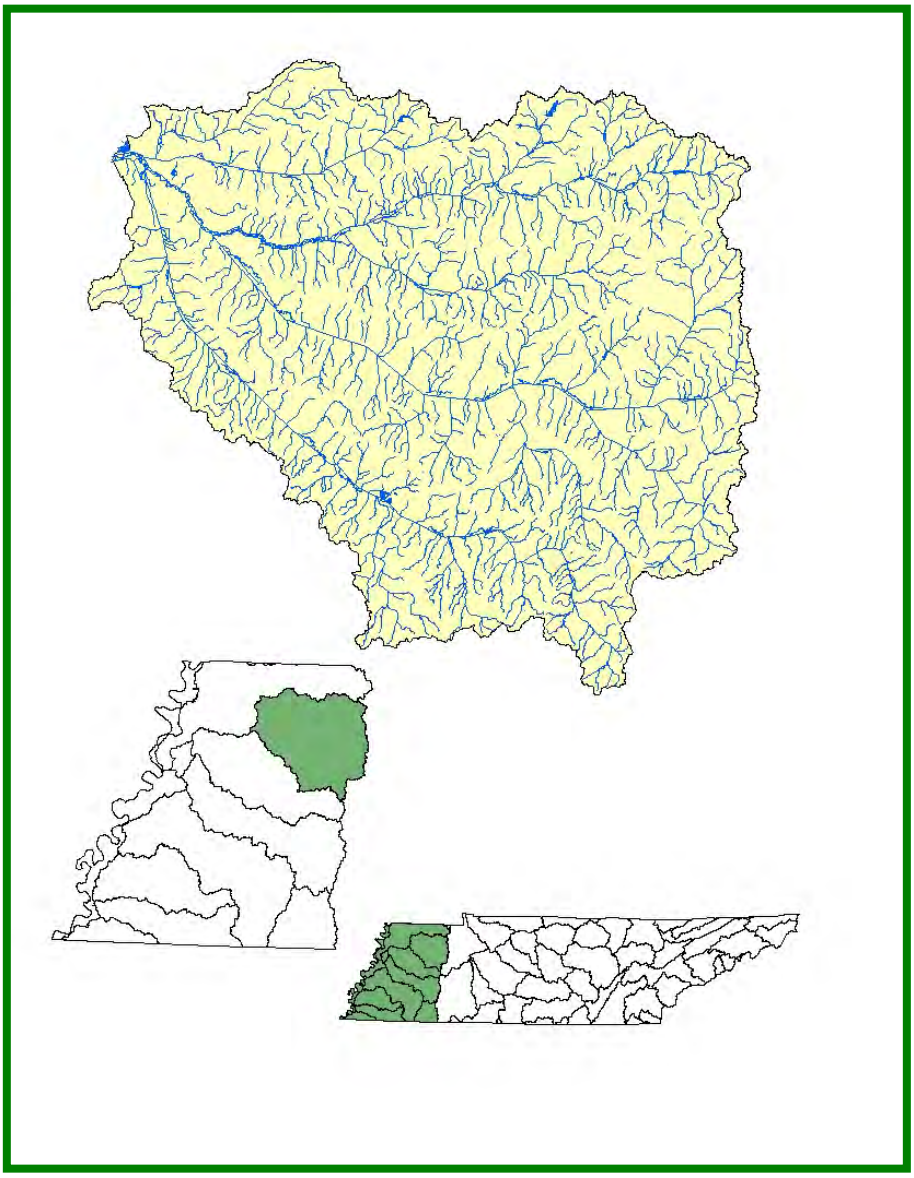
SOUTH FORK OBION RIVER WATERSHED (08010203) OF THE MISSISSIPPI RIVER BASIN

WATERSHED WATER QUALITY MANAGEMENT PLAN



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

SOUTH 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

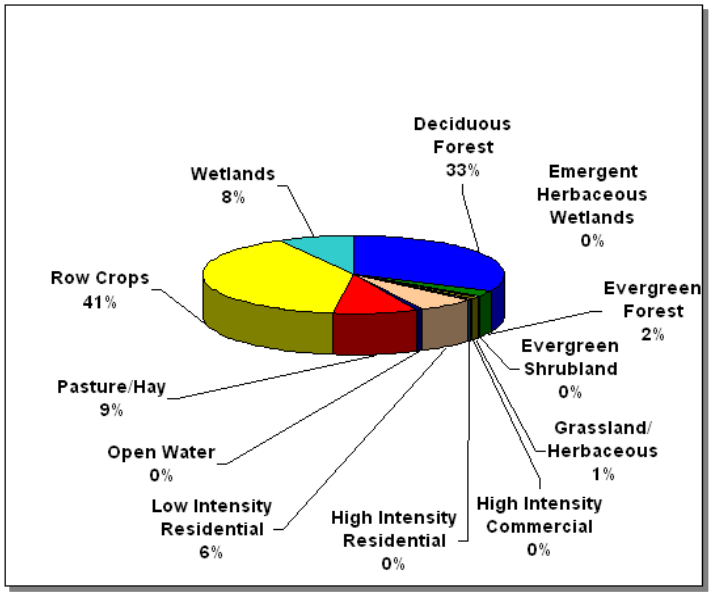
Summary – South Fork Obion River Watershed (08010203)

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 South 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.

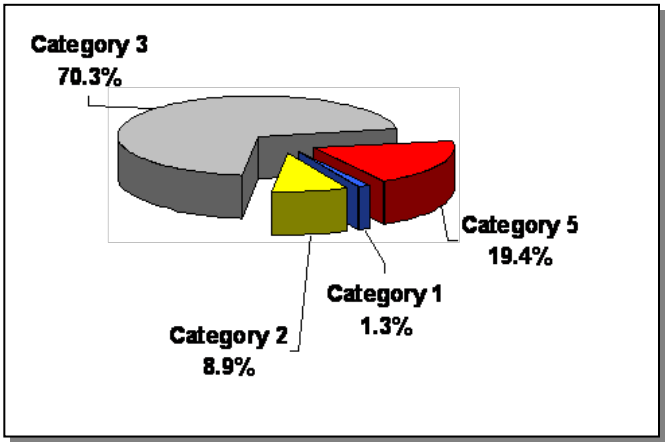
A detailed description of the watershed can be found in Chapter 2. The South Fork Obion River Watershed is approximately 1,157 square miles and includes parts of six Tennessee counties. A part of the Mississippi River drainage basin, the watershed has 1,841.1 stream miles.



Land Use Distribution in the South Fork Obion River Watershed.

One designated state natural area, three wildlife management areas, and four state wildlife refuges are located in the watershed. Twenty-two rare plant and animal species have been documented in the watershed, including two rare fish species.

A review of water quality sampling and assessment is presented in Chapter 3. Using the Watershed Approach to Water Quality, 482 sampling events occurred in the South Fork Obion River Watershed in 2000-2005. These were conducted at ambient, ecoregion or watershed monitoring sites. Monitoring results support the conclusion that 34.5% of stream miles assessed fully support one or more designated uses.



Water Quality Assessment of Streams and Rivers in the South Fork Obion River Watershed. Assessment data are based on the 2006 Water Quality Assessment of 1,841.1 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 map illustrates streams that are listed for impairment by specific causes (siltation).

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.

HUC-8	HUC-10	HUC-12
08010203	0801020301	080102030101 (Beaver Creek)
		080102030102 (South Fork Obion River)
		080102030103 (South Fork Obion River
		080102030104 (Reedy Creek)
		080102030105 (South Fork Obion River)
		080102030106 (South Fork Obion River
	0801020302	080102030201 (Crooked Creek)
		080102030202 (Guins Creek)
	0801020303	080102030301 (Middle Fork Obion River)
		080102030302 (Middle Fork Obion River)
		080102030303 (Middle Fork Obion River)
		080102030304 (Thompson Creek)
		080102030305 (Middle Fork Obion River)
	0801020304	080102030401 (Spring Creek, Upper)
		080102030402 (Spring Creek, Lower)
	0801020305	080102030501 (Mud Creek, Upper)
		080102030502 (Mud Creek, Lower
		080102030503 (Cane Creek)
	0801020306	080102030601 (Rutherford Fork Obion River)
		080102030602 (Rutherford Fork Obion River)
		080102030603 (Rutherford Ford Obion River
		080102030604 (Wolf Creek)
		080102030605 (Rutherford Fork Obion River)
		080102030606 (Rutherford Fork Obion River)

The South Fork Obion River Watershed is Composed of twenty-four USGS-Delineated Subwatersheds (12-Digit Subwatersheds).

Point source contributions to the Tennessee portion of the South Fork Obion River Watershed consist of 21 individual NPDES-permitted facilities. Other permits in the watershed (as of October 7, 2008) are CAFO permits (14), mining permits (31), Aquatic Resource Alteration Permits (64), Tennessee Multi-Sector Permits (52), Construction General Permits (60), UST Permits (1), and Ready Mix Concrete Plant Permits (4). 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 South 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). 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 South 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.

The full South 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.

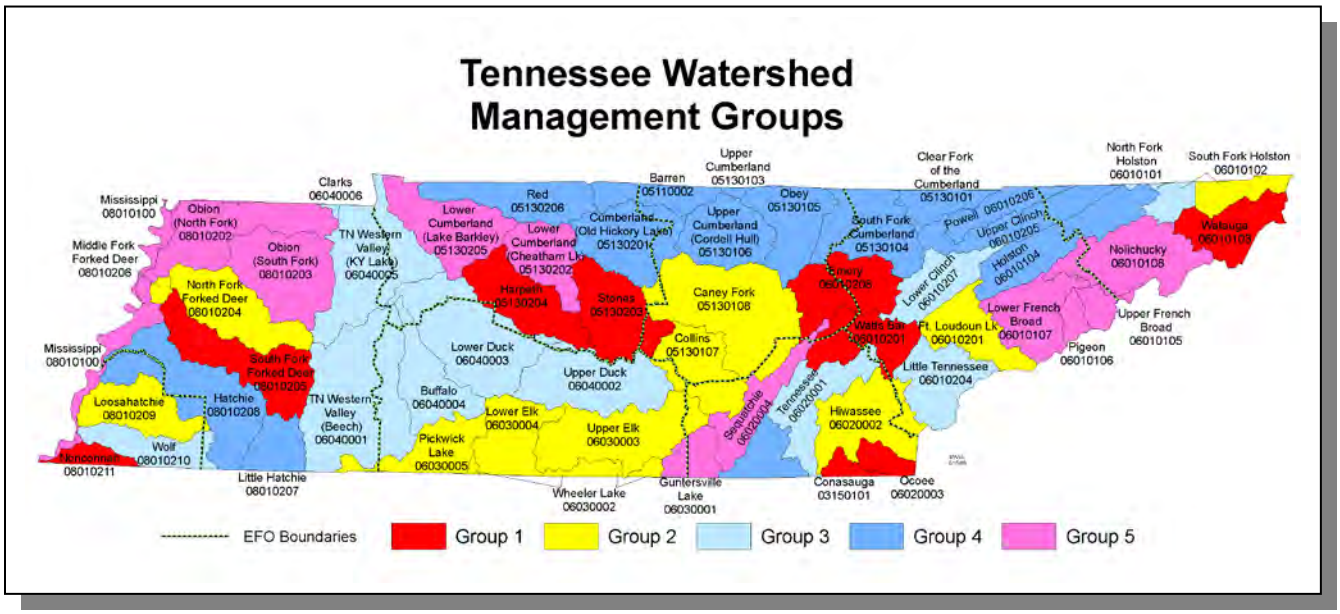


Figure 1-1. Watershed Groups in Tennessee's Watershed Approach to Water Quality.

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.

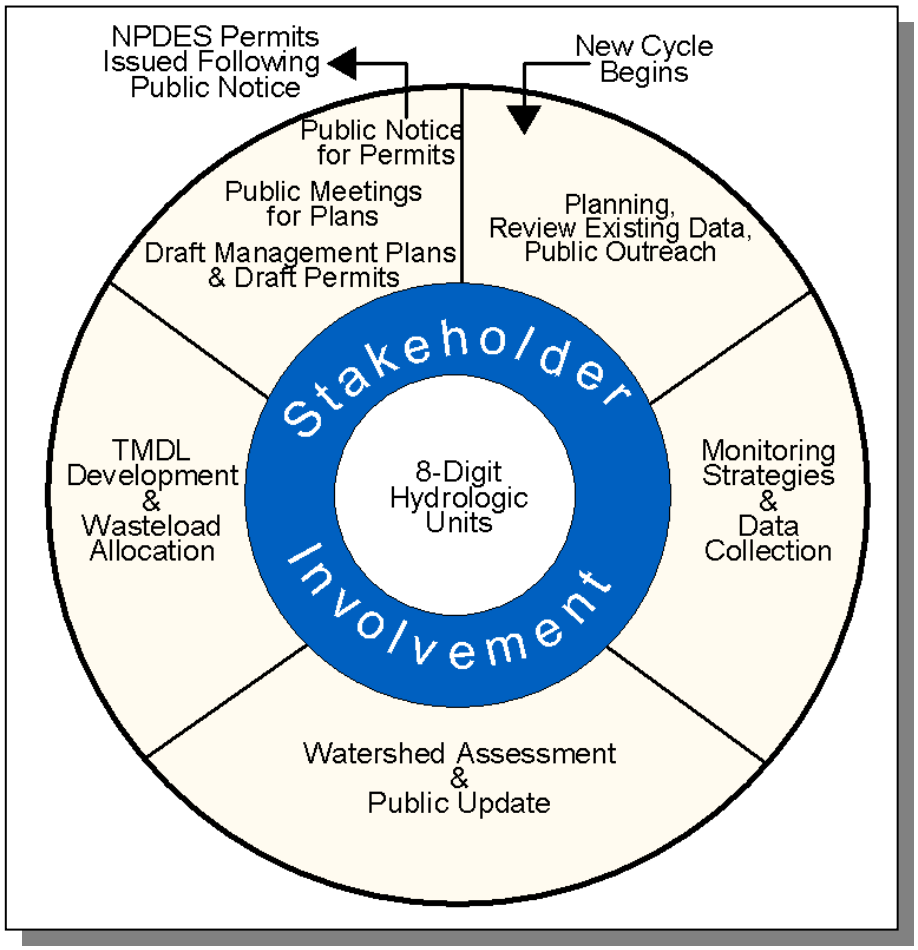


Figure 1-2. The Watershed Approach Cycle.

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 (SOUTH 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 Obion River (South Fork) Watershed.

2.2. DESCRIPTION OF THE WATERSHED.

2.2.A. General Location. The Obion River (South Fork) Watershed is located in West Tennessee and includes parts of Carroll, Gibson, Henderson, Henry, Obion, and Weakley Counties.

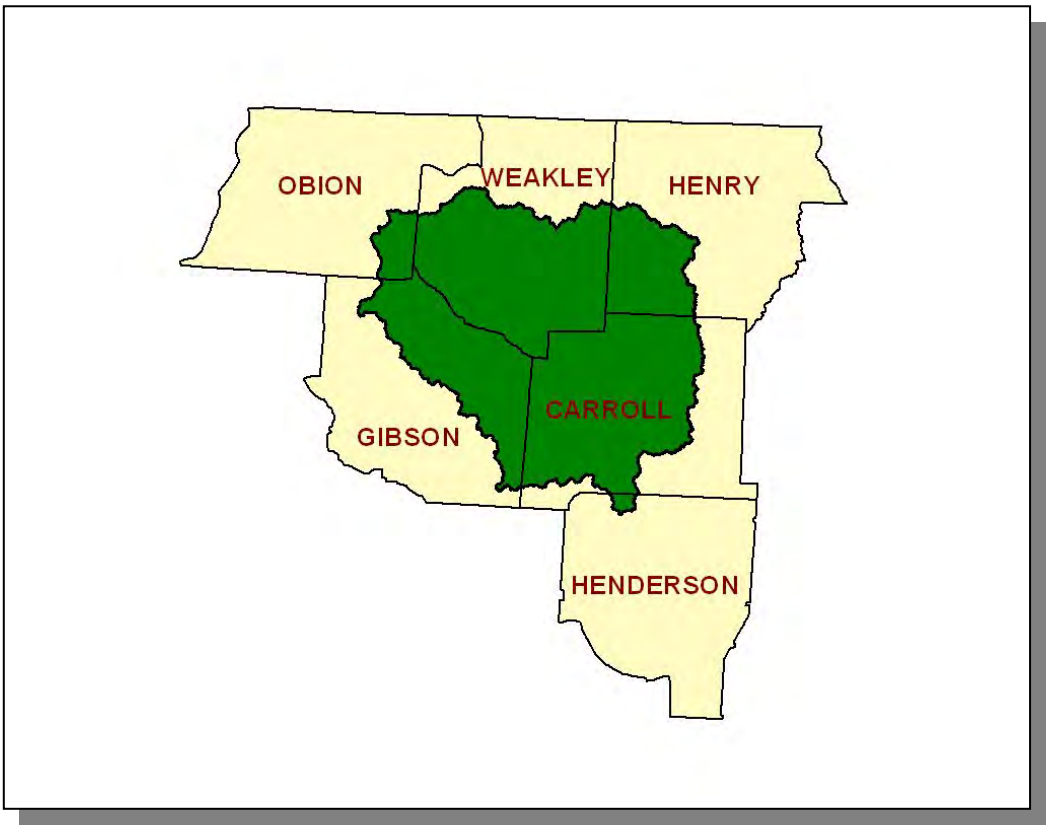


Figure 2-1. General Location of the Obion River (South Fork) River Watershed.

COUNTY	% OF WATERSHED IN EACH COUNTY
Carroll	33.85
Weakley	31.33
Gibson	20.03
Henry	11.02
Obion	3.25
Henderson	0.53

Table 2-1. The Obion River (South Fork) Watershed Includes Parts of Six West Tennessee Counties.

2.2.B. Population Density Centers. Twenty-nine highways serve the major communities in the Obion River (South Fork) Watershed.

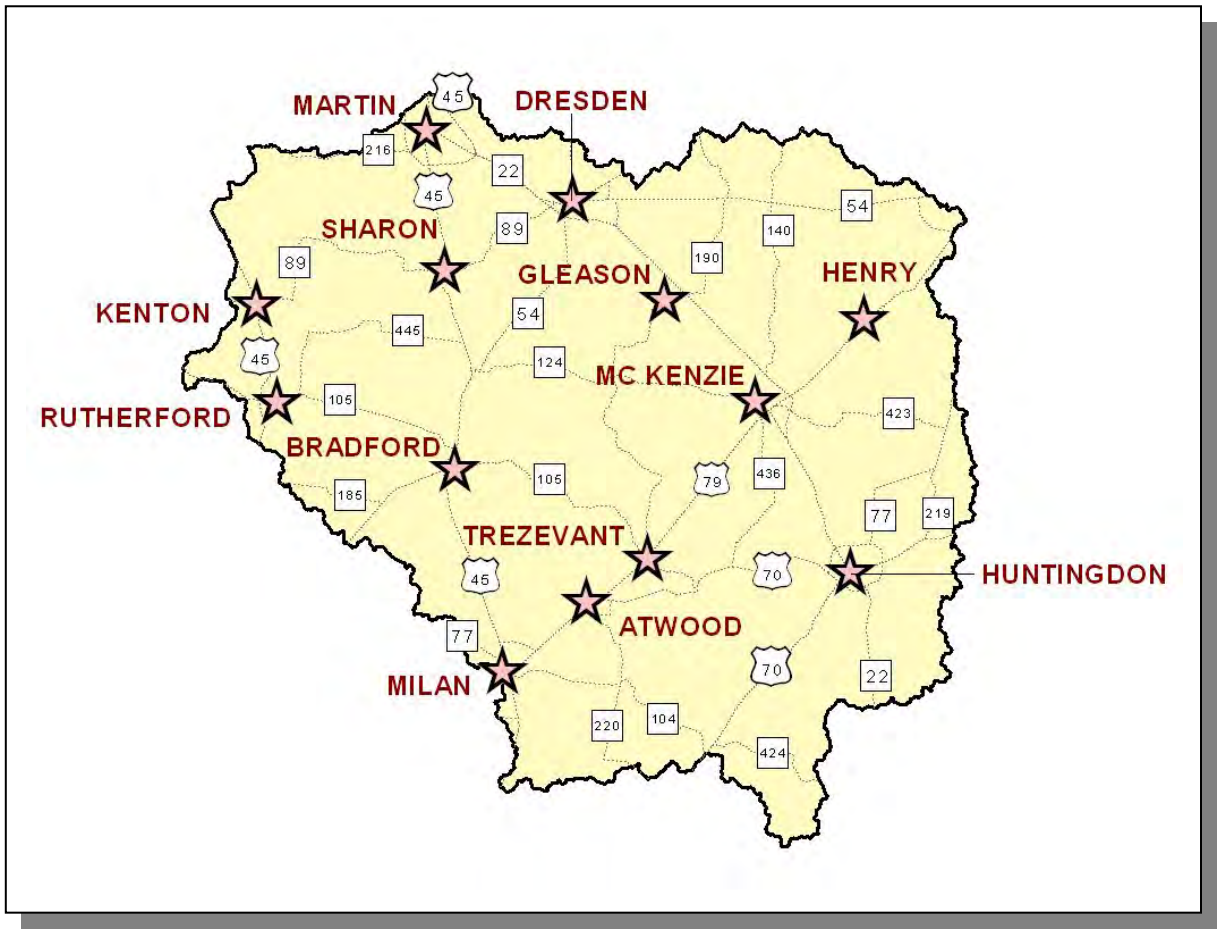


Figure 2-2. Communities and Roads in the Obion River (South Fork) Watershed.

MUNICIPALITY	POPULATION	COUNTY
Martin	10,515	Weakley
Milan	7,821	Gibson
McKenzie	5,295	Carroll, Henry, Weakley
Huntingdon*	4,349	Carroll
Dresden*	2,855	Weakley
Gleason	1,463	Weakley
Kenton	1,306	Gibson, Obion
Rutherford	1,272	Gibson
Bradford	1,113	Gibson
Atwood	1,000	Carroll
Sharon	988	Weakley
Trezevant	901	Carroll
Henry	520	Henry

Table 2-2. Municipalities in the Obion River (South Fork). *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 Obion River (South Fork) Watershed, designated 08010203 by the USGS, is approximately 1,157 square miles and drains to the Obion River.

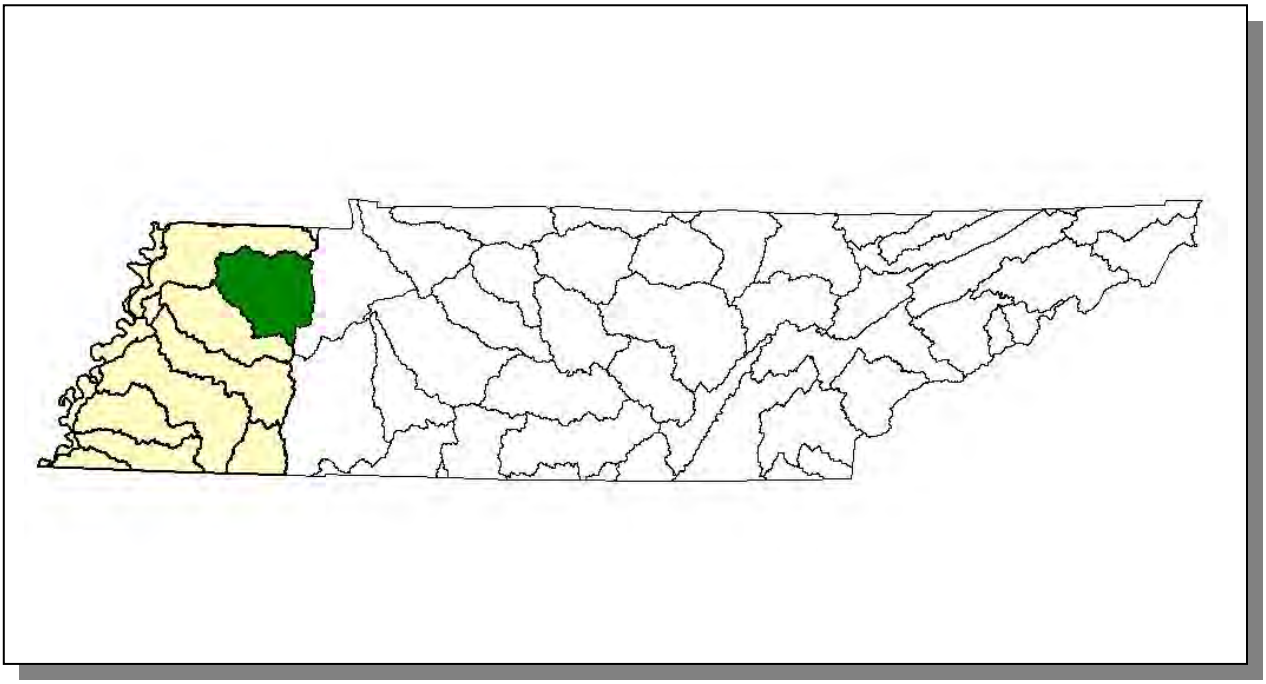


Figure 2-3. The Obion River (South Fork) Watershed is Part of the Mississippi River Basin.

Figure 2-4. Hydrology in the Obion River (South Fork) Watershed. *There are 1,841.1 stream miles recorded in River Reach File 3 in the Obion River (South Fork) Watershed. Location of the South Fork Obion River and the cities of Bradford, Dresden, Huntingdon, Kenton, Martin, McKenzie, Milan are shown for reference.*

2.3.B. Dams. There are 78 dams inventoried by TDEC Division of Water Supply in the Obion River (South Fork) Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.

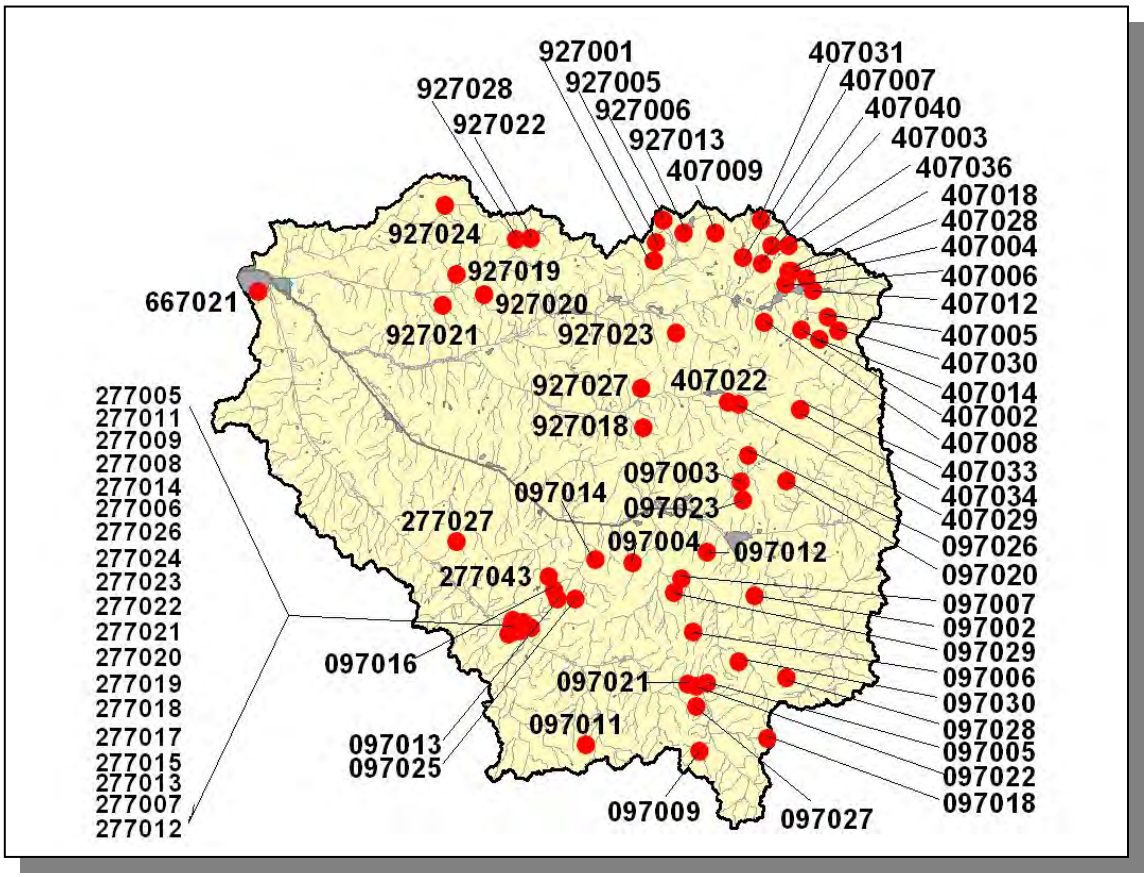


Figure 2-5. Location of Inventoried Dams in the Obion River (South Fork) Watershed. *More information, including identification of inventoried dams labeled, is provided in Appendix II and at http://gwidc.memphis.edu/website/dams/viewer.htm.*

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.

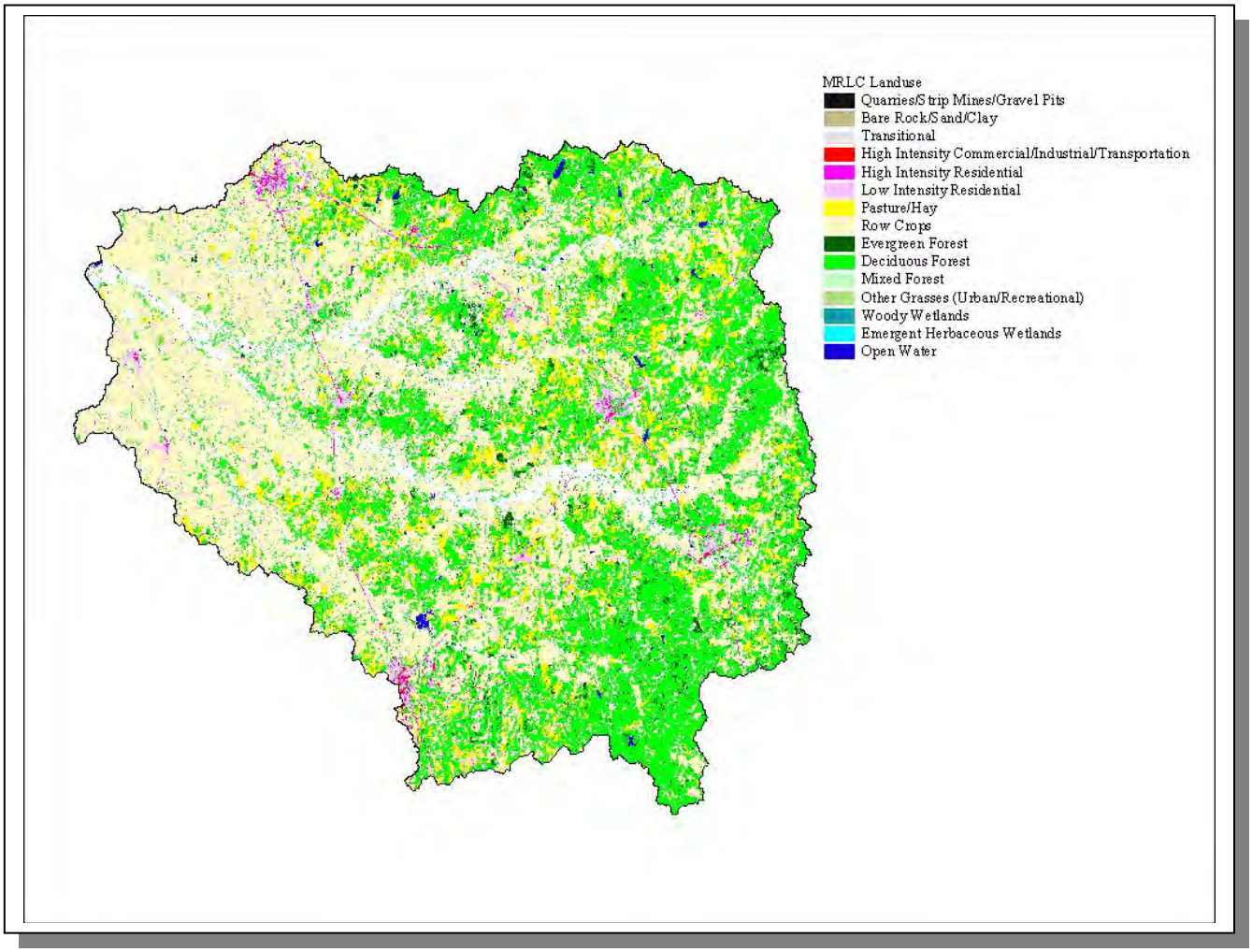


Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery.

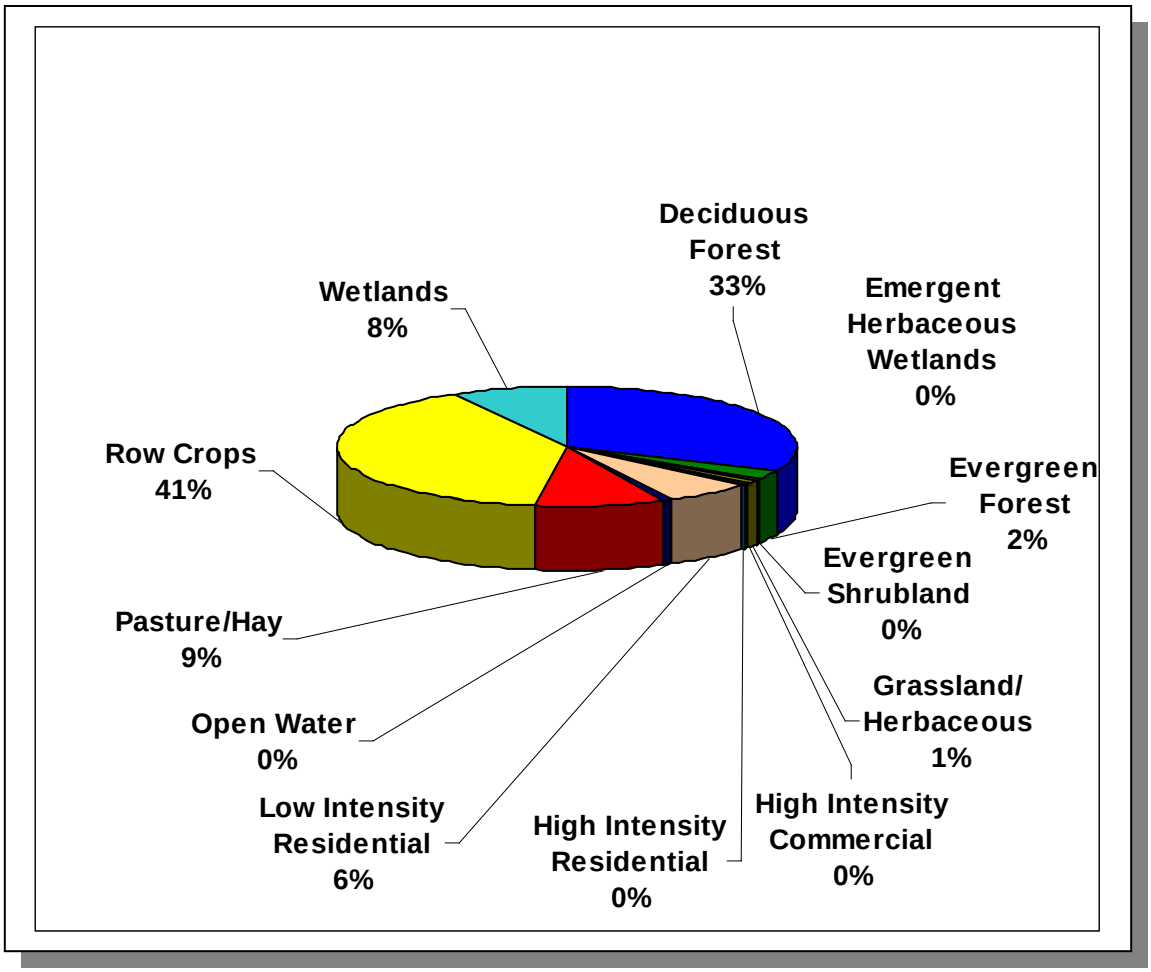


Figure 2-7. Land Use Distribution in the Obion River (South Fork) Watershed. *More information is provided in Appendix II.*

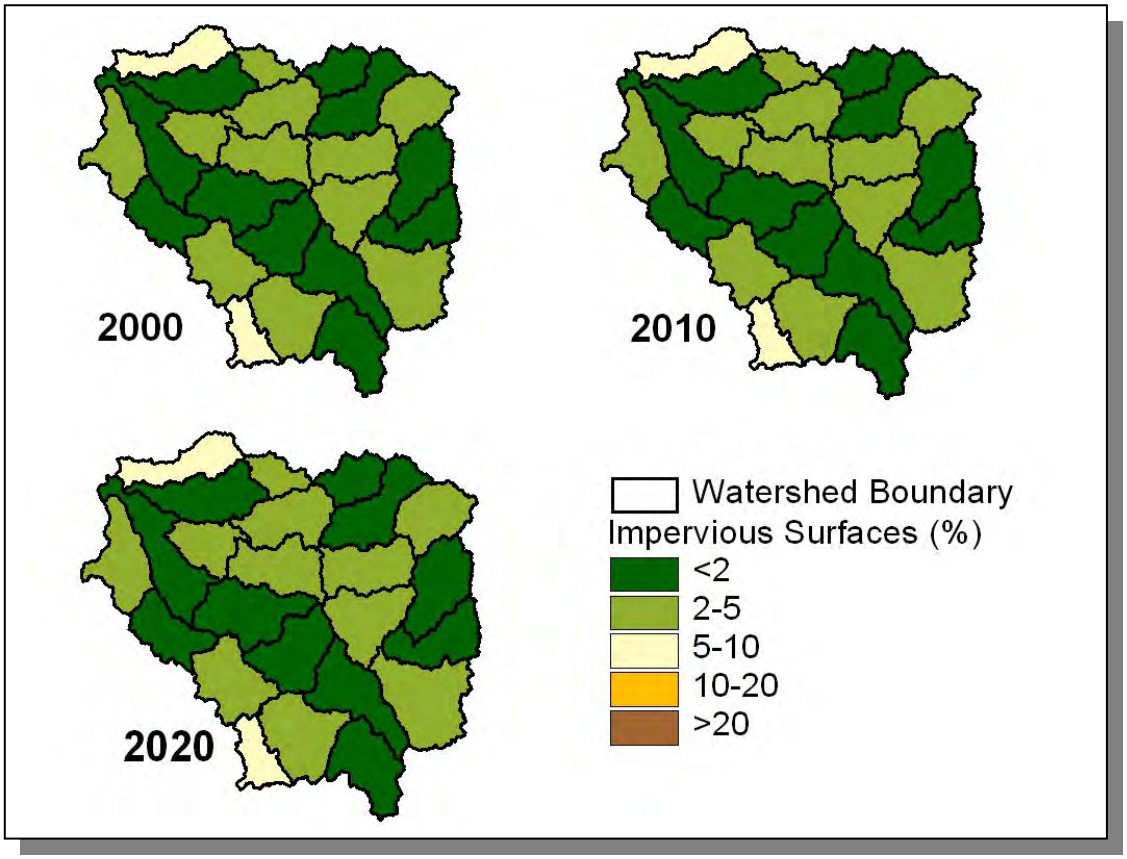


Figure 2-8. Illustration of Total Impervious Area in the Obion River (South Fork) Watershed. *All HUC-12 subwatersheds are shown. Current estimates and projected total impervious cover calculated by HUC-12 are provided by EPA Region 4. More information can be found at: http://www.epa.gov/ATHENS/research/impervious/.*

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 (South Fork) River Watershed lies within 2 Level III ecoregions (Southeastern Plains and Mississippi Valley Loess Plains) and contains 2 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 **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.

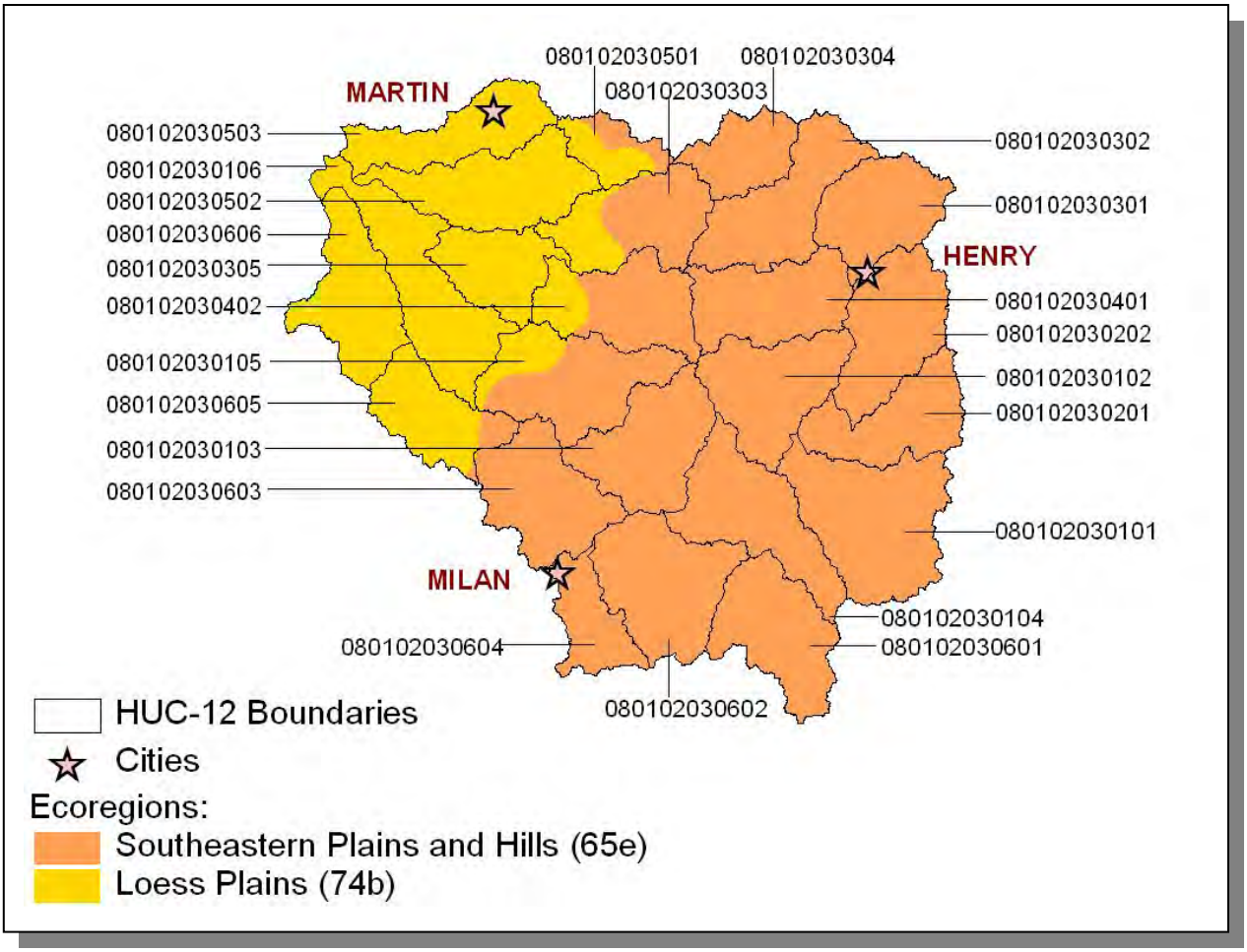


Figure 2-9. Level IV Ecoregions in the Obion River (South Fork) Watershed. *HUC-12 subwatershed boundaries and locations of Henry, Martin, and Milan are shown for reference.*

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

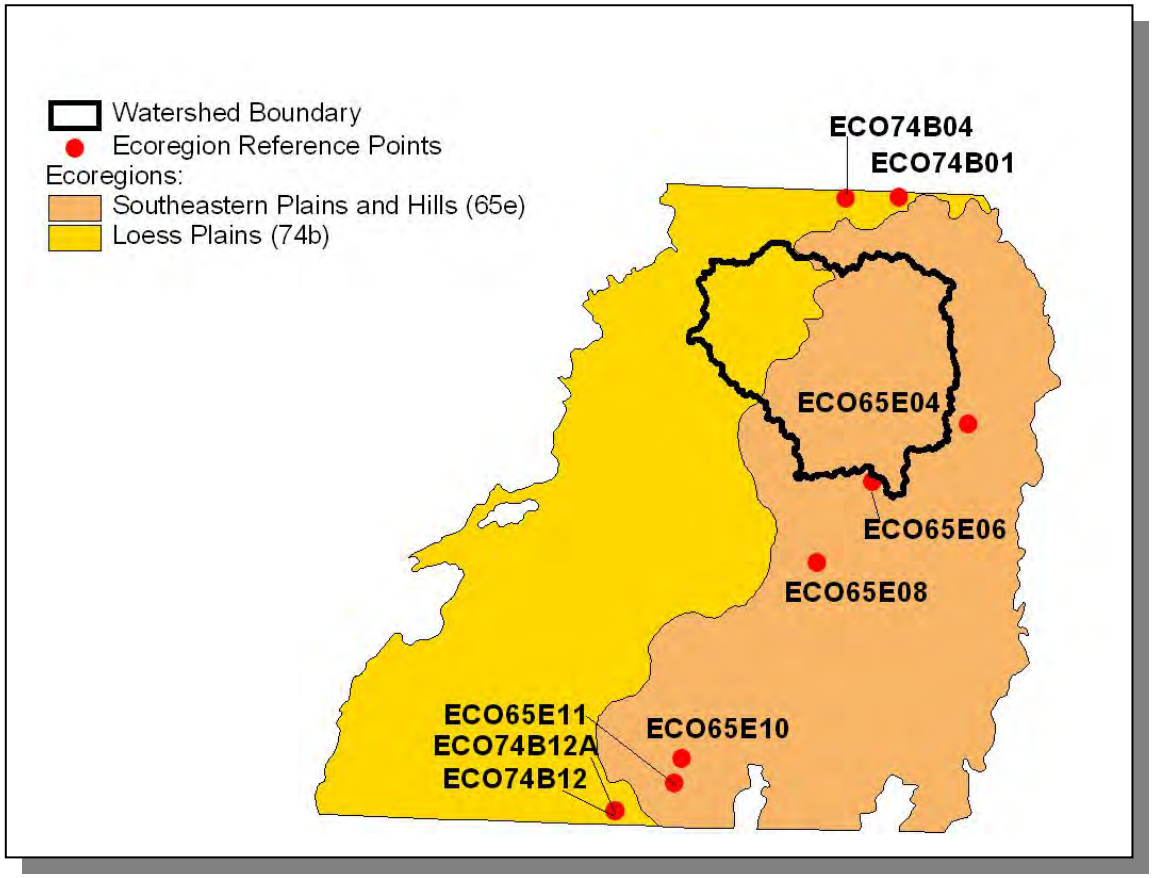


Figure 2-10. Ecoregion Monitoring Sites in Level IV Ecoregions 65e and 74b. *The Obion River (South Fork) Watershed is shown for reference. More information, including which ecoregion reference sites were inactive or dropped prior to 06/01/2006, is provided in Appendix II.*

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 (South Fork) Watershed has one Designated State Natural Area:

Big Cypress is a 270-acre natural area in Weakley County. It is a bottomland hardwood and bald cypress forest that occurs along the old river meanders and the channelized Middle Fork of the Obion River (MFOR). A bald cypress forest is present in the many sloughs and the depressional areas along the river. This forest is comprised of bald cypress, river birch, sweet gum, sycamore, overcup oak, water oak, willow oak, and cherrybark oak. The bottomland hardwood forest that occurs at higher locations includes green ash, swamp chestnut oak, red maple, and slippery elm with some white oak.

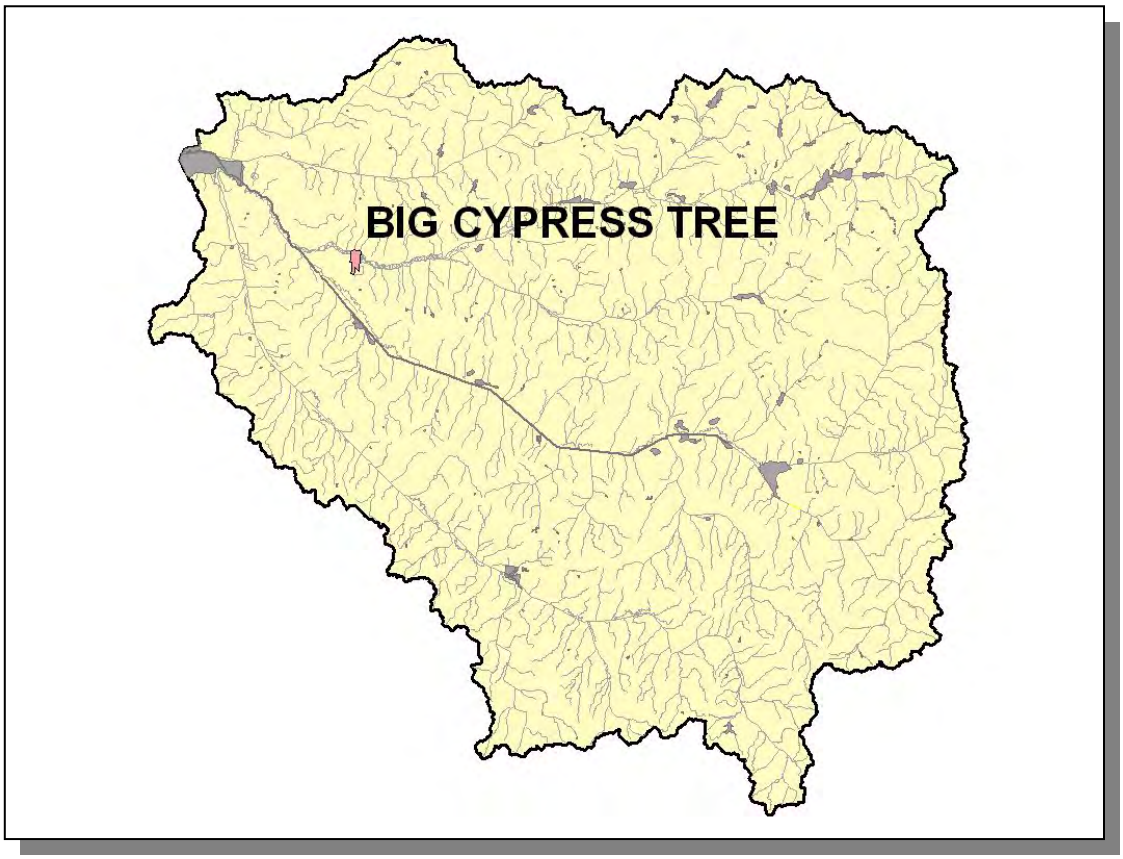


Figure 2-11. There is One Designated State Natural Area in the Obion River (South Fork) Watershed.

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
Amphibians	1
Birds	8
Fish	2
Mammals	5
Plants	6
Total	**22**

Table 2-3. There are 22 Known Rare Plant and Animal Species in the Obion River (South Fork) Watershed.

In the Obion River (South Fork) Watershed, there are two known rare fish species and one known rare amphibian species.

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
Etheostoma pyrrhogaster	Firebelly Darter		D
Noturus stigmosus	Northern Madtom		D
Hyla gratiosa	Barking Treefrog		D

Table 2-4. Rare Aquatic Species in the Obion River (South Fork) Watershed. *State Status: 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/

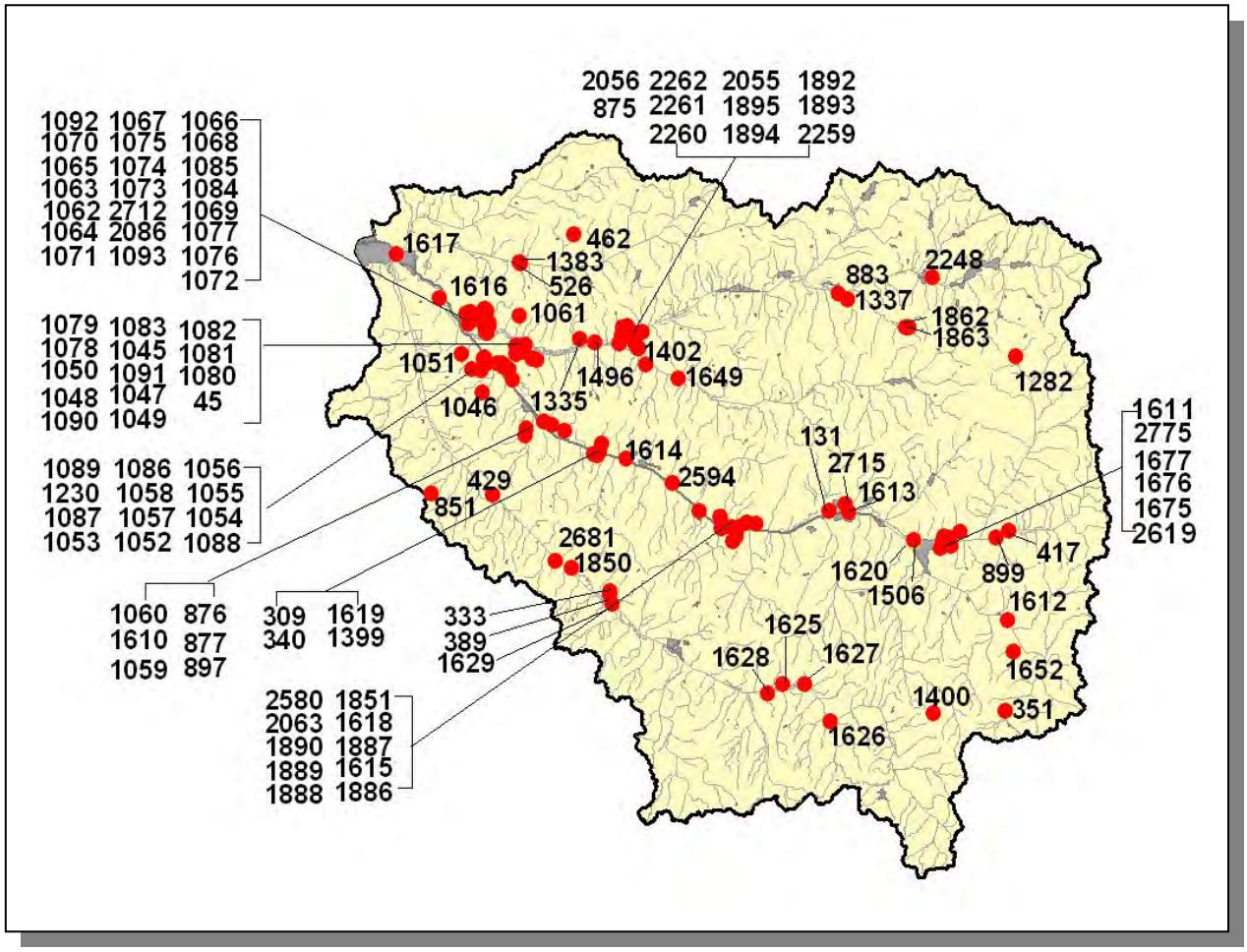


Figure 2-12. Location of Wetland Sites in TDEC Division of Natural Areas Database in Obion River (South Fork) Watershed. ***This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands.*** *There may be additional wetland sites in the watershed.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

2.7. CULTURAL RESOURCES.

2.7.A. Public Lands. Some sites representative of the cultural heritage are under state or federal protection:

- Bean Switch Refuge is a 719-acre parcel of land managed by the TWRA. More information may be found at: http://www.state.tn.us/twra/gis/wmapdf/BeanSwitch.pdf

- Gooch WMA is a 5,710-acre parcel of land managed by TWRA. More information may be found at: http://www.state.tn.us/twra/gis/wmapdf/Gooch.pdf

- Harts Mill Refuge is a 542-acre site managed by TWRA. More information may be found at: http://www.fws.gov/southeast/planning/PDFdocuments/HatchieFinal/Hatchie%20Final%20CCP.pdf

- Hop-In Refuge is a 681-acre site managed by the Tennessee Wildlife Resources Agency (TWRA). More information may be found at: http://www.state.tn.us/twra/gis/wmapdf/HopIn.pdf

- Jarrell Switch Refuge is a 218-acre site managed by the TWRA. More information may be found at: http://www.state.tn.us/twra/gis/wmapdf/JarrellSwitchRefuge.pdf

- Milan Arsenal WMA is an 11,717-acre site managed by the TWRA. More information may be found at: http://www.southeasternoutdoors.com/outdoors/hunting/tennessee-wma-region1.html

- Obion River WMA is a 188-acre site managed by TWRA. More information may be found at: http://www.state.tn.us/twra/gis/wmapdf/ObionRiver.pdf

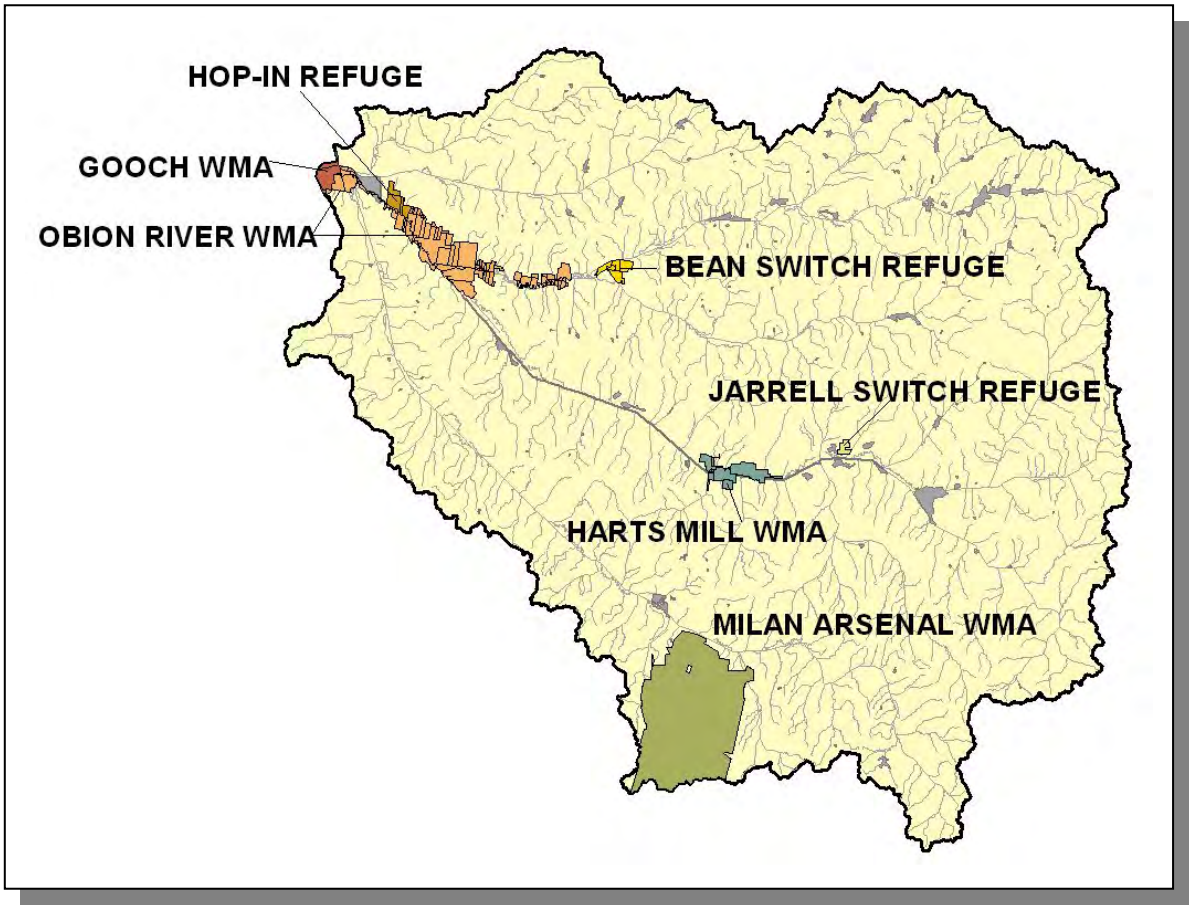


Figure 2-13. Public Lands in the Obion River (South Fork) Watershed. *Data are from Tennessee Wildlife Resources Agency. WMA, Wildlife Management Area.*

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
Bear Creek	4			Johns Creek	3		
Beaver Creek Canal	3			Lick Creek	4		
Brier Creek	4			Middle Fork Obion River	2,3	2,3	1
Cane Creek (Mud Creek)	4		3	Mud Creek	4		4
Cane Creek (Rutherford Fork Obion River)	3			Old Town Creek	3		
Chestnut Branch Mud Creek	4			Reedy Creek	4		
Clear Creek	3			Rutherford Fork Obion River	3	2	3
Crooked Creek	4	3	2	South Fork Obion River	2	2,3	
DeMoss Creek	3			Spring Creek	3	2,3	2
East Fork Wolf Creek	4			Thompson Creek	4		3
Edmondson Creek	4			Todd Branch South Fork Obion River	3		
Guins Creek	4		2	Trainer Creek	4		
Halley Creek	4			Tumbling Creek	3		
Halls Branch Johns Creek	4			White Creek	3		

Table 2-5. Tennessee Rivers Assessment Project Stream Scoring in the South 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 (SOUTH 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 Obion River (South 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.

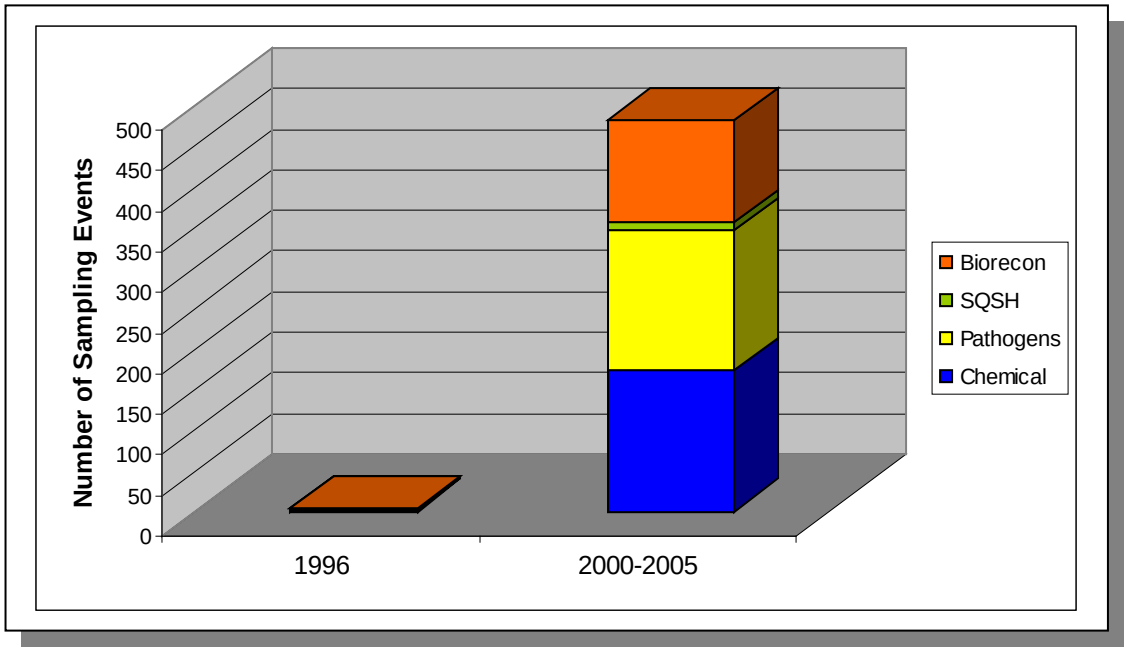


Figure 3-1. Number of Sampling Events Using the Traditional Approach (1996) and Watershed Approach (July 1, 2000 through June 30, 2005) in the Obion River (South Fork) Watershed.

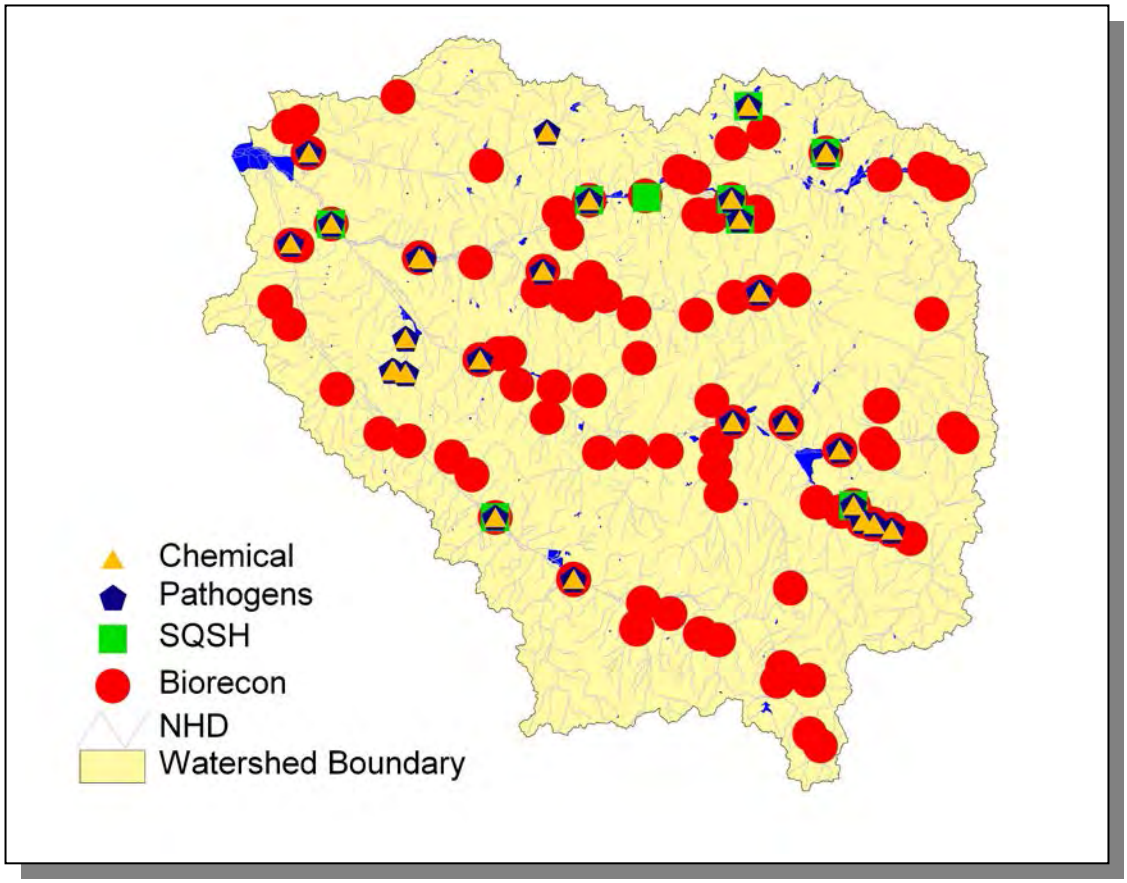


Figure 3-2. Location of Monitoring Sites in the Obion River (South Fork) Watershed (July 1, 2000 through June 30, 2005). *Pathogens include E. coli and fecal coliform; NHD, National Hydrography Dataset of Streams; SQSH, Semi-Quantitative Single Habitat Assessment.*

	1996	2000-2005
Chemical	1	173
Pathogens	1	173
SQSH	1	10
Biorecon	0	126
Total	**3**	**482**

Table 3-1. Number of Sampling Events in the Obion River (South 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 Obion River (South 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 Obion River (South Fork) Watershed lies within 2 Level III ecoregions (Southeastern Plains and Mississippi Valley Loess Plains) and contains 2 subecoregions (Level IV):

- Southeastern Plains and Hills (65e)
- 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.

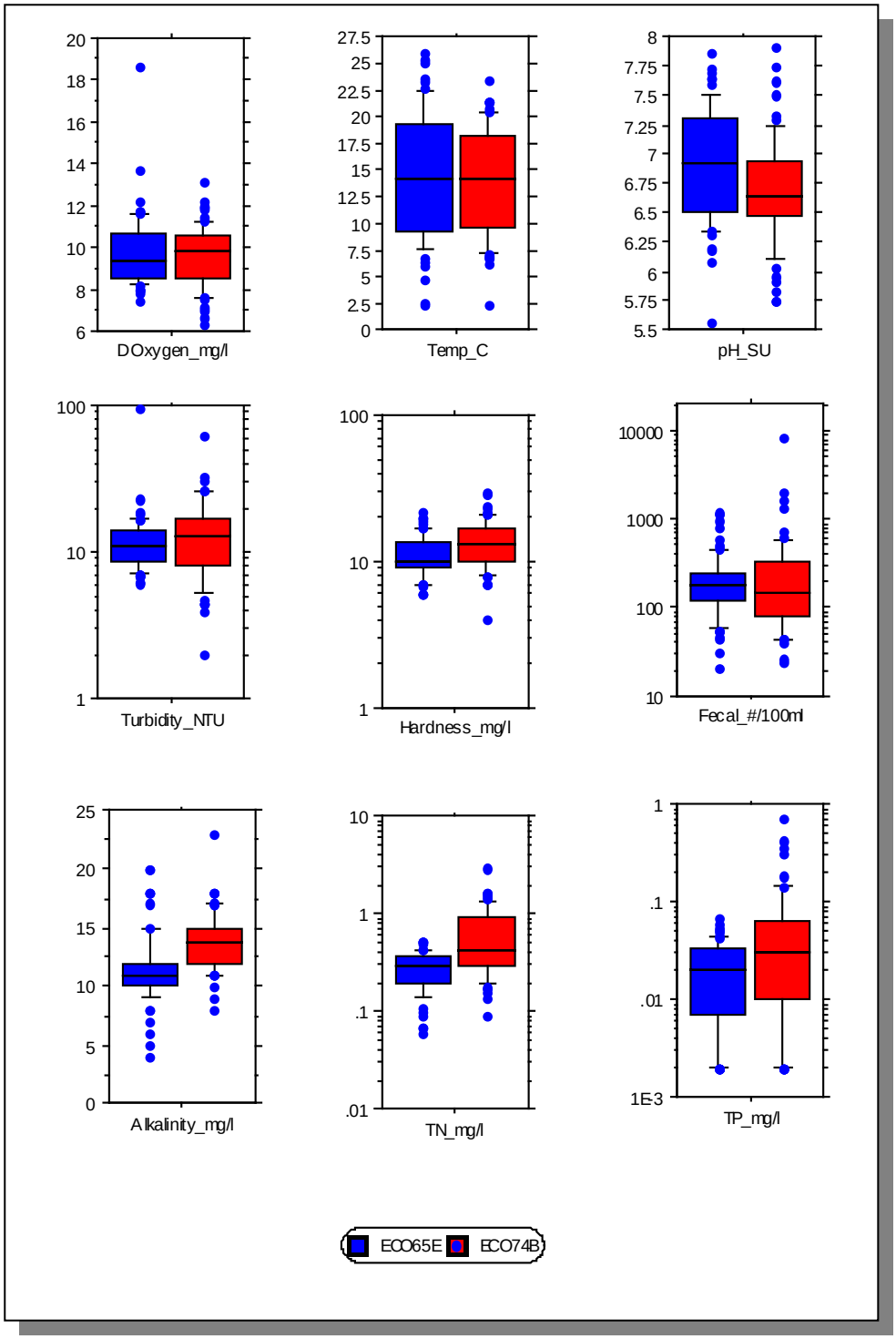


Figure 3-3. Select Chemical Data Collected in Obion River (South Fork) Watershed Ecoregion Sites. *Boxes and bars illustrate 10th, 25th, median, 75th, and 90th percentiles. Extreme values are also shown as dots. Fecal, fecal coliform bacteria; TN, Total Nitrogen; TP, Total Phosphorus.*

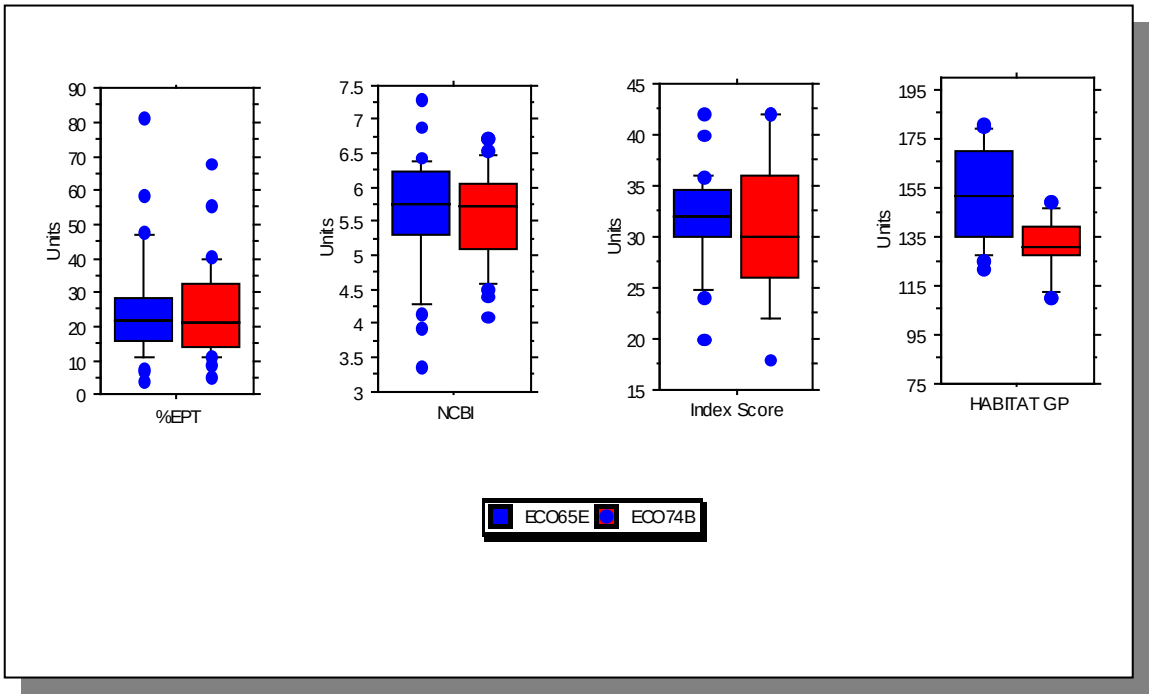


Figure 3-4. Benthic Macroinvertebrate and Habitat Scores for the Obion River (South Fork) Watershed Ecoregion Sites. *Boxes and bars illustrate 10th, 25th, median, 75th, and 90th percentiles. Extreme values are also shown as dots. NCBI, North Carolina Biotic Index. Index Score and Habitat Riffle/Run 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	1,840.5	0
Assessed	546.0	0
Category 1	24.2	0
Category 2	164.1	0
Category 3	1,294.5	0
Category 4	0.0	0
Category 5	357.7	0

Table 3.2. Use Support Categories (Stream Miles and/or Reservoir Acres) in the Obion River (South 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.

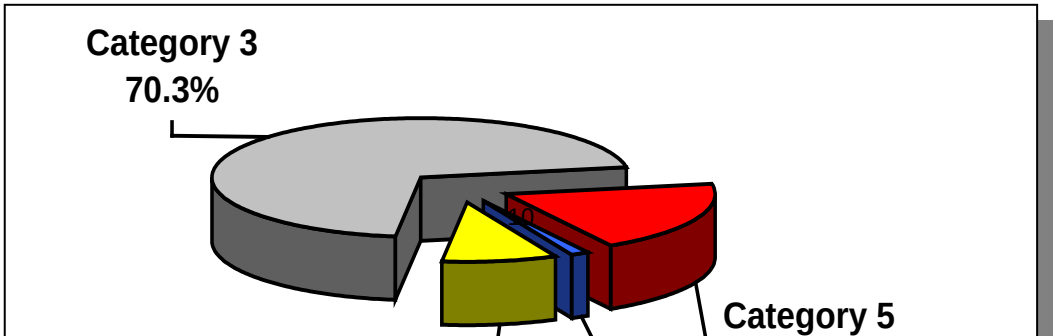


Figure 3-5. Water Quality Assessment of Streams in the Obion River (South Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment of 1,840.5 stream miles in the watershed.*

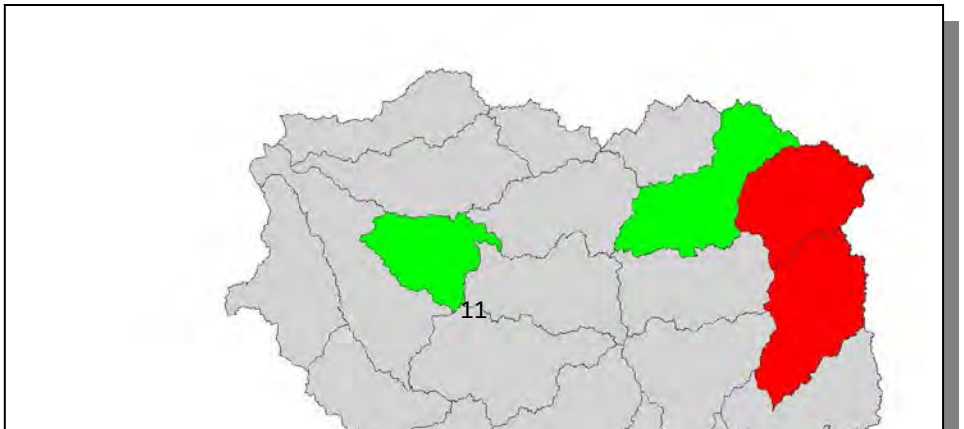


Figure 3-6. Percentage of Stream Miles Assessed for Support of Fish and Aquatic Life Designated Use in HUC-12 Subwatersheds.

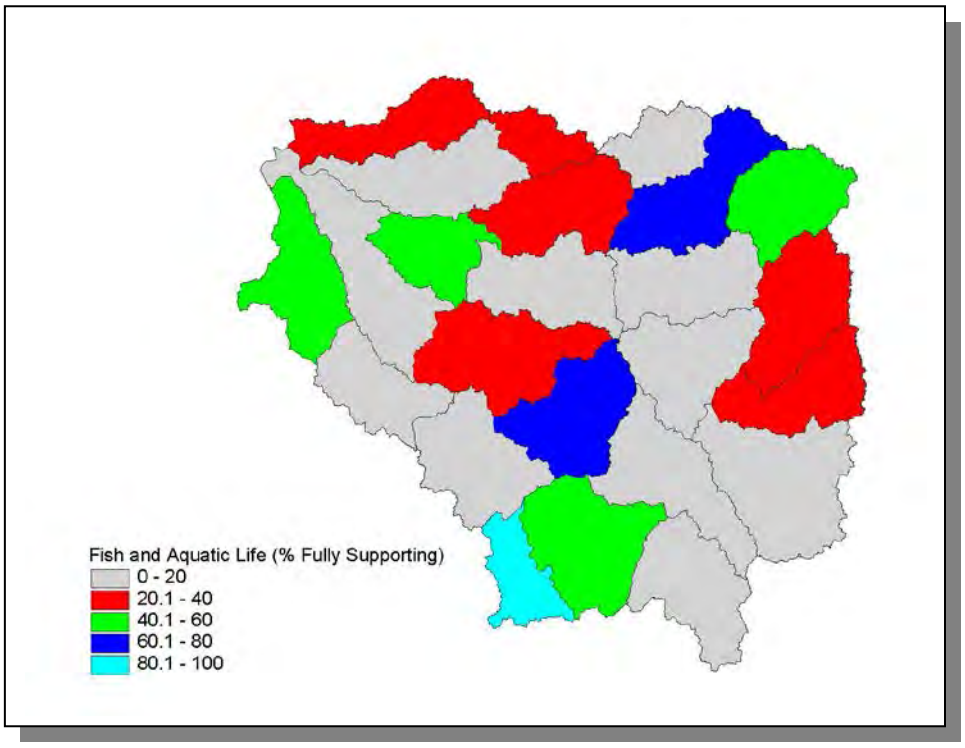


Figure 3-7. Percentage of Stream Miles Fully Supporting for Fish and Aquatic Life Designated Use in HUC-12 Subwatersheds.

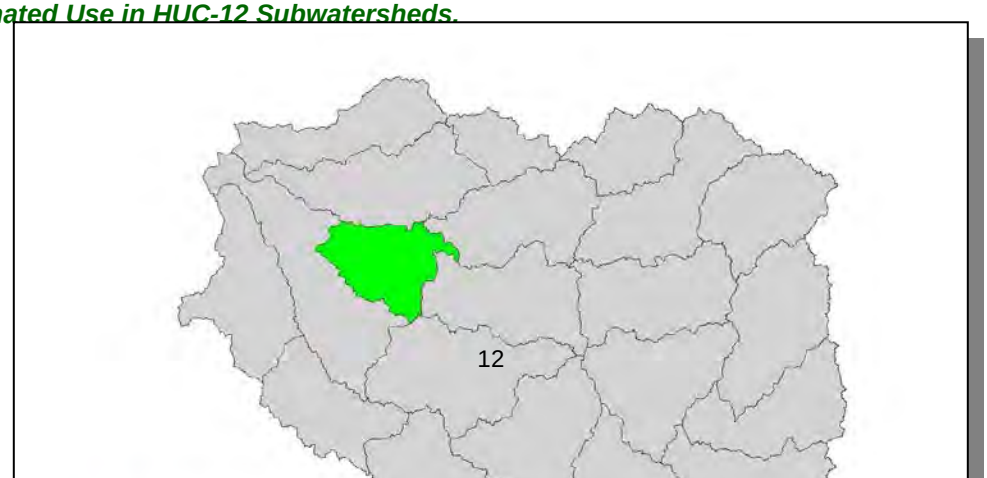


Figure 3-8. Percentage of Stream Miles Assessed for Support of Recreation Designated Use in HUC-12 Subwatersheds.

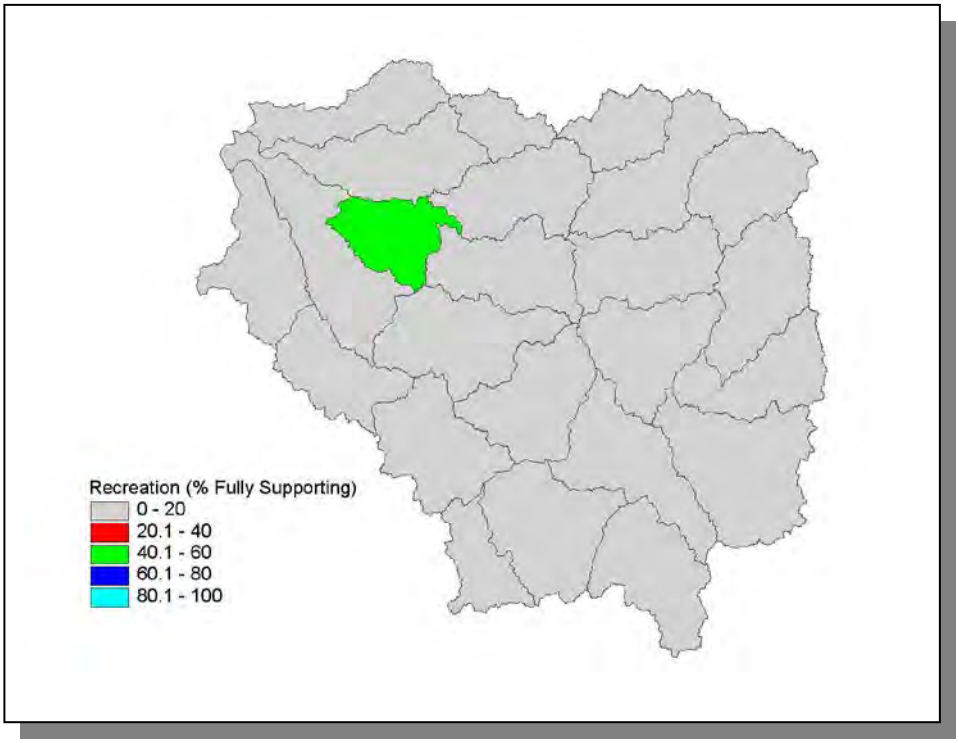


Figure 3-9. Percentage of Stream Miles Fully Supporting for Recreation Designated Use in HUC-12 Subwatersheds.

3.3.A. Assessment Summary.

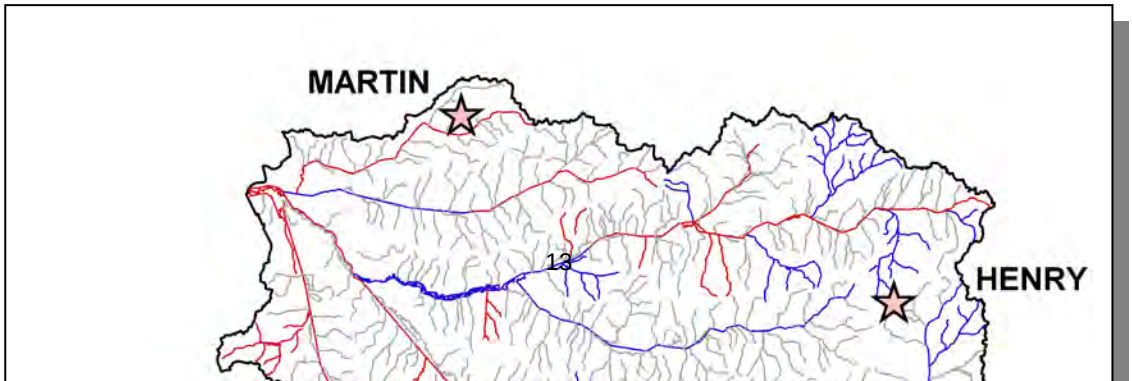


Figure 3-10. Overall Use Support Attainment in the Obion River (South Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of Henry, Martin, Milan and Trezevant are shown for reference. More information is provided in Appendix III.*

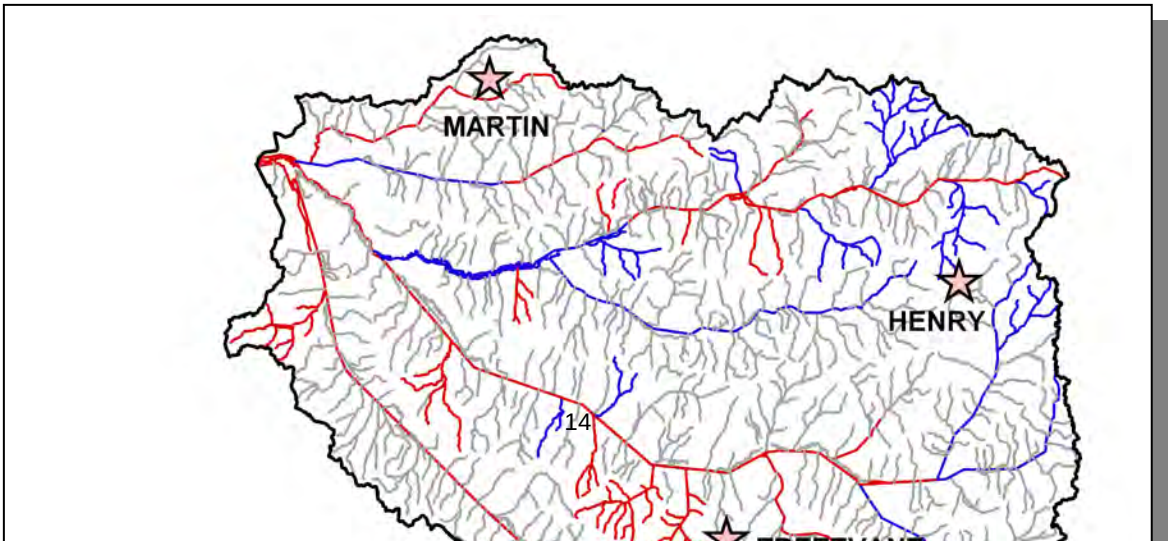


Figure 3-11. Fish and Aquatic Life Use Support Attainment in the Obion River (South Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of Henry, Martin, Milan and Trezevant are shown for reference. More information is provided in Appendix III.*

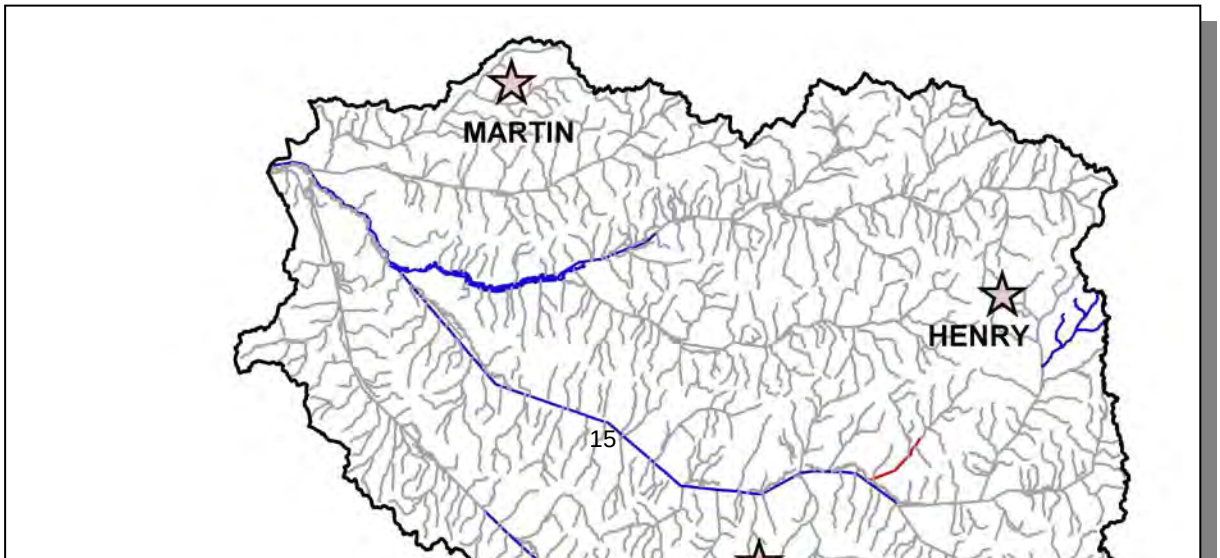


Figure 3-12. Recreation Use Support Attainment in the Obion River (South Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of Henry, Martin, Milan and Trezevant are shown for reference. More information is provided in Appendix III.*

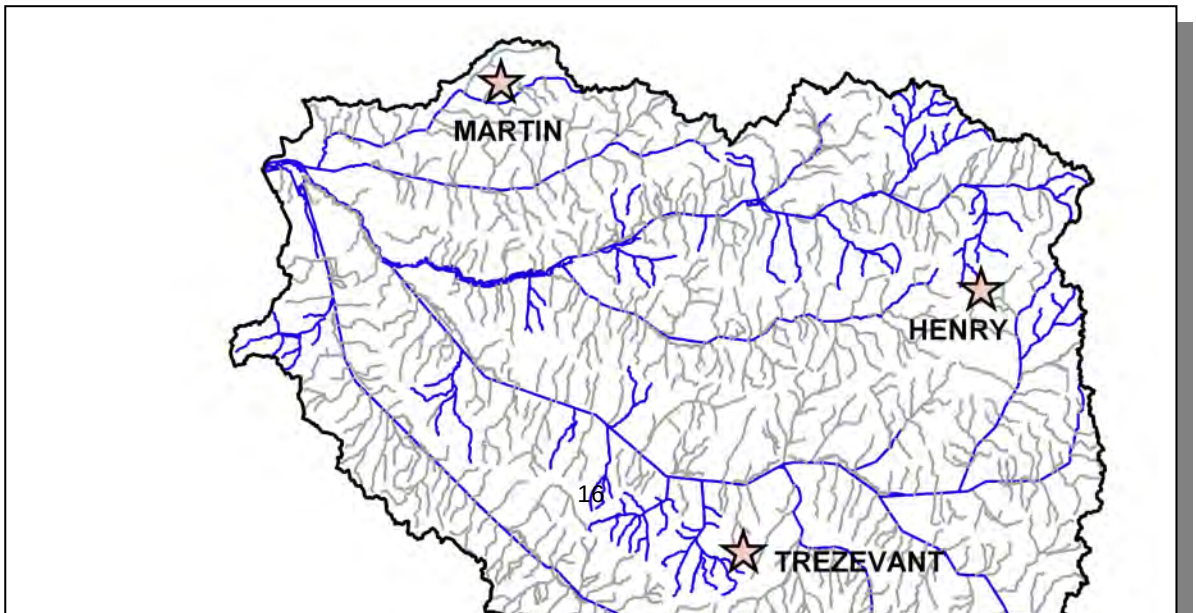


Figure 3-13. Irrigation Use Support Attainment in the Obion River (South Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of Henry, Martin, Milan and Trezevant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

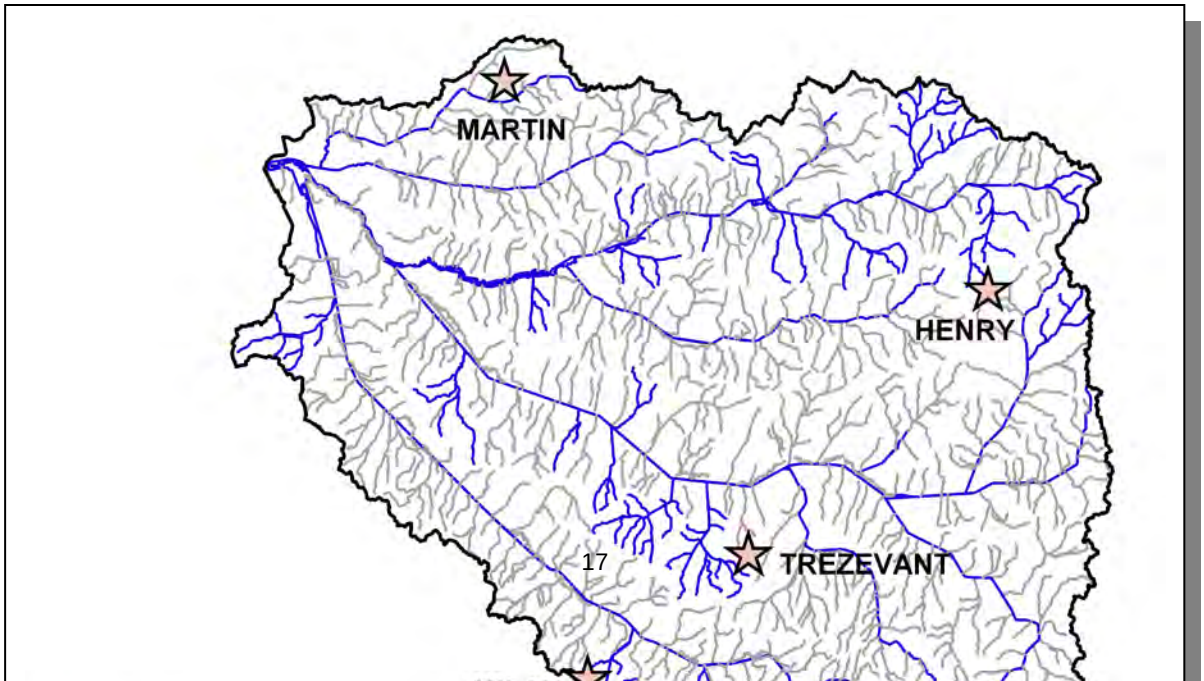


Figure 3-14. Livestock Watering and Wildlife Use Support Attainment in the Obion River (South Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Water Quality Standards are described at http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm. Locations of Henry, Martin, Milan and Trezevant are shown for reference. More information is provided in Appendix III.*

3.3.B. Use Impairment Summary.

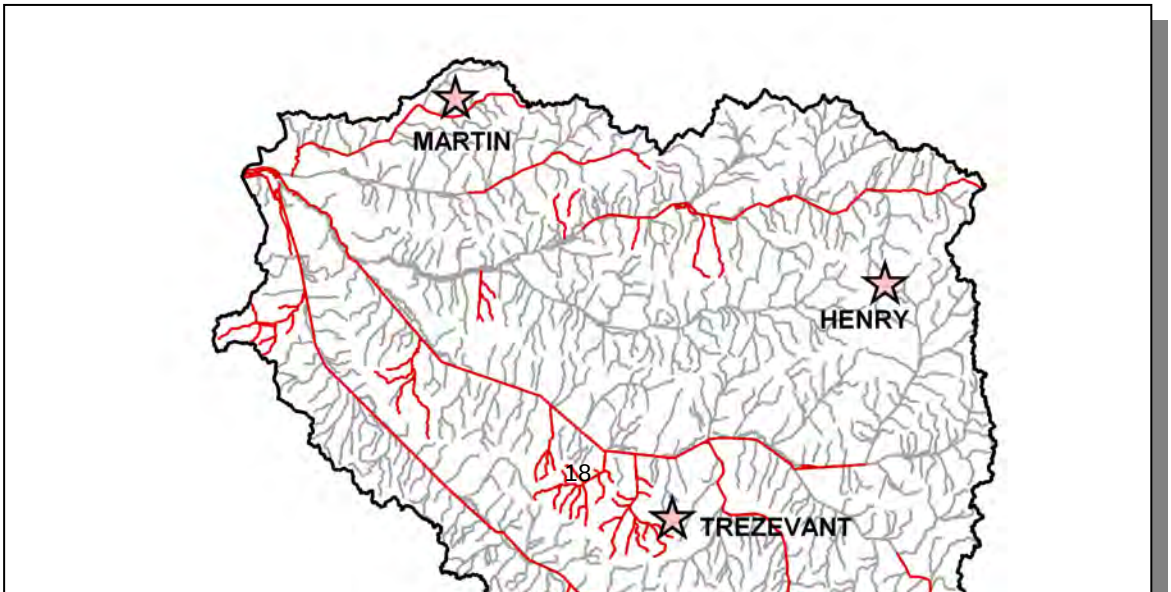


Figure 3-15. Impaired Streams Due to Siltation in the Obion River (South Fork) Watershed. *Assessment data are based on the 2006 Water Quality Assessment. Locations of Henry, Martin, Milan and Trezevant are shown for reference. More information is provided in Appendix III.*

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/.

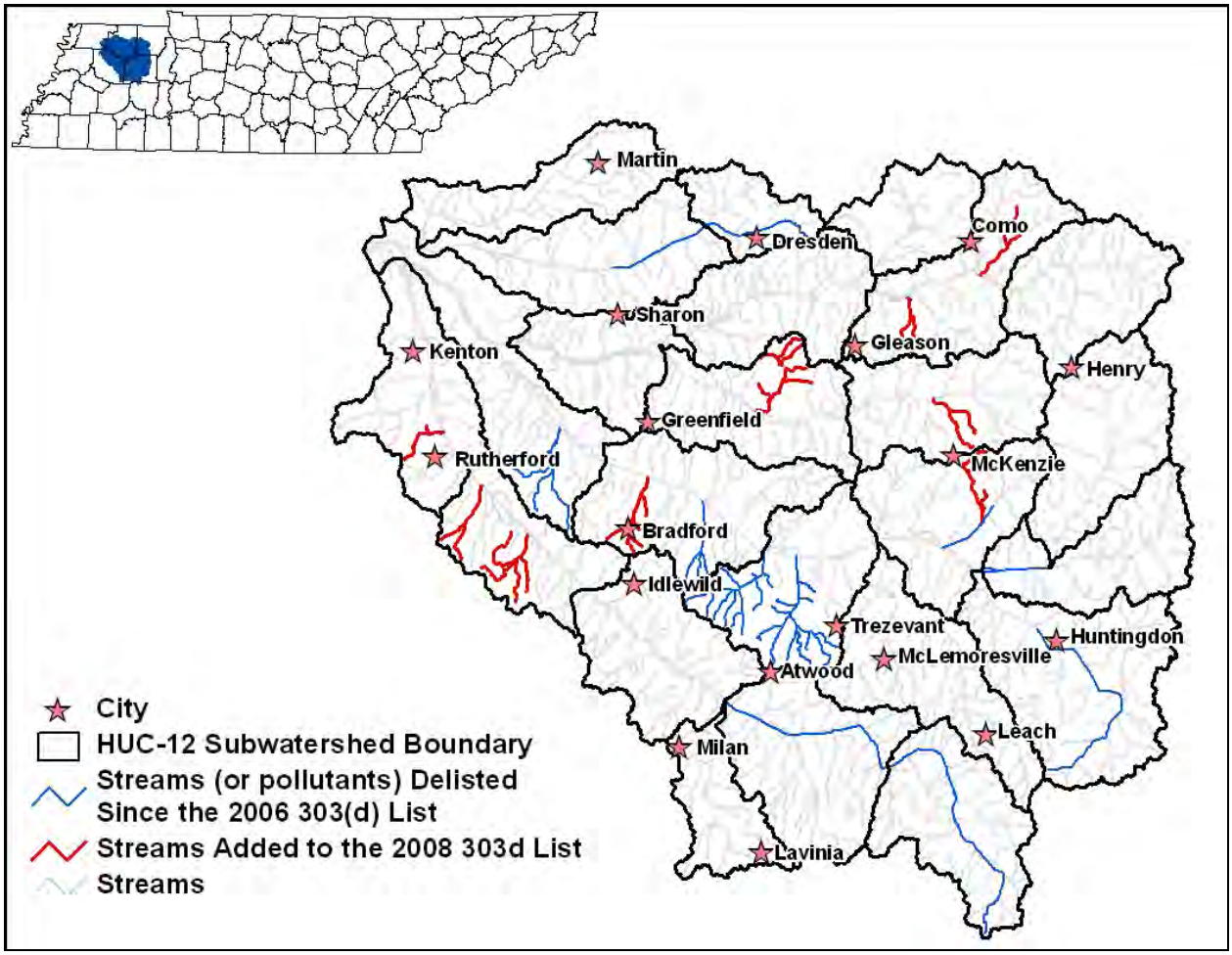


Figure 3-16. Changes to the 303(d) List of Impaired Waters in the Obion River (South Fork) Watershed Since Approval of the 2006 List by EPA. *More information is provided in Appendix III.*

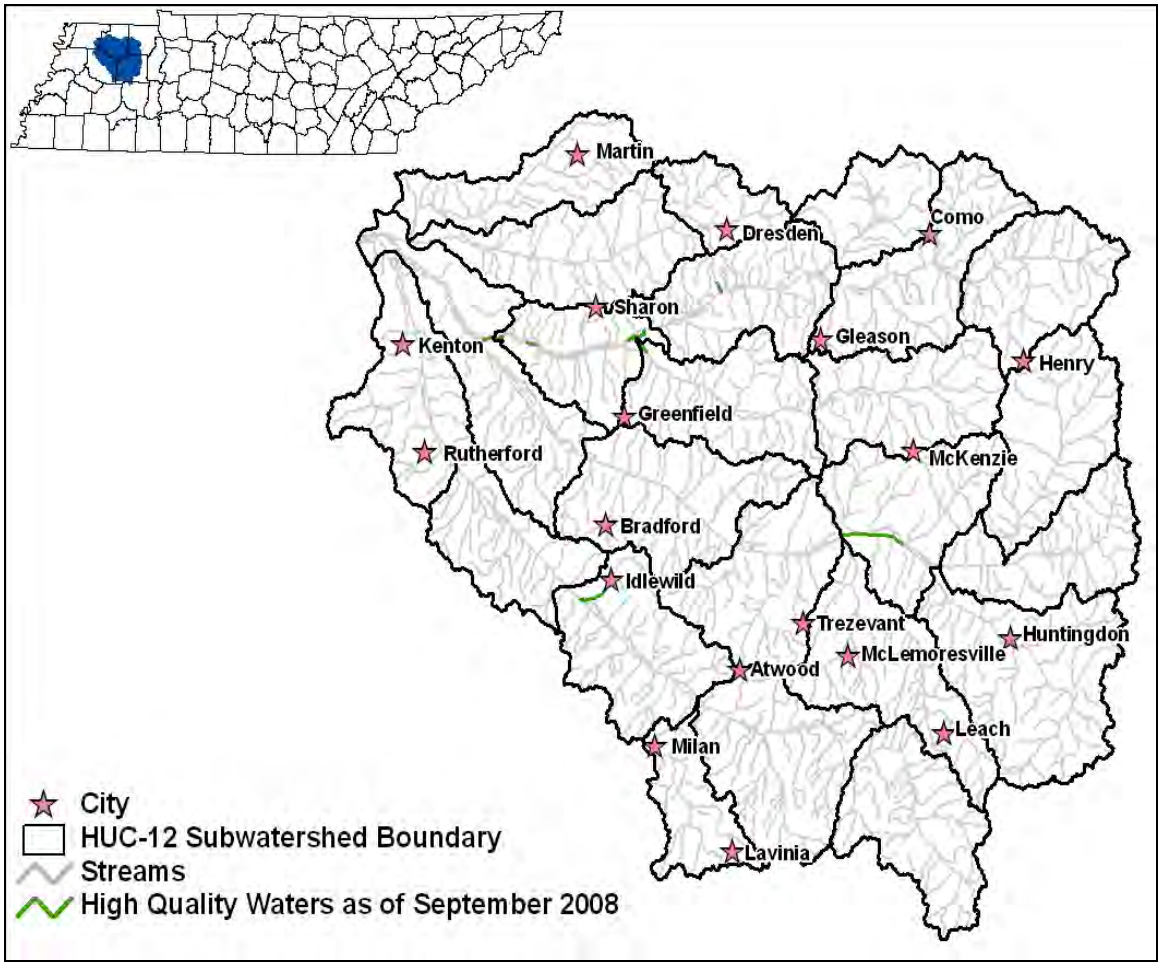


Figure 3-17. High Quality Waters Identified in the Obion River (South Fork) Watershed. *More information is provided in Appendix III.*

CHAPTER 4

POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE OBION RIVER (SOUTH 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. 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 South Fork Obion River Watershed (HUC 08010203) has been delineated into twenty-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.

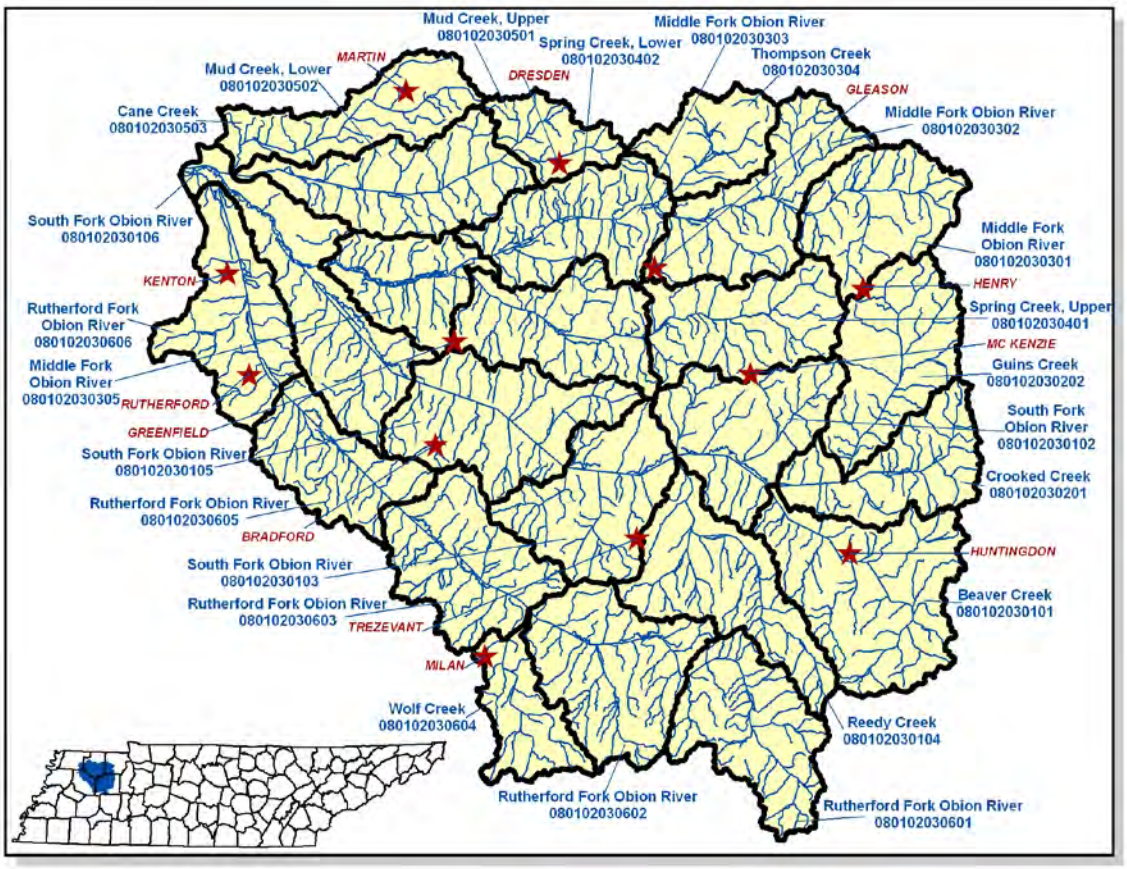


Figure 4-1. The South Fork Obion River Watershed is Composed of twenty seven USGS-Delineated Subwatersheds (12-Digit Subwatersheds).

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 South Fork Obion River Watershed.

HUC-8	HUC-10	HUC-12
08010203	0801020301	080102030101 (Beaver Creek)
		080102030102 (South Fork Obion River)
		080102030103 (South Fork Obion River
		080102030104 (Reedy Creek)
		080102030105 (South Fork Obion River)
		080102030106 (South Fork Obion River
	0801020302	080102030201 (Crooked Creek)
		080102030202 (Guins Creek)
	0801020303	080102030301 (Middle Fork Obion River)
		080102030302 (Middle Fork Obion River)
		080102030303 (Middle Fork Obion River)
		080102030304 (Thompson Creek)
		080102030305 (Middle Fork Obion River)
	0801020304	080102030401 (Spring Creek, Upper)
		080102030402 (Spring Creek, Lower)
	0801020305	080102030501 (Mud Creek, Upper)
		080102030502 (Mud Creek, Lower
		080102030503 (Cane Creek)
	0801020306	080102030601 (Rutherford Fork Obion River)
		080102030602 (Rutherford Fork Obion River)
		080102030603 (Rutherford Ford Obion River
		080102030604 (Wolf Creek)
		080102030605 (Rutherford Fork Obion River)
		080102030606 (Rutherford Fork Obion River)

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. 080102030101 (Beaver Creek).

4.2.A.i. General Description.

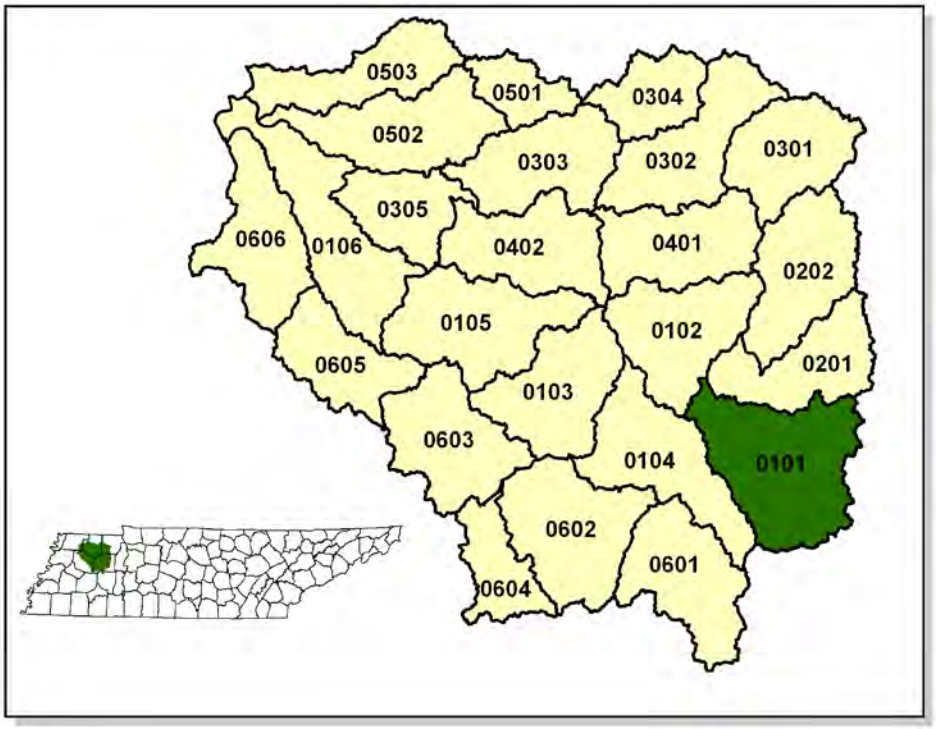


Figure 4-2. Location of Subwatershed 080102030101. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

Figure 4-3. Locational Details of Subwatershed 080102030101.

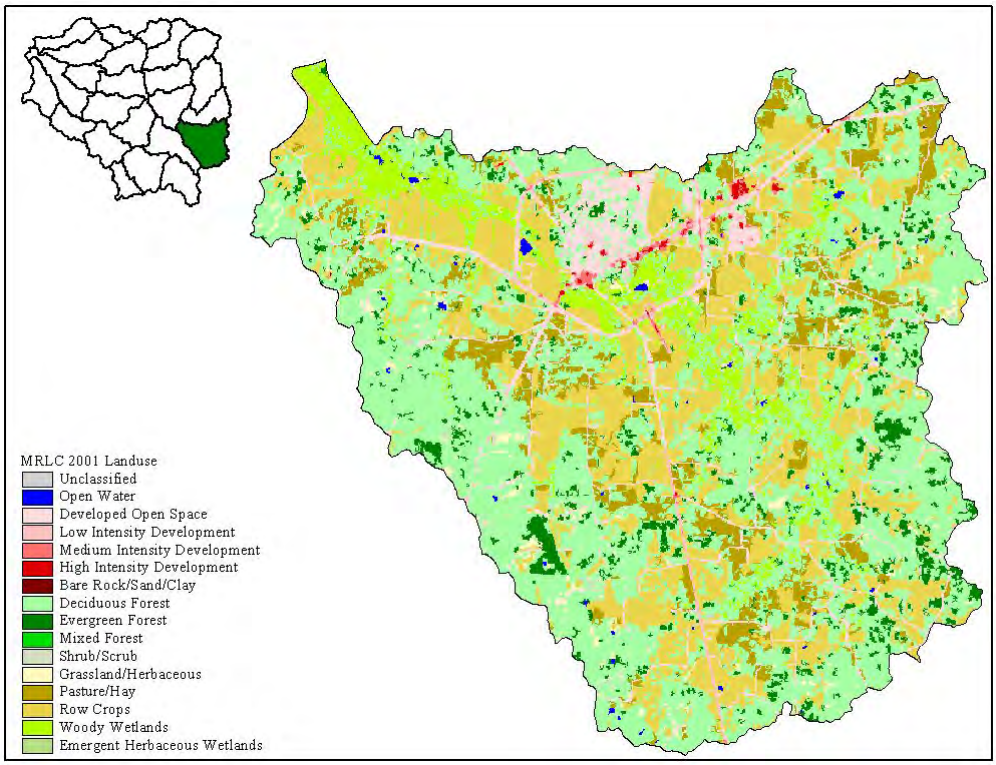


Figure 4-4. Illustration of Land Use Distribution in Subwatershed 080102030101.

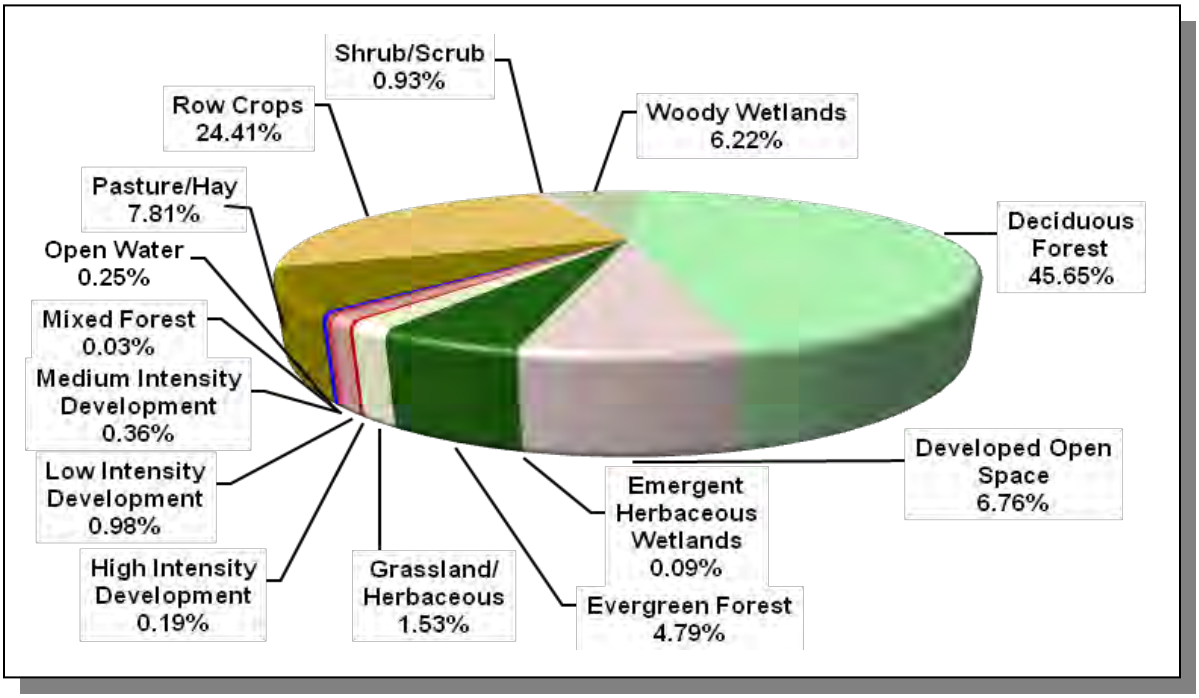


Figure 4-5. Land Use Distribution in Subwatershed 080102030101. *More information is provided in Appendix IV.*

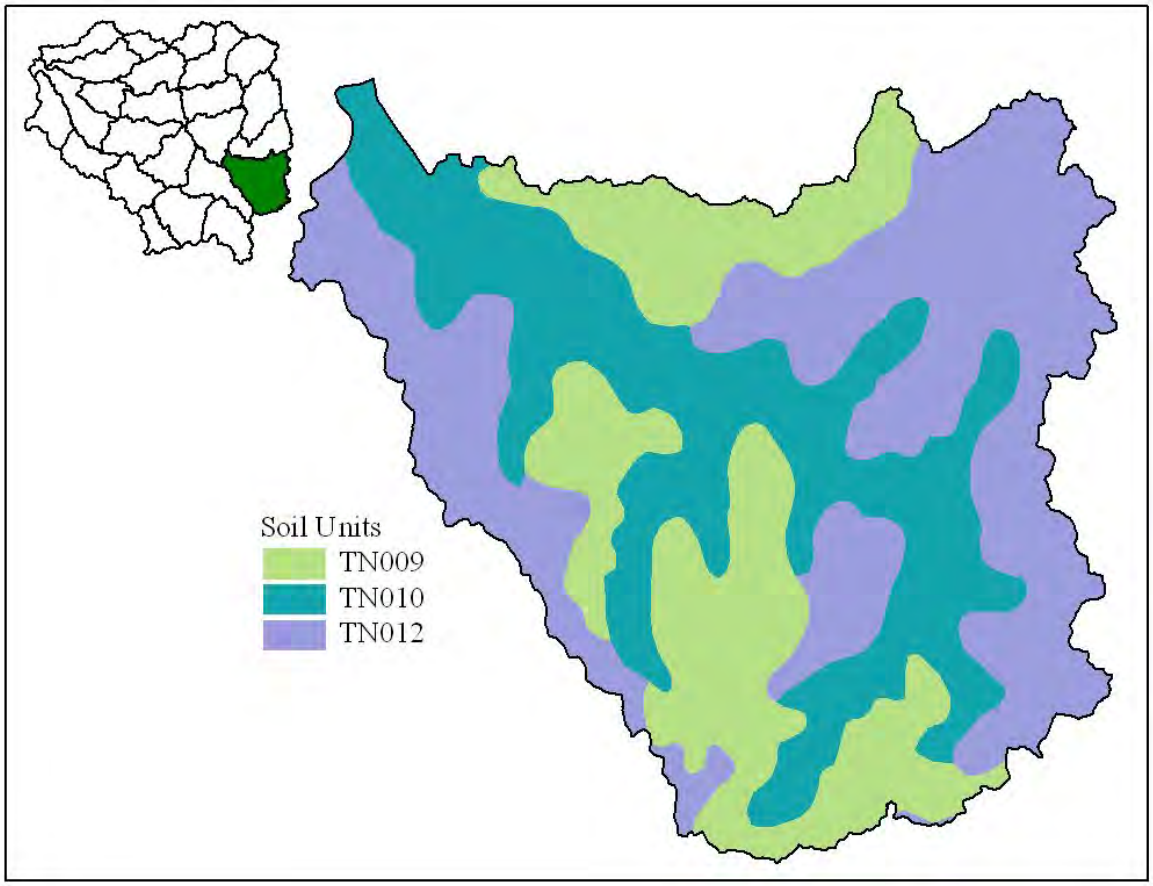


Figure 4-6. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030101.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN009	7.00	C	1.30	5.10	Silty Loam	0.43
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN012	1.00	C	2.52	5.13	Silty Loam	0.39

Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030101. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	12.37	3,403	3,585	3,645	7.10

Table 4-3. Population Estimates in Subwatershed 080102030101.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Huntingdon	Carroll	4,180	1,790	1,566	212	12

Table 4-4. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030101.

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

Figure 4-7. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102030101. *More information is provided in Appendix IV.*

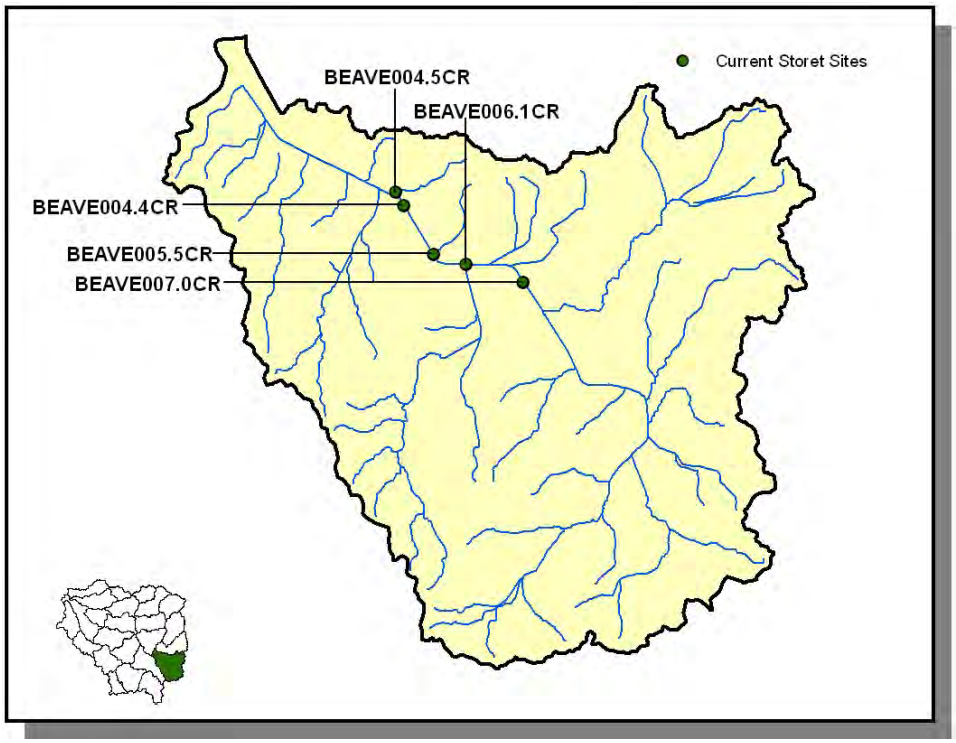


Figure 4-8. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030101. *More information, including site names and locations, is provided in Appendix IV.*

4.2.A.iii. Permitted Activities.

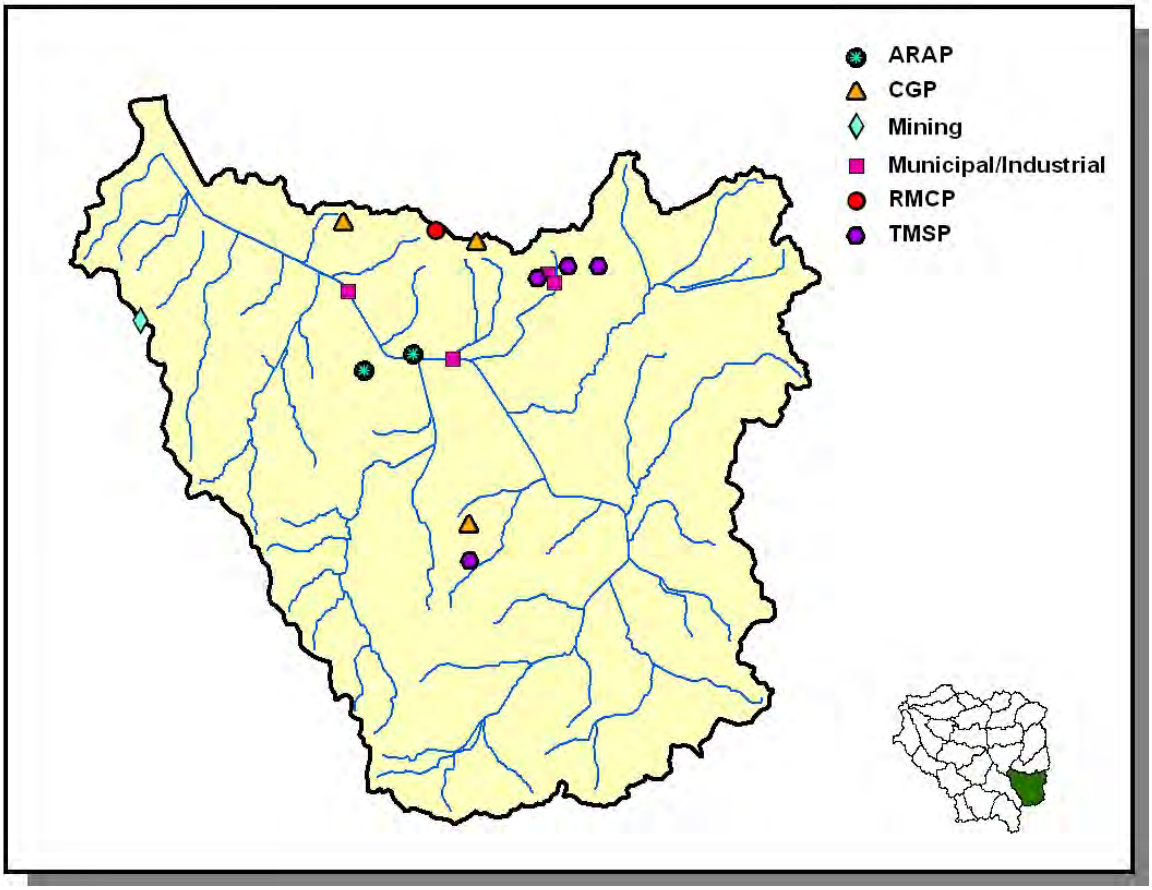


Figure 4-9. Location of Permits Issued in Subwatershed 080102030101. *More information, including the names of facilities, is provided in Appendix IV.*

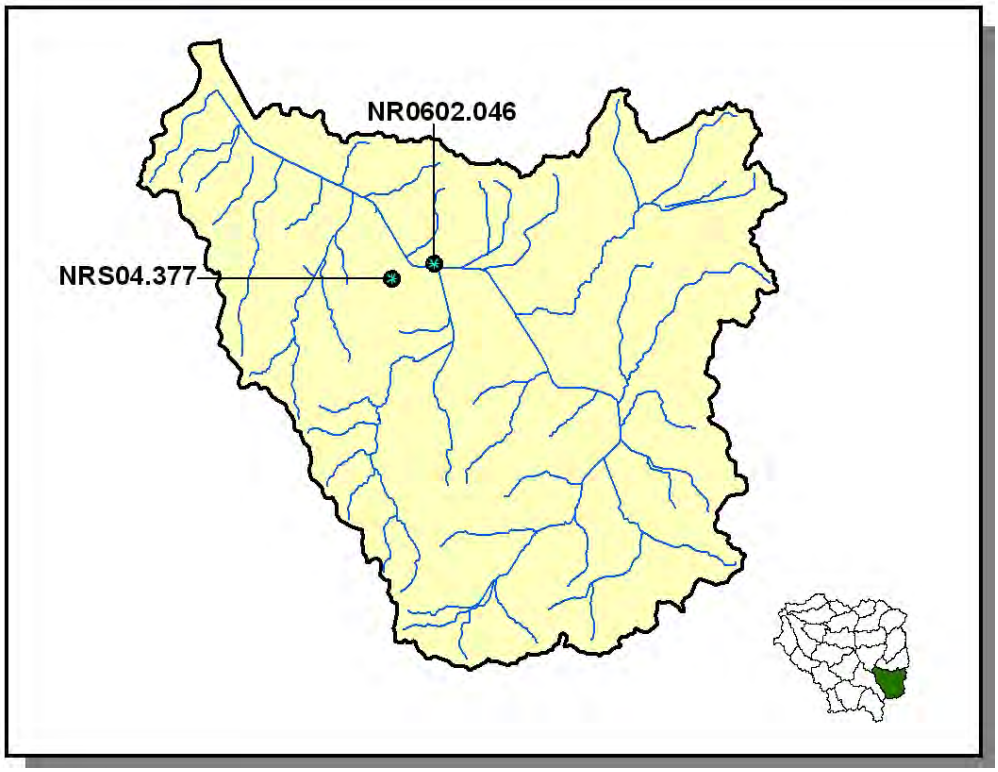


Figure 4-10. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030101. *More information is provided in Appendix IV.*

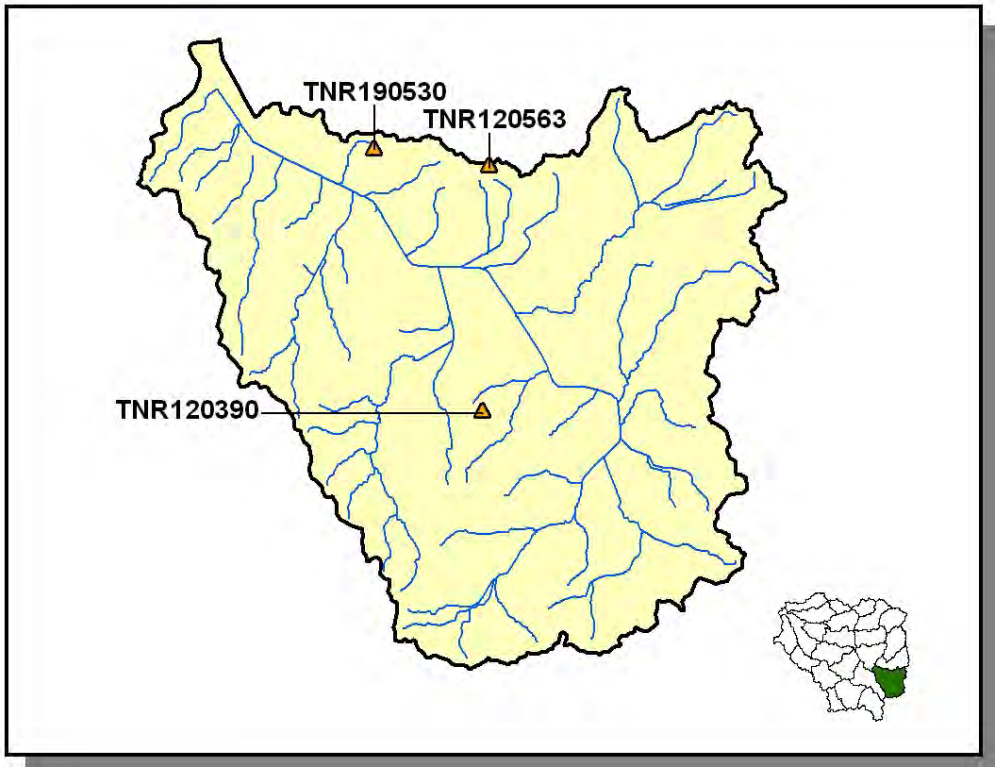


Figure 4-11. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030101. *More information is provided in Appendix IV.*

Figure 4-12. Location of Permitted Mining Facilities in Subwatershed 080102030101. *More information is provided in Appendix IV.*

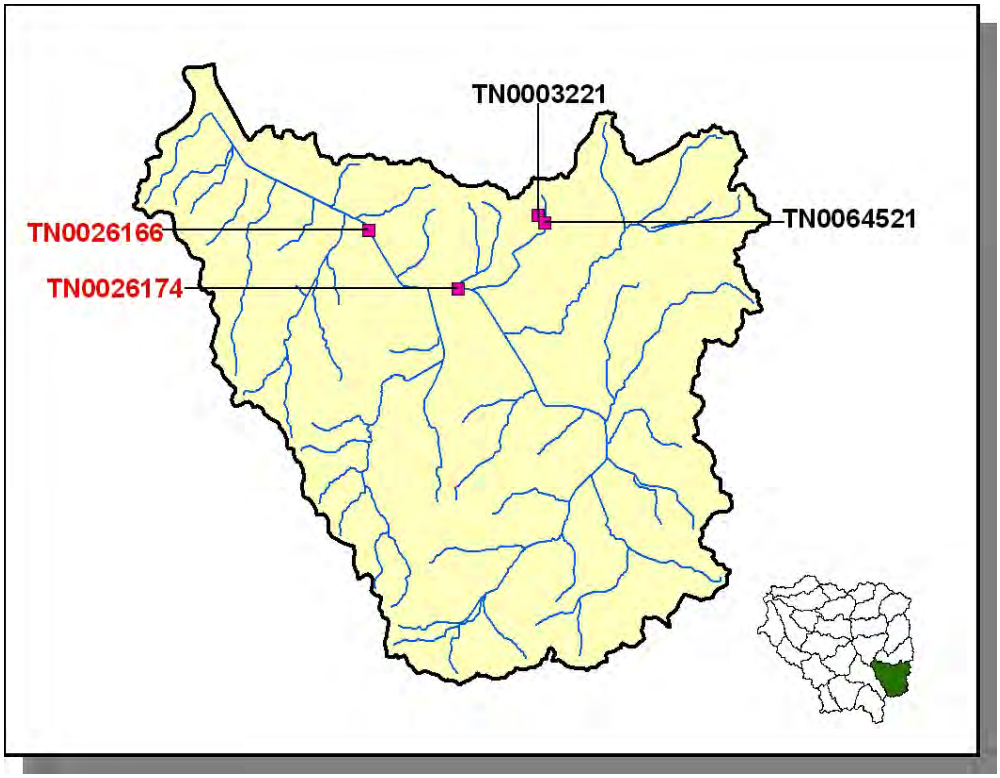


Figure 4-13. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030101. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0026166	12.7	0.65
TN0026174	12.26	0.3

Table 4-5. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030101. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	$CBOD_5$	CBOD % REMOVAL	TRC	E. *coli*	AMMONIA AS N (TOTAL)	WET	DO	pH	TSS	SS
TN0026166	X	X	X	X	X		X	X	X	X
TN0026174	X	X	X	X	X	X	X	X	X	X

Table 4-6. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030101. *$CBOD_5$, Carbonaceous Biochemical Oxygen Demand (5-day); TRC, Total Residual Chlorine; WET, Whole Effluent Toxicity; DO, Dissolved Oxygen; TSS, Total Suspended Solids; SS, Settleable Solids.*

Figure 4-14. Location of RMCP (Ready Mix Concrete Plant) facilities in Subwatershed 080102030101. *More information, including the names of facilities, is provided in Appendix IV.*

Figure 4-15. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030101. *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
Carroll	9,636	17,433	272	673	4,949

Table 4-7. 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)
Carroll	169.1	169.1	0.6	2.0

Table 4-8. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Wheat (Close Grown Cropland)	18.50
Soybeans (Row Crops)	10.20
Other Cropland not Planted	9.50
Cotton (Row Crops)	7.58
Corn (Row Crops)	5.95
Conservation Reserve Program Land	1.23
Farmsteads and Ranch Headquarters	1.12
Other Land in Farms (Other Far	0.59
Grass Forbs Legumes Mixed (Pastureland)	0.58
Legume Grass (Hayland)	0.46
Grass (Pastureland)	0.40
Grass (Hayland)	0.21
Legume (Hayland)	0.07

Table 4-9. Annual Estimated Total Soil Loss in Subwatershed 080102030101.

4.2.B. 080102030102 (South Fork Obion River).

4.2.B.i. General Description.

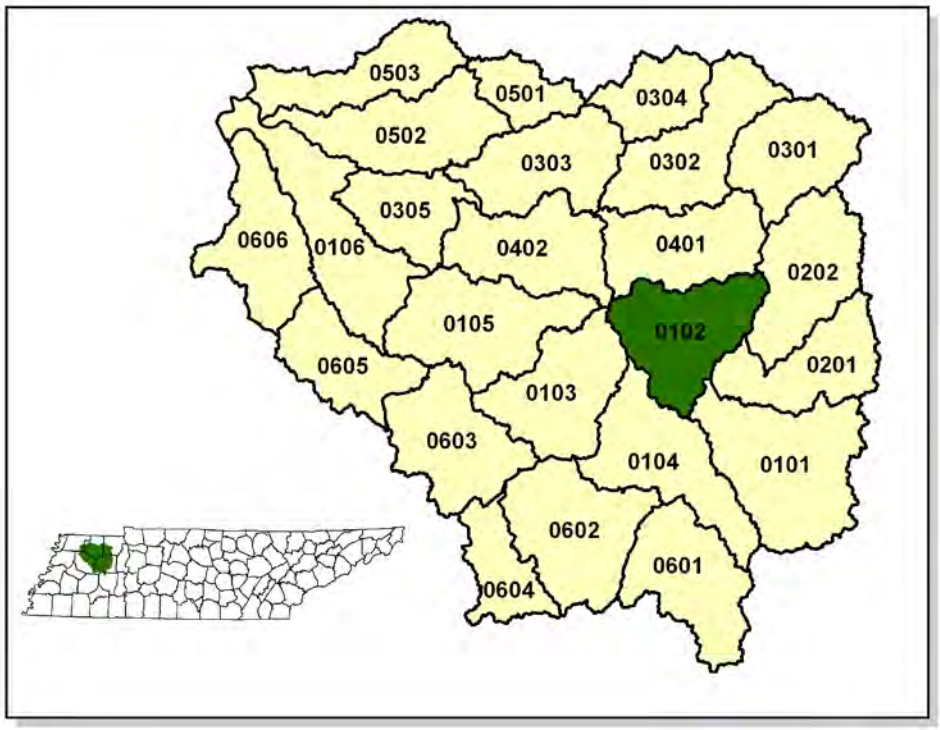


Figure 4-16. Location of Subwatershed 080102030102. *All South Fork Obion RiverHUC-12 subwatershed boundaries are shown for reference.*

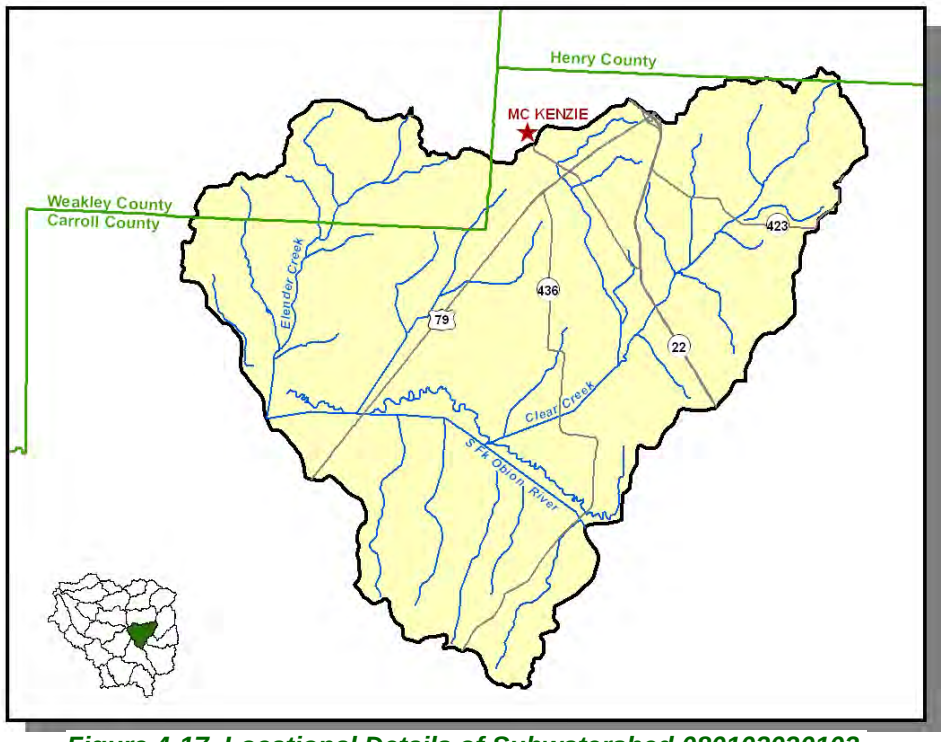


Figure 4-17. Locational Details of Subwatershed 080102030102.

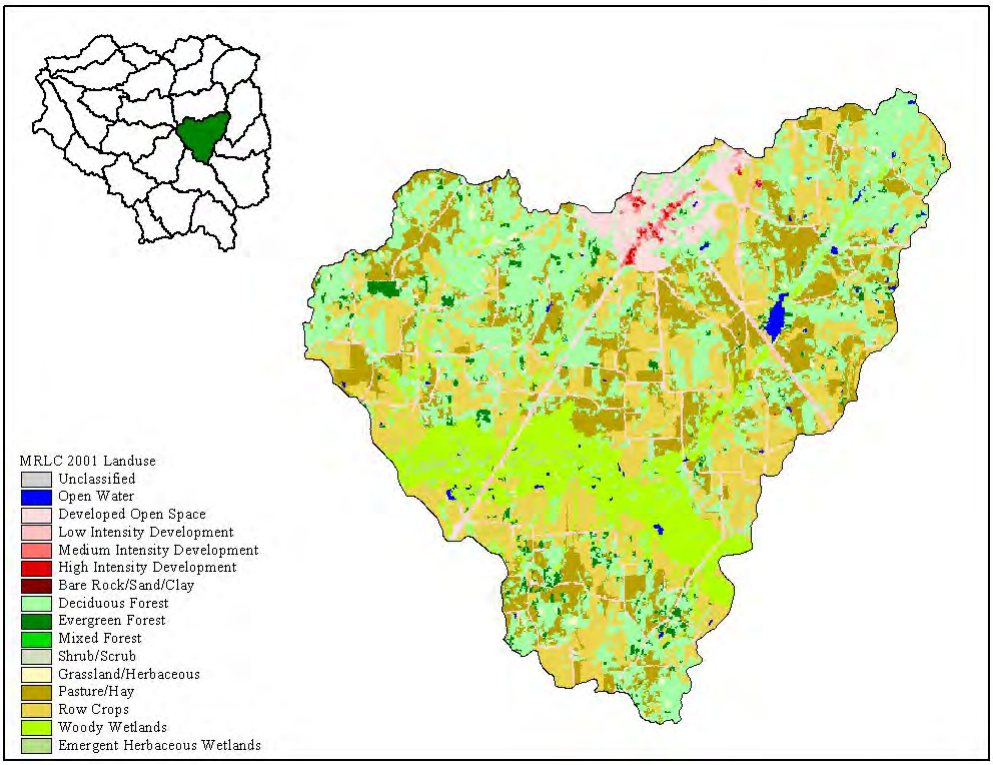


Figure 4-18. Illustration of Land Use Distribution in Subwatershed 080102030102.

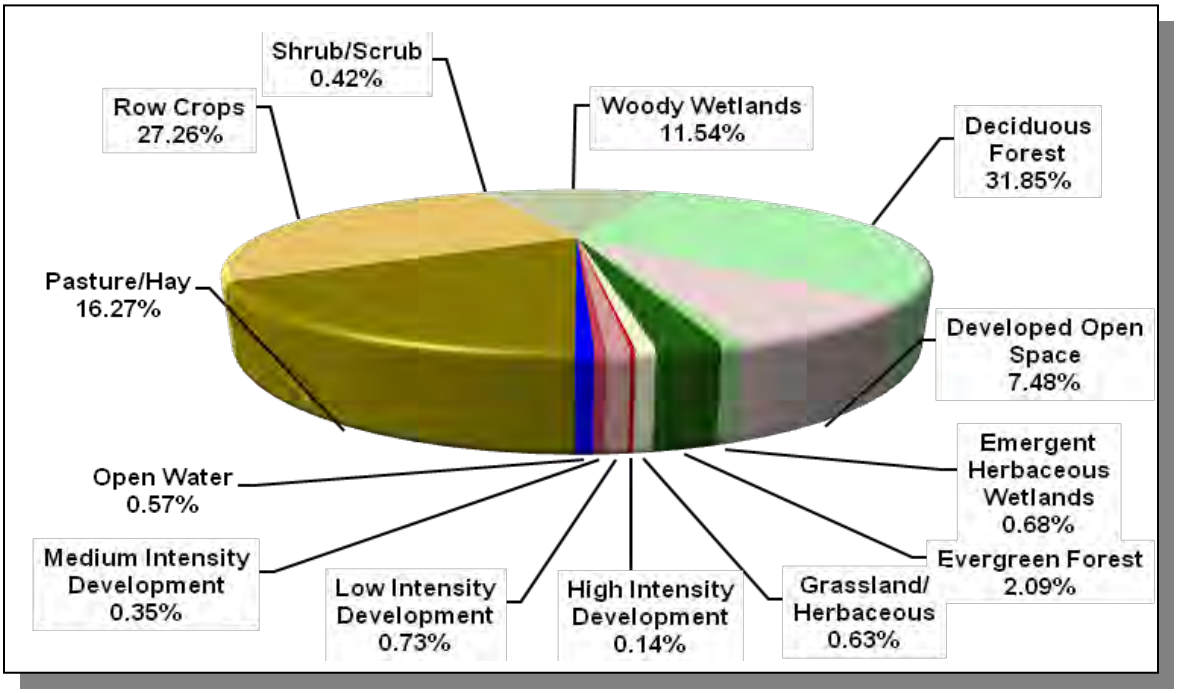


Figure 4-19. Land Use Distribution in Subwatershed 080102030102. *More information is provided in Appendix IV.*

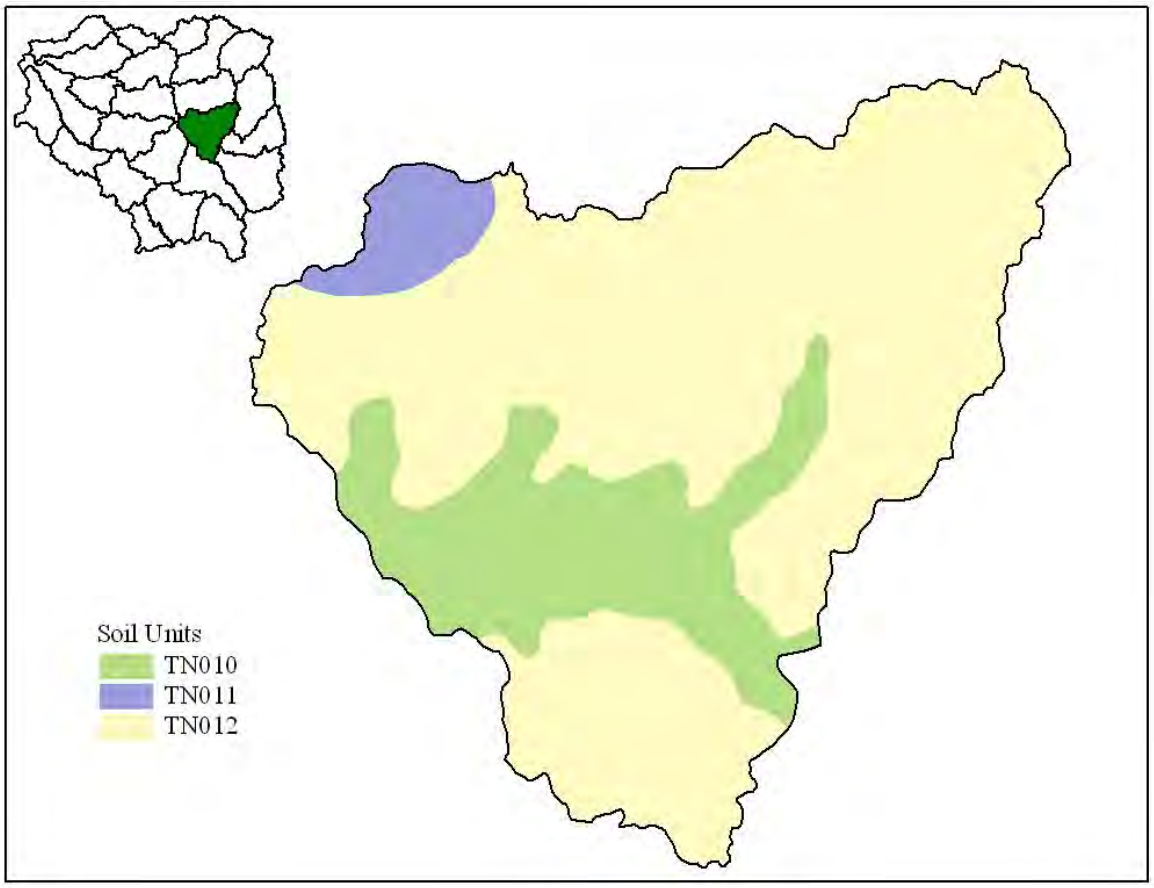


Figure 4-20. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030102.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39

Table 4-10. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030102. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	7.96	2,189	2,307	2,345	7.10
Weakley	31,972	32,808	34,895	0.73	235	241	256	8.90
Total	**59,486**	**61,798**	**64,370**		**2,424**	**2,548**	**2,601**	**7.30**

Table 4-11. Population Estimates in Subwatershed 080102030102.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
McKenzie	Carroll	5,079	2,144	1,917	227	0

Table 4-12. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030102.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030102.

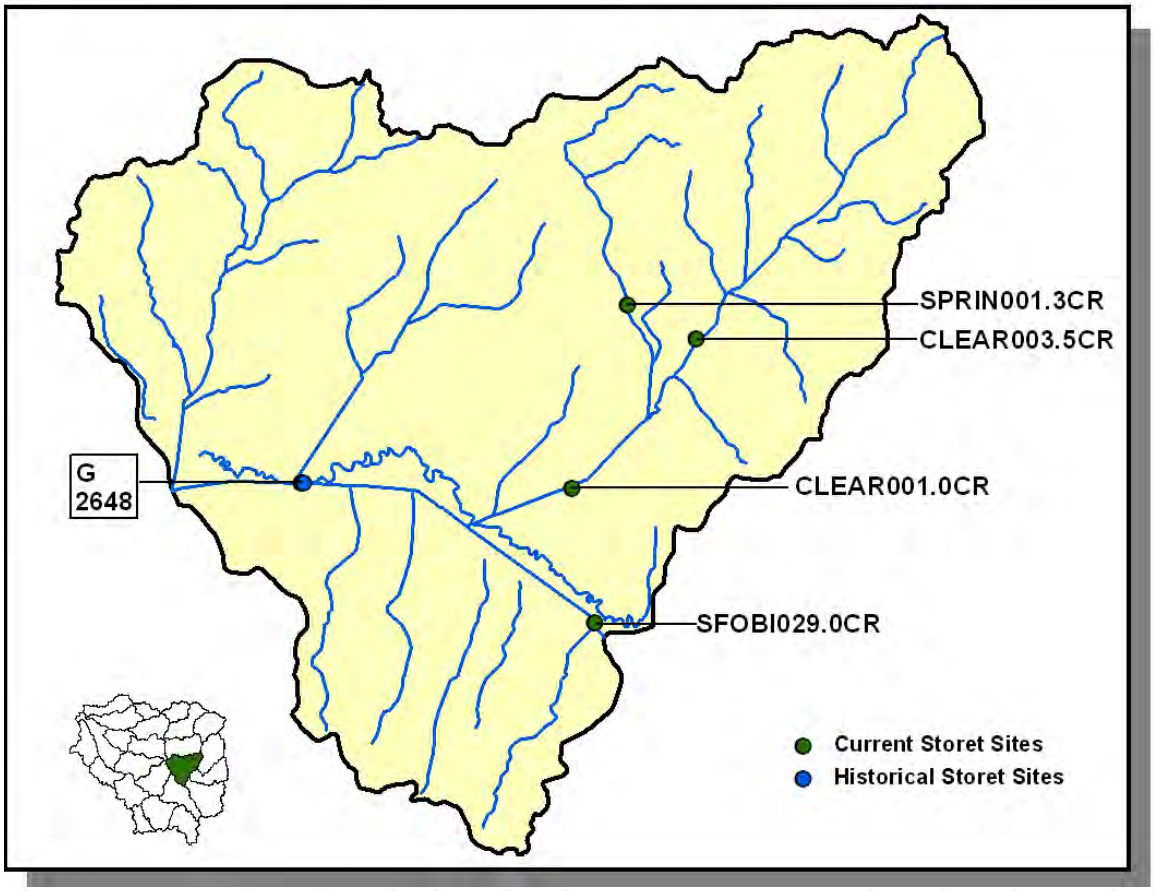


Figure 4-21. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030102. *More information, including site names and locations, is provided in Appendix IV.*

4.2.B.iii. Permitted Activities.

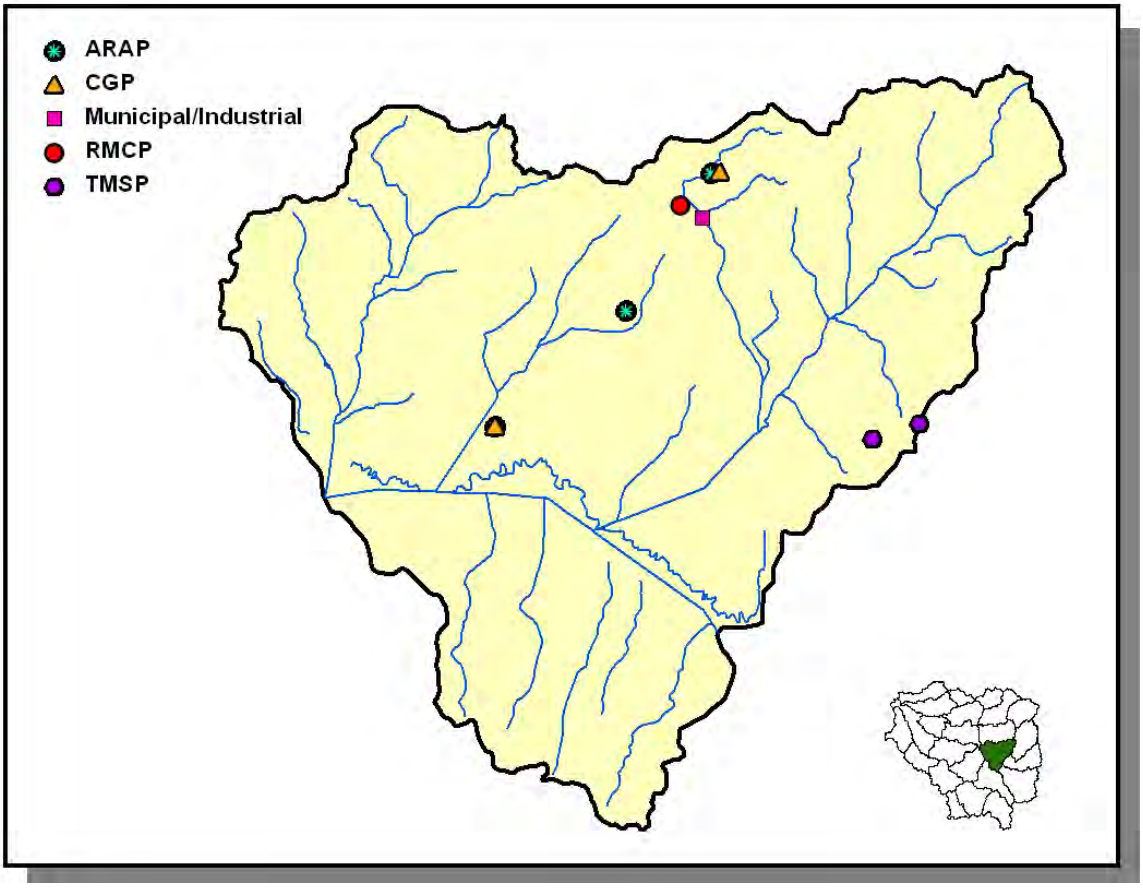


Figure 4-22. Location of Permits Issued in Subwatershed 080102030102. *More information, including the names of facilities, is provided in Appendix IV.*

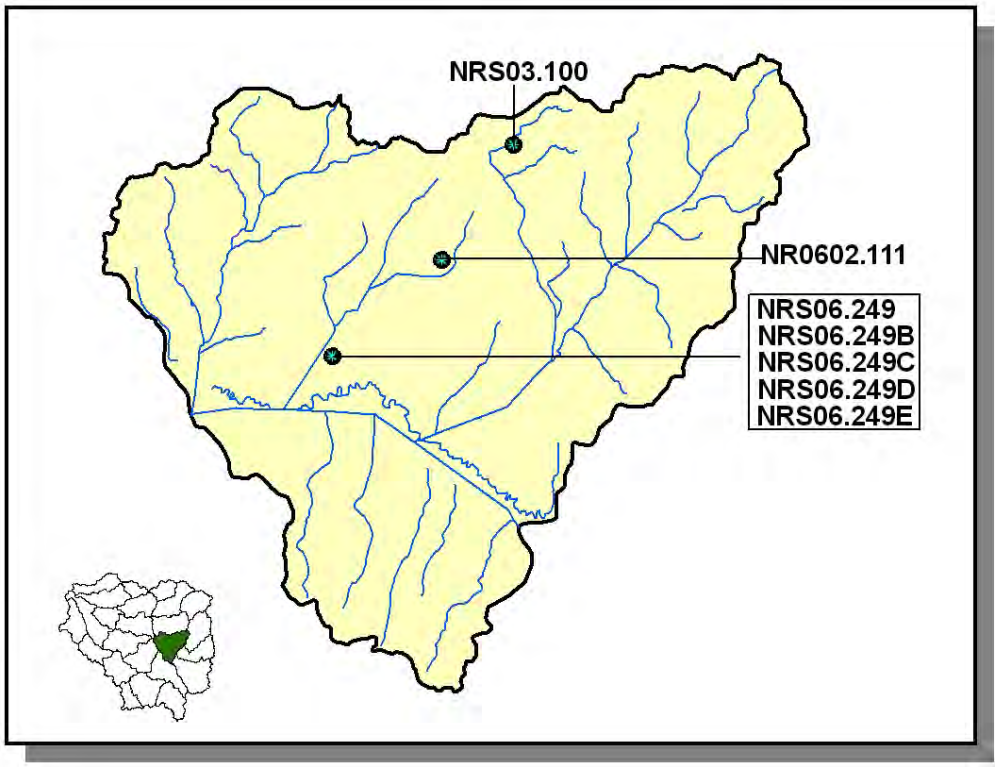


Figure 4-23. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030102. *More information is provided in Appendix IV.*

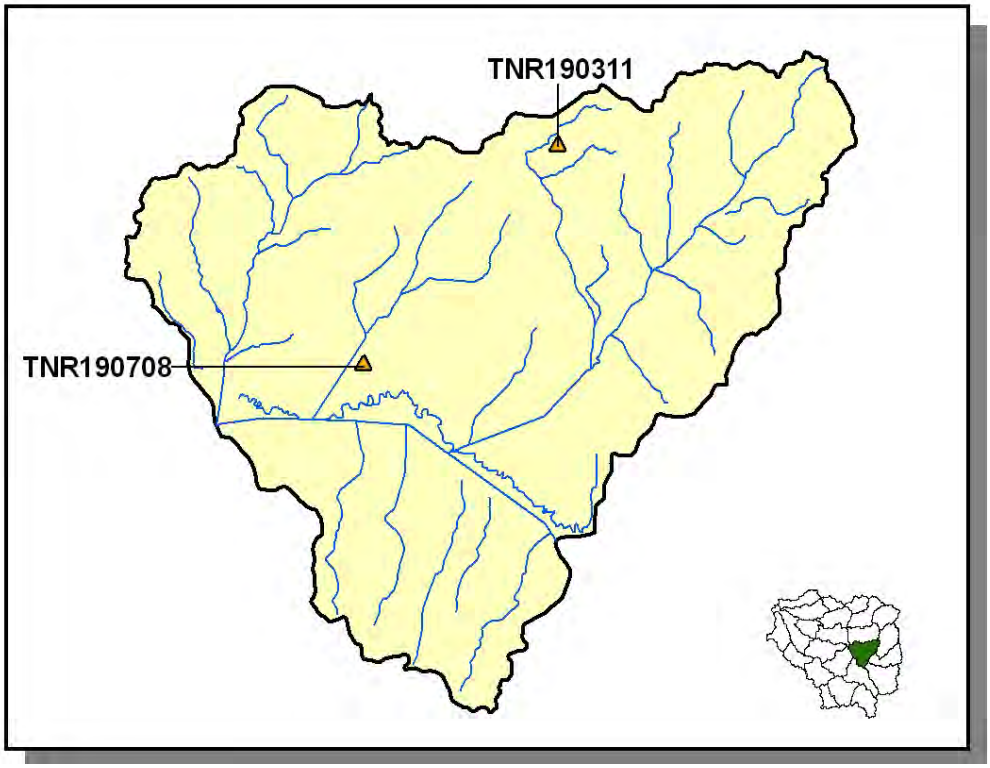


Figure 4-24. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030102. *More information is provided in Appendix IV.*

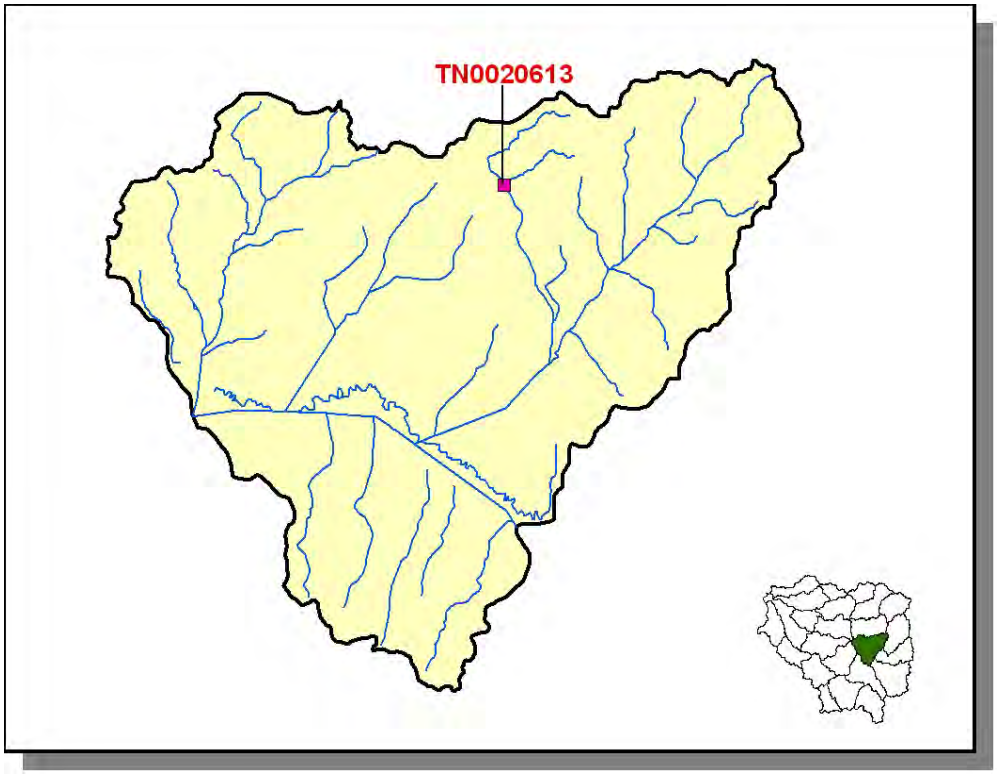


Figure 4-25. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030102. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0020613	0.0	2.0

Table 4-13. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030102. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	Zn	Hg	Se	Ag	Cu	CYANIDE TOTAL (CN-)
TN0020613	X	X	X	X	X	

Table 4-14. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030102.

PERMIT #	FLOW	WET	DO	pH	TSS	TSS % REMOVAL	SS
TN0020613	X	X	X	X	X	X	X

Table 4-15. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030102. *WET, Whole Effluent Toxicity; DO, Dissolved Oxygen; TSS, Total Suspended Solids; SS, Settleable Solids.*

PERMIT #	$CBOD_5$	CBOD % REMOVAL	E. *coli*	PHOSPHORUS TOTAL	NITROGEN TOTAL	TRC	AMMONIA AS N (TOTAL)
TN0020613	X	X	X	X	X	X	X

Table 4-16. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030102. *$CBOD_5$, Carbonaceous Biochemical Oxygen Demand (5-day); TRC, Total Residual Chlorine.*

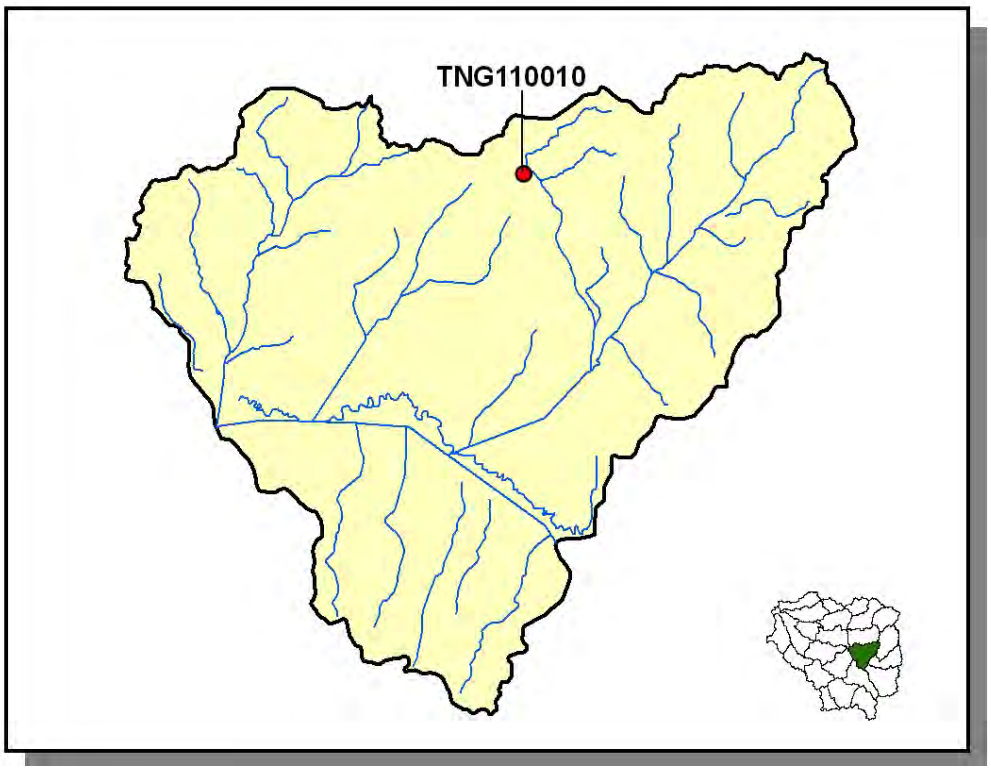


Figure 4-26. Location of RMCP (Ready Mix Concrete Plant) facilities in Subwatershed 080102030102. *More information, including the names of facilities, is provided in Appendix IV.*

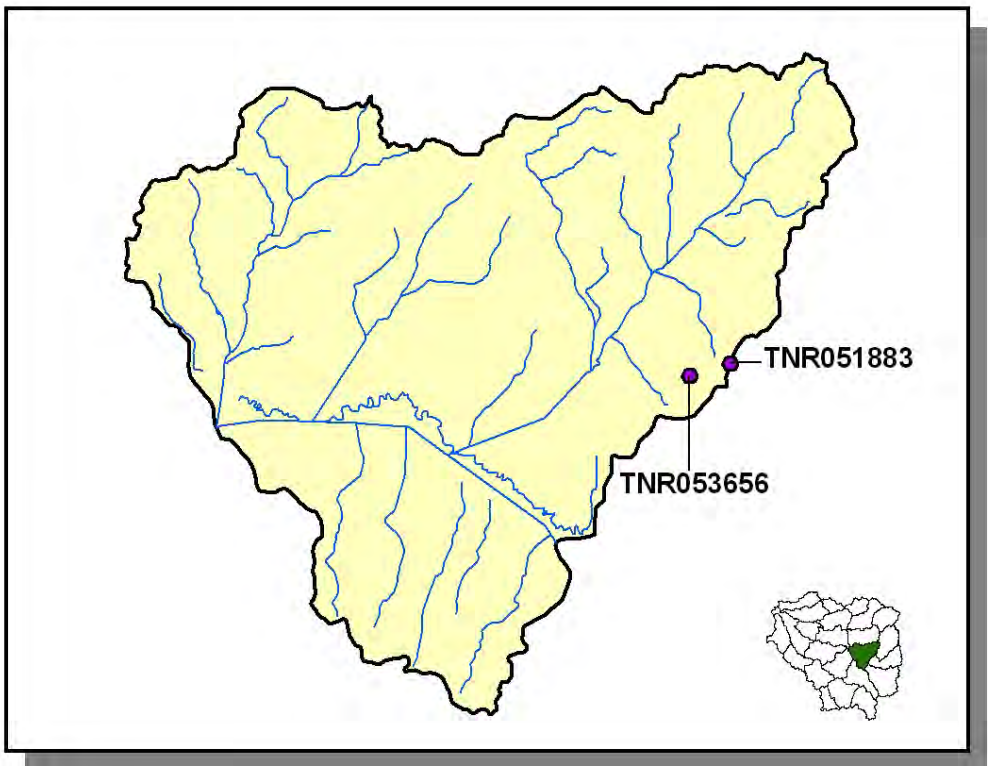


Figure 4-27. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030102. *More information is provided in Appendix IV.*

4.2.B.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-17. 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)
Carroll	169.1	169.1	0.6	2.0
Weakley	96.1	95.9	6.7	24.6

Table 4-18. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	17.82
Soybeans (Row Crops)	10.00
Other Cropland not Planted	9.10
Cotton (Row Crops)	7.58
Corn (Row Crops)	6.08
Legume (Pastureland)	1.47
Conservation Reserve Program Land	1.16
Farmsteads and Ranch Headquarters	1.06
Grass Forbs Legumes Mixed (Pastureland)	0.62
Other Land in Farms	0.59
Legume Grass (Hayland)	0.46
Grass (Pastureland)	0.37
Grass (Hayland)	0.21
Legume (Hayland)	0.10

Table 4-19. Annual Estimated Total Soil Loss in Subwatershed 080102030102.

4.2.C. 080102030103 (South Fork Obion River).

4.2.C.i. General Description.

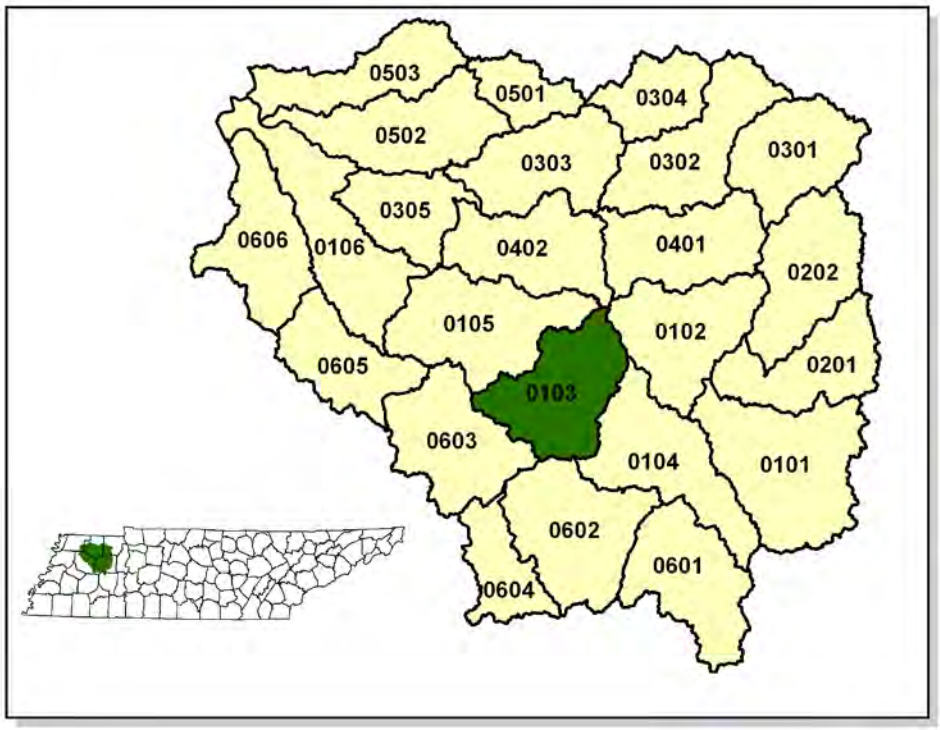


Figure 4-28. Location of Subwatershed 080102030103. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

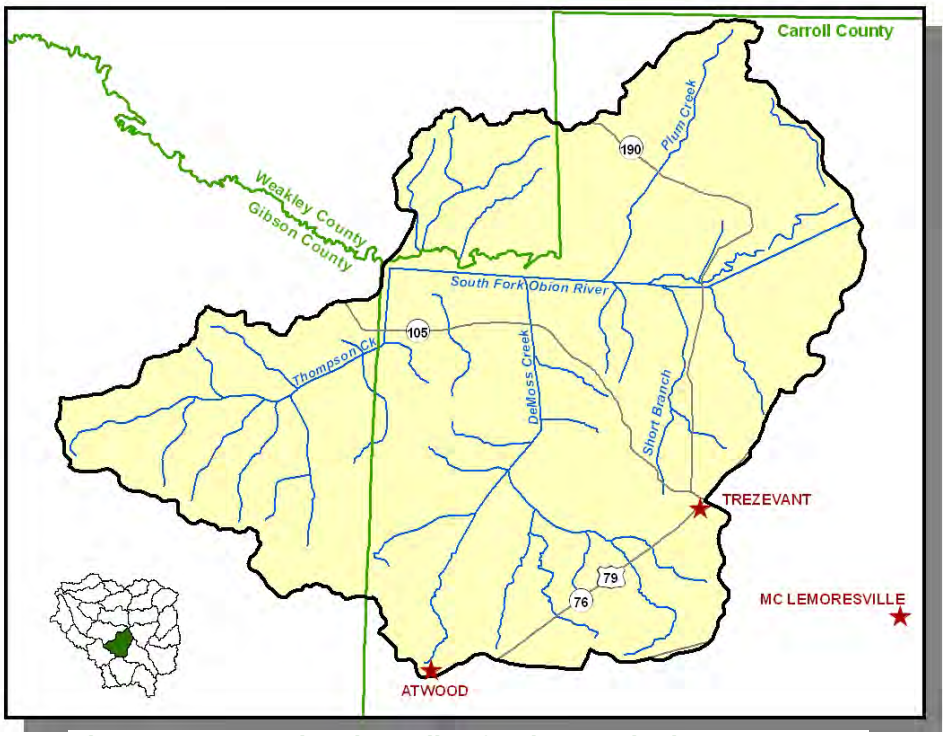


Figure 4-29. Locational Details of Subwatershed 080102030103.

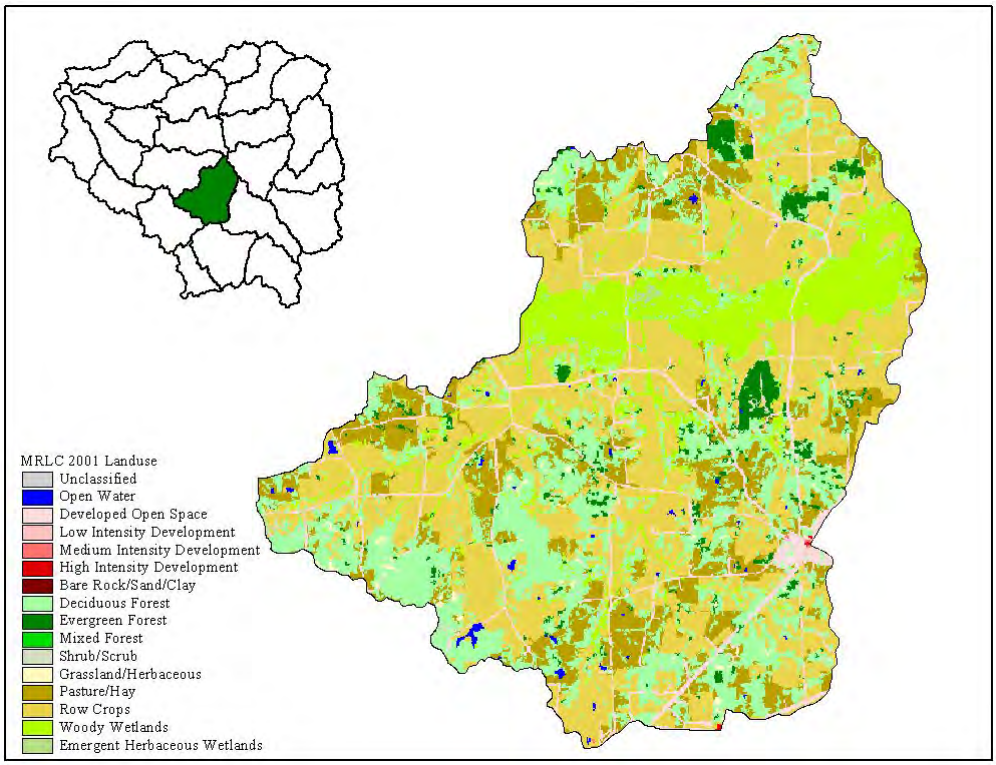


Figure 4-30. Illustration of Land Use Distribution in Subwatershed 080102030103.

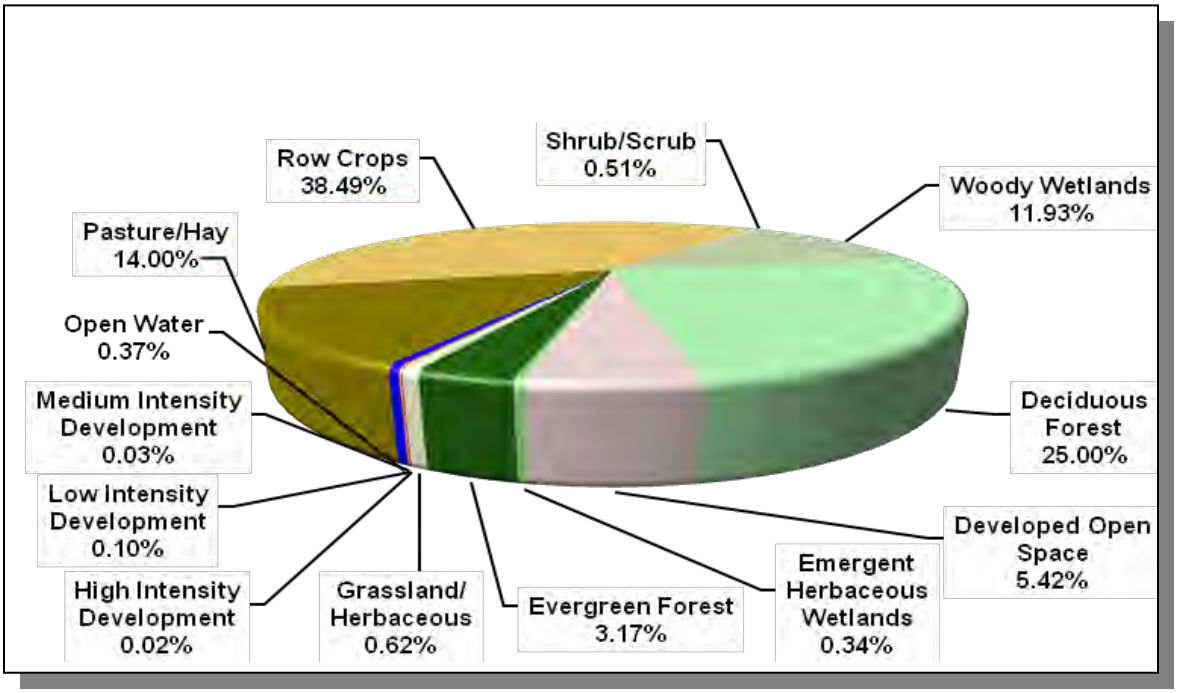


Figure 4-31. Land Use Distribution in Subwatershed 080102030103. *More information is provided in Appendix IV.*

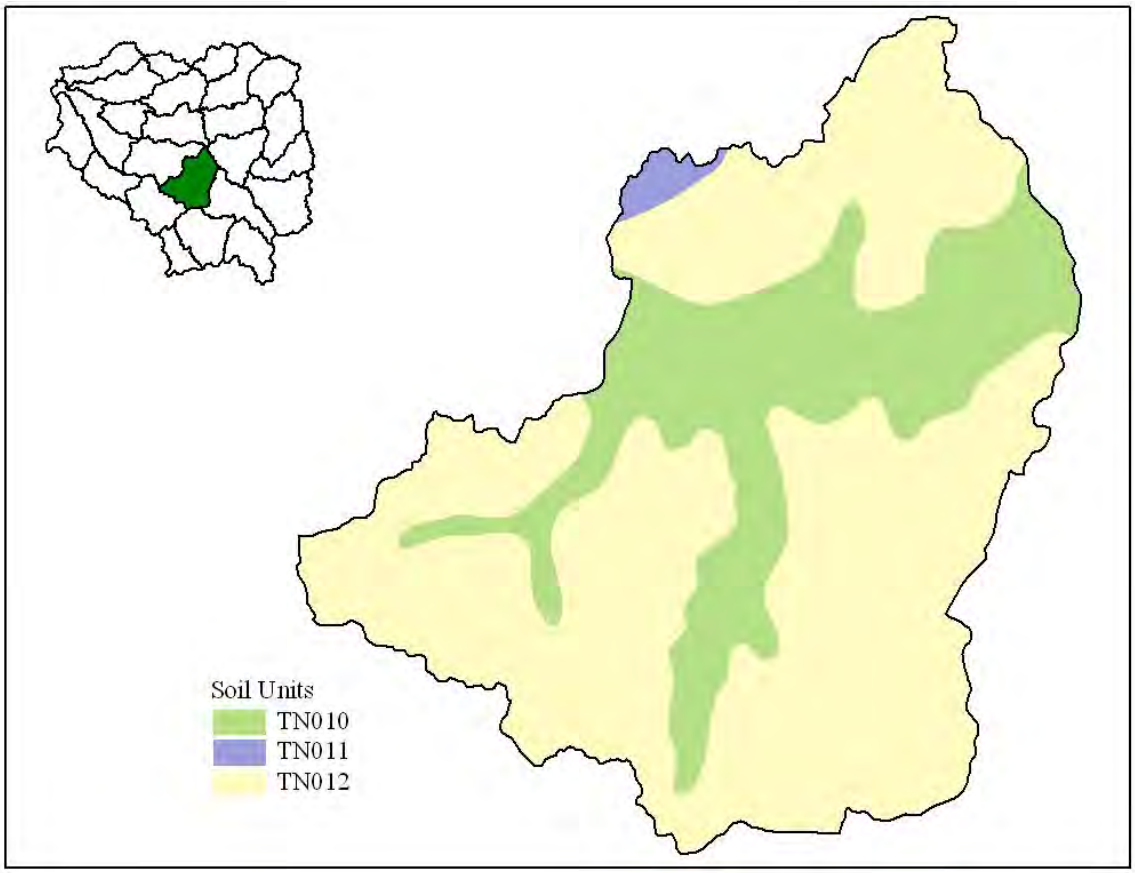


Figure 4-32. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030103.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39

Table 4-20. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030103. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	6.26	1,724	1,816	1,847	7.10
Gibson	46,315	48,083	48,152	1.82	843	875	876	3.90
Weakley	31,972	32,808	34,895	0.62	200	205	218	9.00
Total	**105,801**	**109,881**	**112,522**		**2,767**	**2,896**	**2,941**	**6.30**

Table 4-21. Population Estimates in Subwatershed 080102030103.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Atwood	Carroll	1,080	454	417	36	1
Trezevant	Carroll	881	393	354	39	0
Total		**1,961**	**847**	**771**	**75**	**1**

Table 4-22. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030103.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030103.

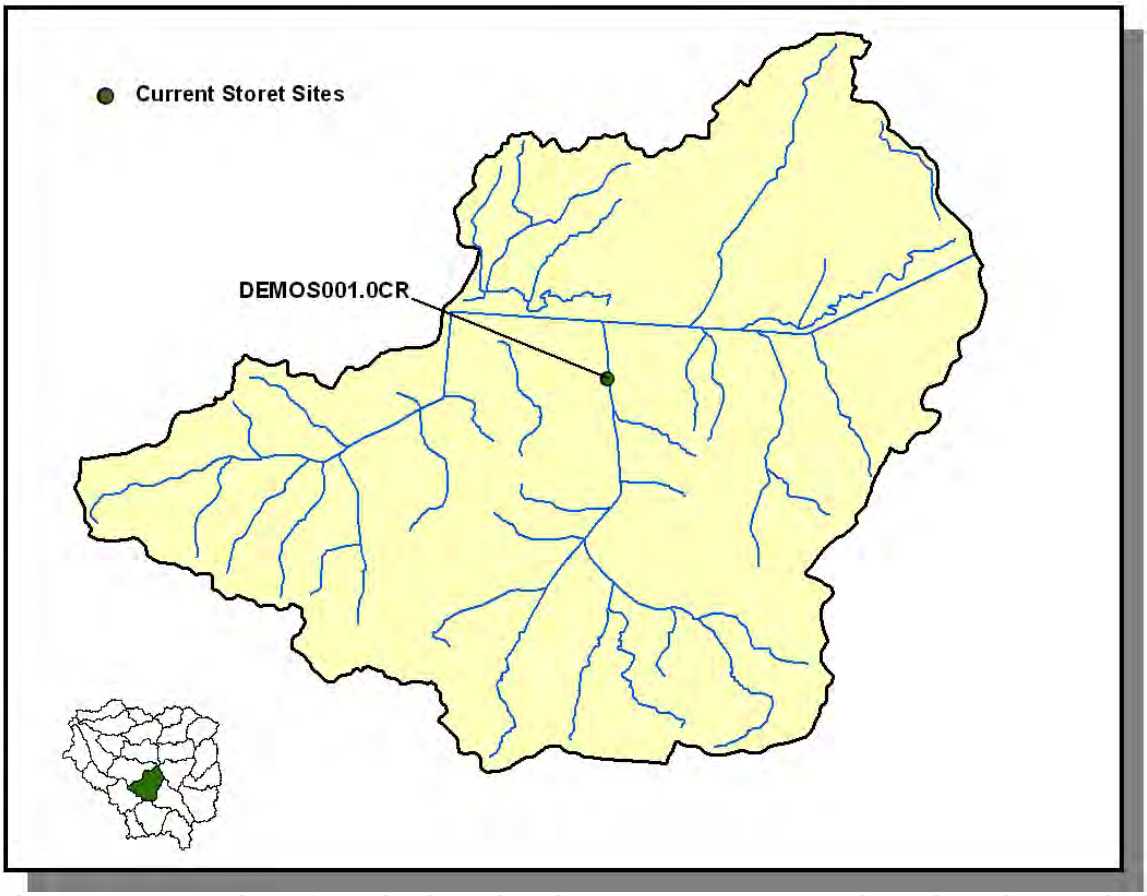


Figure 4-33. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030103. *More information, including site names and locations, is provided in Appendix IV.*

4.2.C.iii. Permitted Activities.

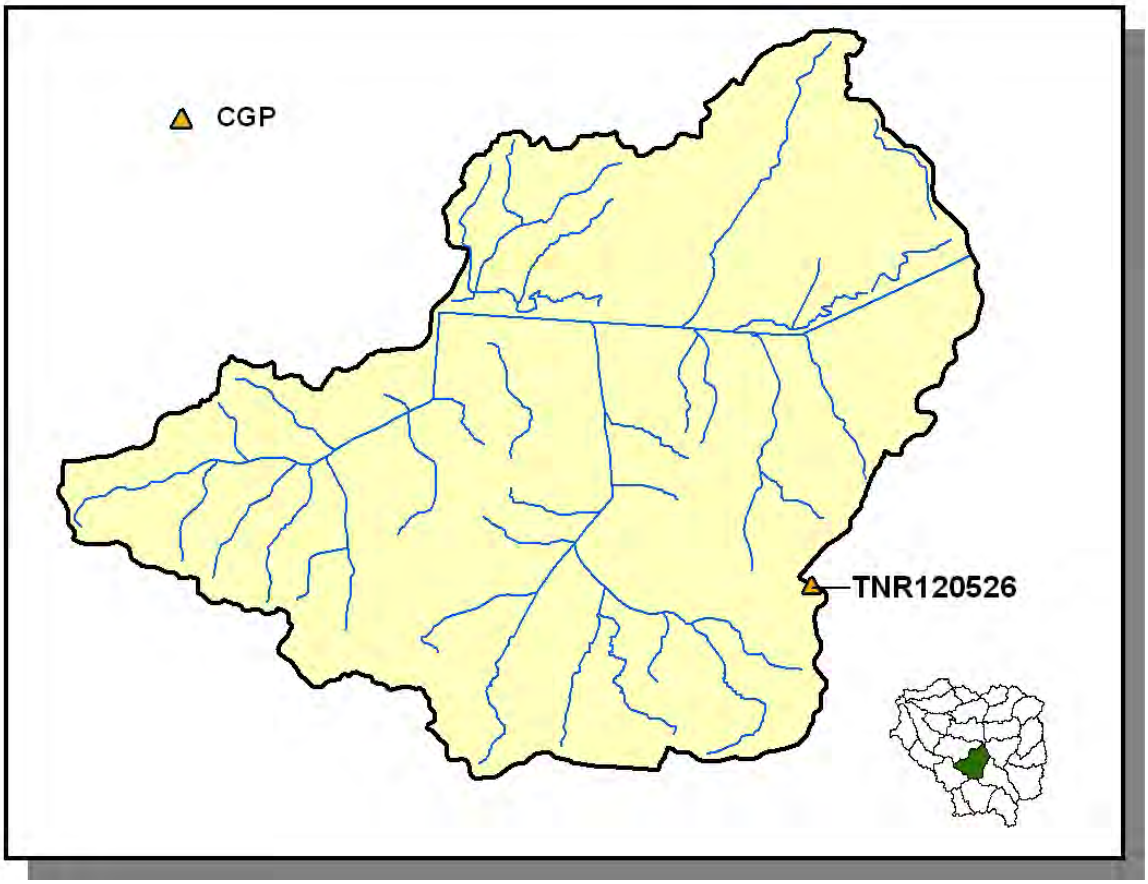


Figure 4-34. Location of Permits Issued in Subwatershed 080102030103. *CGP, Construction General Permit .More information, including the names of facilities, is provided in Appendix IV.*

4.2.C.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	
Gibson	9,766	21,779	221	605	7,506	74
Weakley	8,004	17,326	1342	280	44,572	161

Table 4-23. 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)
Carroll	169.1	169.1	0.6	2.0
Gibson	36.4	36.4	2.0	8.6
Weakley	96.1	95.9	6.7	24.6

Table 4-24. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	17.77
Cotton (Row Crops)	9.75
Soybeans (Row Crops)	9.69
Other Cropland not Planted	7.28
Corn (Row Crops)	7.27
Sorghum (Row Crops)	6.38
Legume (Pastureland)	1.47
Conservation Reserve Program Land	1.01
Farmsteads and Ranch Headquarters	0.91
Other Land in Farms	0.76
Grass Forbs Legumes Mixed (Pastureland)	0.68
Legume Grass (Hayland)	0.46
Grass (Pastureland)	0.35
Grass (Hayland)	0.24
Legume (Hayland)	0.11

Table 4-25. Annual Estimated Total Soil Loss in Subwatershed 080102030103.

4.2.D. 080102030104 (Reedy Creek).

4.2.D.i. General Description.

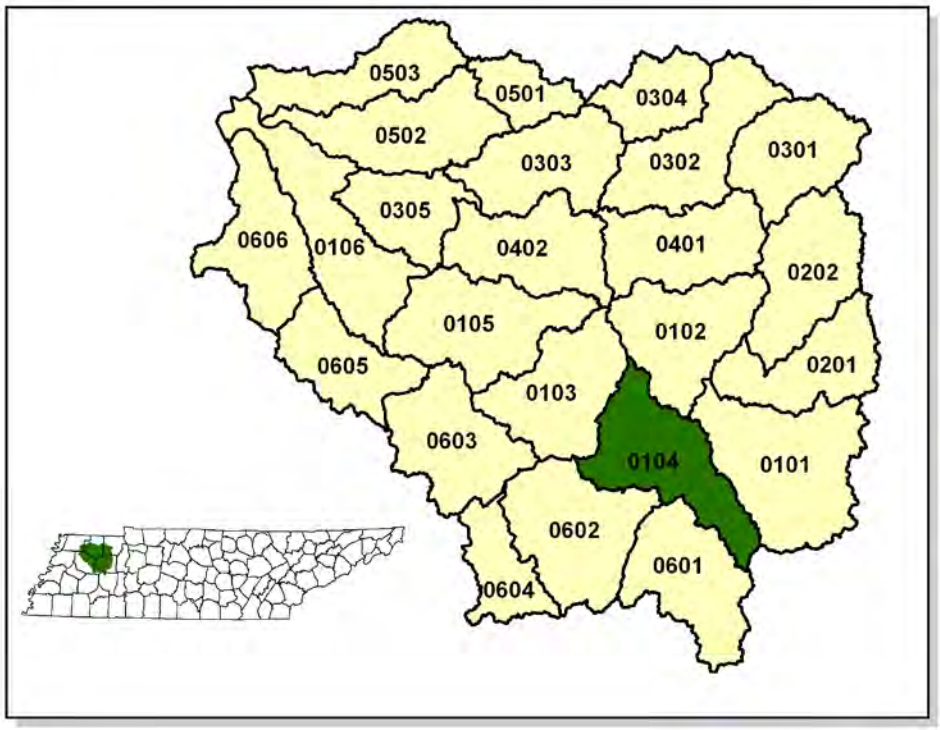


Figure 4-35. Location of Subwatershed 080102030104. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

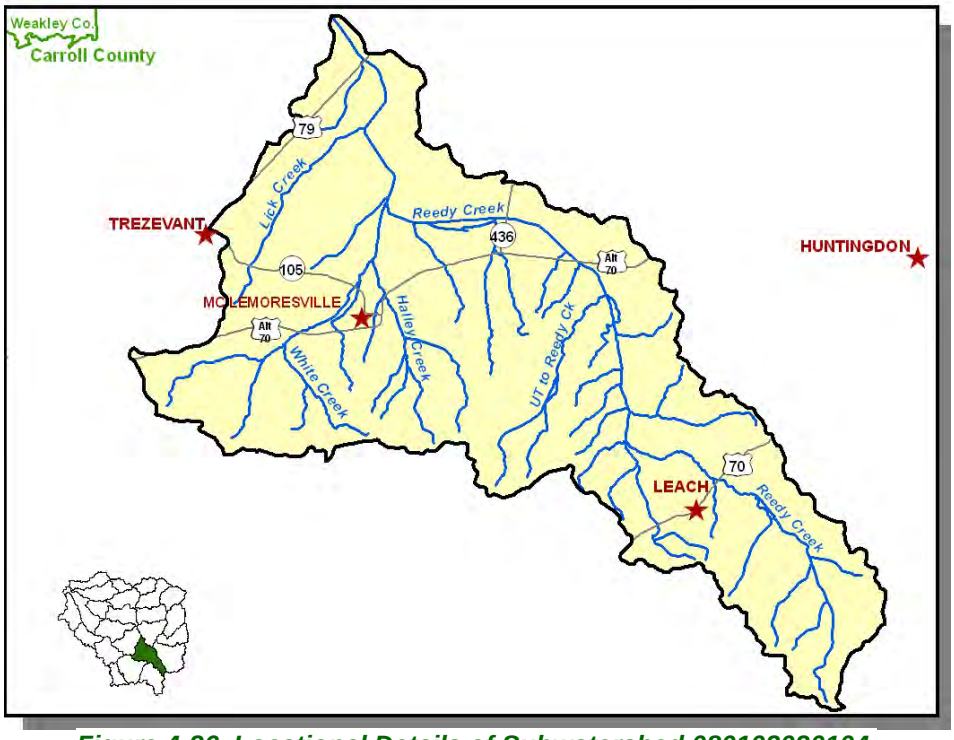


Figure 4-36. Locational Details of Subwatershed 080102030104.

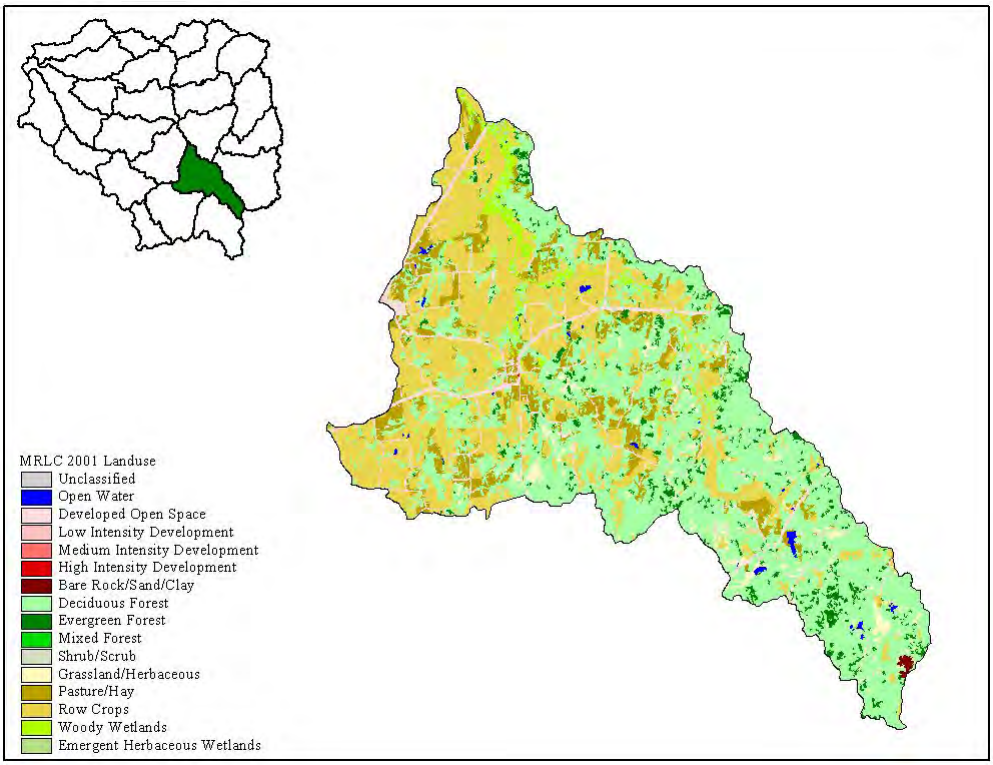


Figure 4-37. Illustration of Land Use Distribution in Subwatershed 080102030104.

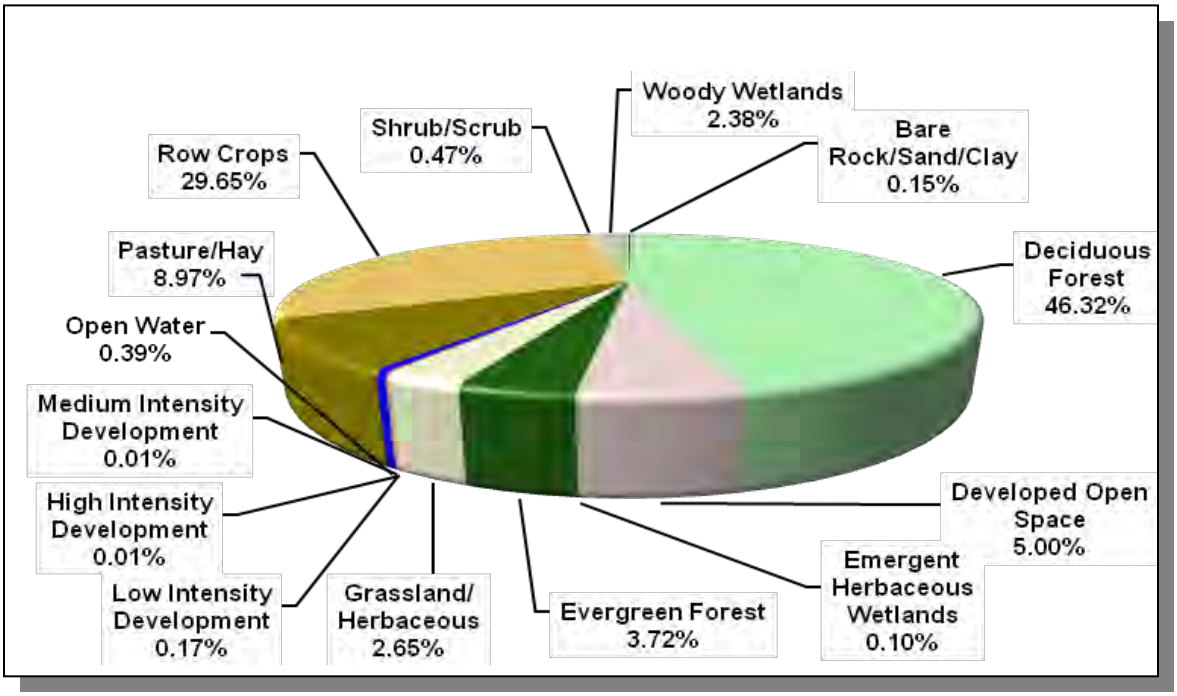


Figure 4-38. Land Use Distribution in Subwatershed 080102030104. *More information is provided in Appendix IV.*

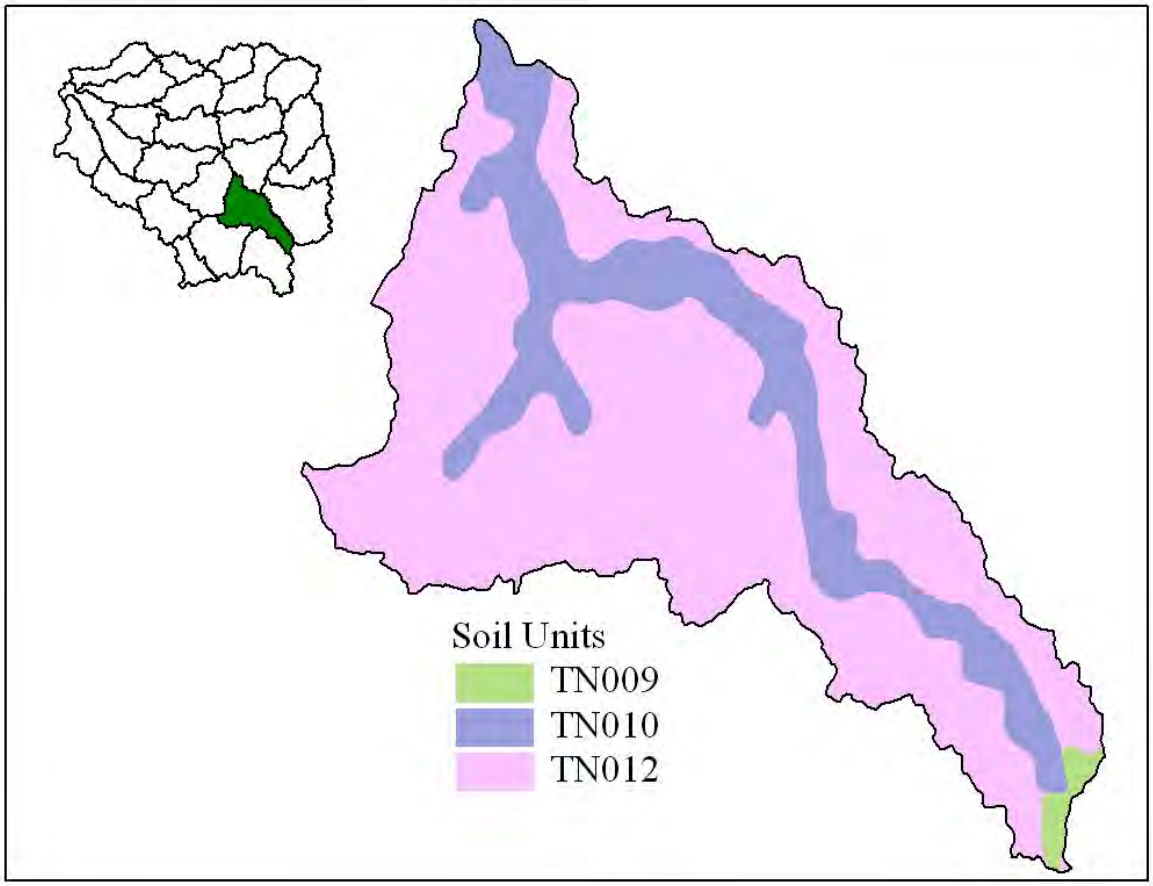


Figure 4-39. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030104.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN009	7.00	C	1.30	5.10	Silty Loam	0.43
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN012	1.00	C	2.52	5.13	Silty Loam	0.39

Table 4-26. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030104. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	9.38	2,581	2,719	2,765	7.10

Table 4-27. Population Estimates in Subwatershed 080102030104.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Atwood	Carroll	1,080	454	417	36	1
McLemoresville	Carroll	273	143	10	133	0
Trezevant	Carroll	881	393	354	39	0
Total		**2,234**	**990**	**781**	**208**	**1**

Table 4-28. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030104.

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

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102030104.

4.2.D.iii. Permitted Activities.

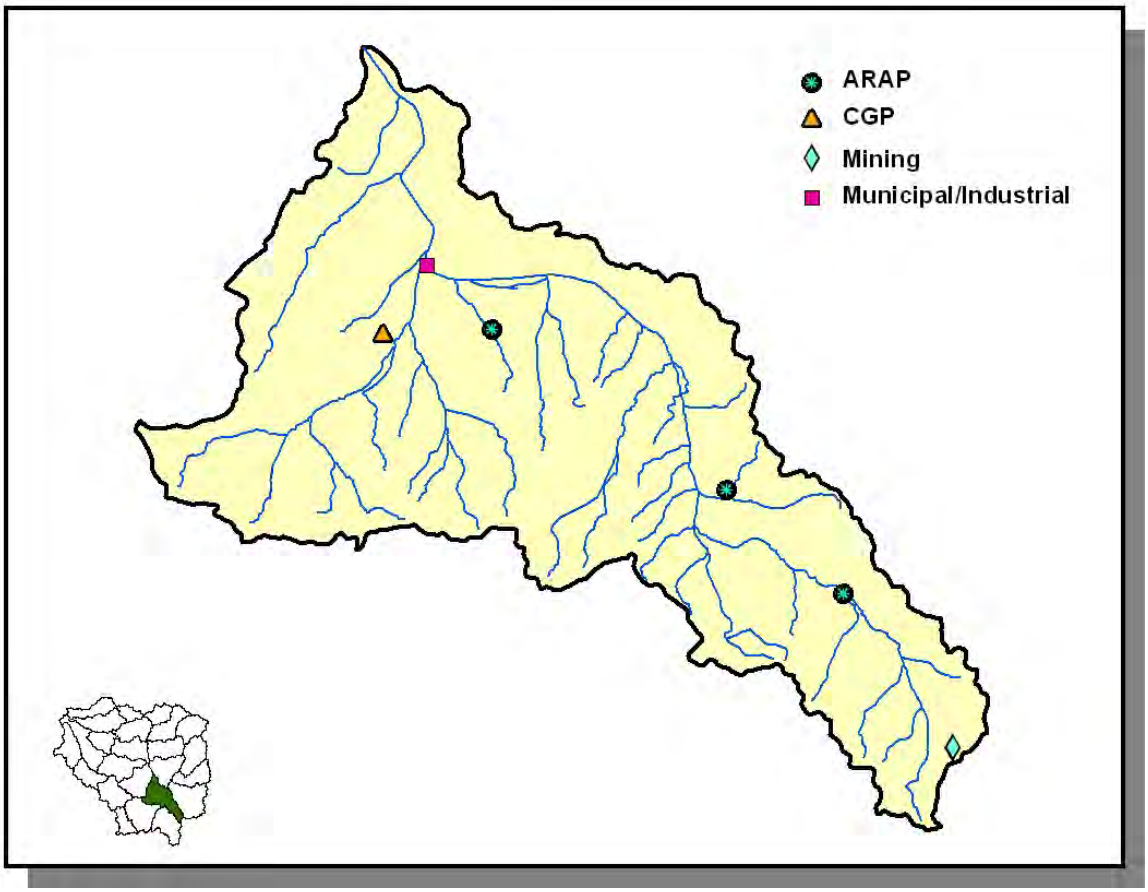


Figure 4-40. Location of Permits Issued in Subwatershed 080102030104. *More information, including the names of facilities, is provided in Appendix IV.*

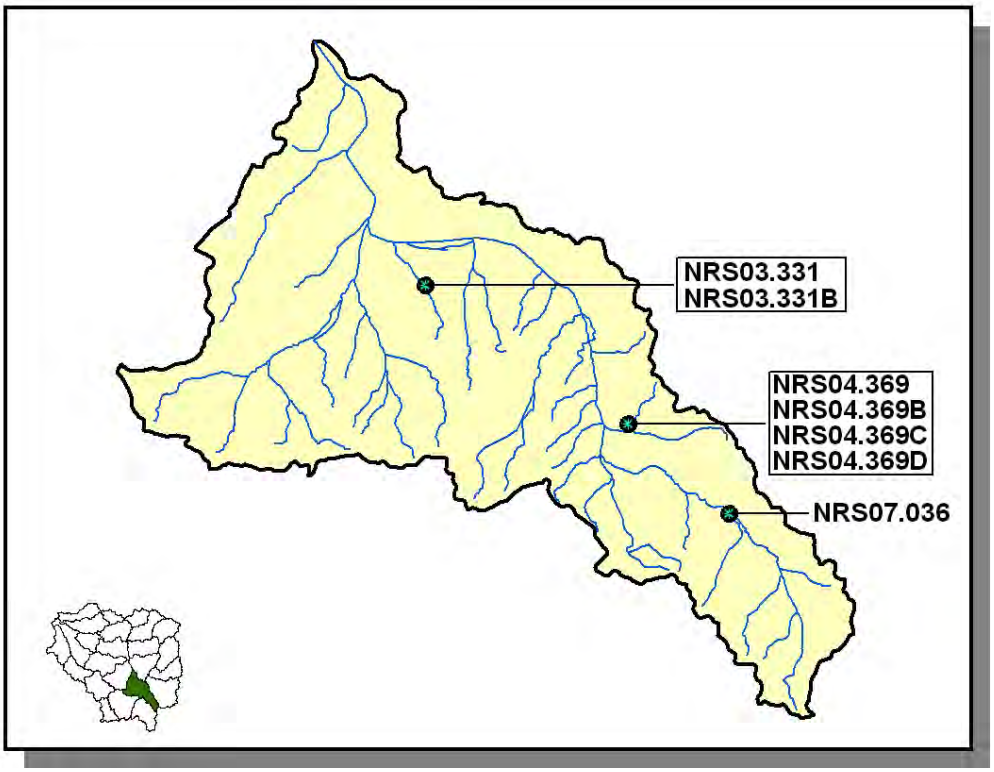


Figure 4-41. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030104. *More information is provided in Appendix IV.*

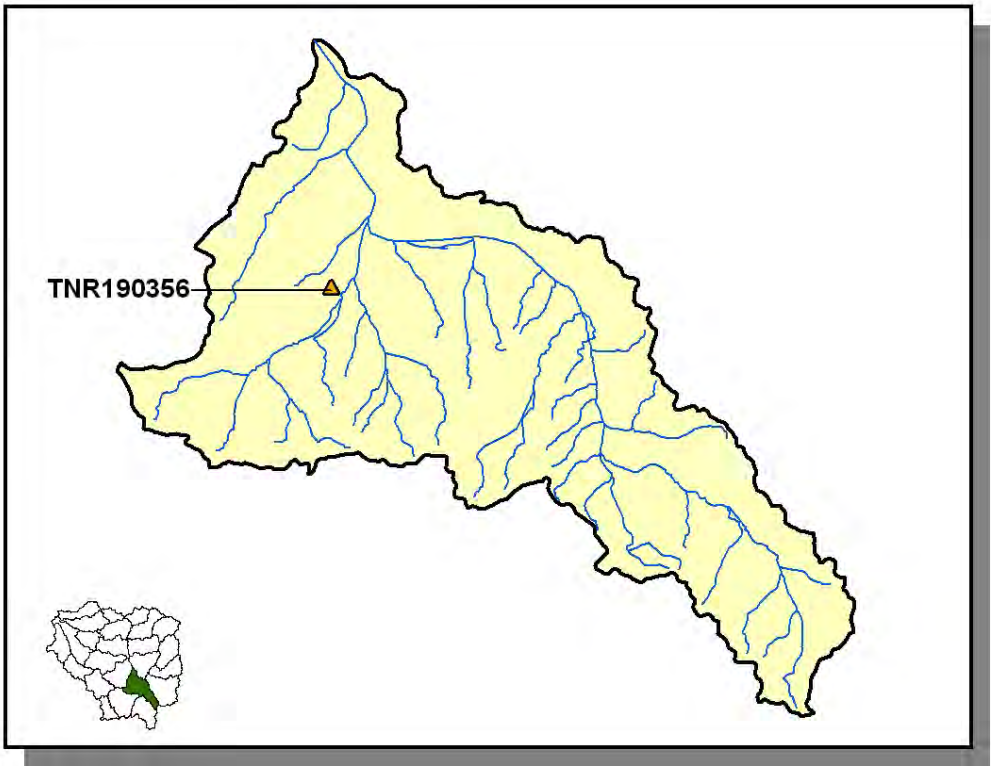


Figure 4-42. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030104. *More information is provided in Appendix IV.*

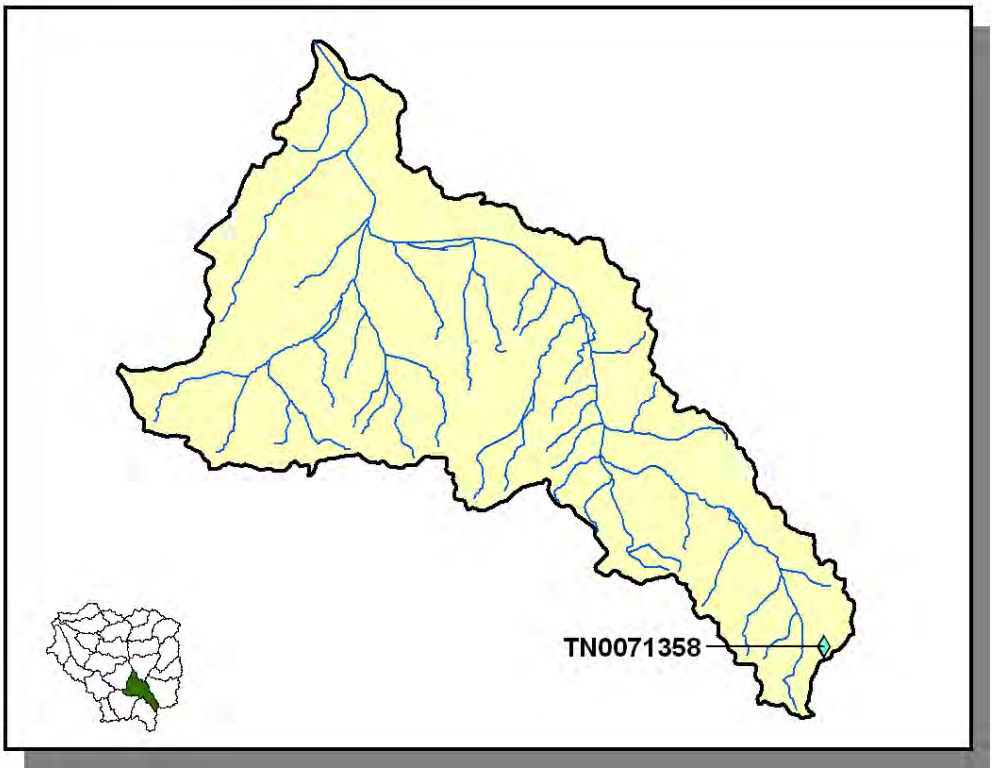


Figure 4-43. Location of Permitted Mining Facilities in Subwatershed 080102030104. *More information is provided in Appendix IV.*

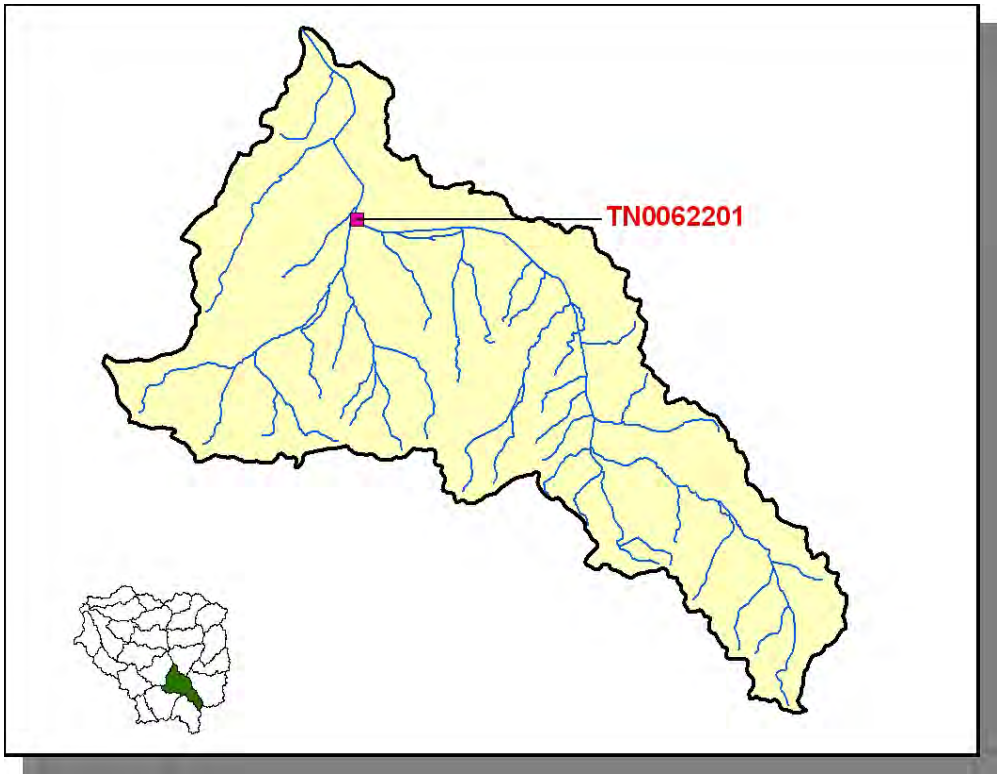


Figure 4-44. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030104. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0062201	2.65	0.2

Table 4-29. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030104. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	$CBOD_5$	CBOD % REMOVAL	AMMONIA AS N (TOTAL)	FECAL COLIFORM	TRC	DO	pH	TSS	SS
TN0062201	X	X	X	X	X	X	X	X	X

Table 4-30. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030104. *$CBOD_5$, Carbonaceous Biochemical Oxygen Demand (5-day); TRC, Total Residual Chlorine; DO, Dissolved Oxygen; TSS, Total Suspended Solids; SS, Settleable Solids.*

4.2.D.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	

Table 4-31. 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)
Carroll	169.1	169.1	0.6	2.0

Table 4-32. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Wheat (Close Grown Cropland)	18.5
Soybeans (Row Crops)	10.2
Other Cropland not Planted	9.50
Cotton (Row Crops)	7.58
Corn (Row Crops)	5.95
Conservation Reserve Program Land	1.23
Farmsteads and Ranch Headquarters	1.12
Other Land in Farms	0.59
Grass Forbs Legumes Mixed (Pastureland)	0.58
Legume Grass (Hayland)	0.46
Grass (Pastureland)	0.40
Grass (Hayland)	0.21
Legume (Hayland)	0.07

Table 4-33. Annual Estimated Total Soil Loss in Subwatershed 080102030104.

4.2.E. 080102030105 (South Fork Obion River).

4.2.E.i General Description.

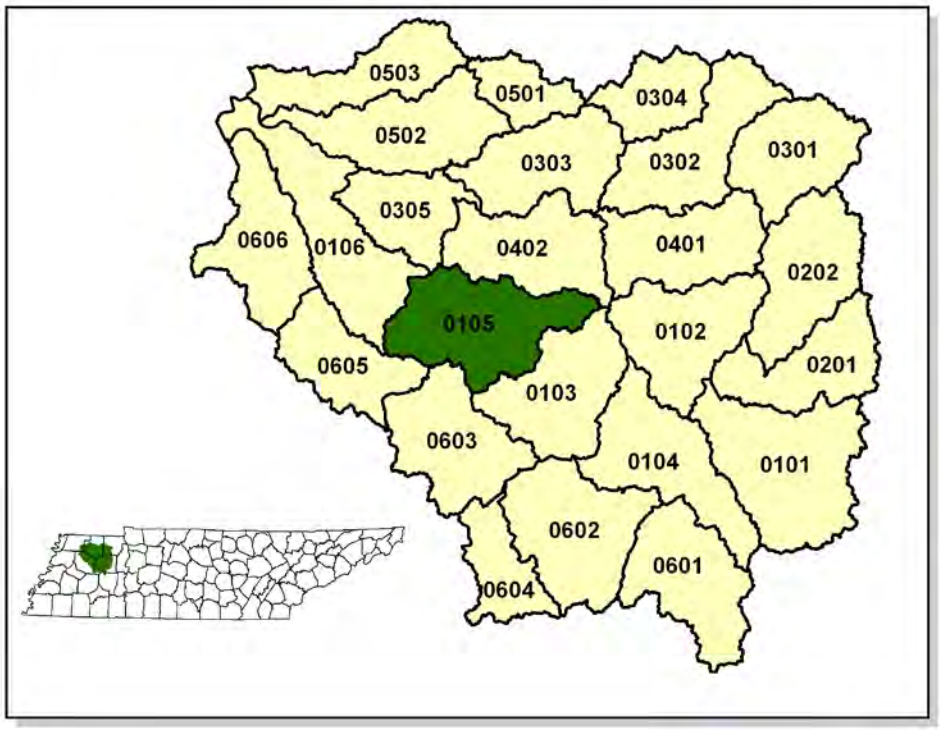


Figure 4-45. Location of Subwatershed 080102030105. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

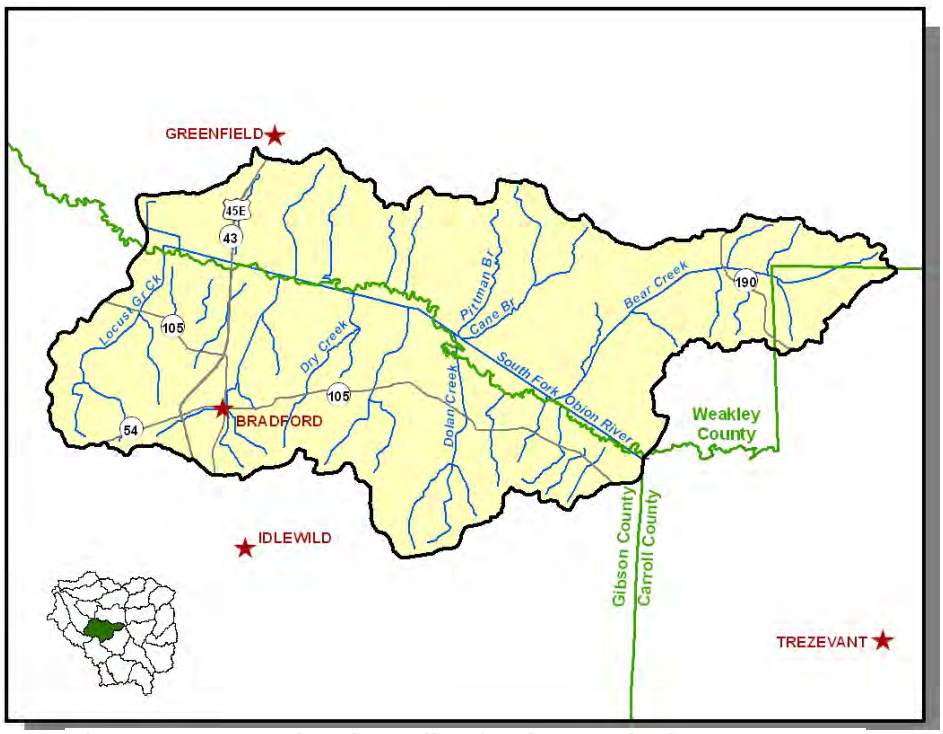


Figure 4-46. Locational Details of Subwatershed 080102030105.

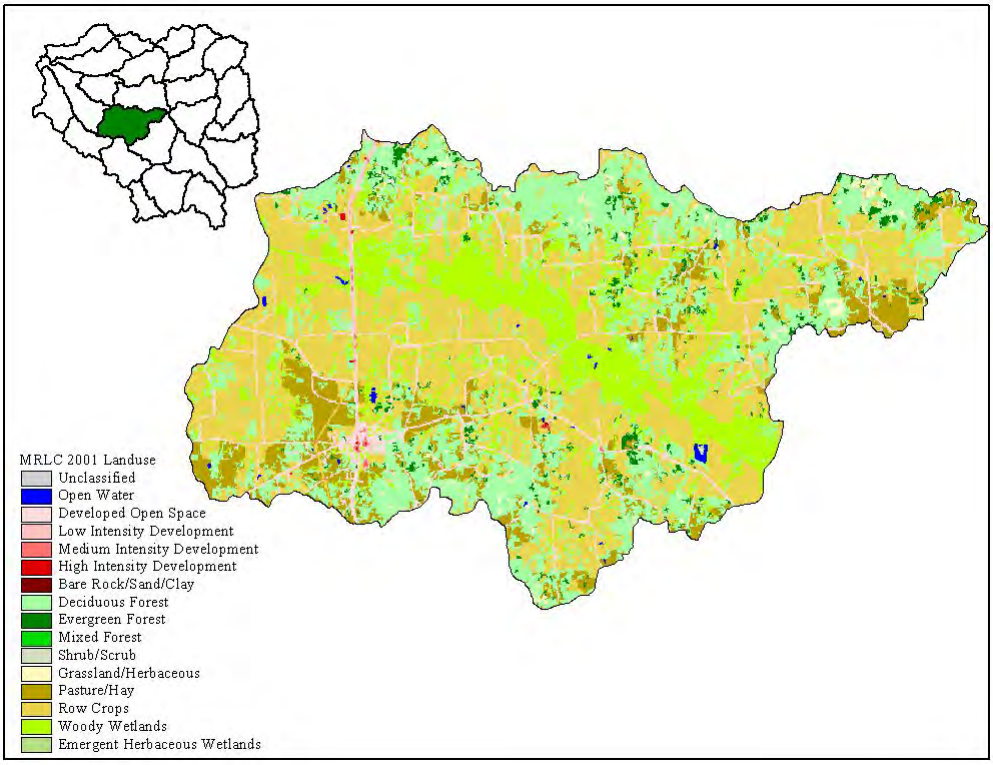


Figure 4-47. Illustration of Land Use Distribution in Subwatershed 080102030105.

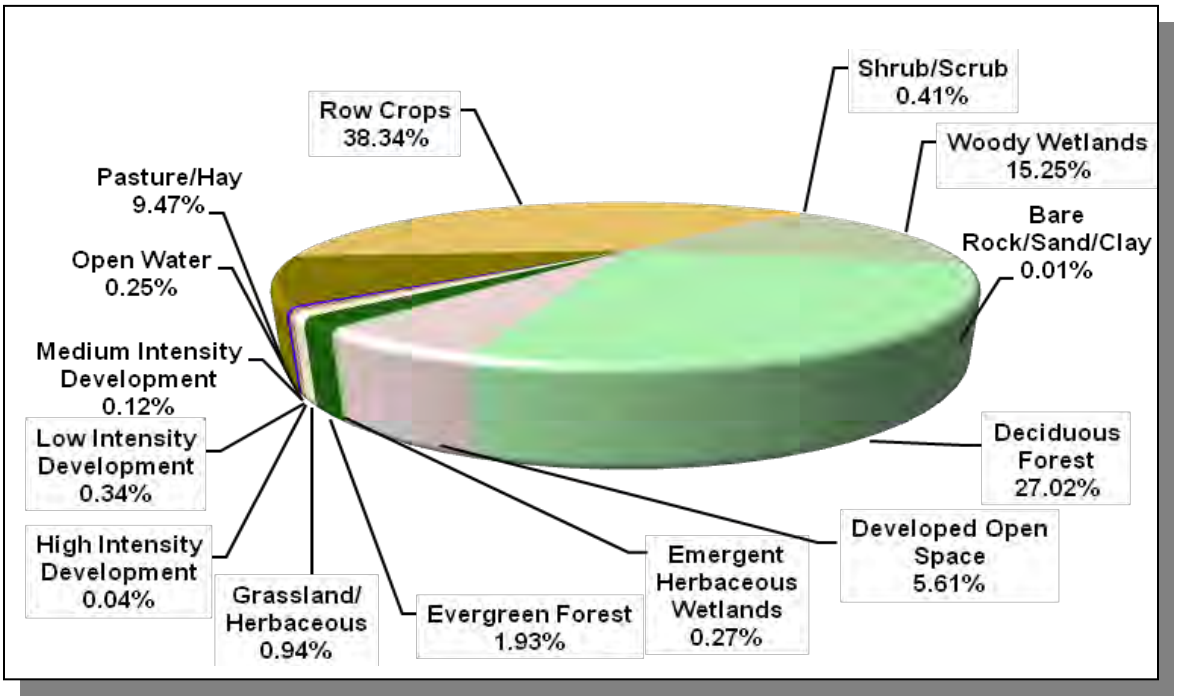


Figure 4-48. Land Use Distribution in Subwatershed 080102030105. *More information is provided in Appendix IV.*

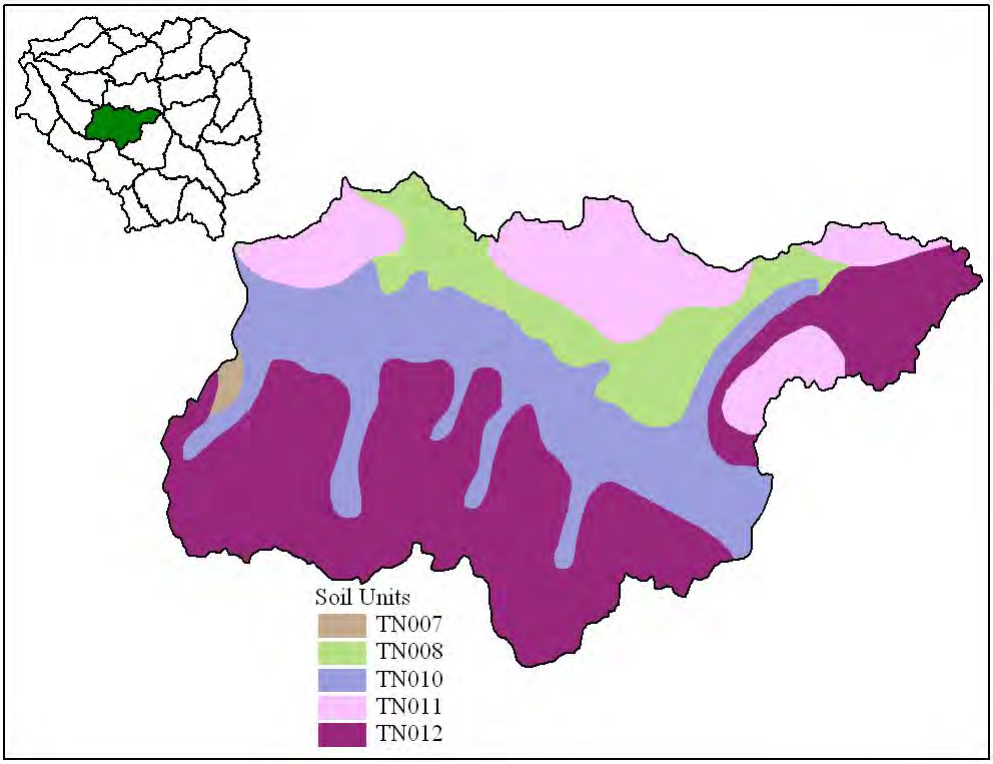


Figure 4-49. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030105.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39

Table 4-34. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030105. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	0.30	84	88	90	7.10
Gibson	46,315	48,083	48,152	5.66	2,621	2,722	2,725	4.00
Weakley	31,972	32,808	34,895	4.30	1,374	1,410	1,500	9.20
Total	**105,801**	**109,881**	**112,522**		**4,079**	**4,220**	**4,315**	**5.80**

Table 4-35. Population Estimates in Subwatershed 080102030105.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Greenfield	Weakley	2,105	949	900	46	3
Bradford	Gibson	1,154	503	480	23	0
Total		**3,259**	**1,452**	**1,380**	**69**	**3**

Table 4-36. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030105.

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

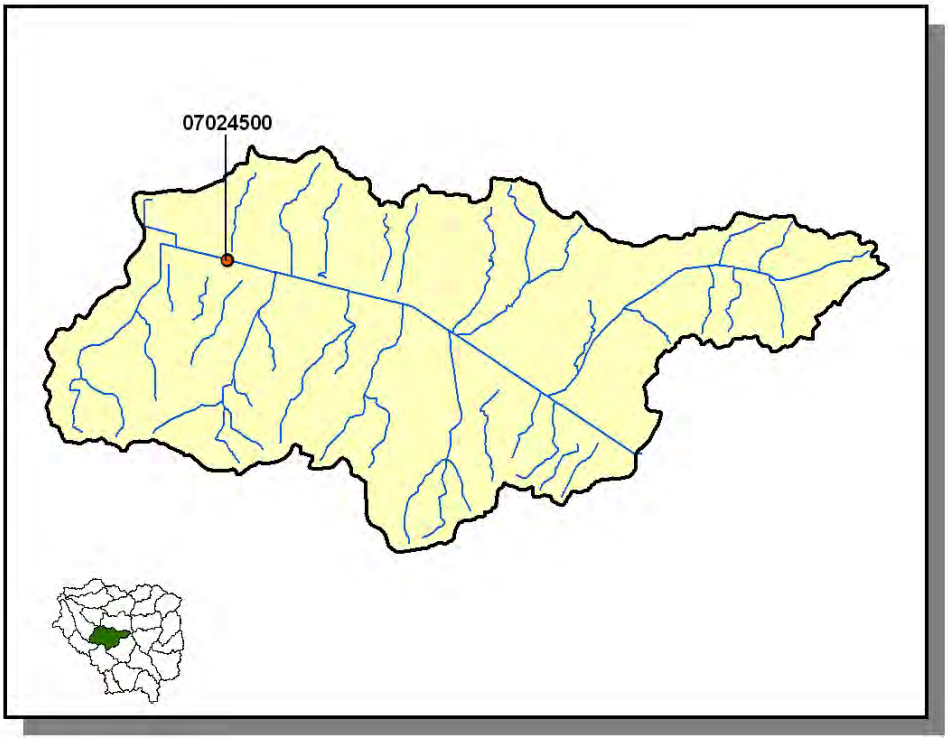


Figure 4-50. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102030105. *More information is provided in Appendix IV.*

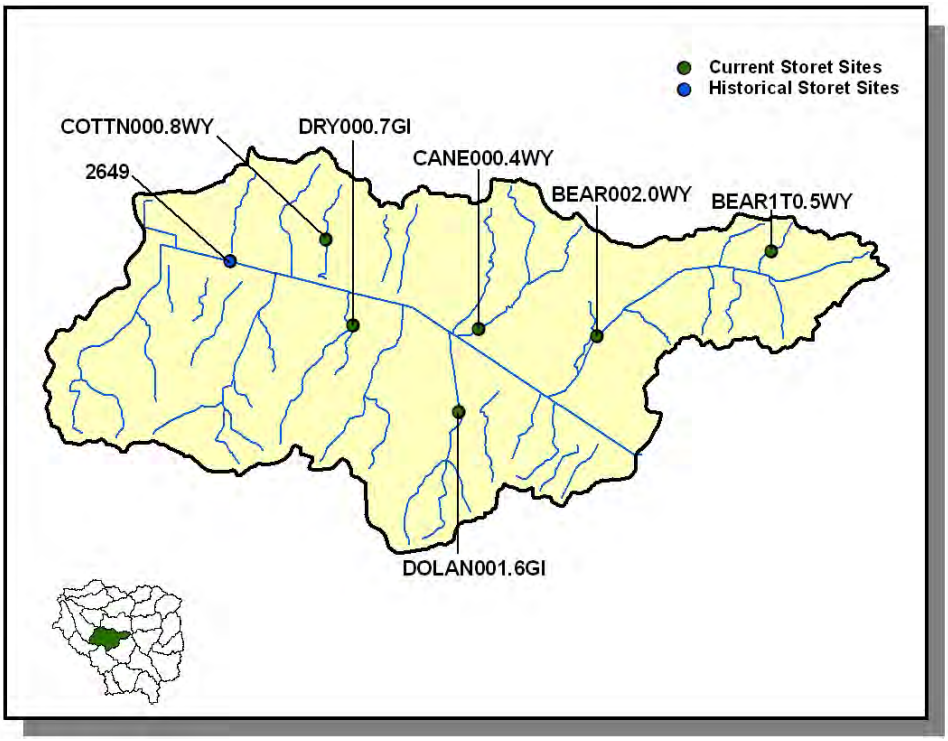


Figure 4-51. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030105. *More information, including site names and locations, is provided in Appendix IV.*

4.2.E.iii. Permitted Activities.

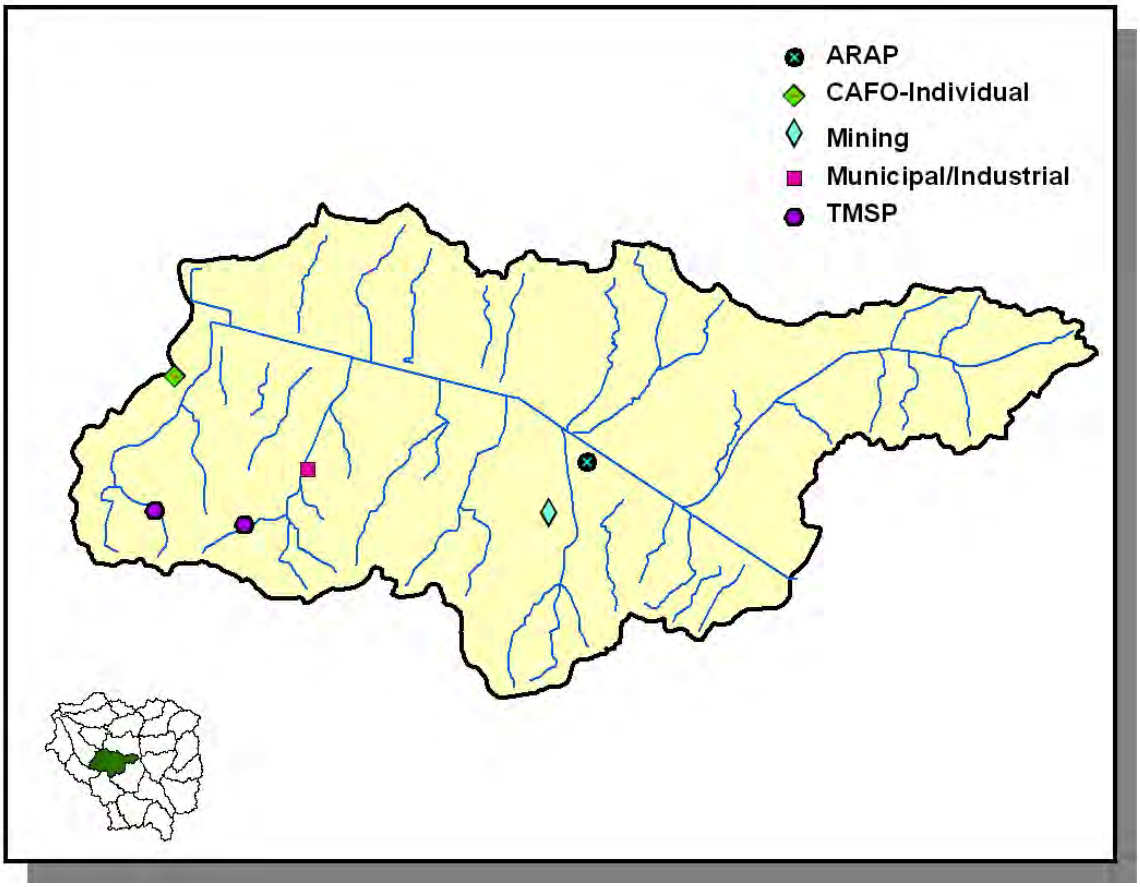


Figure 4-52. Location of Permits Issued in Subwatershed 080102030105. *More information, including the names of facilities, is provided in Appendix IV.*

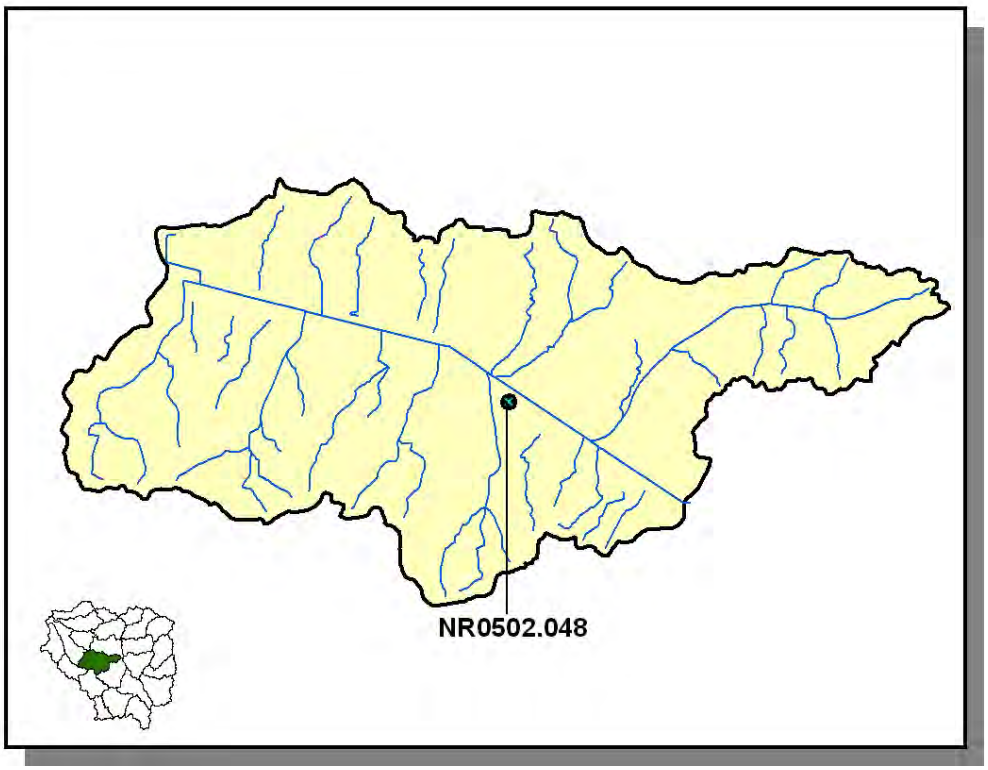


Figure 4-53. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030105. *More information is provided in Appendix IV.*

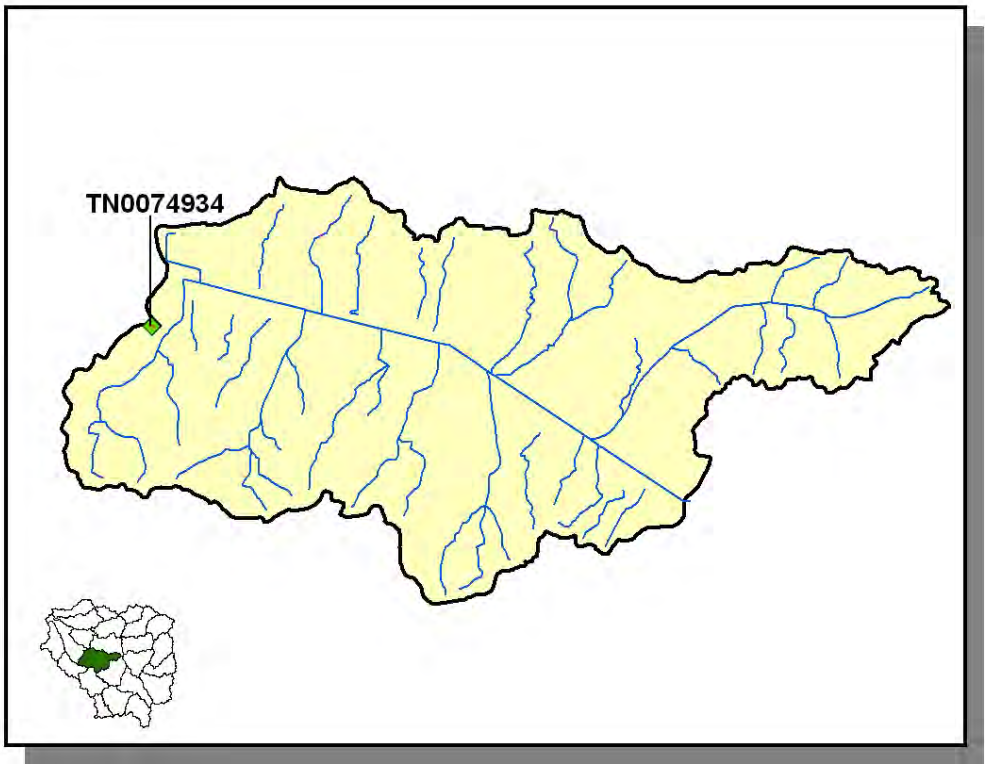


Figure 4-54. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102030105. *More information, including the names of facilities, is provided in Appendix IV.*

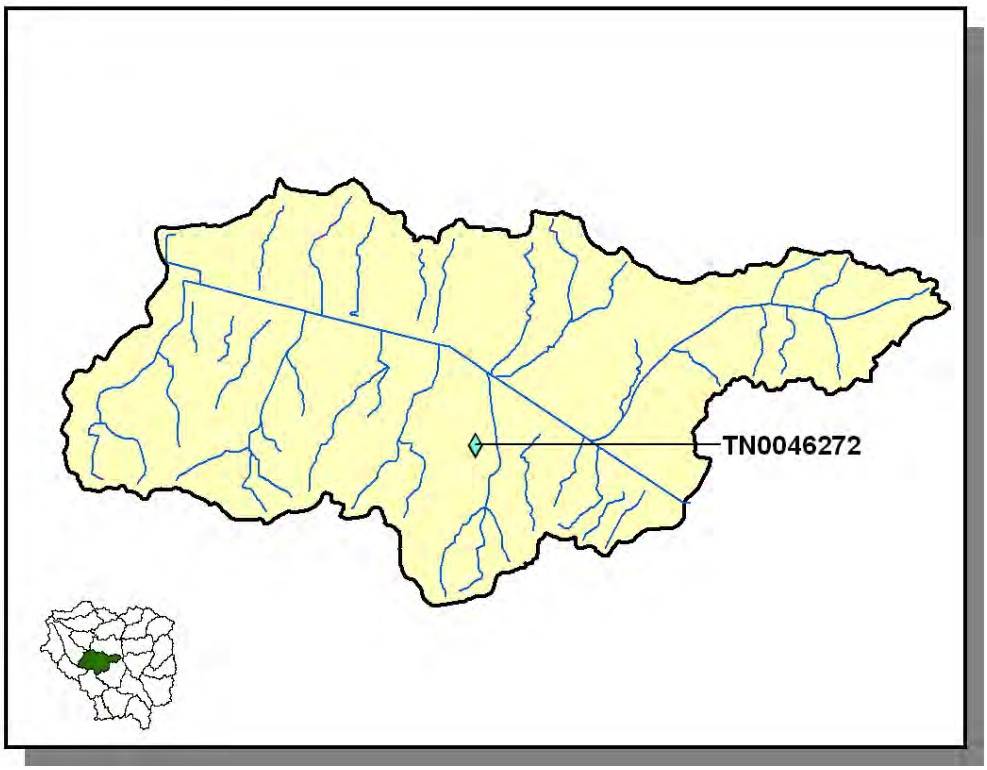


Figure 4-55. Location of Permitted Mining Facilities in Subwatershed 080102030105. *More information is provided in Appendix IV.*

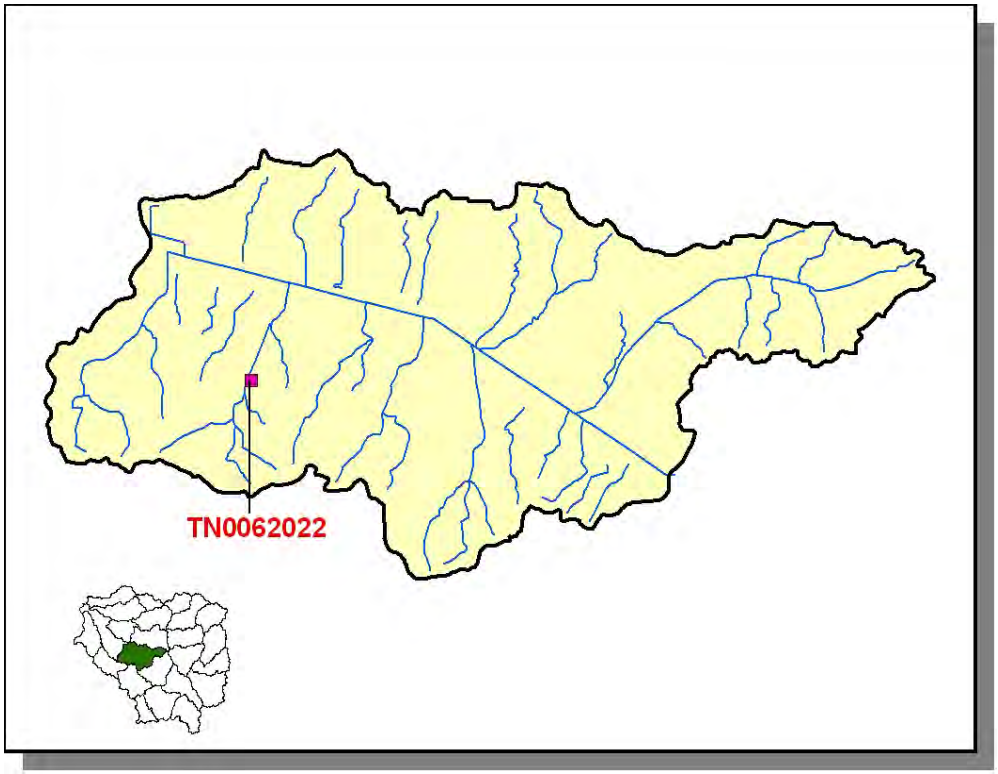


Figure 4-56. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030105. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0062022	52.1	0.29

Table 4-37. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030105. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	BOD_5	BOD % REMOVAL	FLOW	E. *coli*	TRC	DO	pH	TSS	SS
TN0062022	X	X	X	X	X	X	X	X	X

Table 4-38. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030105. *BOD_5, Biochemical Oxygen Demand (5-day); TRC, Total Residual Chlorine; DO, Dissolved Oxygen; TSS, Total Suspended Solids; SS, Settleable Solids.*

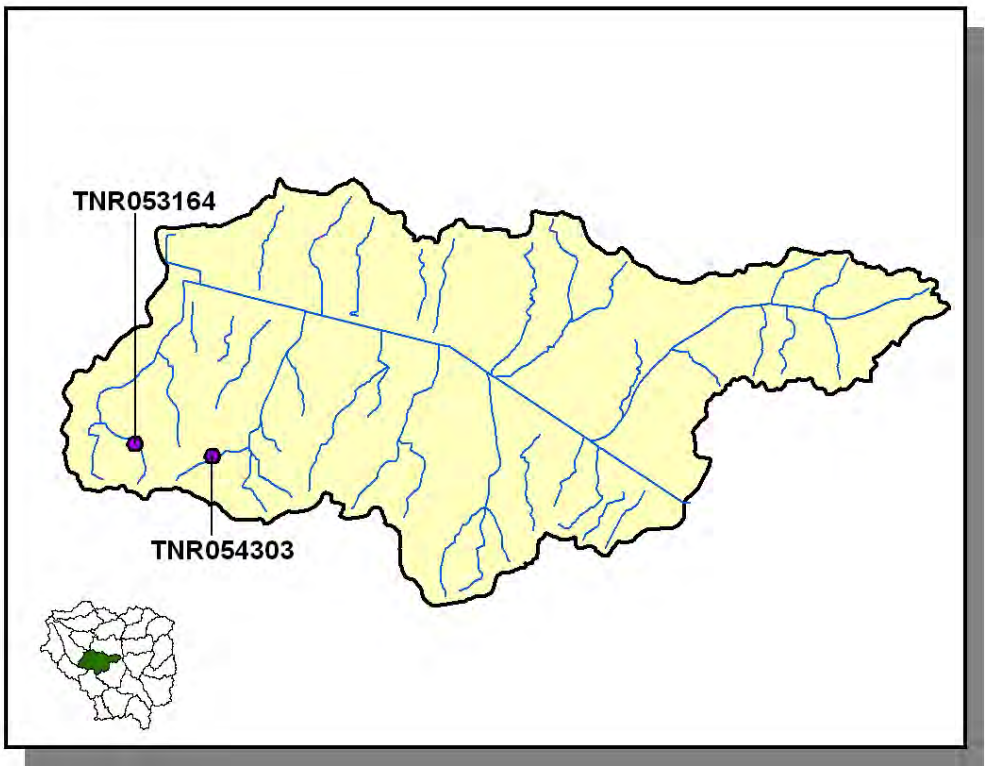


Figure 4-57. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030105. *More information is provided in Appendix IV.*

4.2.E.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	
Gibson	9,766	21,779	221	605	7,506	74
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-39. 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)
Carroll	169.1	169.1	0.6	2.0
Gibson	36.4	36.4	2.0	8.6
Weakley	96.1	95.9	6.7	24.6

Table 4-40. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Cotton (Row Crops)	16.72
Wheat (Close Grown Cropland)	10.6
Corn (Row Crops)	9.85
Soybeans (Row Crops)	8.25
Sorghum (Row Crops)	6.38
Other Cropland not Planted	2.43
Legume (Pastureland)	1.47
Other Land in Farms	1.30
Grass Forbs Legumes Mixed (Pastureland)	0.97
Conservation Reserve Program Land	0.47
Legume (Hayland)	0.46
Legume Grass (Hayland)	0.46
Farmsteads and Ranch Headquarters	0.42
Grass (Hayland)	0.29
Grass (Pastureland)	0.22

Table 4-41. Annual Estimated Total Soil Loss in Subwatershed 080102030105.

4.2.F. 080102030106 (South Fork Obion River).

4.2.F.i. General Description.

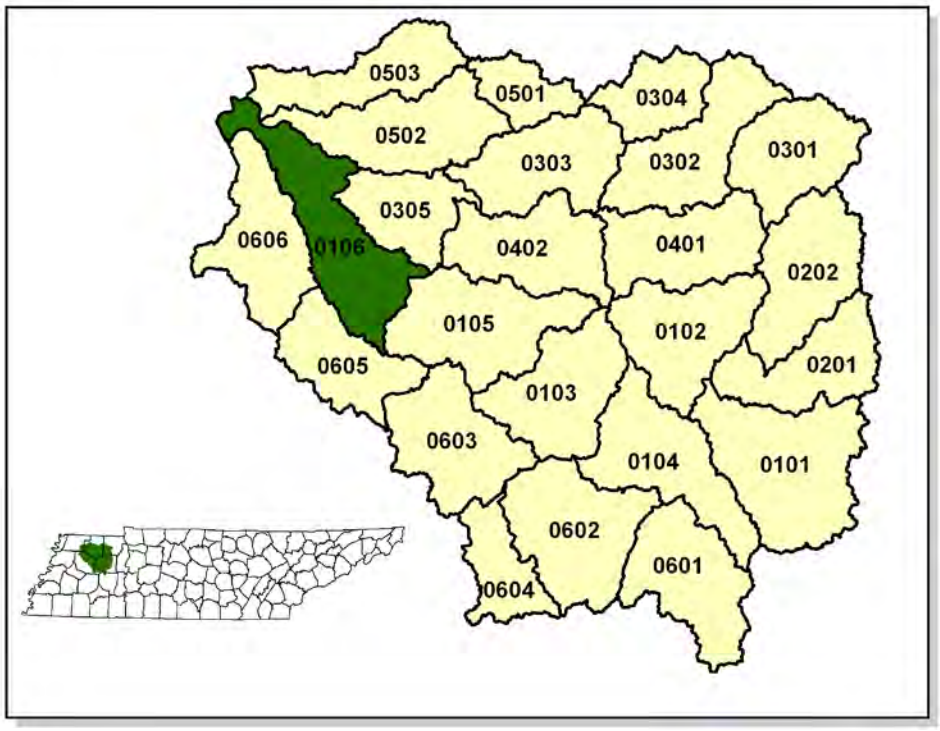


Figure 4-58. Location of Subwatershed 080102030106. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

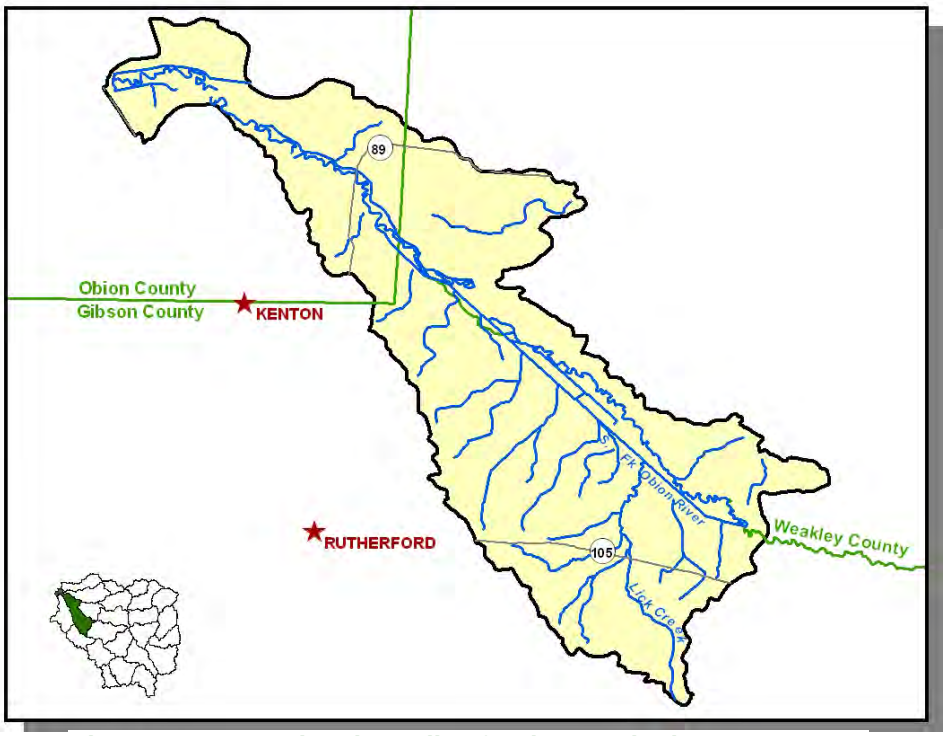


Figure 4-59. Locational Details of Subwatershed 080102030106.

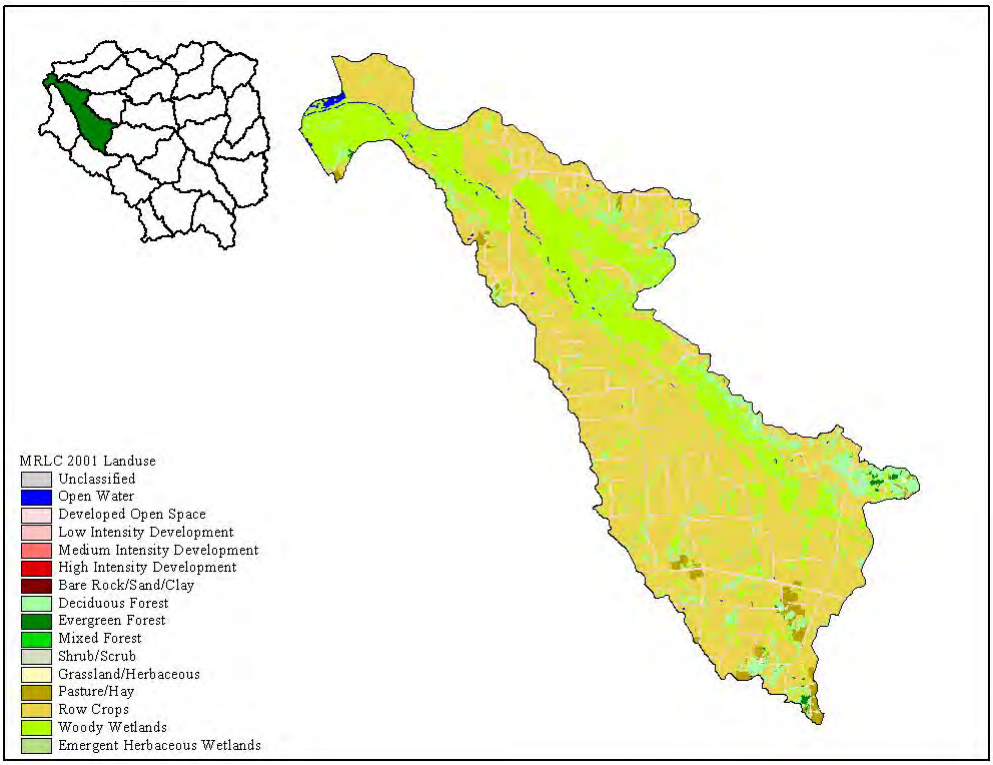


Figure 4-60. Illustration of Land Use Distribution in Subwatershed 080102030106.

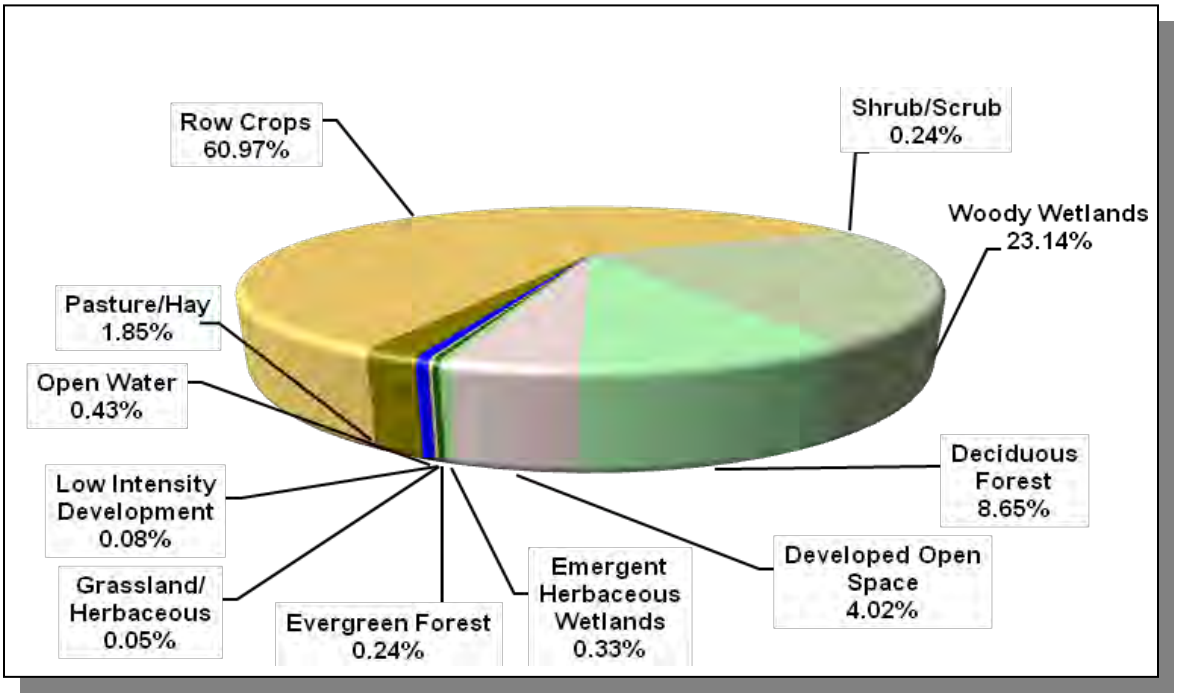


Figure 4-61. Land Use Distribution in Subwatershed 080102030106. *More information is provided in Appendix IV.*

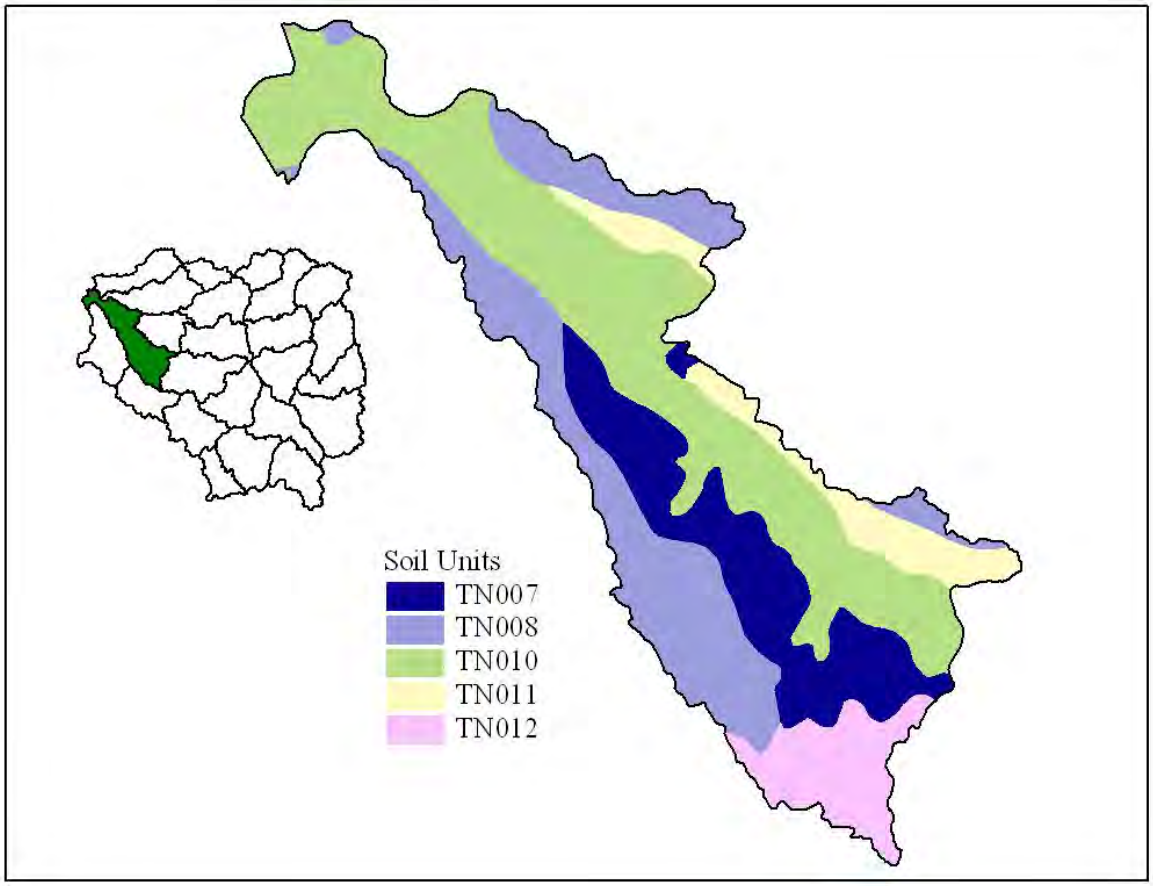


Figure 4-62. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030106.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39

Table 4-42. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030106. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Gibson	46,315	48,083	48,152	5.90	2,733	2,838	2,842	4.00
Obion	31,717	32,069	32,450	2.67	848	857	867	2.20
Weakley	31,972	32,808	34,895	2.03	650	667	709	9.10
Total	**110,004**	**112,960**	**115,497**		**4,231**	**4,362**	**4,418**	**4.40**

Table 4-43. Population Estimates in Subwatershed 080102030106.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Greenfield	Weakley	2,105	949	900	46	3

Table 4-44. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030106.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030106.

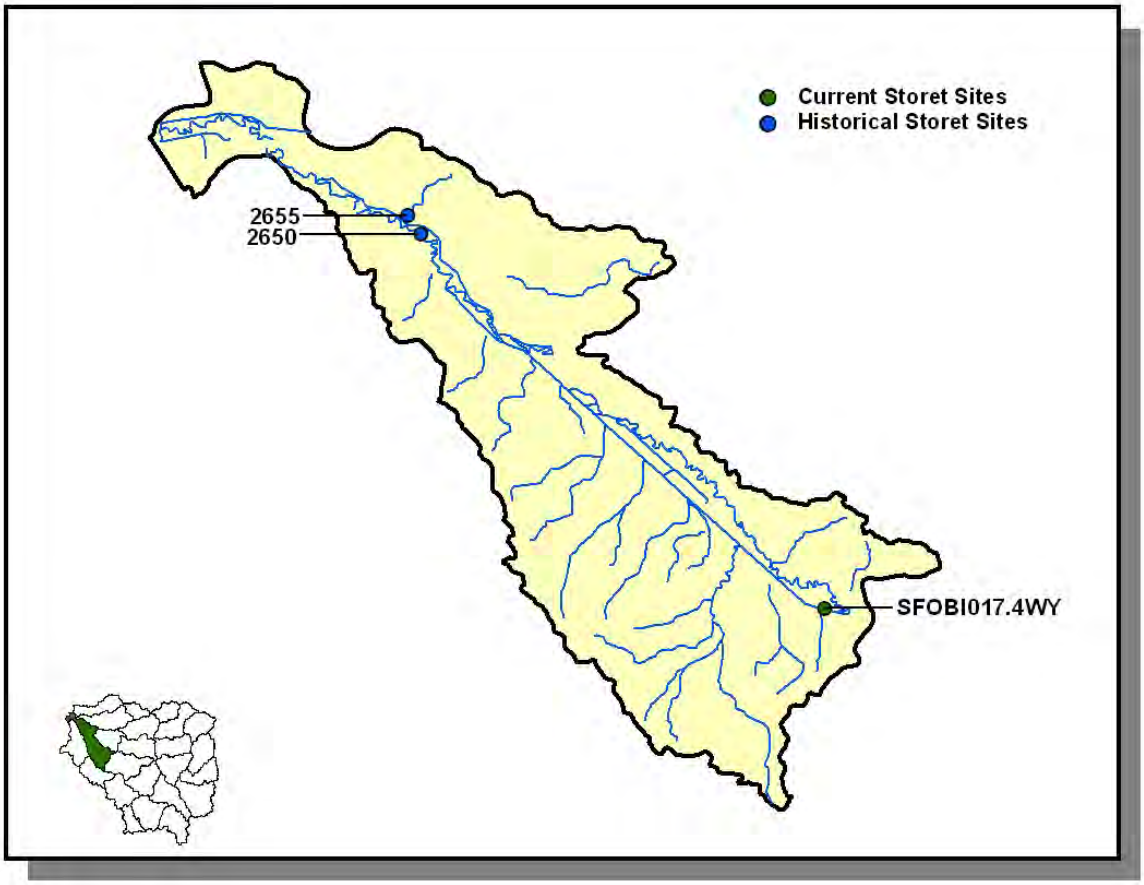


Figure 4-63. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030106. *More information, including site names and locations, is provided in Appendix IV.*

4.2.F.iii. Permitted Activities.

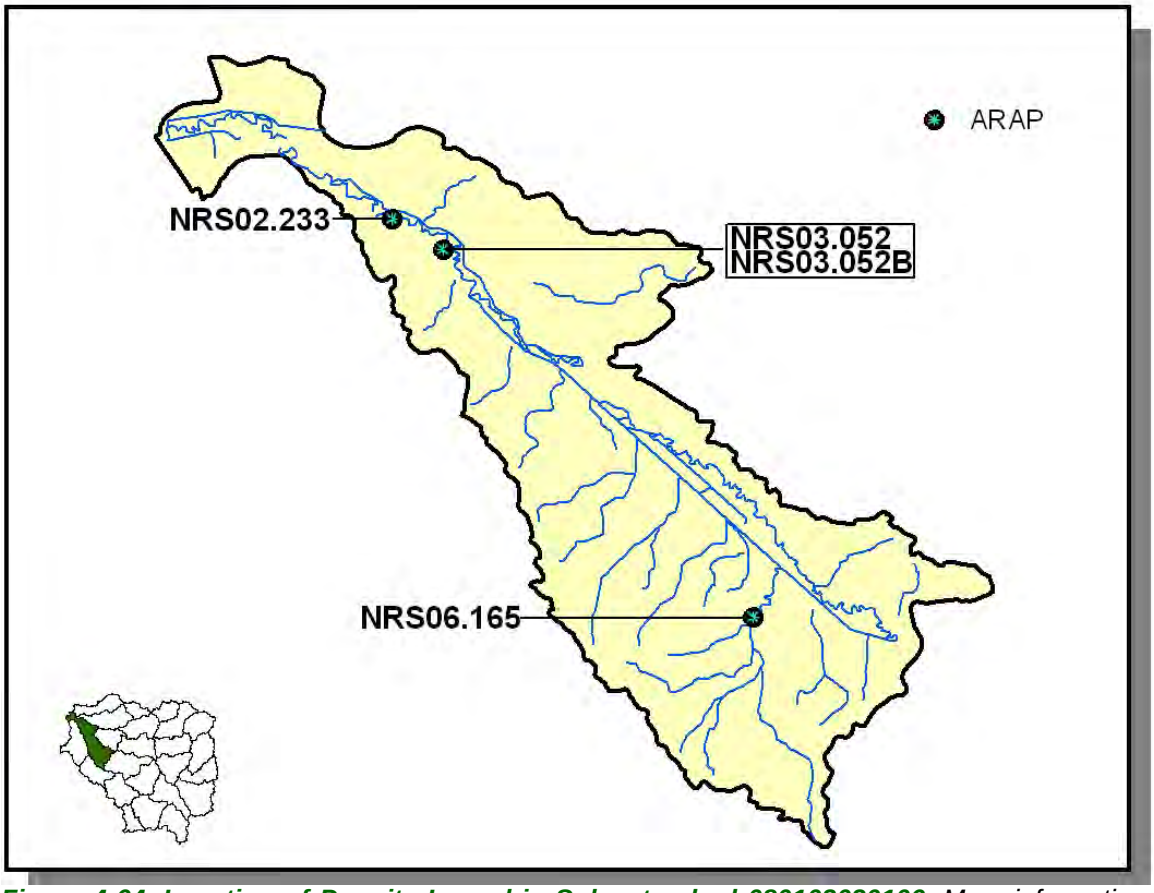


Figure 4-64. Location of Permits Issued in Subwatershed 080102030106. *More information, including the names of facilities, is provided in Appendix IV.*

4.2.F.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
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-45. 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
Weakley	96.1	95.9	6.7	24.6

Table 4-46. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Cotton (Row Crops)	13.8
Wheat (Close Grown Cropland)	9.88
Corn (Row Crops)	9.16
Soybeans (Row Crops)	8.28
Sorghum (Row Crops)	5.30
Other Cropland not Planted	4.61
Other Land in Farms	1.34
Grass Forbs Legumes Mixed (Pastureland)	0.92
Conservation Reserve Program Land	0.81
Legume (Pastureland)	0.68
Legume (Hayland)	0.49
Grass (Hayland)	0.36
Grass (Pastureland)	0.35
Farmsteads and Ranch Headquarters	0.33

Table 4-47. Annual Estimated Total Soil Loss in Subwatershed 080102030106.

4.2.G. 080102030201 (Crooked Creek).

4.2.G.i. General Description.

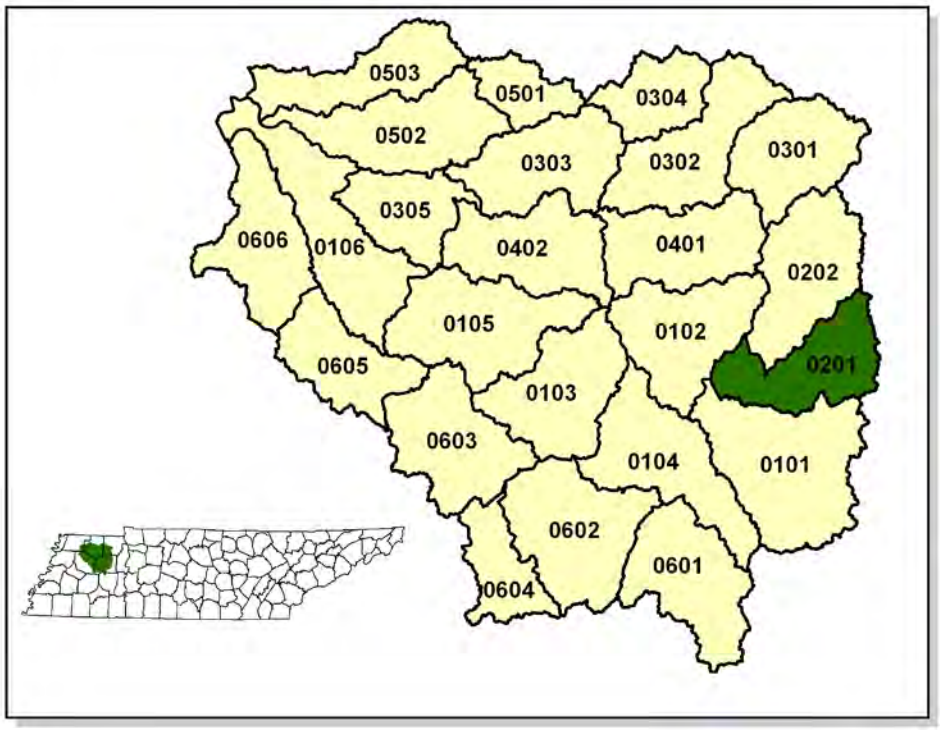


Figure 4-65. Location of Subwatershed 080102030201. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

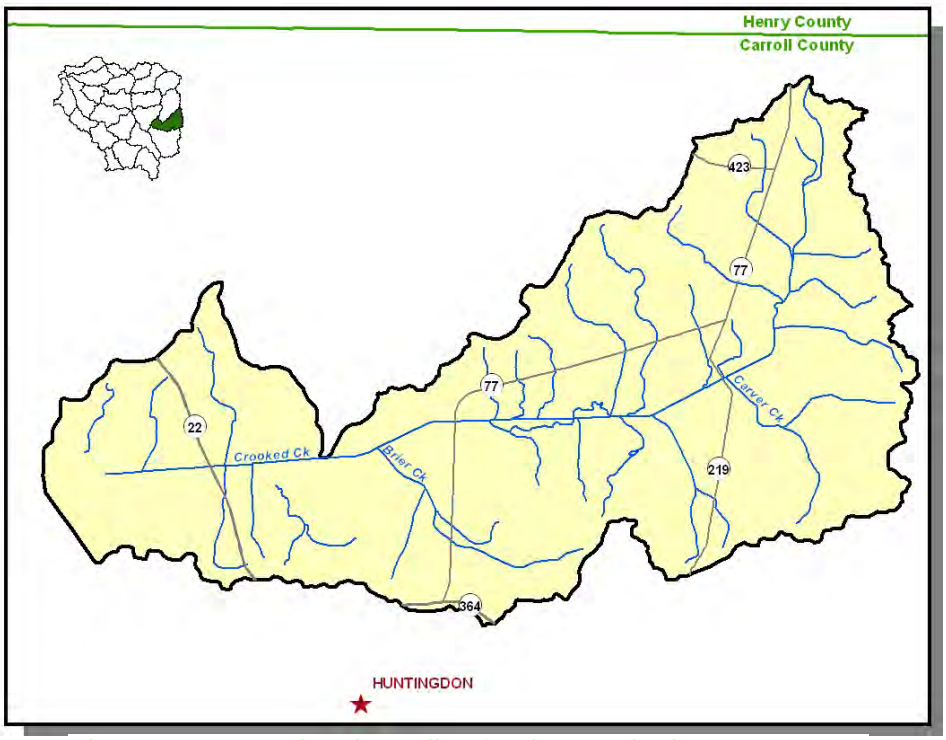


Figure 4-66. Locational Details of Subwatershed 080102030201.

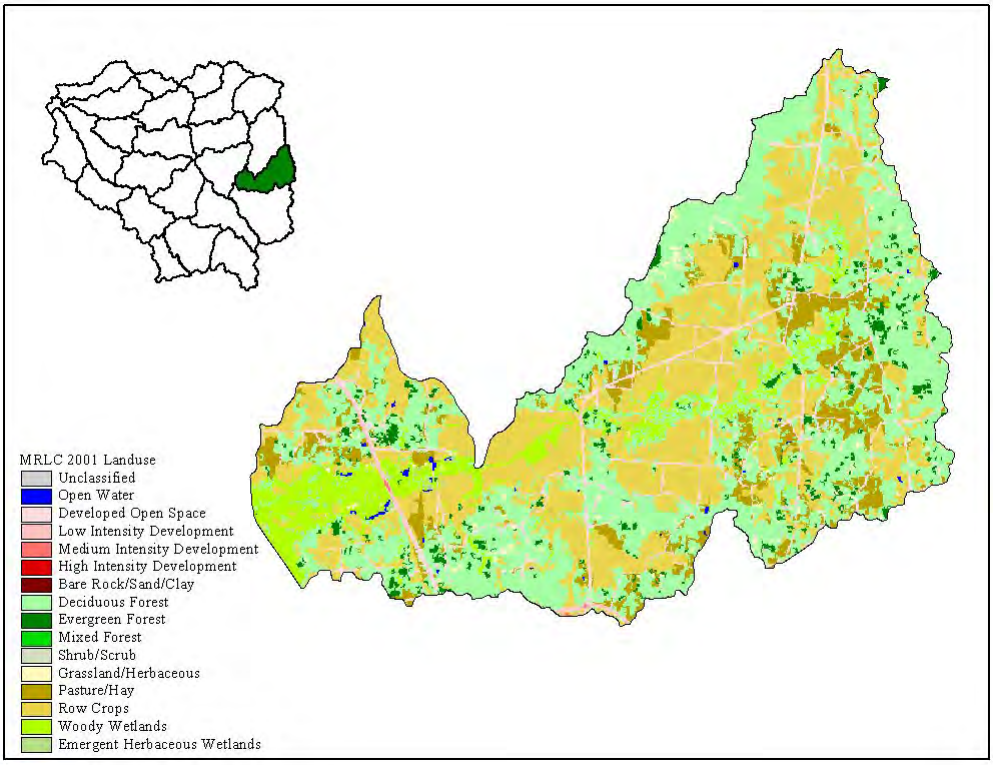


Figure 4-67. Illustration of Land Use Distribution in Subwatershed 080102030201.

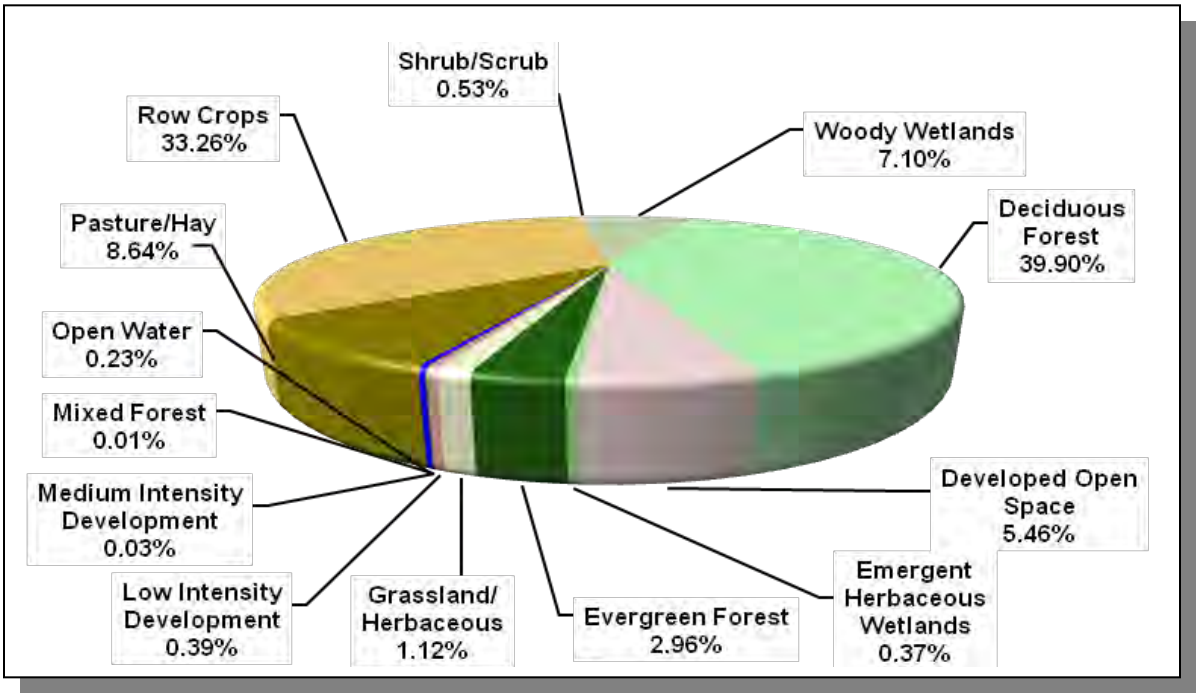


Figure 4-68. Land Use Distribution in Subwatershed 080102030201. *More information is provided in Appendix IV.*

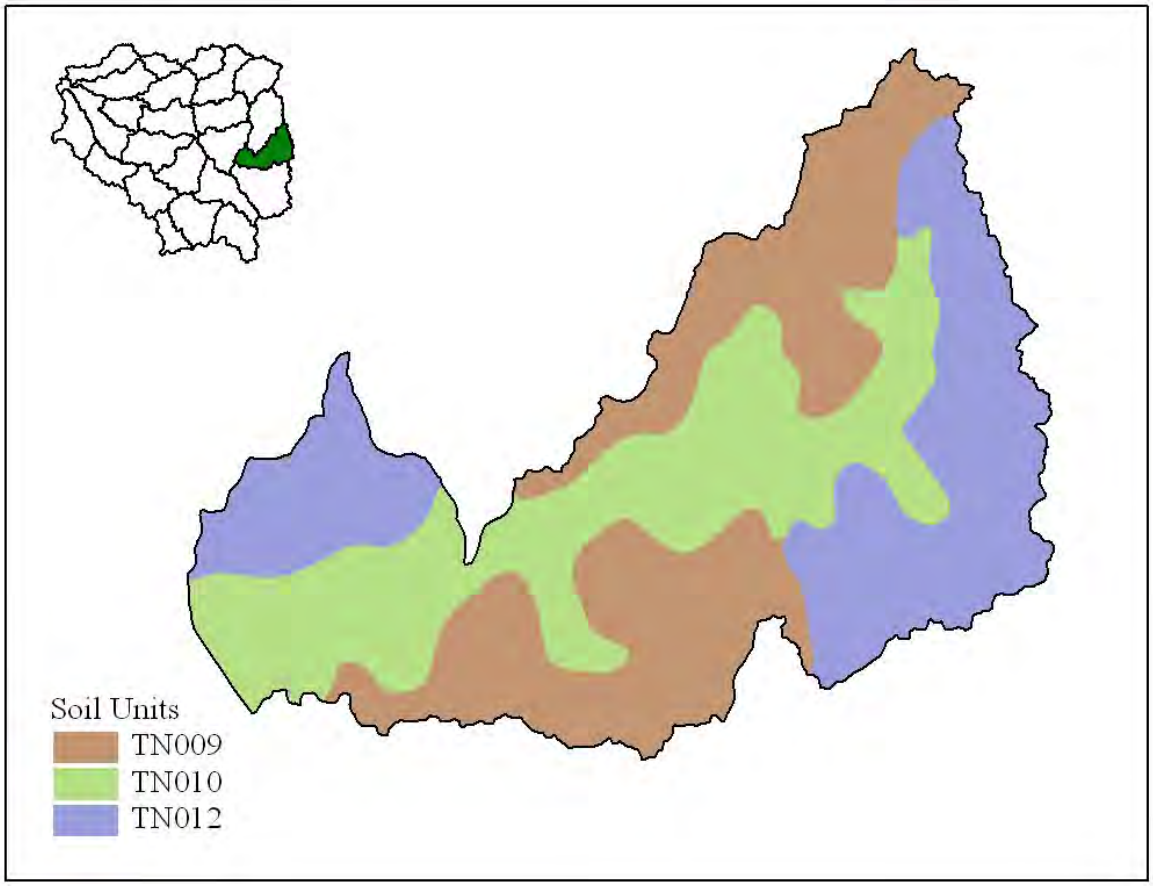


Figure 4-69. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030201.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN009	7.00	C	1.30	5.10	Silty Loam	0.43
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN012	1.00	C	2.52	5.13	Silty Loam	0.39

Table 4-48. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030201. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	7.19	1,979	2,085	2,120	7.10

Table 4-49. Population Estimates in Subwatershed 080102030201.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Huntingdon	Carroll	4,180	1,790	1,566	212	12

Table 4-50. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030201.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030201.

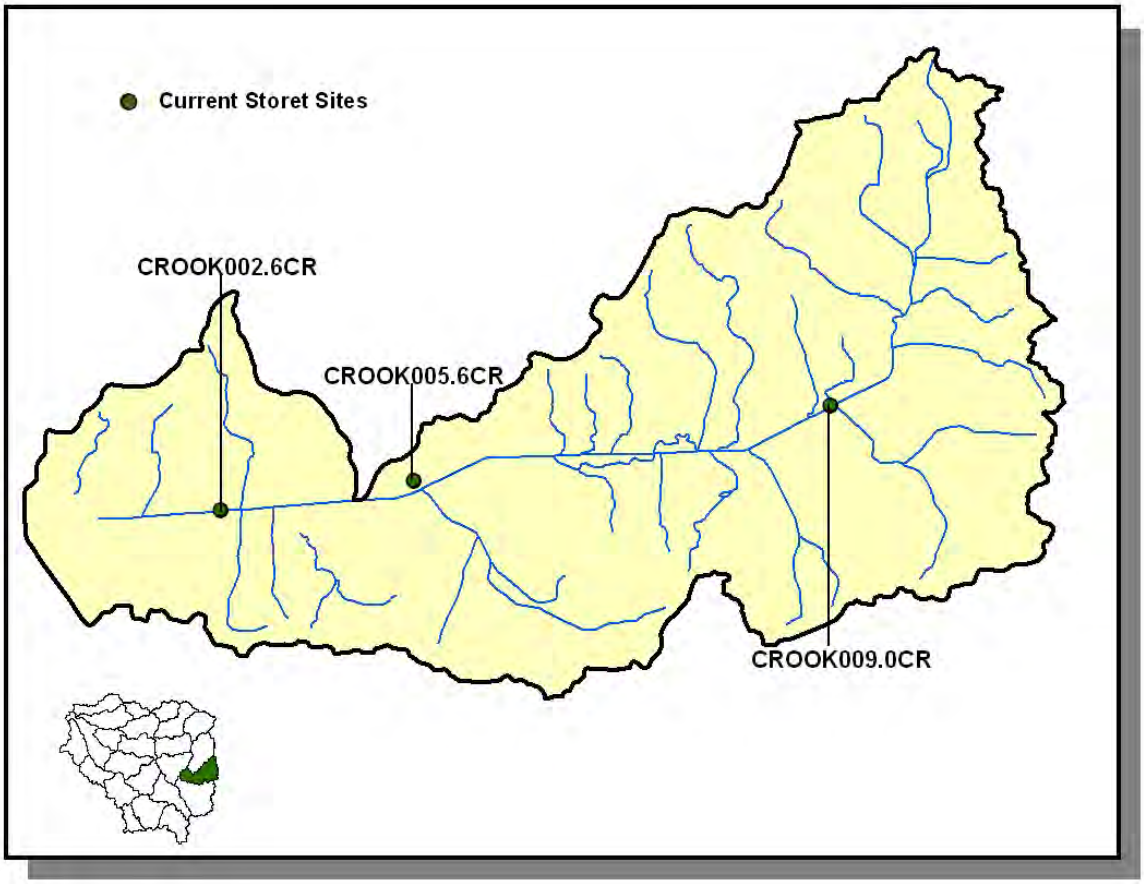


Figure 4-70. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030201. *More information, including site names and locations, is provided in Appendix IV.*

4.2.G.iii. Permitted Activities.

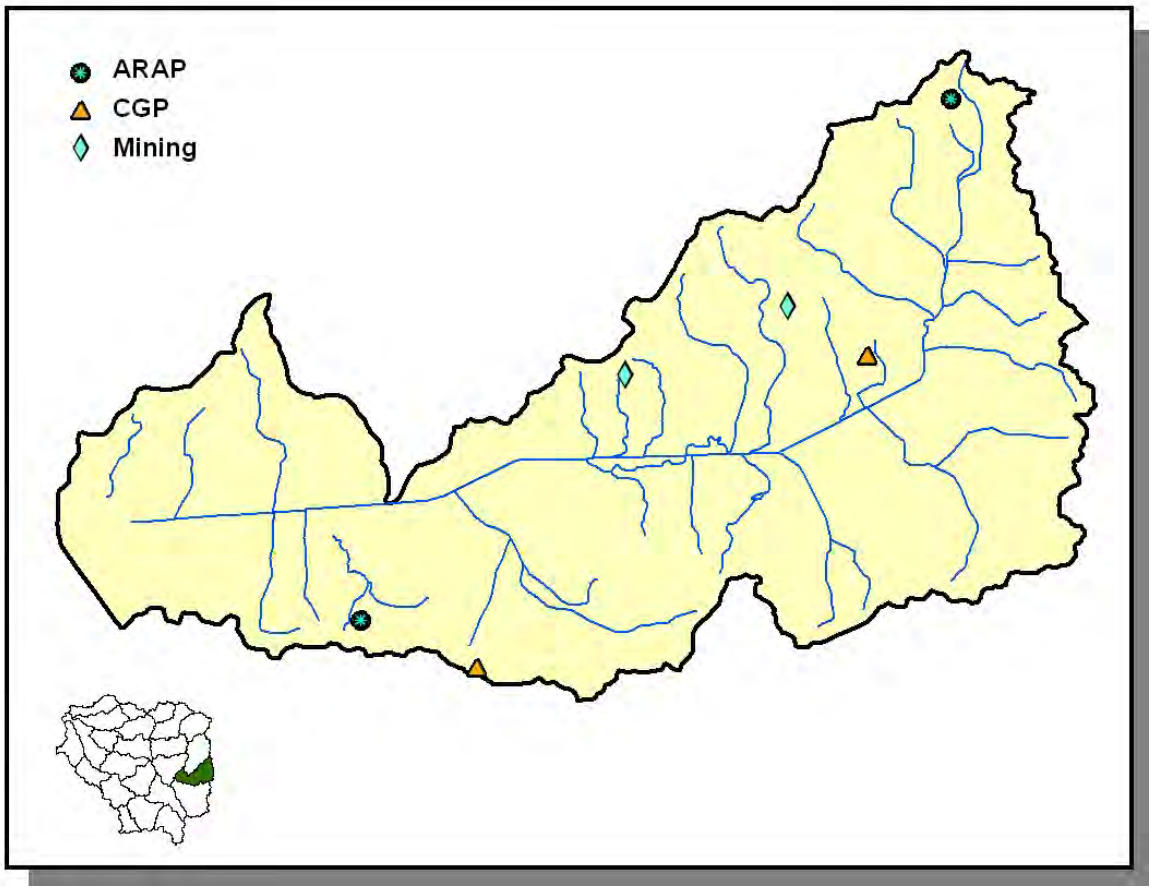


Figure 4-71. Location of Permits Issued in Subwatershed 080102030201. *More information, including the names of facilities, is provided in Appendix IV.*

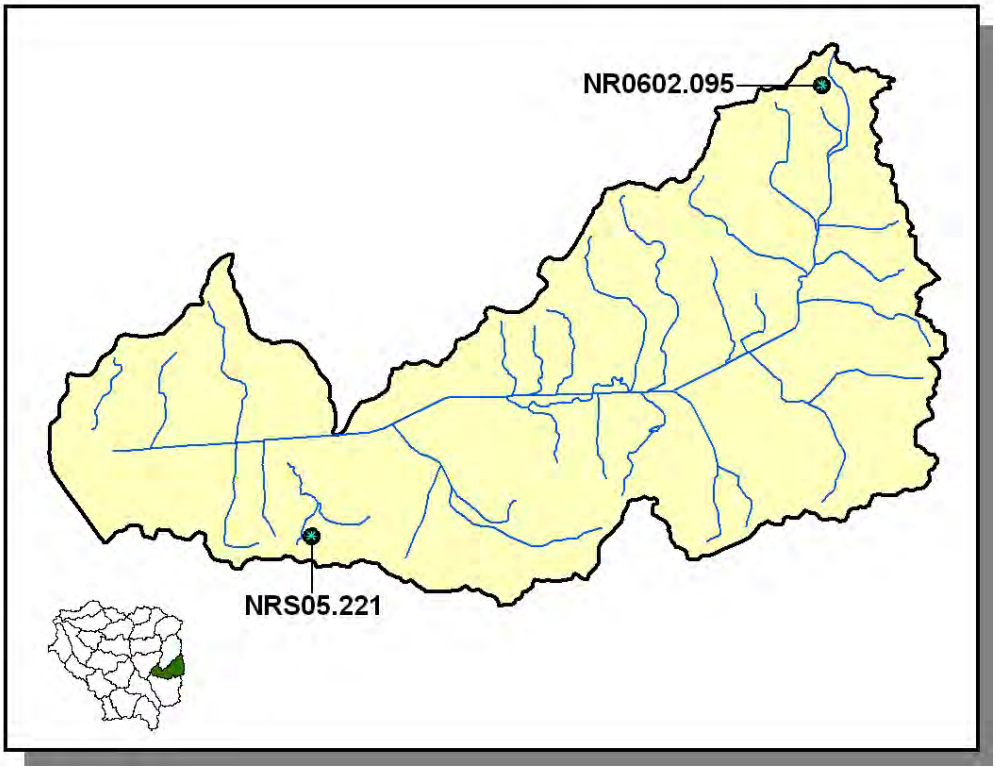


Figure 4-72. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030201. *More information is provided in Appendix IV.*

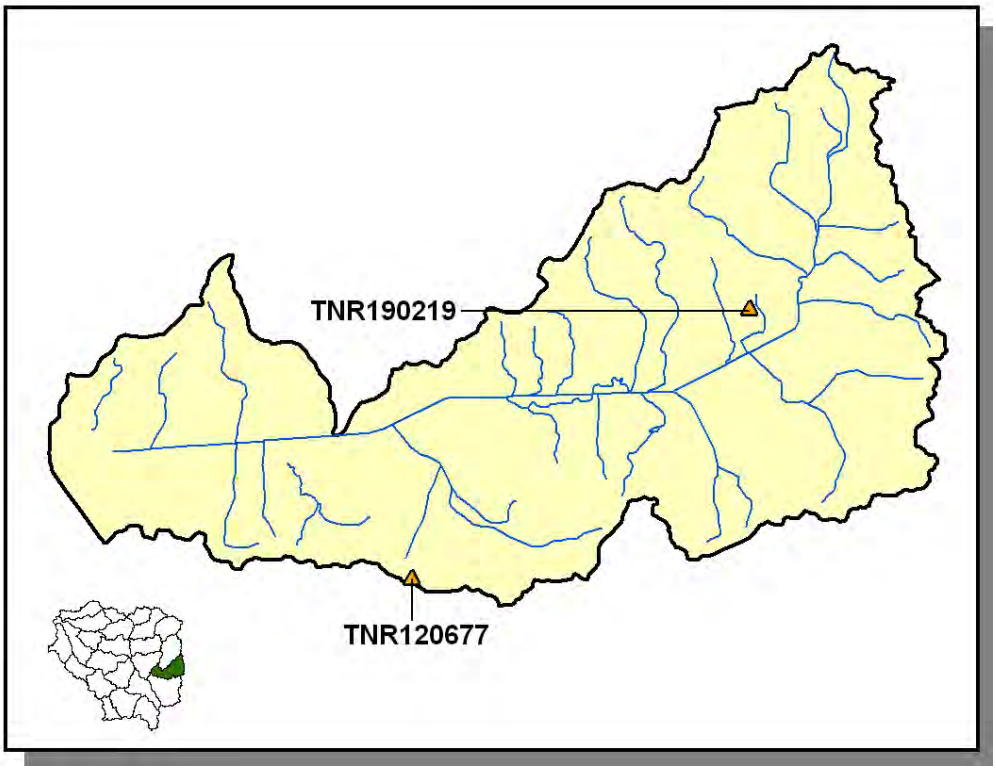


Figure 4-73. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030201. *More information is provided in Appendix IV.*

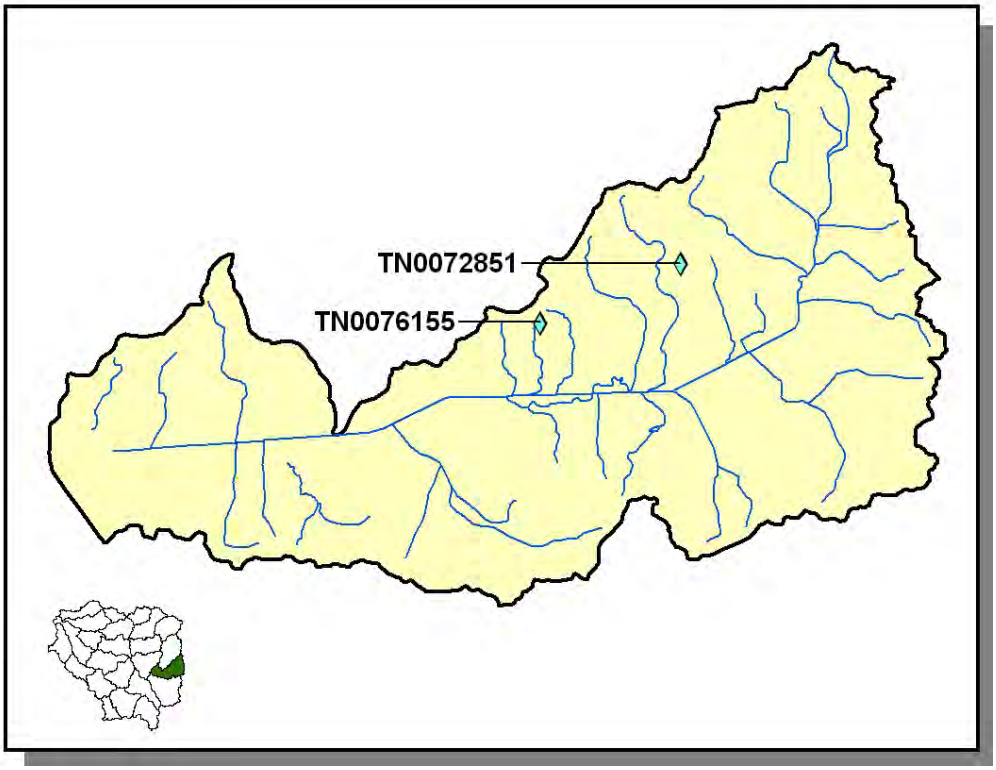


Figure 4-74. Location of Permitted Mining Facilities in Subwatershed 080102030201. *More information is provided in Appendix IV.*

4.2.G.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	

Table 4-51. 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)
Carroll	169.1	169.1	0.6	2.0

Table 4-52. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Wheat (Close Grown Cropland)	18.5
Soybeans (Row Crops)	10.2
Other Cropland not Planted	9.50
Cotton (Row Crops)	7.58
Corn (Row Crops)	5.95
Conservation Reserve Program Land	1.23
Farmsteads and Ranch Headquarters	1.12
Other Land in Farms	0.59
Grass Forbs Legumes Mixed (Pastureland)	0.58
Legume Grass (Hayland)	0.46
Grass (Pastureland)	0.40
Grass (Hayland)	0.21
Legume (Hayland)	0.07

Table 4-53. Annual Estimated Total Soil Loss in Subwatershed 080102030201.

4.2.H. 080102030202 (Guins Creek).

4.2.H.i. General Description.

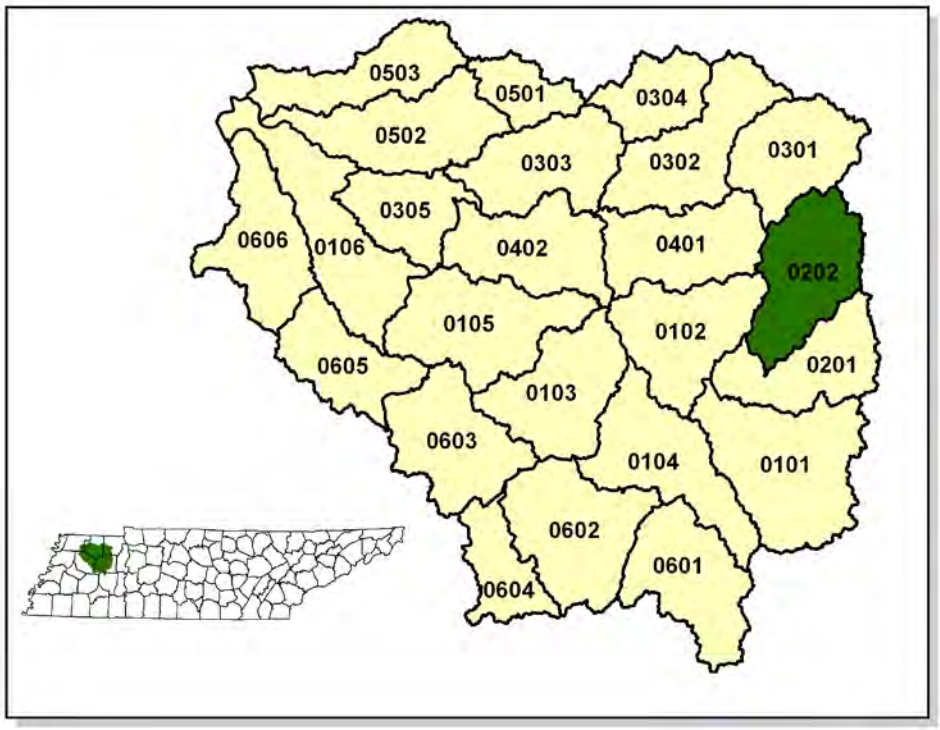


Figure 4-75. Location of Subwatershed 080102030202. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

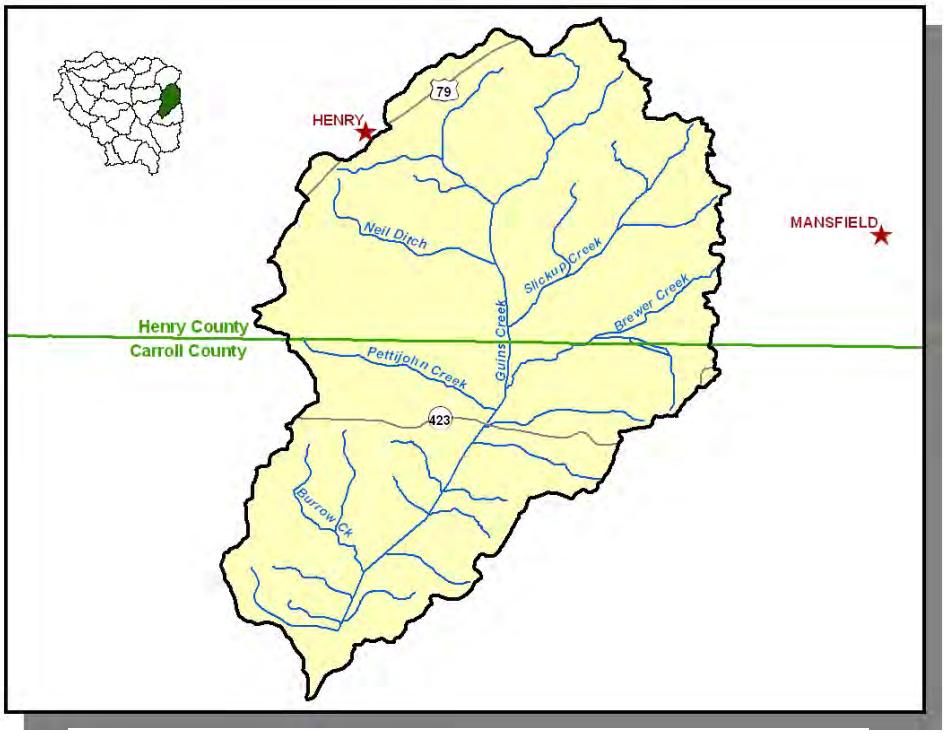


Figure 4-76. Locational Details of Subwatershed 080102030202.

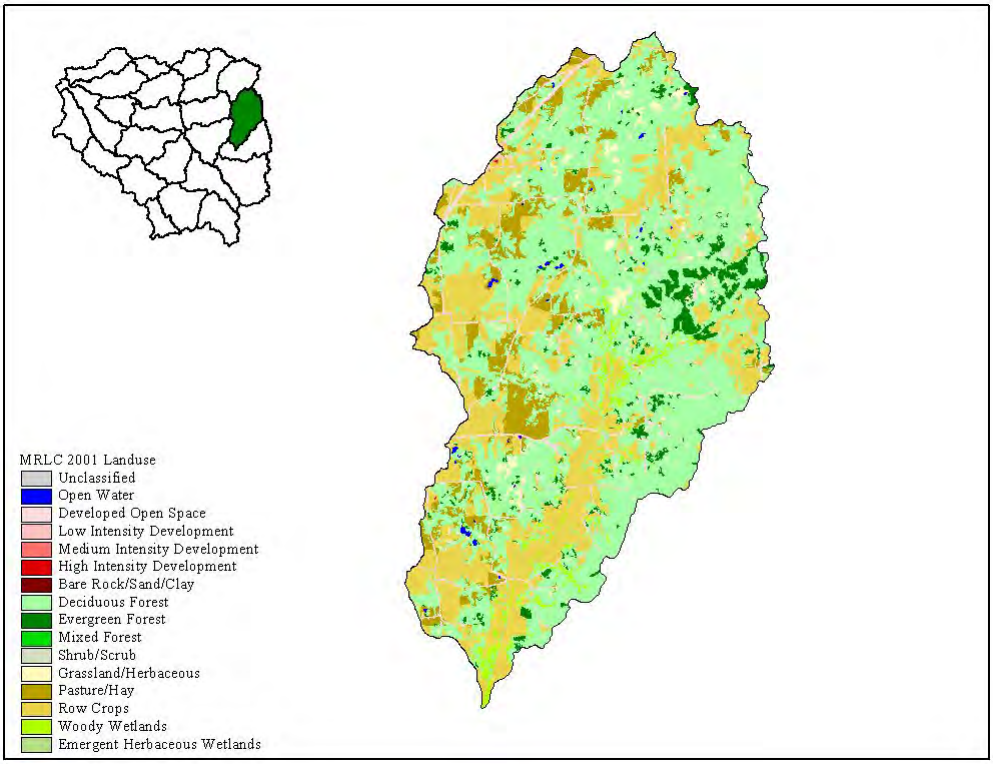


Figure 4-77. Illustration of Land Use Distribution in Subwatershed 080102030202.

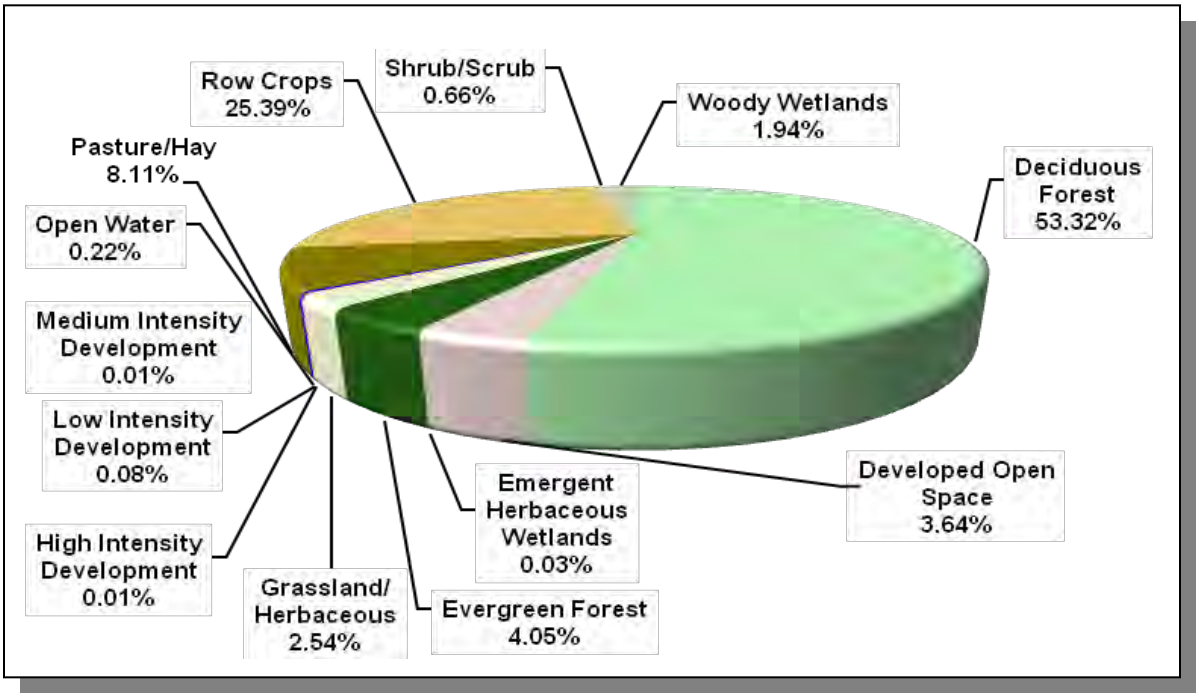


Figure 4-78. Land Use Distribution in Subwatershed 080102030202. *More information is provided in Appendix IV.*

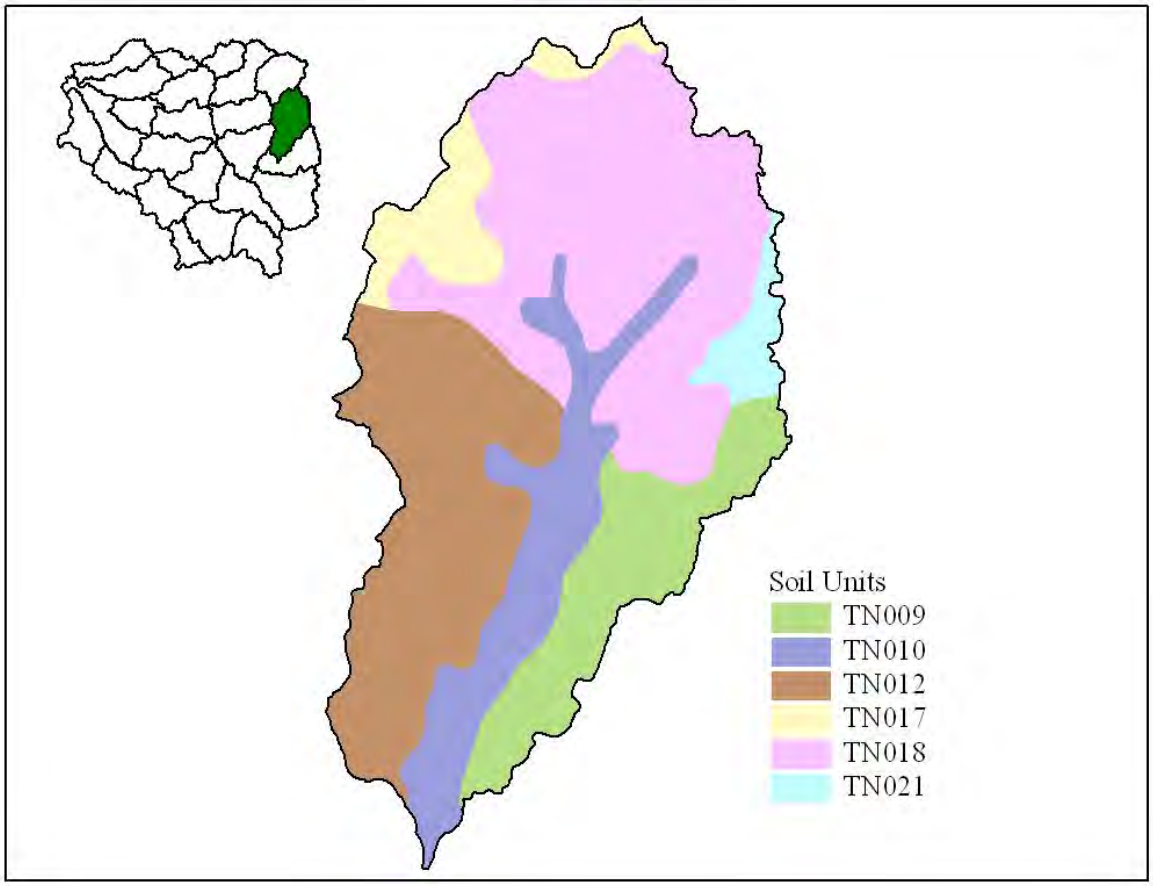


Figure 4-79. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030202.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN009	7.00	C	1.30	5.10	Silty Loam	0.43
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN012	1.00	C	2.52	5.13	Silty Loam	0.39
TN017	0.00	B	1.81	5.26	Silty Loam	0.45
TN018	4.00	B	2.62	5.10	Loam	0.38
TN021	5.00	C	1.30	5.00	Silty Loam	0.43

Table 4-54. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030202. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	4.22	1,162	1,224	1,245	7.10
Henry	27,888	29,830	31,115	4.45	1,241	1,328	1,385	11.60
Total	**55,402**	**58,820**	**60,590**		**2,403**	**2,552**	**2,630**	**9.40**

Table 4-55. Population Estimates in Subwatershed 080102030202.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Henry	Henry	311	143	0	138	5

Table 4-56. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030202.

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

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102030202.

4.2.H.iii. Permitted Activities.

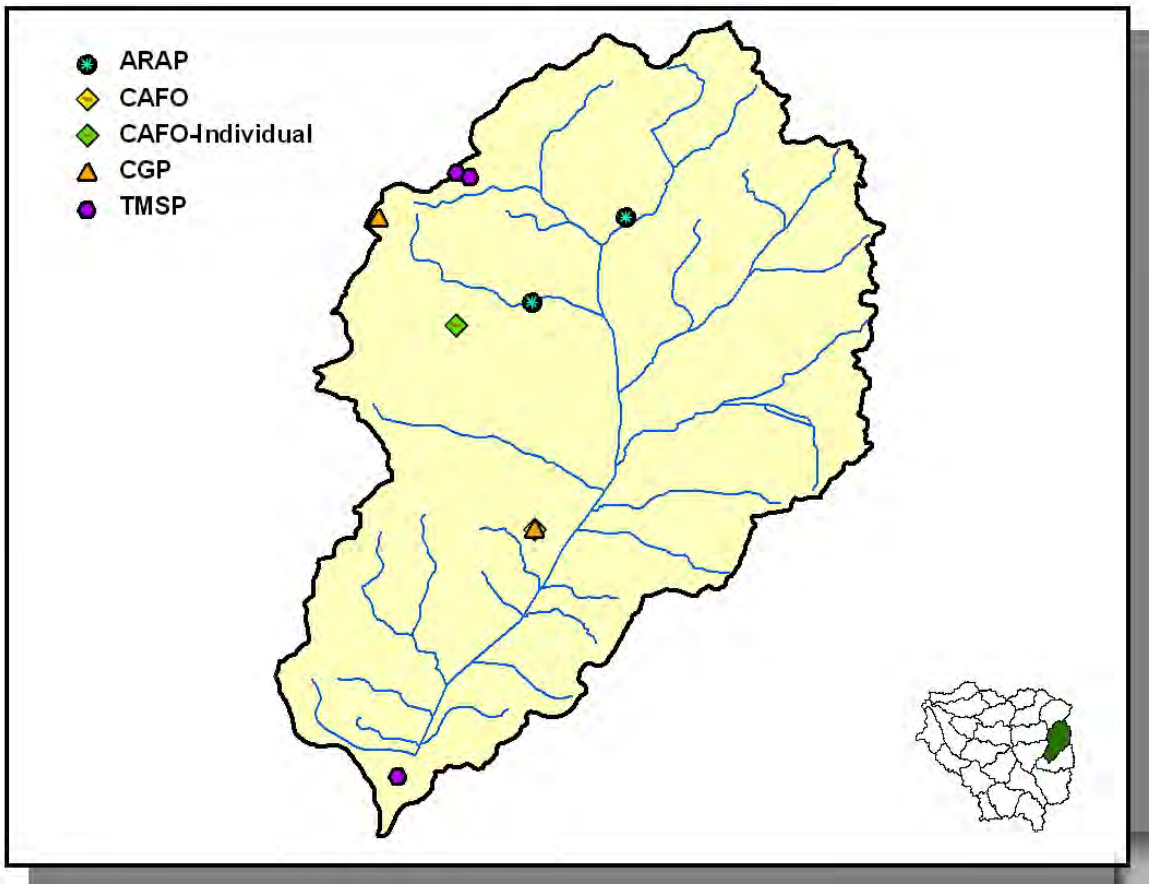


Figure 4-80. Location of Permits Issued in Subwatershed 080102030202. *More information, including the names of facilities, is provided in Appendix IV.*

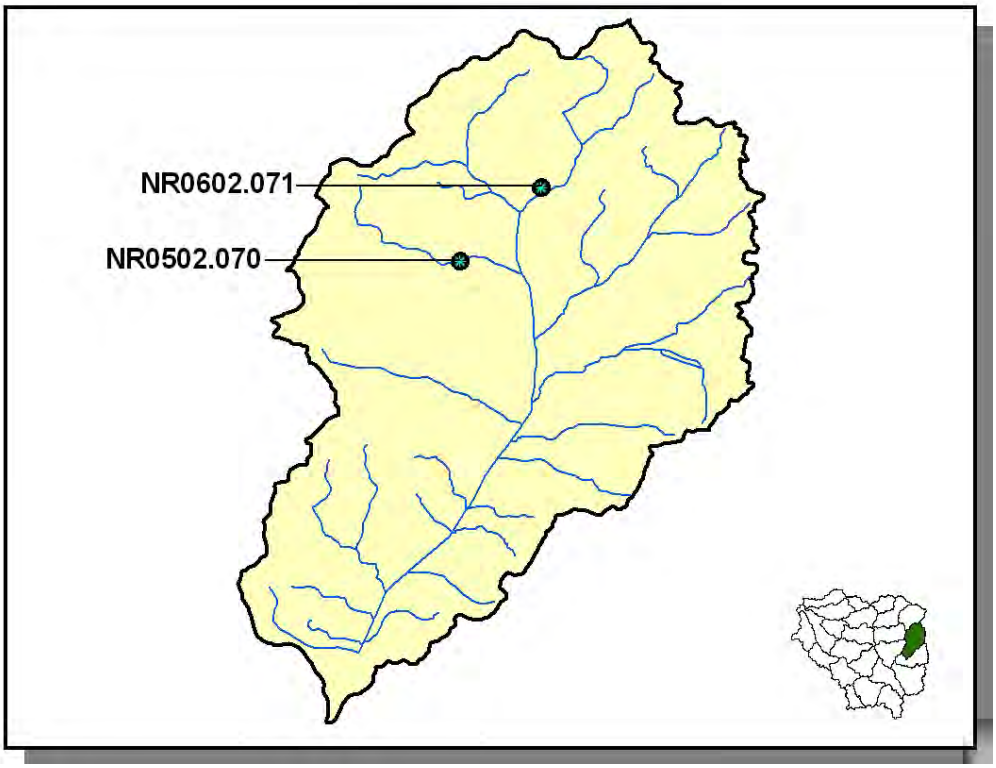


Figure 4-81. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030202. *More information is provided in Appendix IV.*

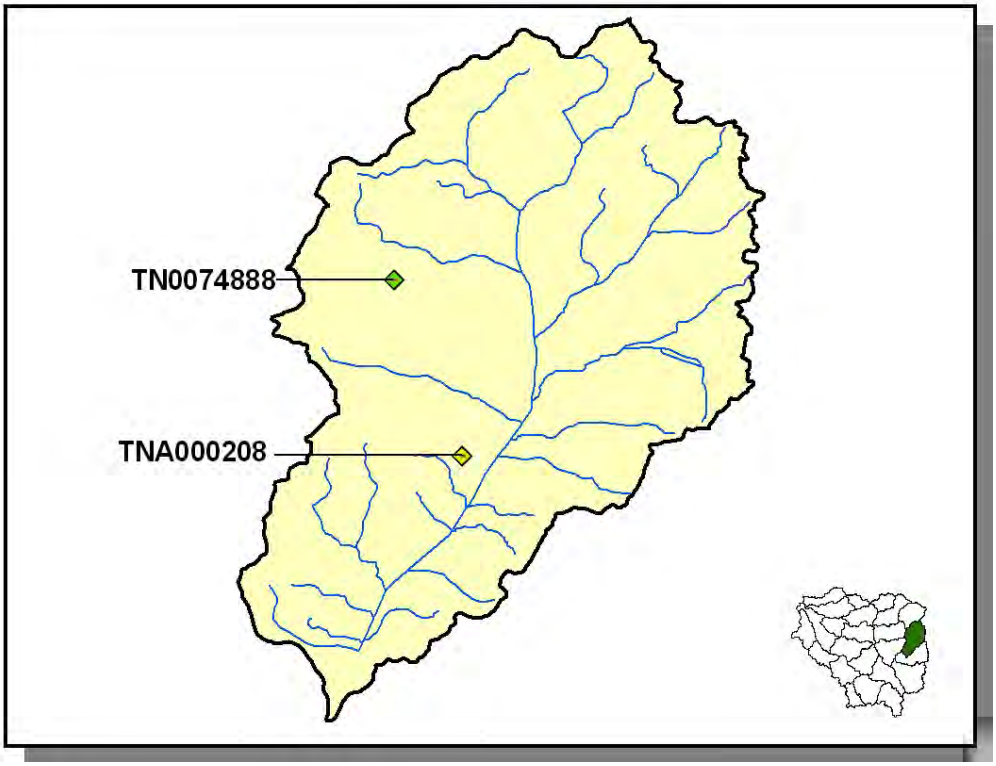


Figure 4-82. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102030202. *More information, including the names of facilities, is provided in Appendix IV.*

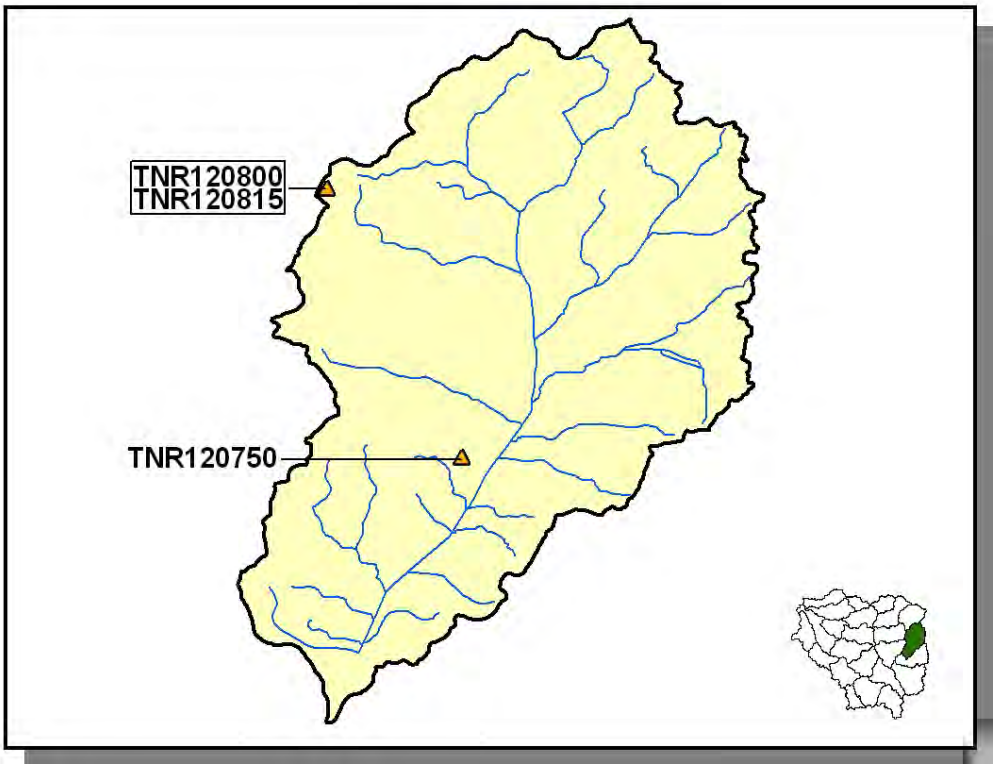


Figure 4-83. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030202. *More information is provided in Appendix IV.*

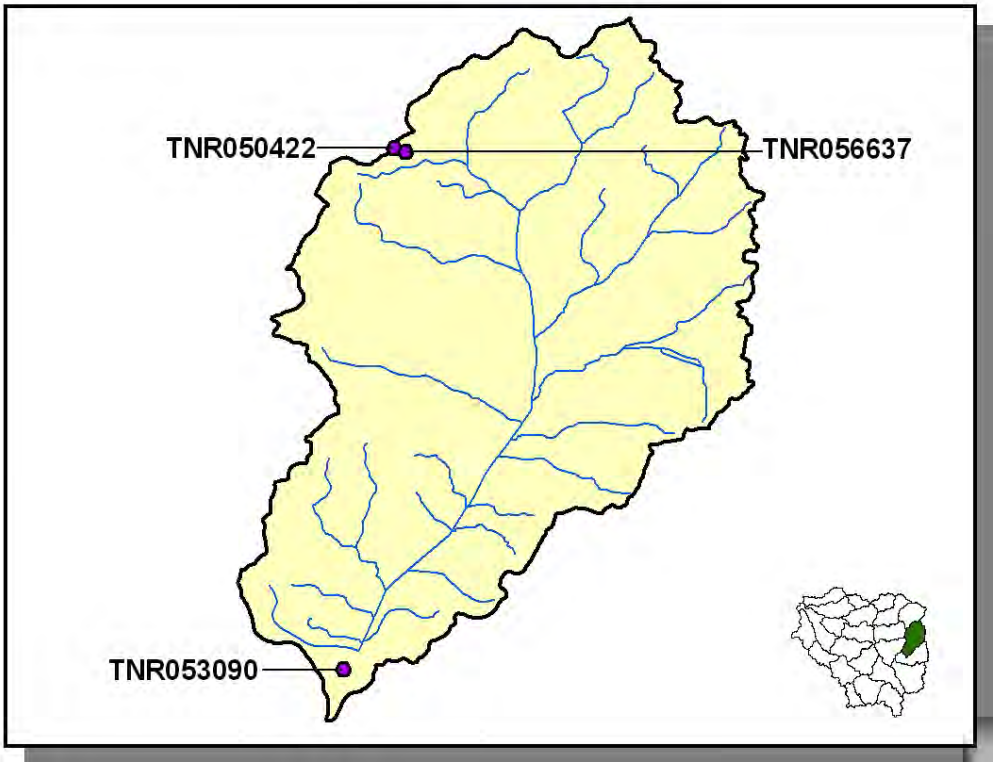


Figure 4-84. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030202. *More information is provided in Appendix IV.*

4.2.H.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	
Henry	8,920	20,299	1,793	29	36,205	89

Table 4-57. 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)
Carroll	169.1	169.1	0.6	2.0
Henry	176.1	176.1	1.9	7.1

Table 4-58. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Other (Horticultural)	16.41
Wheat (Close Grown Cropland)	12.14
Soybeans (Row Crops)	8.25
Cotton (Row Crops)	7.58
Corn (Row Crops)	6.85
Other Cropland not Planted	5.98
Conservation Reserve Program Land	0.89
Farmsteads and Ranch Headquarters	0.60
Other Land in Farms	0.59
Grass Forbs Legumes Mixed (Pastureland)	0.55
Grass (Pastureland)	0.32
Legume Grass (Hayland)	0.28
Grass (Hayland)	0.23
Legume (Hayland)	0.07

Table 4-59. Annual Estimated Total Soil Loss in Subwatershed 080102030202.

4.2.I. 080102030301 (Middle Fork Obion River).

4.2.I.i. General Description.

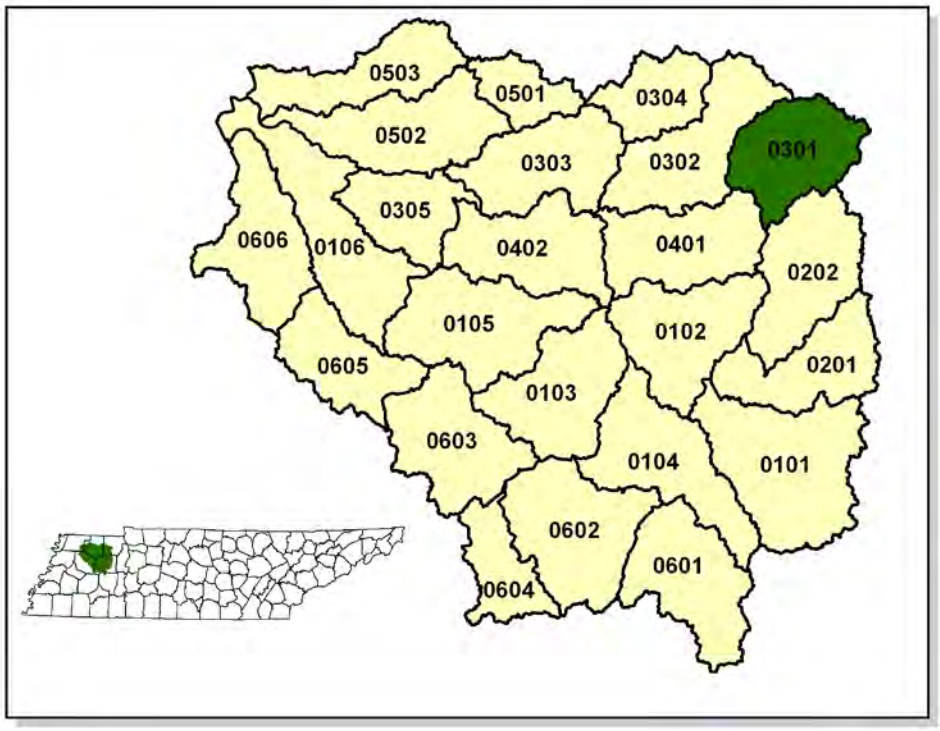


Figure 4-85. Location of Subwatershed 080102030301. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

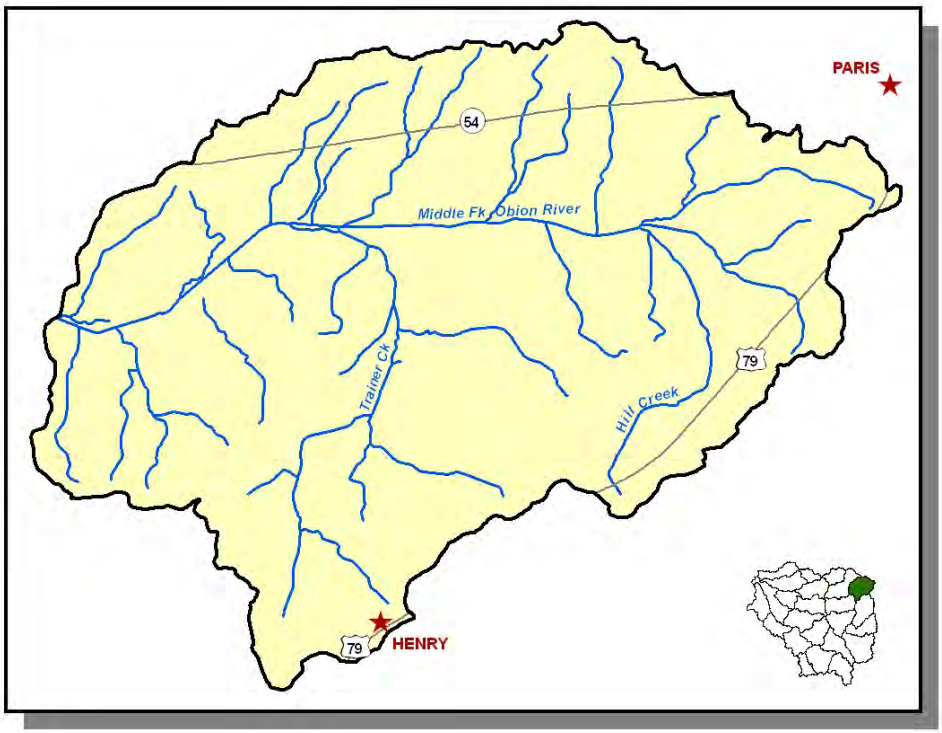


Figure 4-86. Locational Details of Subwatershed 080102030301.

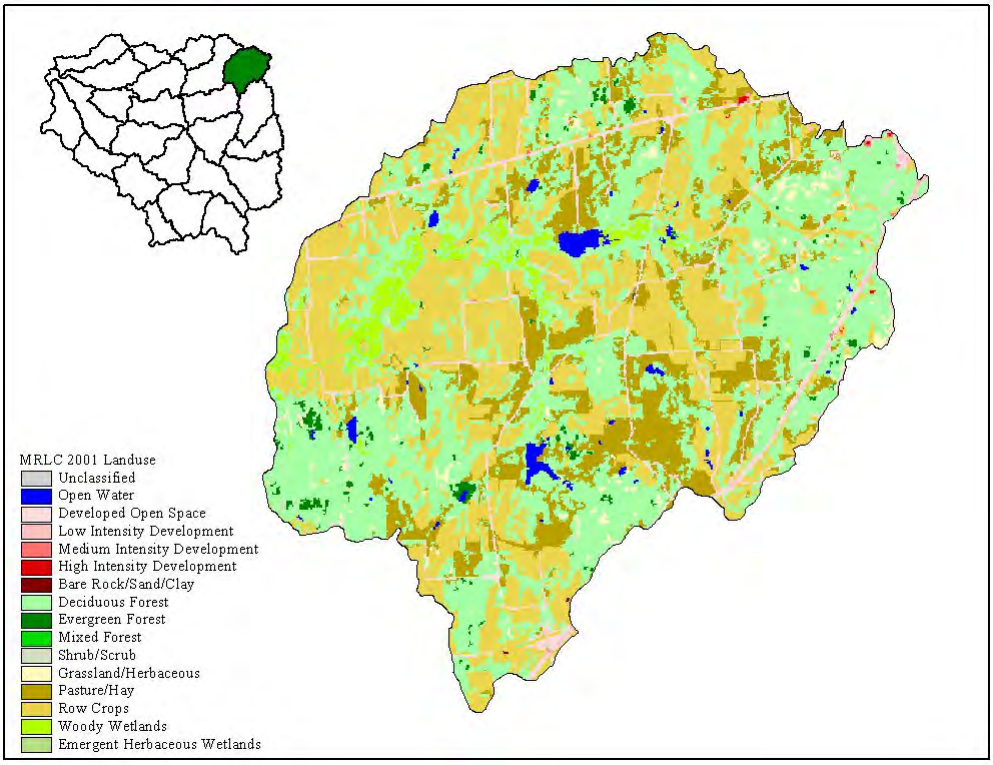


Figure 4-87. Illustration of Land Use Distribution in Subwatershed 080102030301.

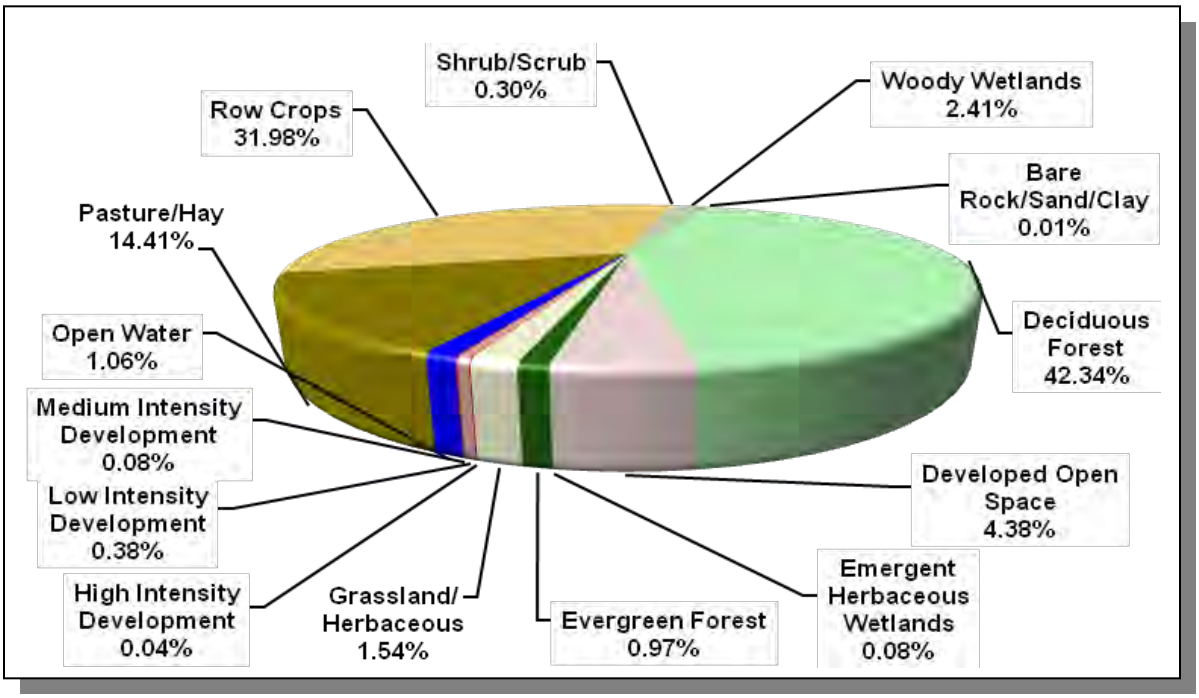


Figure 4-88. Land Use Distribution in Subwatershed 080102030301. *More information is provided in Appendix IV.*

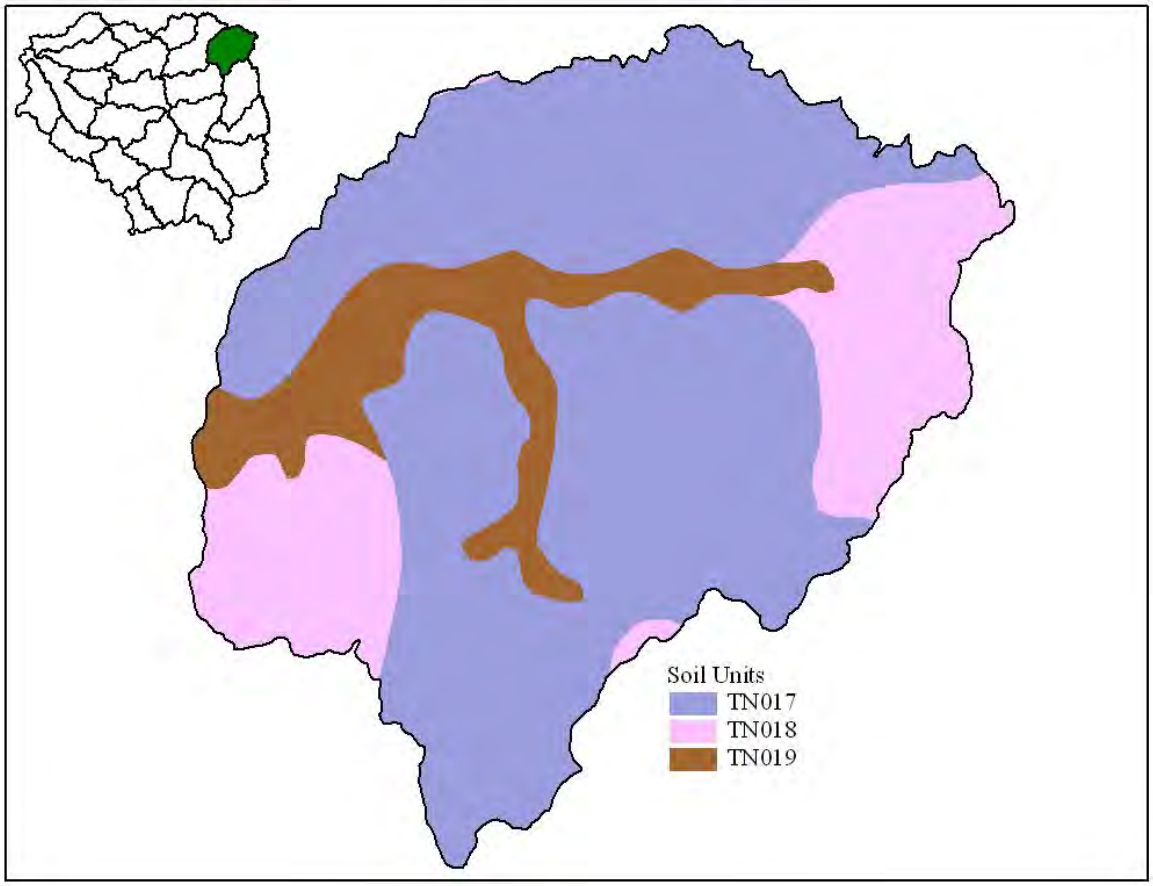


Figure 4-89. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030301.

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 4-60. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030301. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Henry	2,7888	29,830	31,115	7.51	2,094	2,240	2,337	11.60

Table 4-61. Population Estimates in Subwatershed 080102030301.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Henry	Henry	311	143	0	138	5
Paris	Henry	9,332	4,538	4,382	151	5
Total		**9,643**	**4,681**	**4,382**	**289**	**10**

Table 4-62. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030301.

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

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102030301.

4.2.I.iii. Permitted Activities.

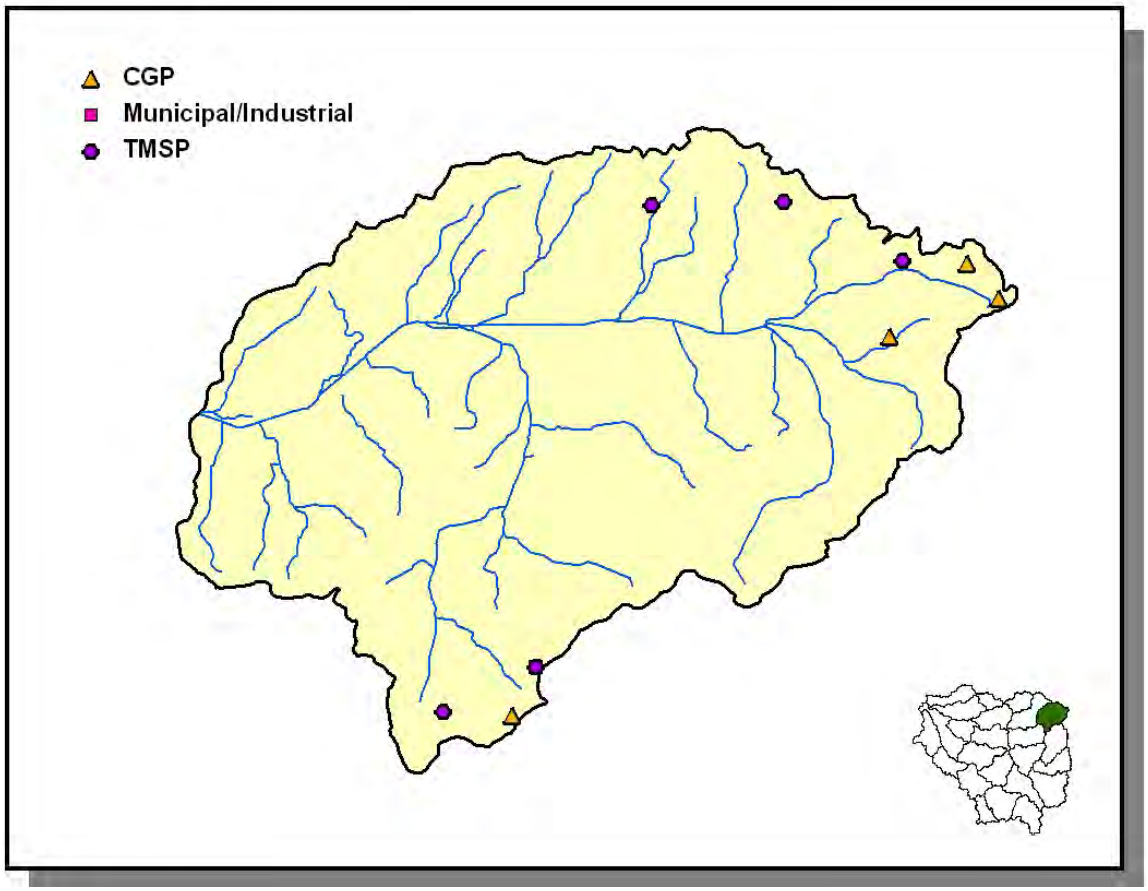


Figure 4-90. Location of Permits Issued in Subwatershed 080102030301. *More information, including the names of facilities, is provided in Appendix IV.*

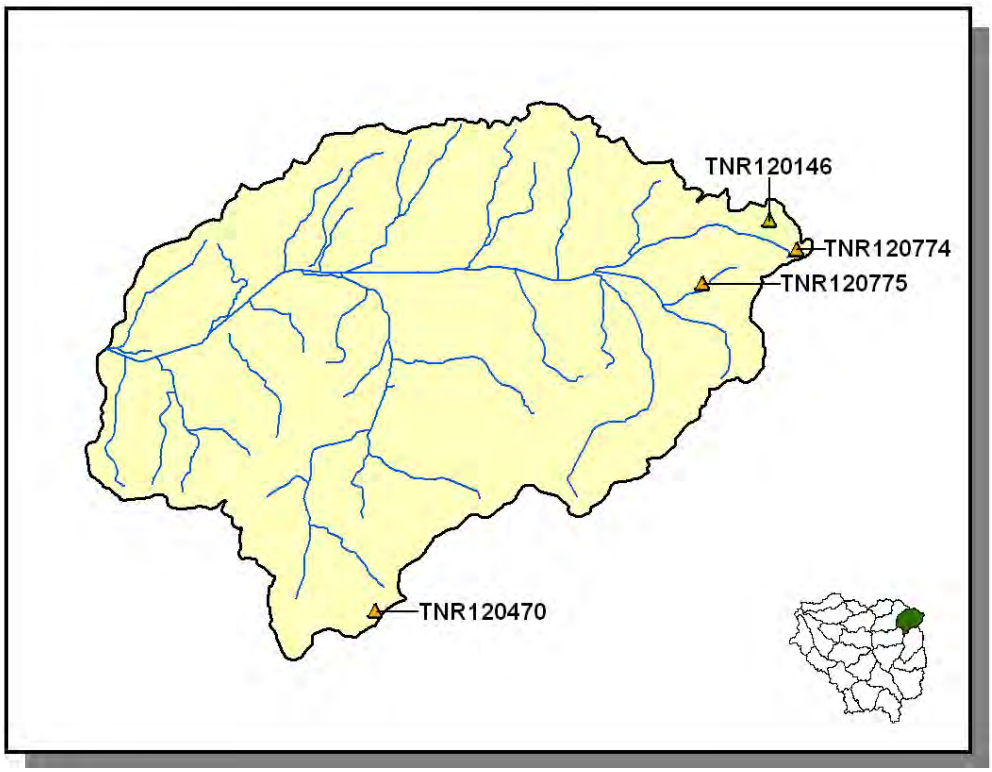


Figure 4-91. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030301. *More information is provided in Appendix IV.*

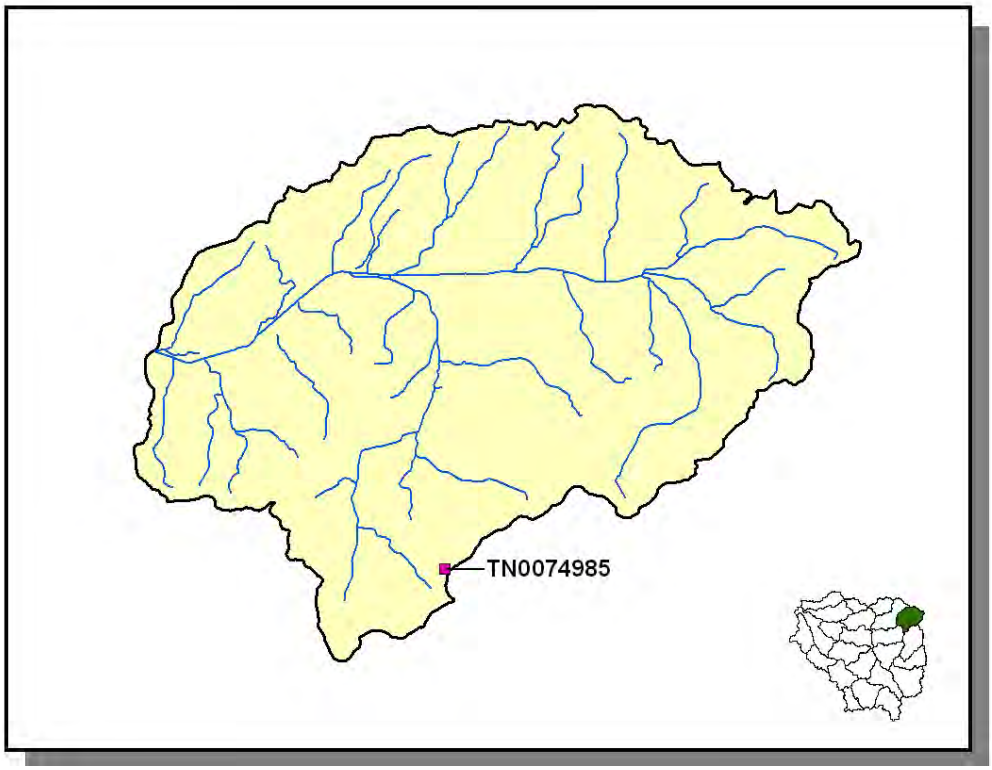


Figure 4-92. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030301. *More information, including the name of the facility is provided in Appendix IV.*

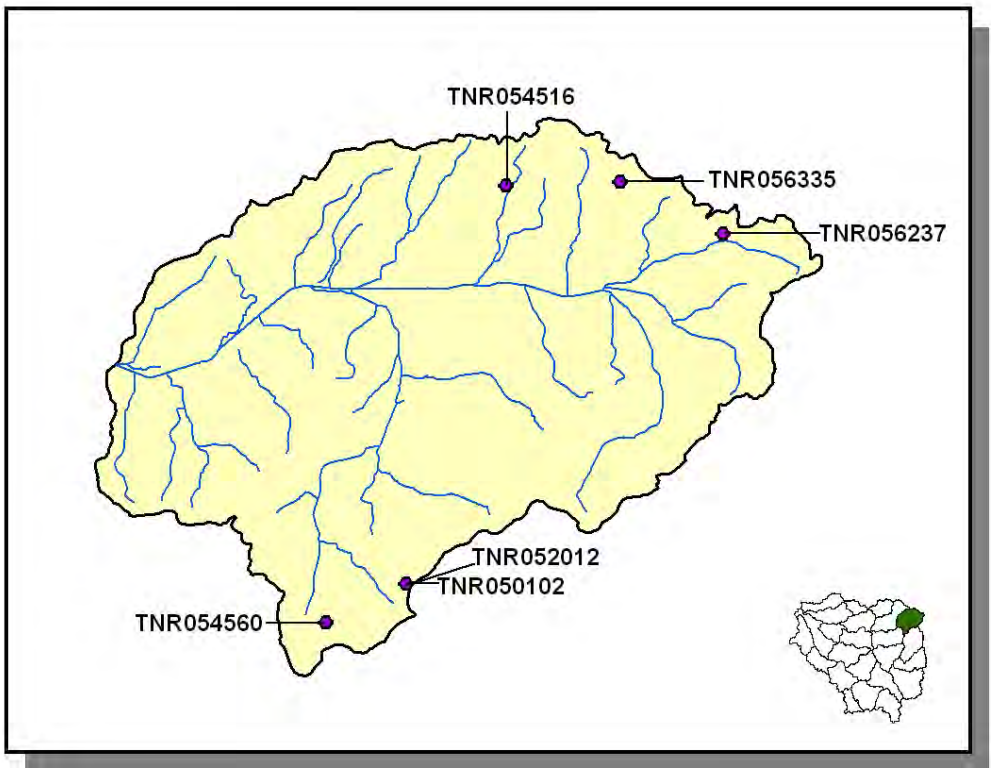


Figure 4-93. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030301. *More information is provided in Appendix IV.*

4.2.I.iv. Nonpoint Source Contributions.

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

Table 4-63. 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 4-64. 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 4-65. Annual Estimated Total Soil Loss in Subwatershed 080102030301.

4.2.J. 080102030302 (Middle Fork Obion River).

4.2.J.i. General Description.

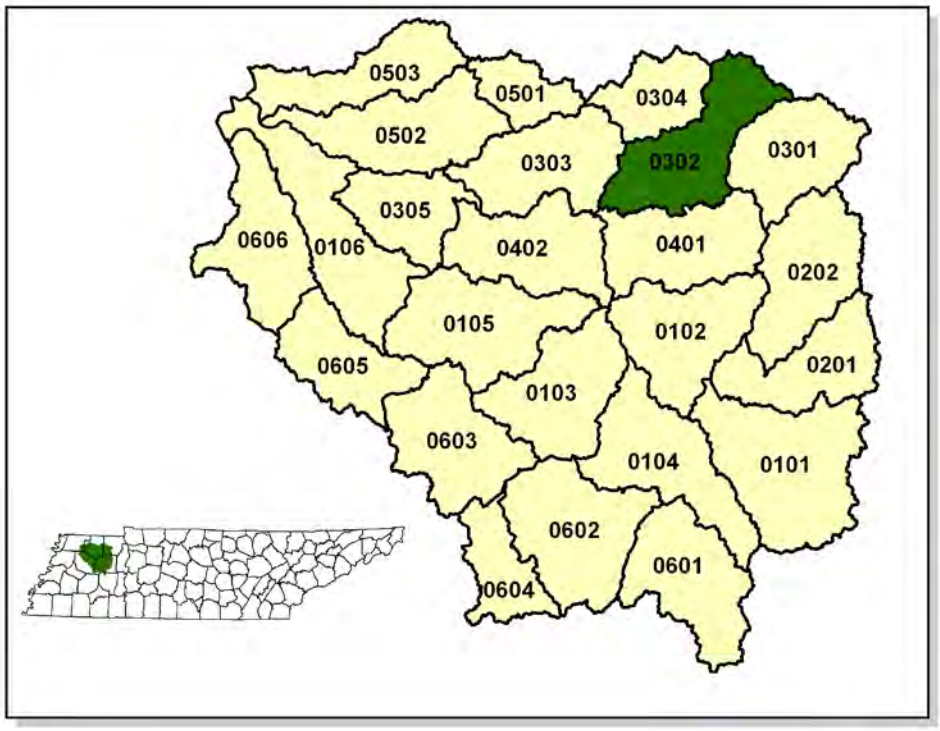


Figure 4-94. Location of Subwatershed 080102030302. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

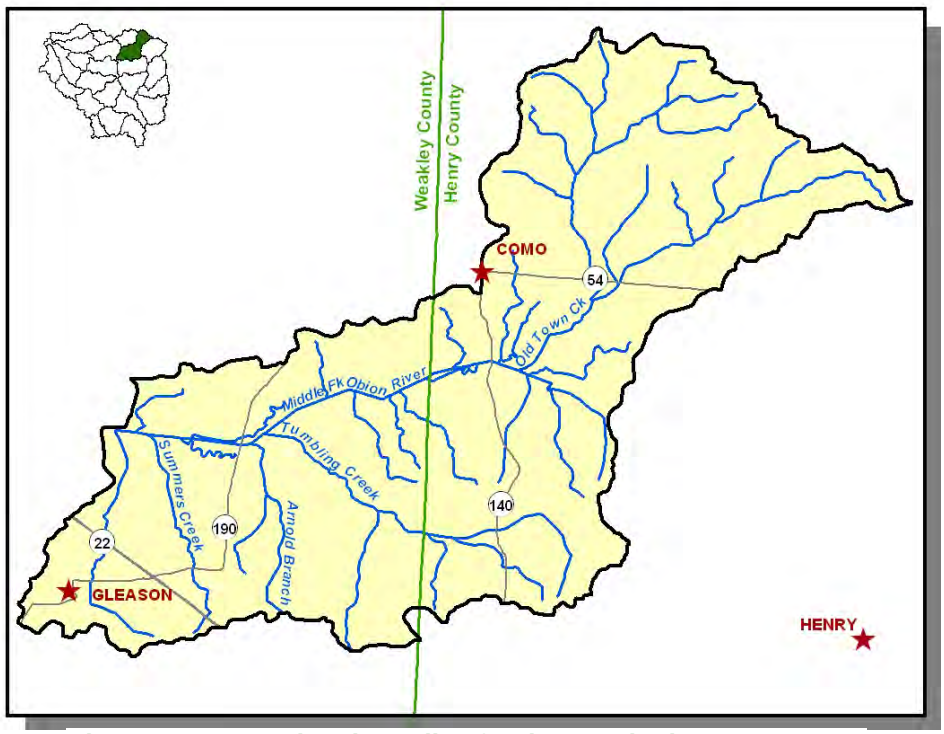


Figure 4-95. Locational Details of Subwatershed 080102030302.

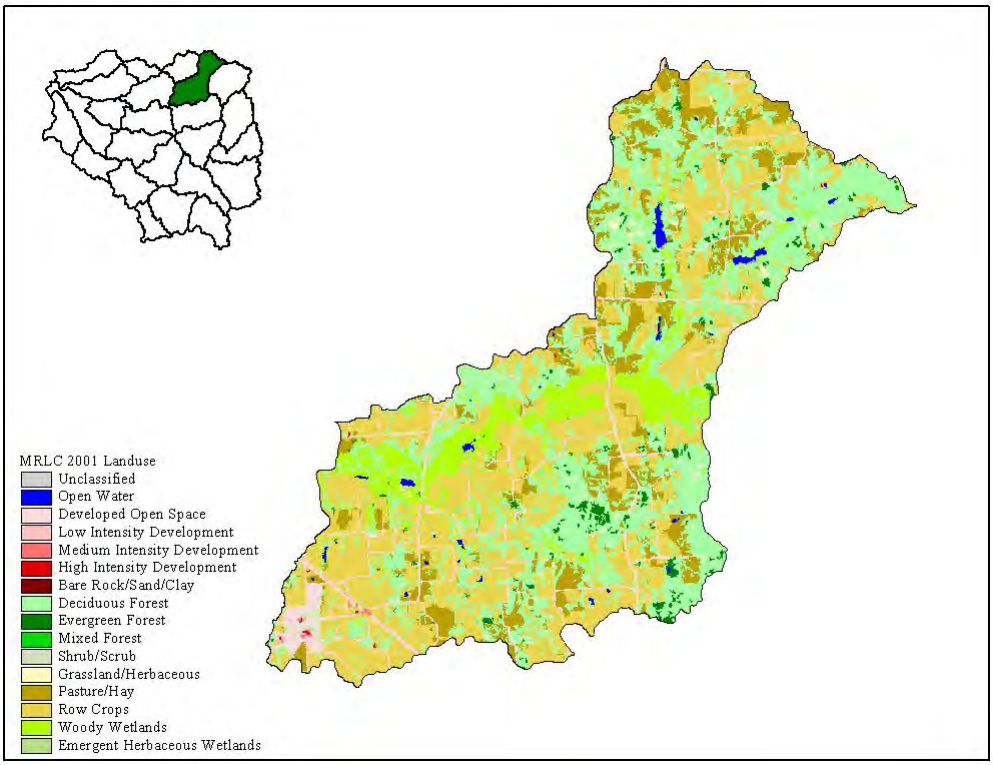


Figure 4-96. Illustration of Land Use Distribution in Subwatershed 080102030302.

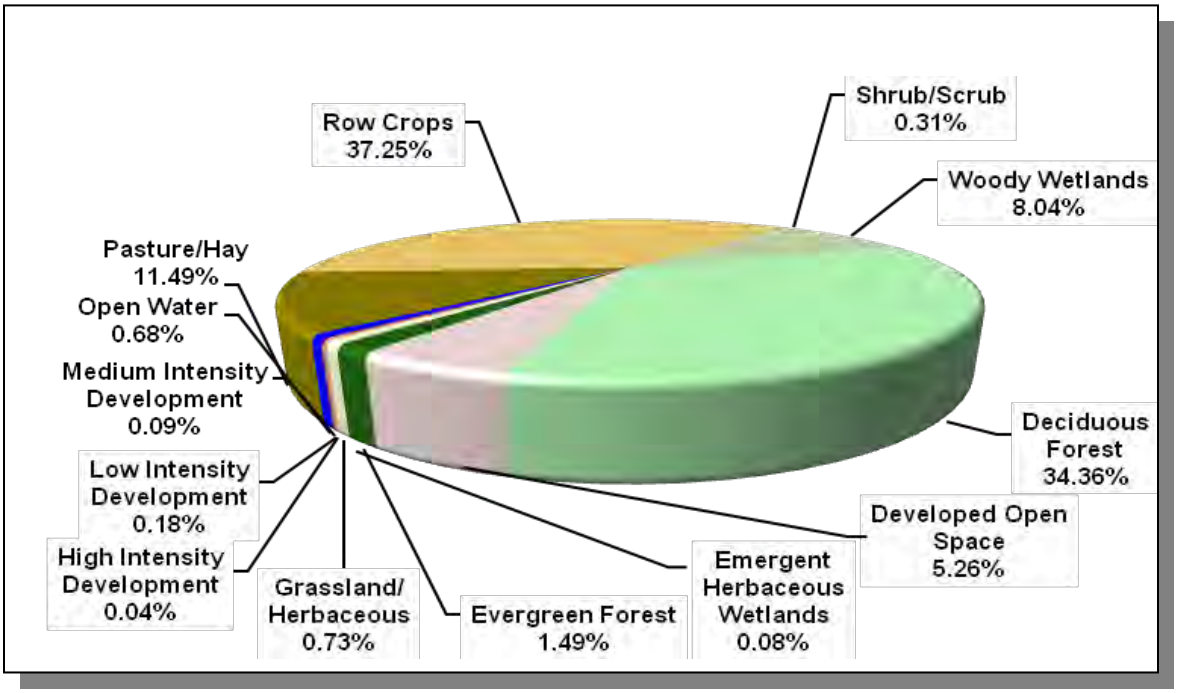


Figure 4-97. Land Use Distribution in Subwatershed 080102030302. *More information is provided in Appendix IV.*

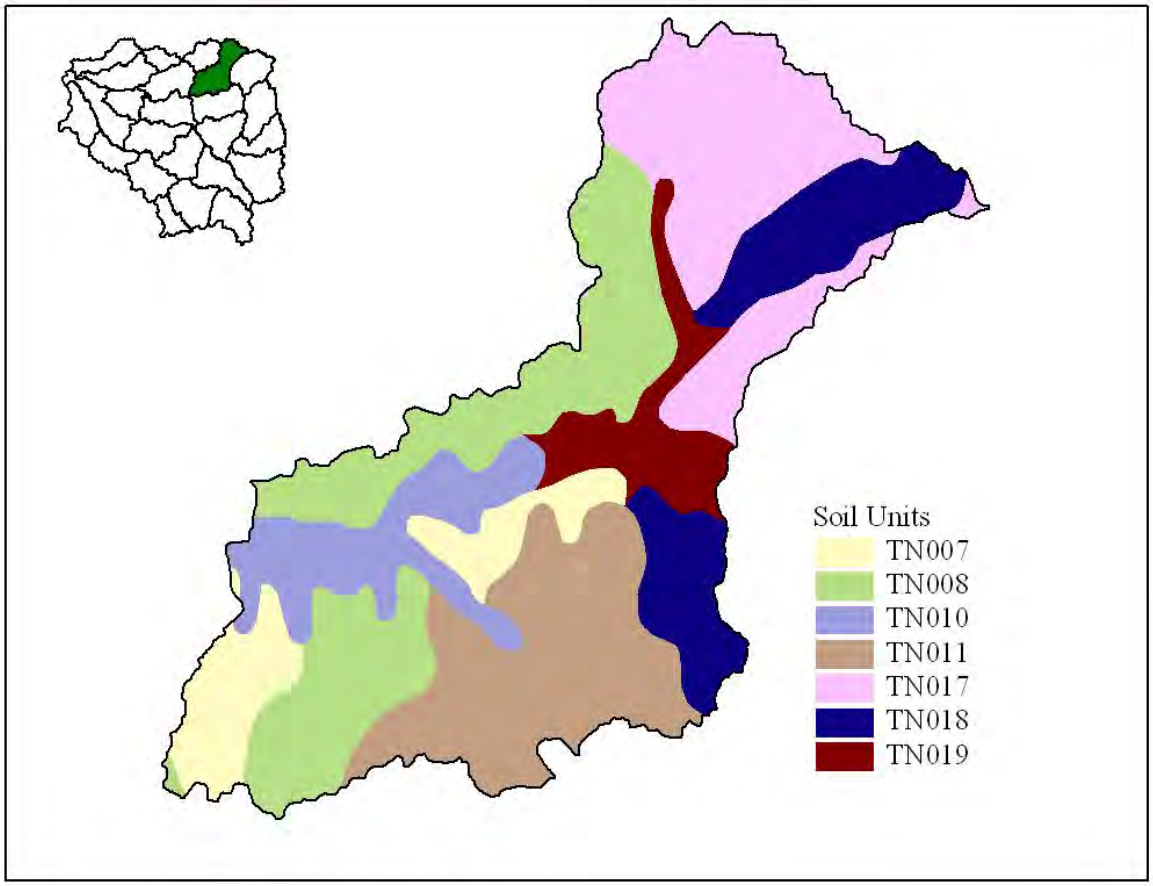


Figure 4-98. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030302.

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
TN018	4.00	B	2.62	5.10	Loam	0.38
TN019	62.00	C	1.54	4.76	Loam	0.26

Table 4-66. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030302. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Henry	27,888	29,830	31115	5.02	1,399	1,497	1,561	11.60
Weakley	31,972	32,808	34895	4.04	1,292	1,326	1,410	9.10
Total	**59,860**	**62,638**	**66010**		**2,691**	**2,823**	**2,971**	**10.40**

Table 4-67. Population Estimates in Subwatershed 080102030302.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Gleason	Weakley	1,402	583	566	17	0

Table 4-68. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030302.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030302.

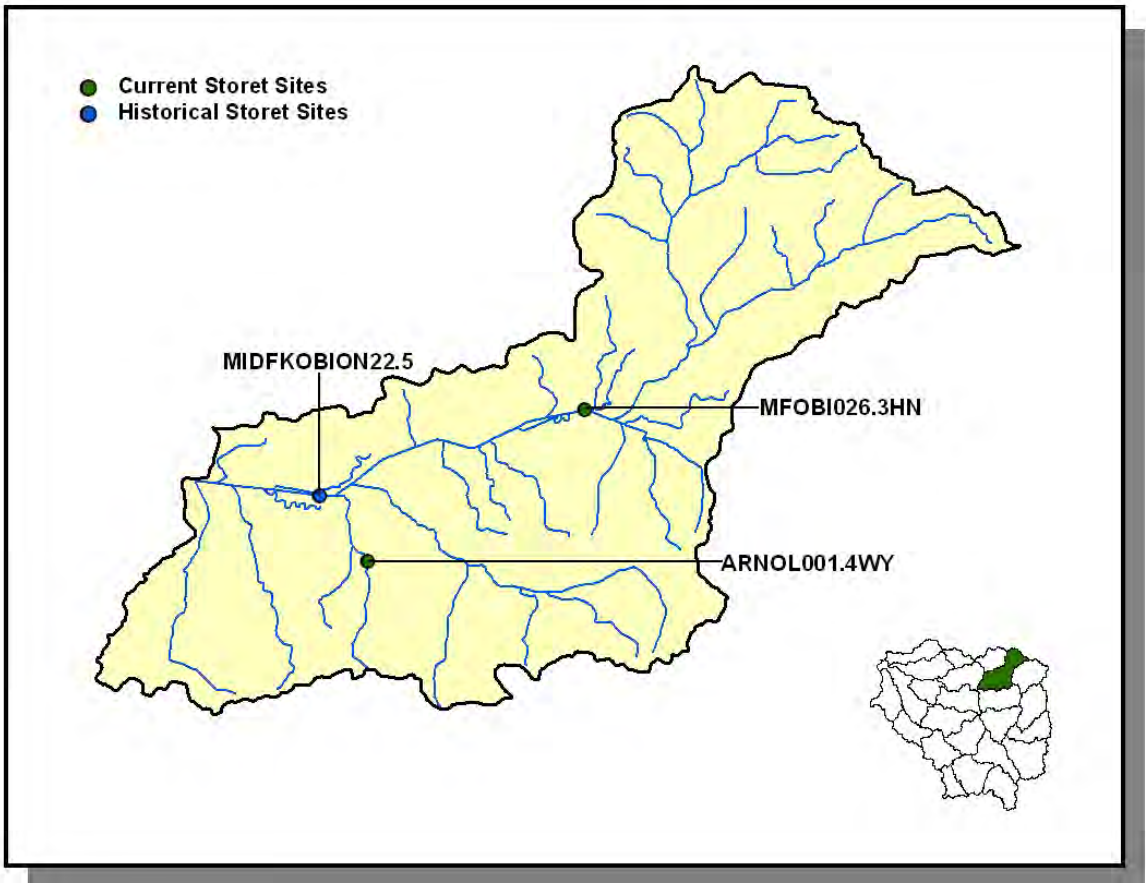


Figure 4-99. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030302. *More information, including site names and locations, is provided in Appendix IV.*

4.2.J.iii. Permitted Activities.

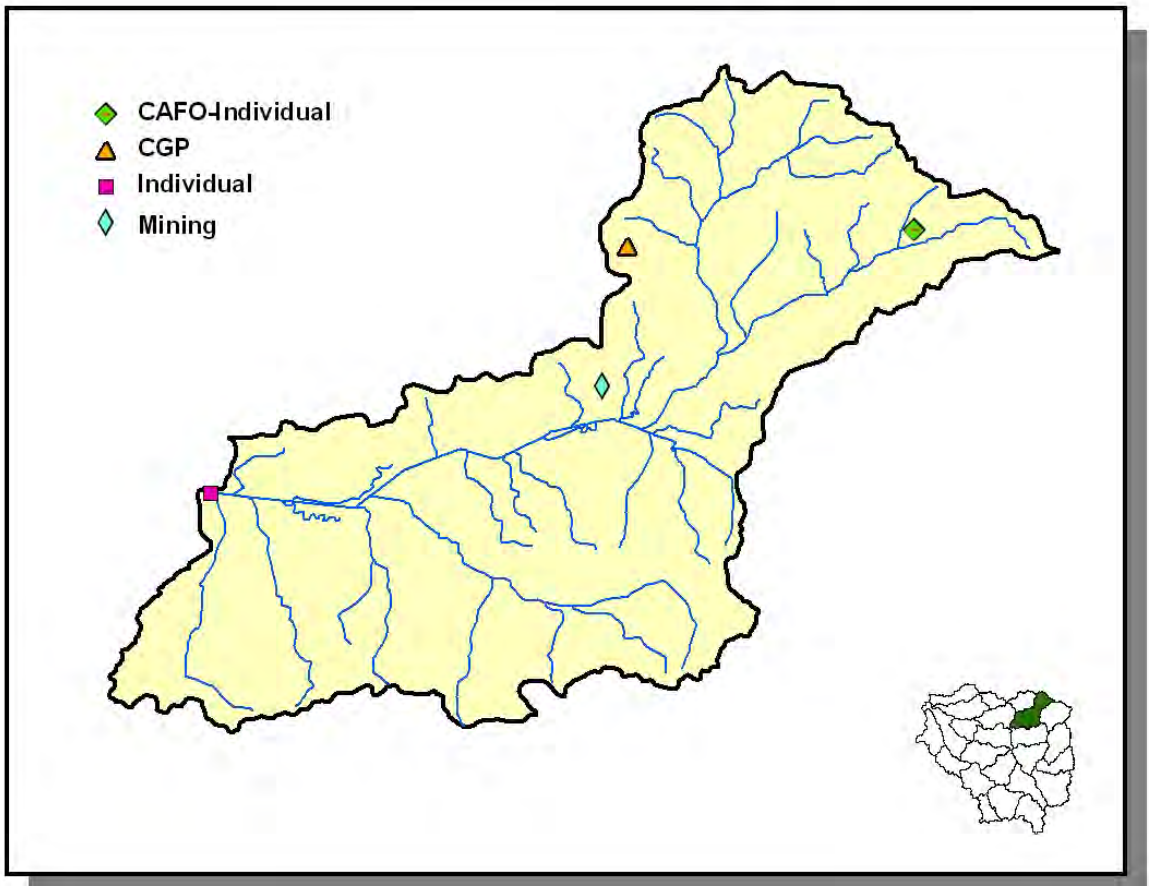


Figure 4-100. Location of Permits Issued in Subwatershed 080102030302. *More information, including the names of facilities, is provided in Appendix IV.*

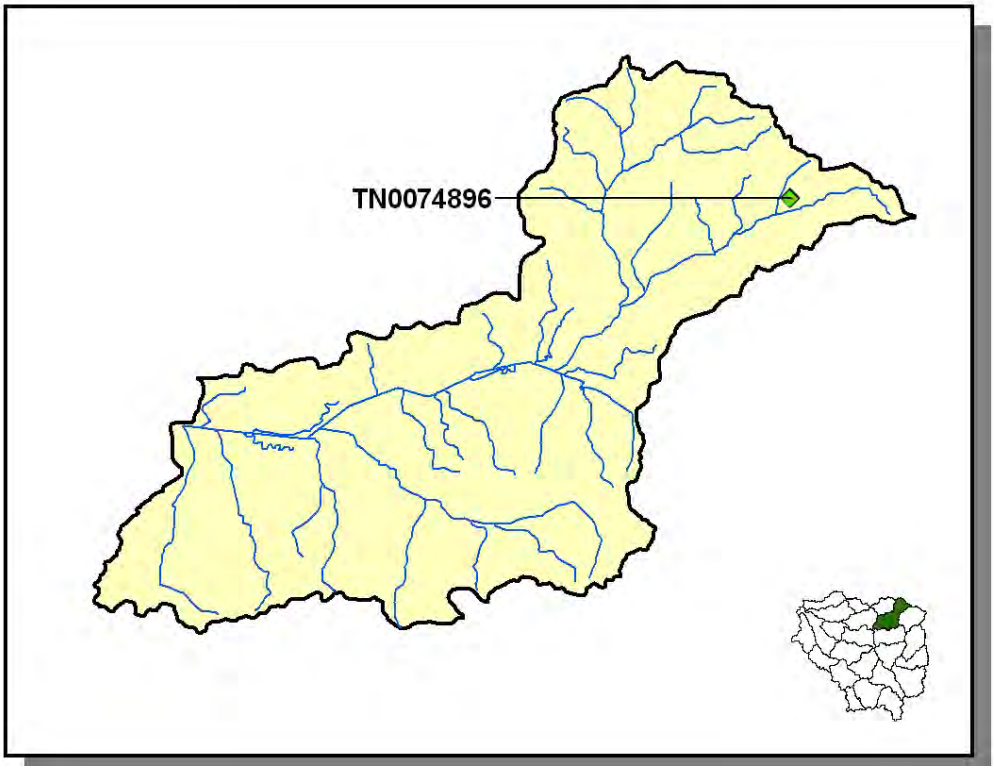


Figure 4-101. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102030302. *More information, including the names of facilities, is provided in Appendix IV.*

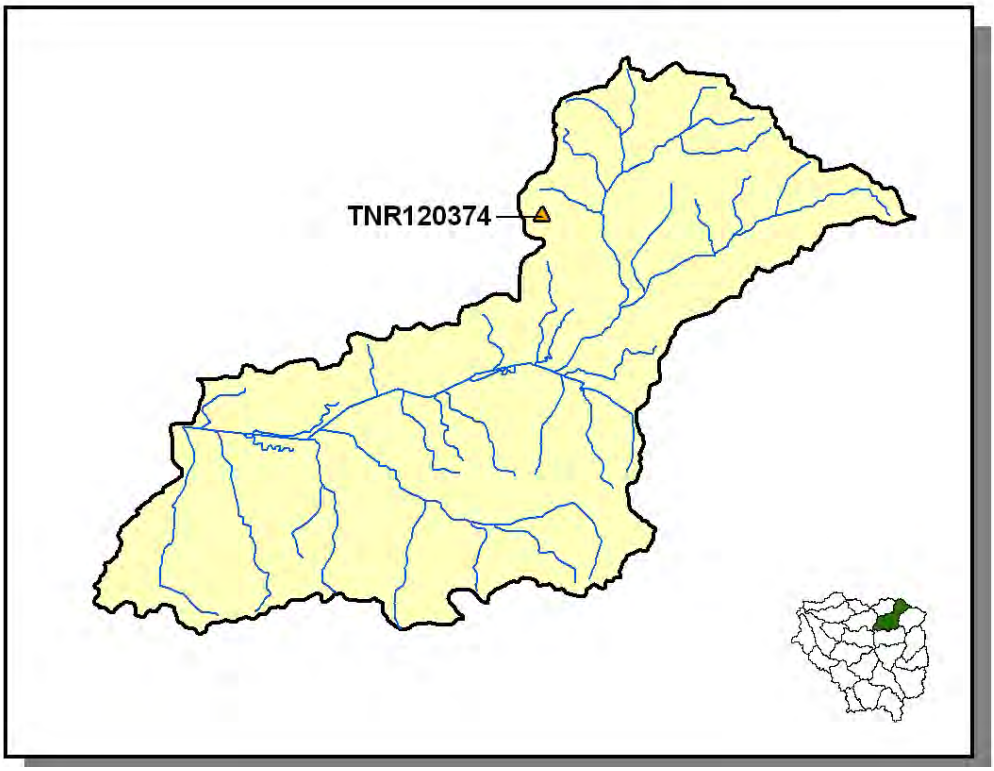


Figure 4-102. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030302. *More information is provided in Appendix IV.*

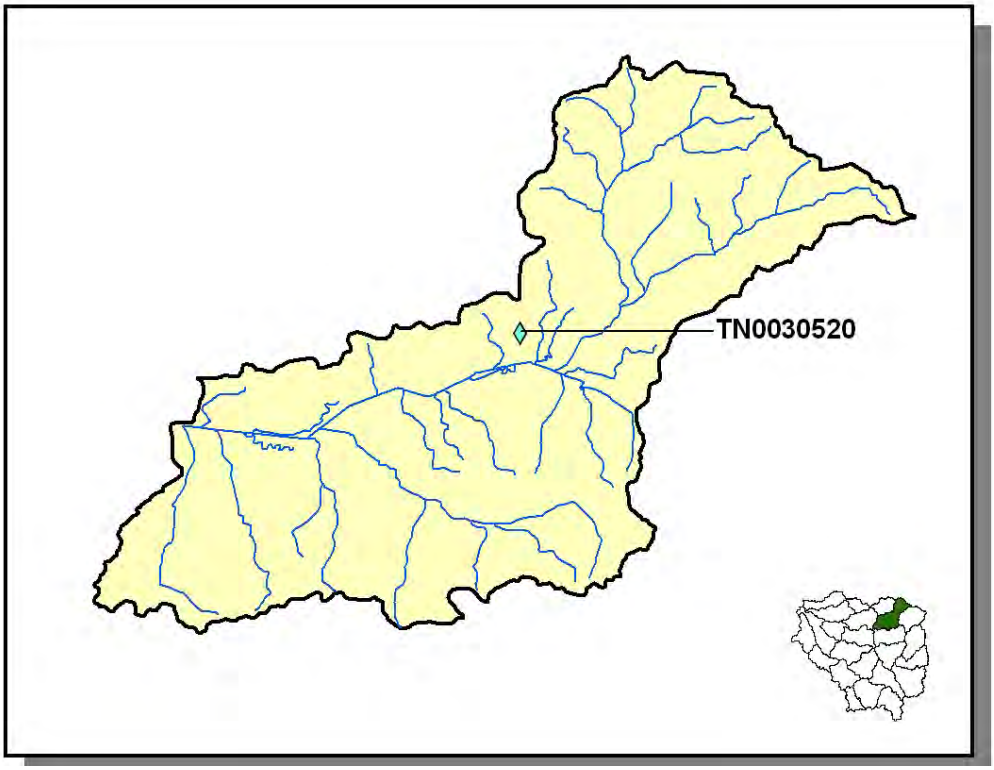


Figure 4-103. Location of Permitted Mining Facilities in Subwatershed 080102030302. *More information is provided in Appendix IV.*

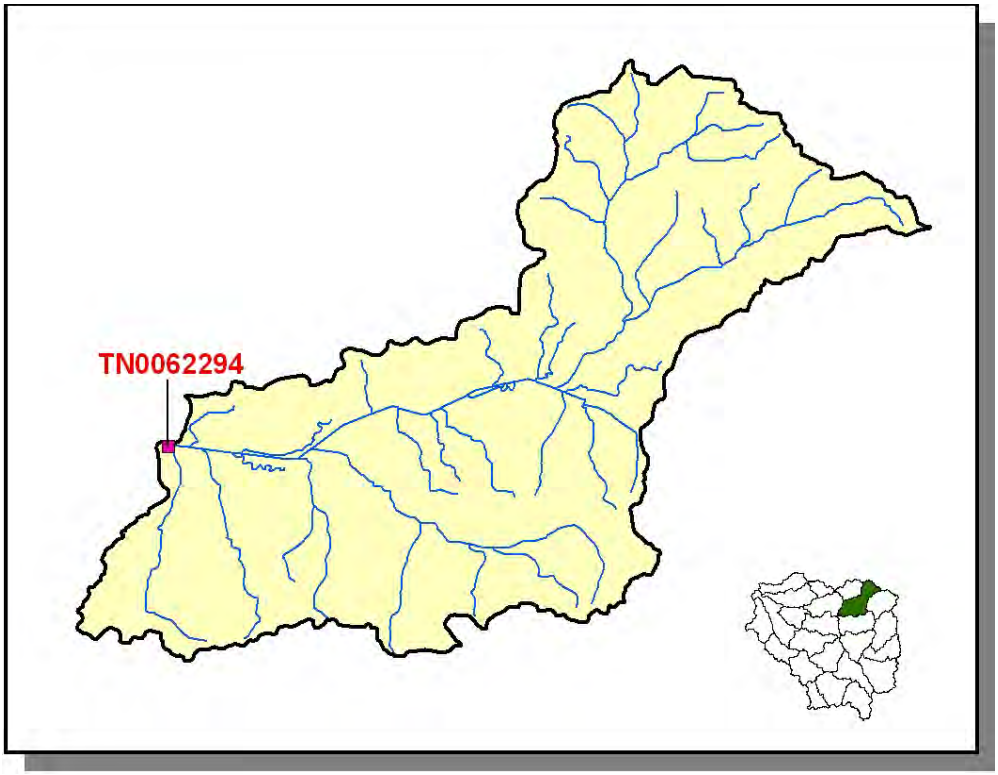


Figure 4-104. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030302. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0062294	30.6	0.2

Table 4-69. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030302. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	BOD_5	BOD % REMOVAL	FLOW	E. *coli*	TRC	DO	pH	TSS	TSS % REMOVAL	SS
TN0062294	X	X	X	X	X	X	X	X	X	X

Table 4-70. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030302. *BOD_5, Biochemical Oxygen Demand (5-day); TRC, Total Residual Chlorine; DO, Dissolved Oxygen; TSS, Total Suspended Solids; SS, Settleable Solids.*

4.2.J.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 4-71. 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 4-72. 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)	7.76
Corn (Row Crops)	7.66
Soybeans (Row Crops)	6.93
Other Cropland not Planted	3.43
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	0.78
Conservation Reserve Program Land	0.50
Legume (Hayland)	0.49
Farmsteads and Ranch Headquarters	0.25
Grass (Hayland)	0.24
Grass (Pastureland)	0.19
Legume Grass (Hayland)	0.11

Table 4-73. Annual Estimated Total Soil Loss in Subwatershed 080102030302.

4.2.K. 080102030303 (Middle Fork Obion River).

4.2.K.i. General Description.

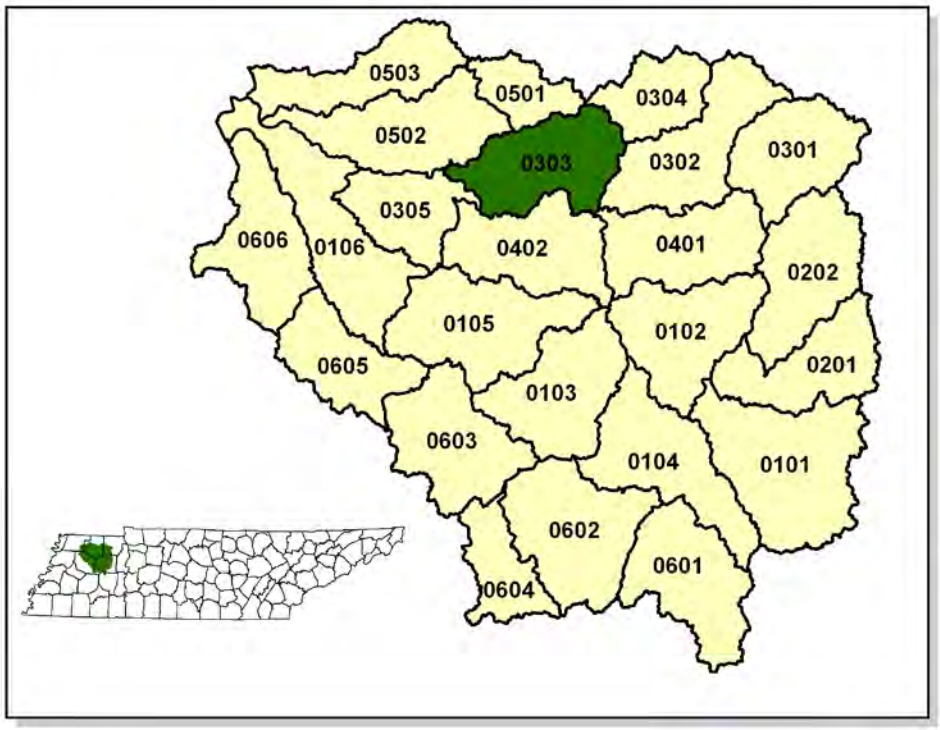


Figure 4-105. Location of Subwatershed 080102030303. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

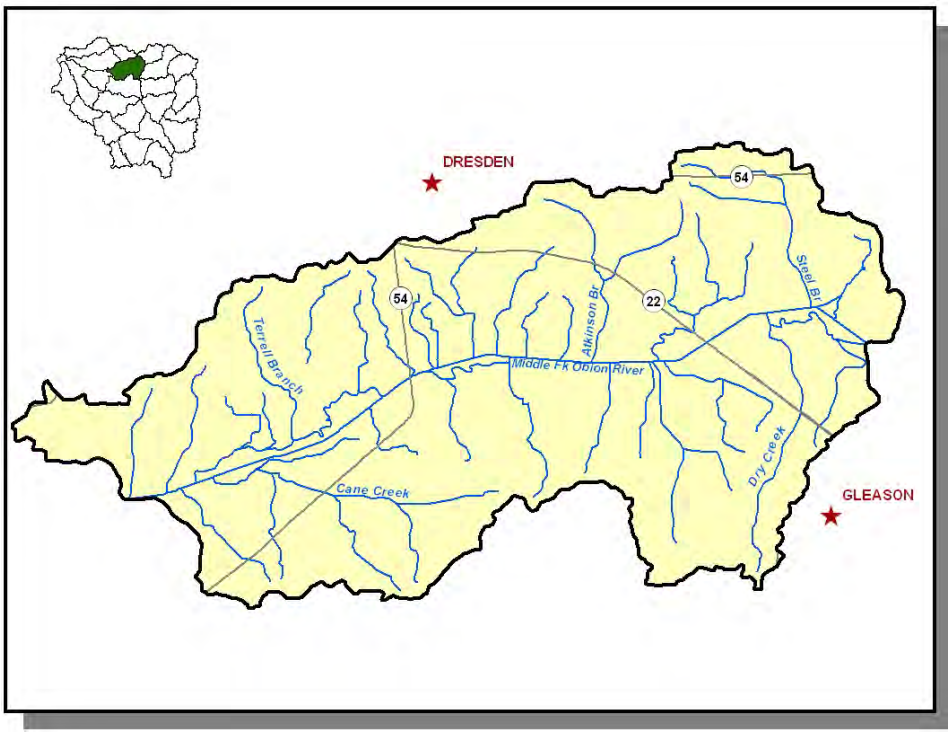


Figure 4-106. Locational Details of Subwatershed 080102030303.

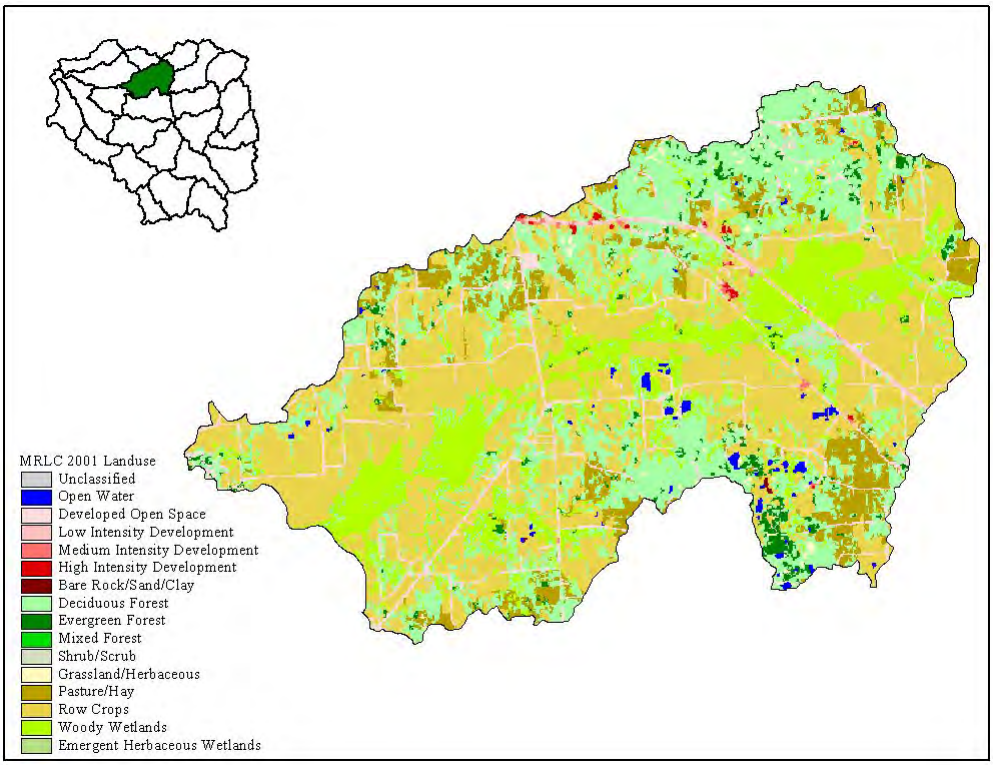


Figure 4-107. Illustration of Land Use Distribution in Subwatershed 080102030303.

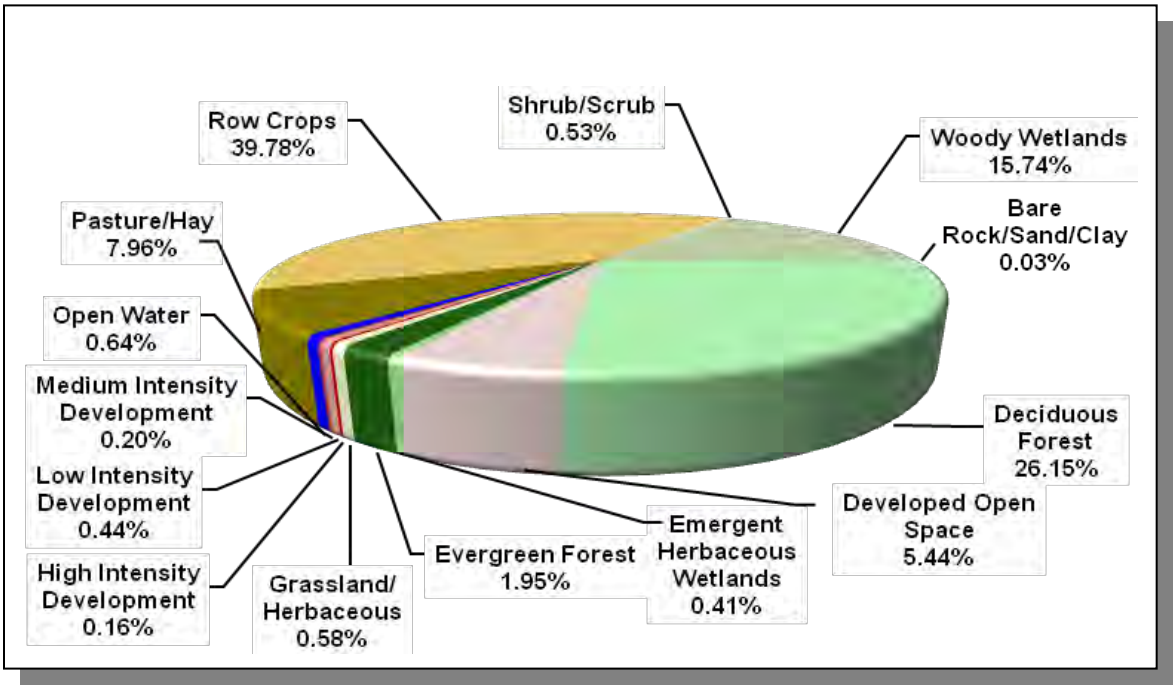


Figure 4-108. Land Use Distribution in Subwatershed 080102030303. *More information is provided in Appendix IV.*

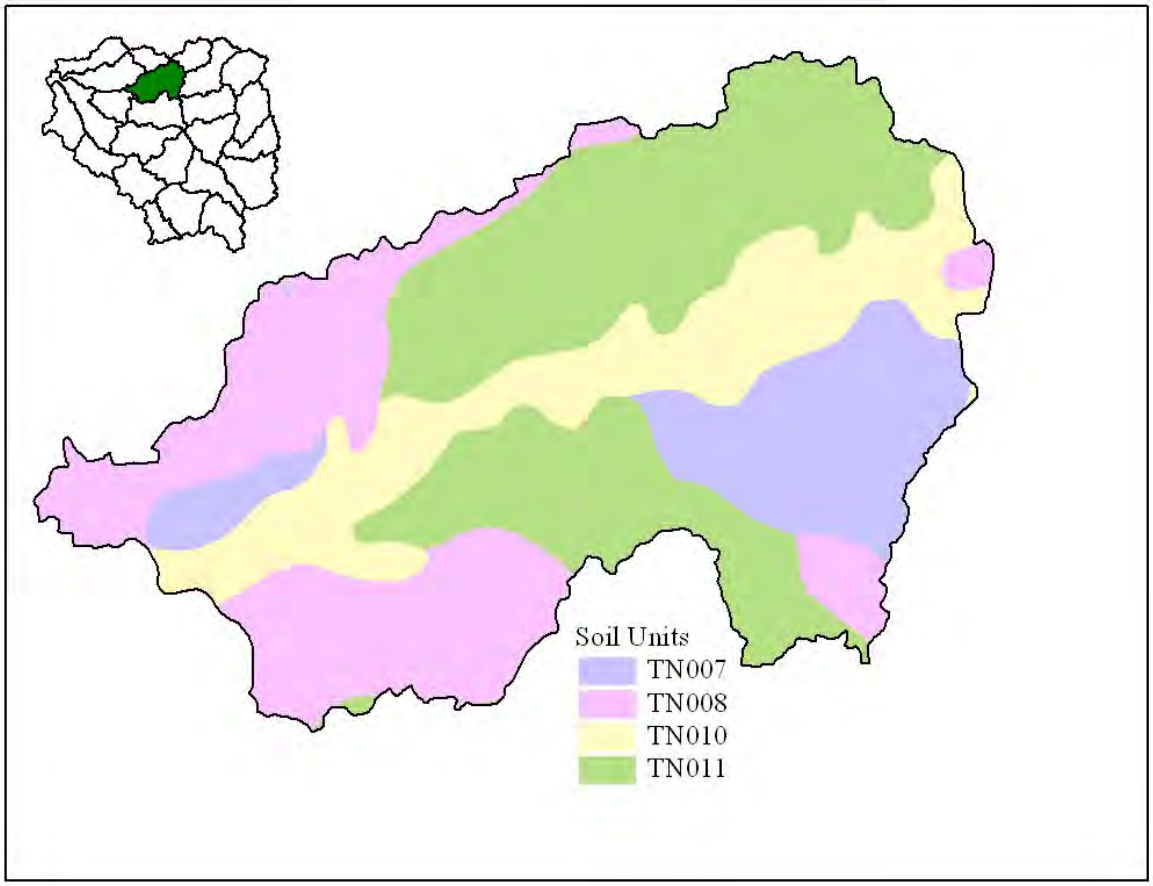


Figure 4-109. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030303.

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 4-74. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030303. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Weakley	31,972	32,808	34,895	8.57	2,740	2,812	2,991	9.20

Table 4-75. Population Estimates in Subwatershed 080102030303.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Dresden	Weakley	2,488	1,102	1,001	99	2
Gleason	Weakley	1,402	583	566	17	0
Total		**4,896**	**1,685**	**1,567**	**116**	**2**

Table 4-76. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030303.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030303.

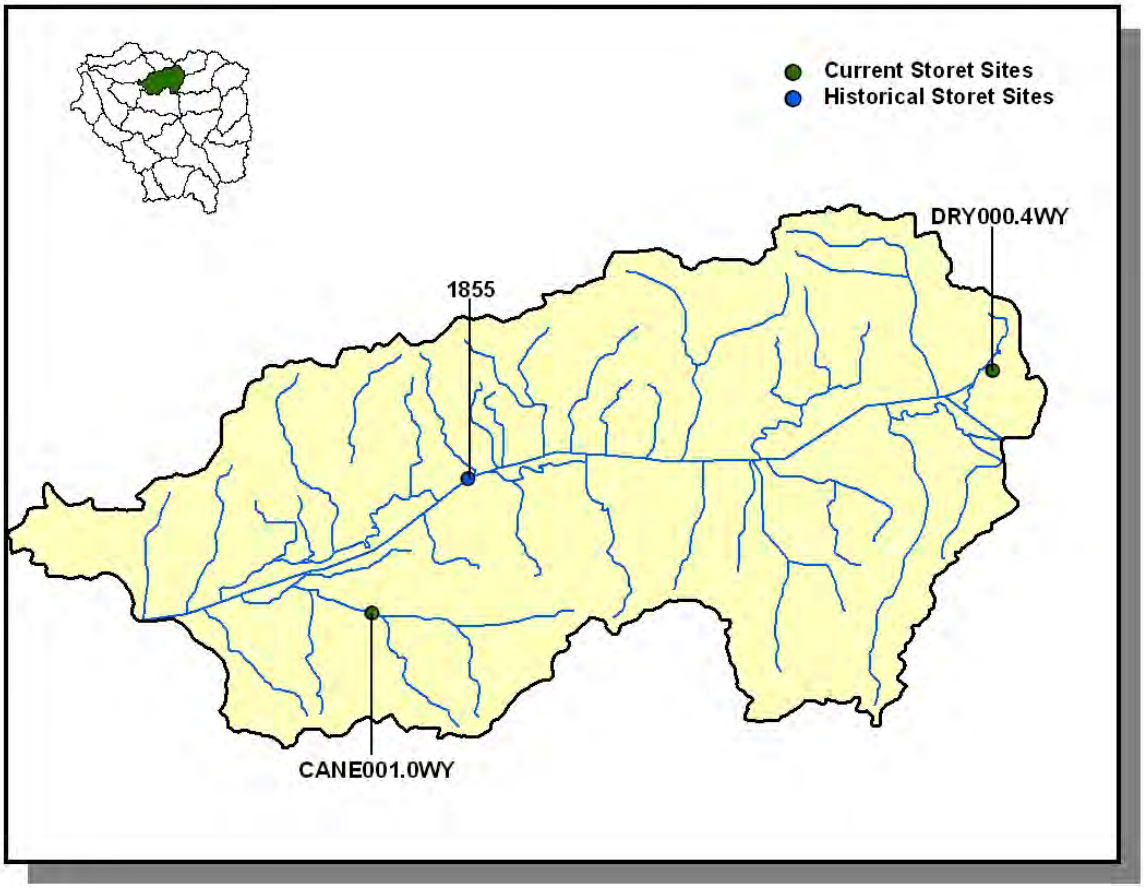


Figure 4-110. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030303. *More information, including site names and locations, is provided in Appendix IV.*

4.2.K.iii. Permitted Activities.

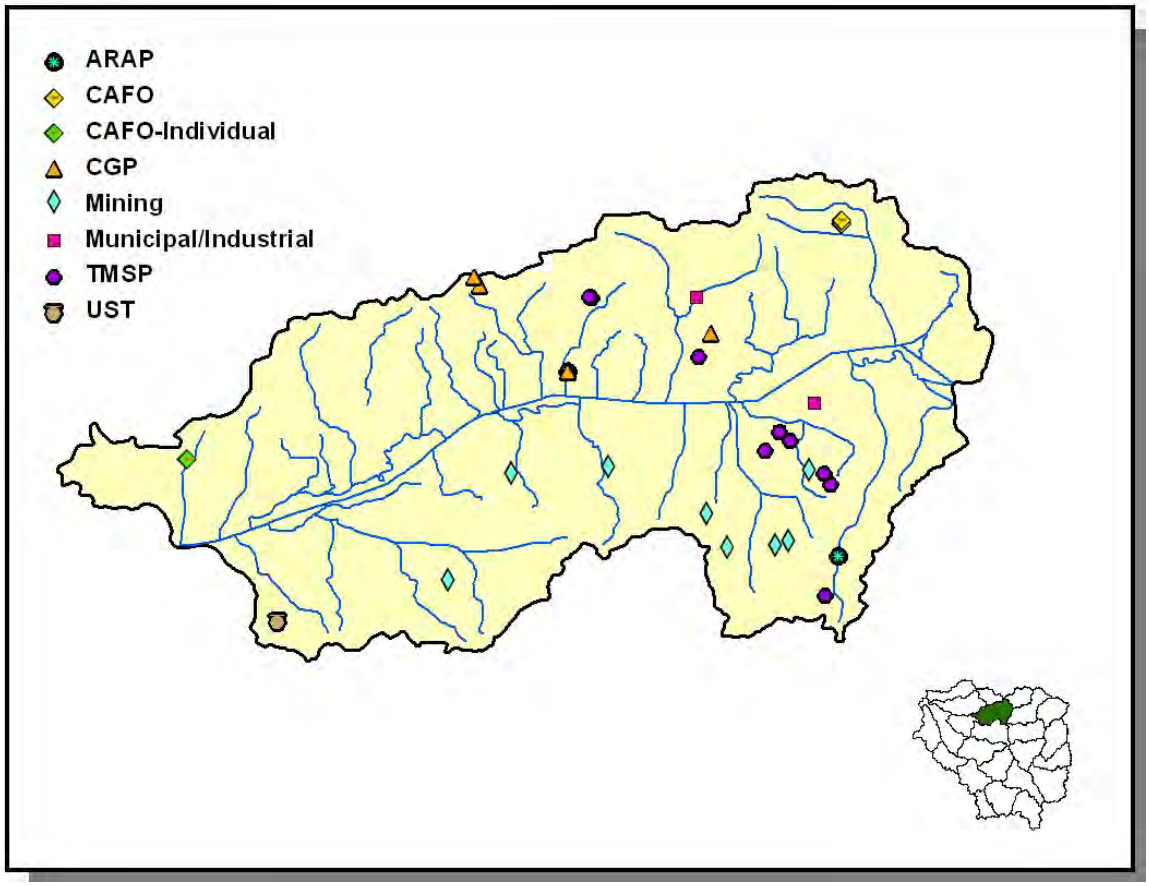


Figure 4-111. Location of Permits Issued in Subwatershed 080102030303. *More information, including the names of facilities, is provided in Appendix IV.*

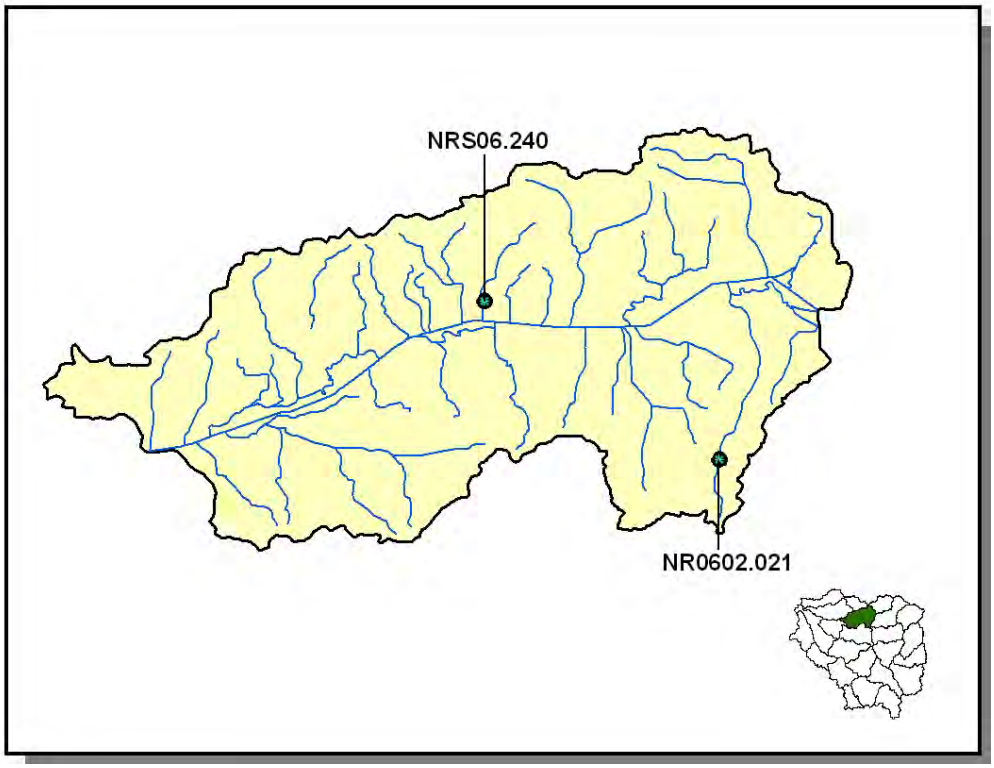


Figure 4-112. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030303. *More information is provided in Appendix IV.*

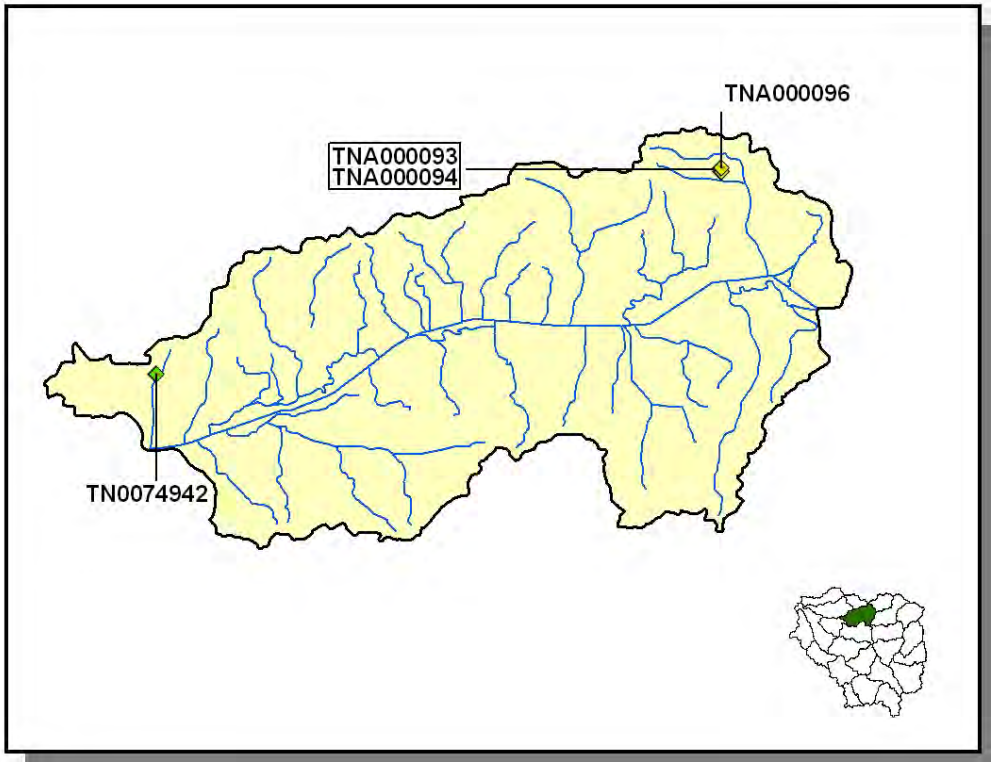


Figure 4-113. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102030303. *More information, including the names of facilities, is provided in Appendix IV.*

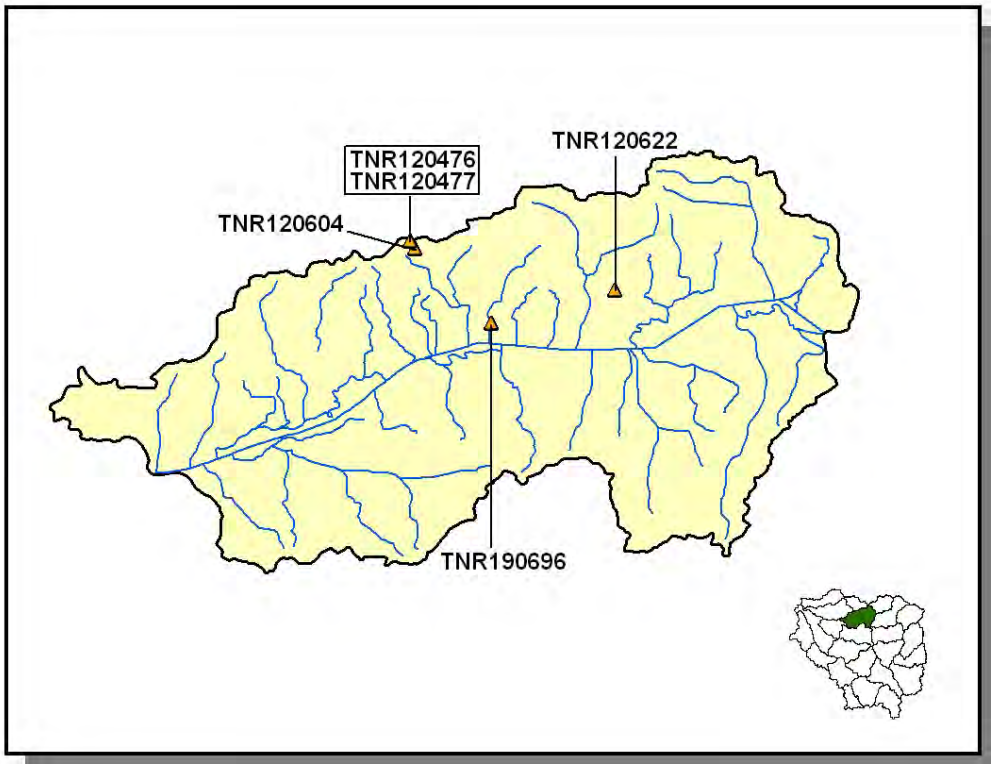


Figure 4-114. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030303. *More information is provided in Appendix IV.*

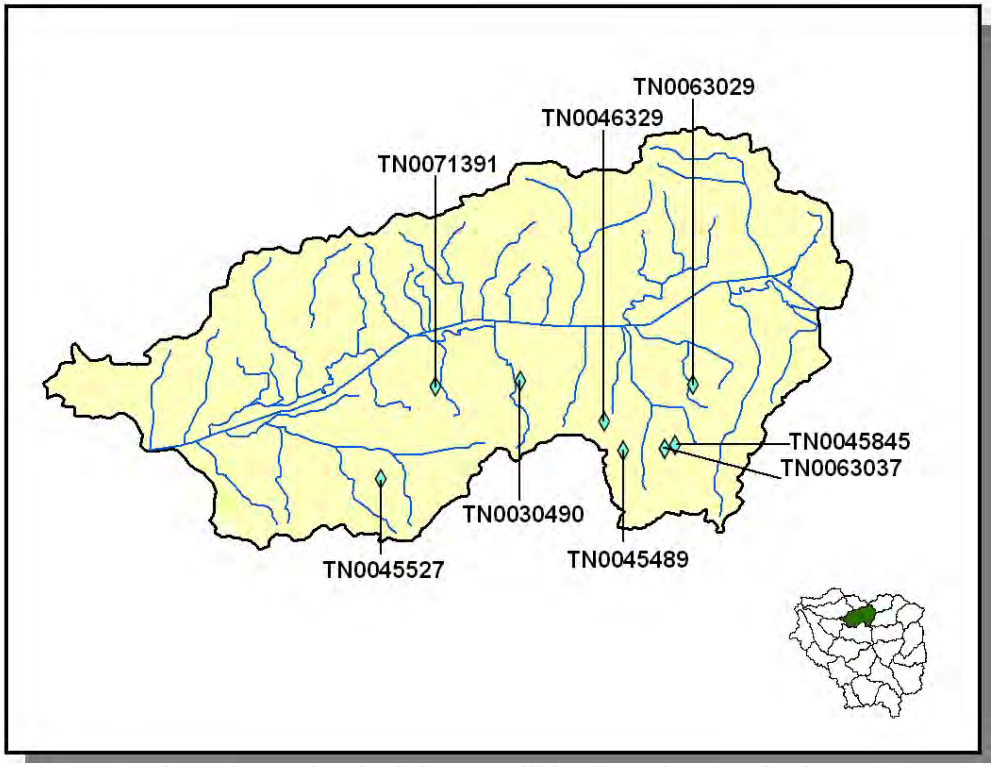


Figure 4-115. Location of Permitted Mining Facilities in Subwatershed 080102030303. *More information is provided in Appendix IV.*

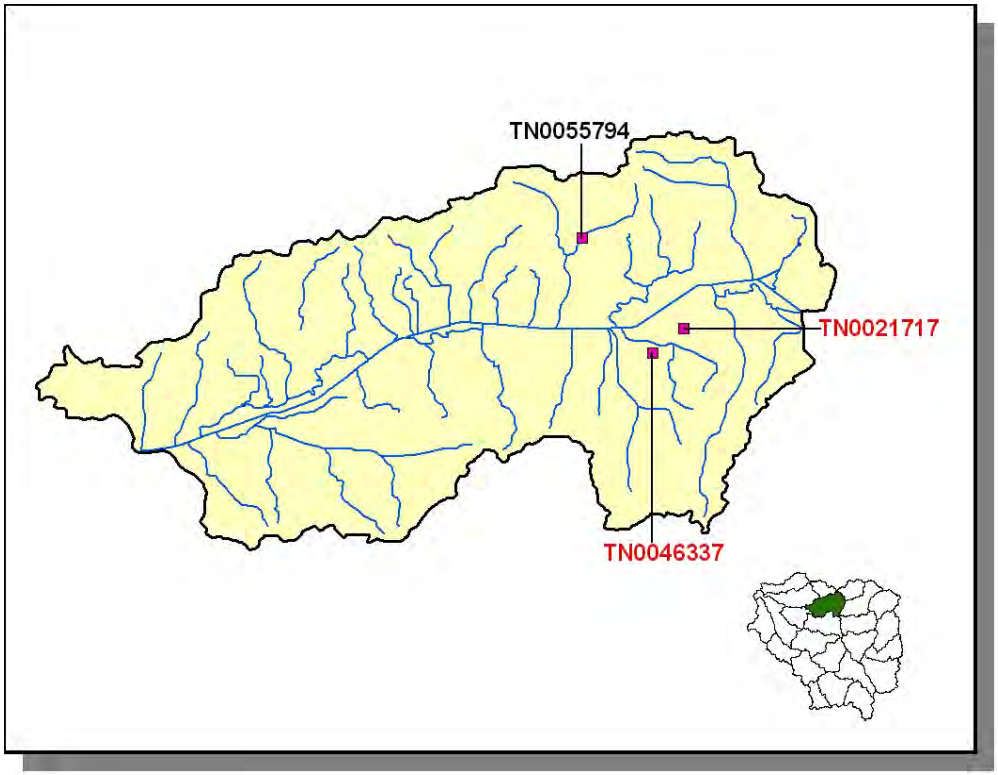


Figure 4-116. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030303. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0021717	30.6	0.166
TN0046337	0.0	0.0045

Table 4-77. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030303. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	BOD_5	BOD % REMOVAL	AMMONIA AS N (TOTAL)	TKN	PHOSPHORUS TOTAL	NITRITE + NITRATE TOTAL	TRC	Fe	Al	FLOW	pH	TSS	SS
TN0021717	X	X	X	X	X	X	X			X	X	X	X
TN0046337								X	X	X	X	X	X

Table 4-78. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030303. *BOD_5, Biochemical Oxygen Demand (5-day); TKN, Total Kjeldahl Nitrogen; TRC, Total Residual Chlorine; TSS, Total Suspended Solids; SS, Settleable Solids.*

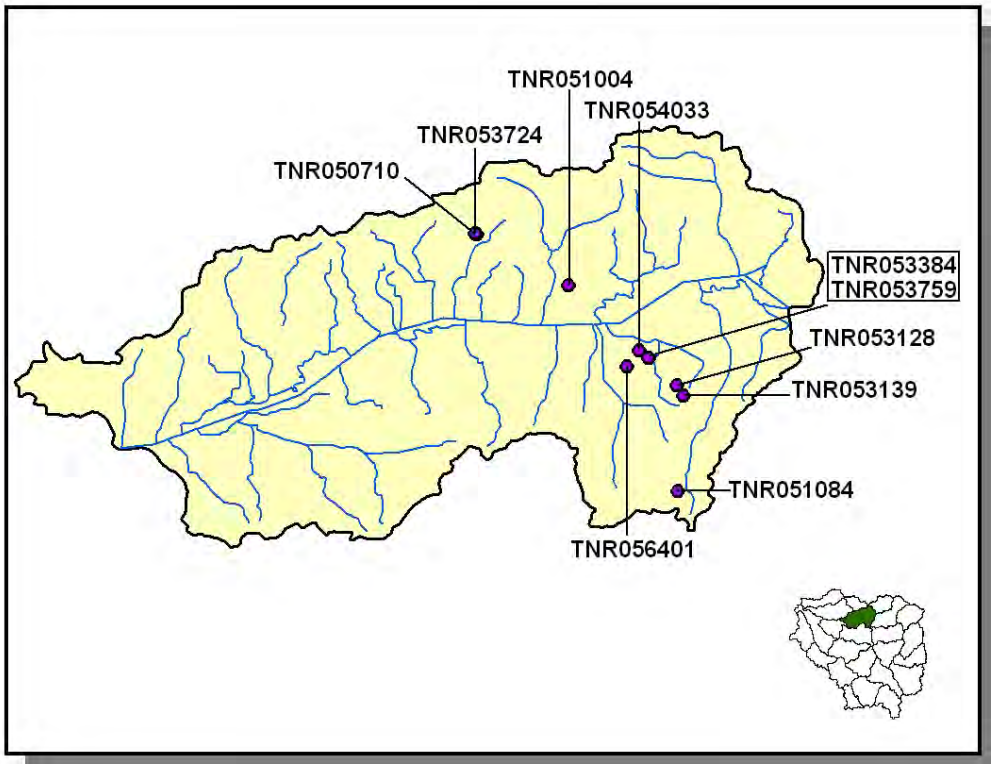


Figure 4-117. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030303. *More information is provided in Appendix IV.*

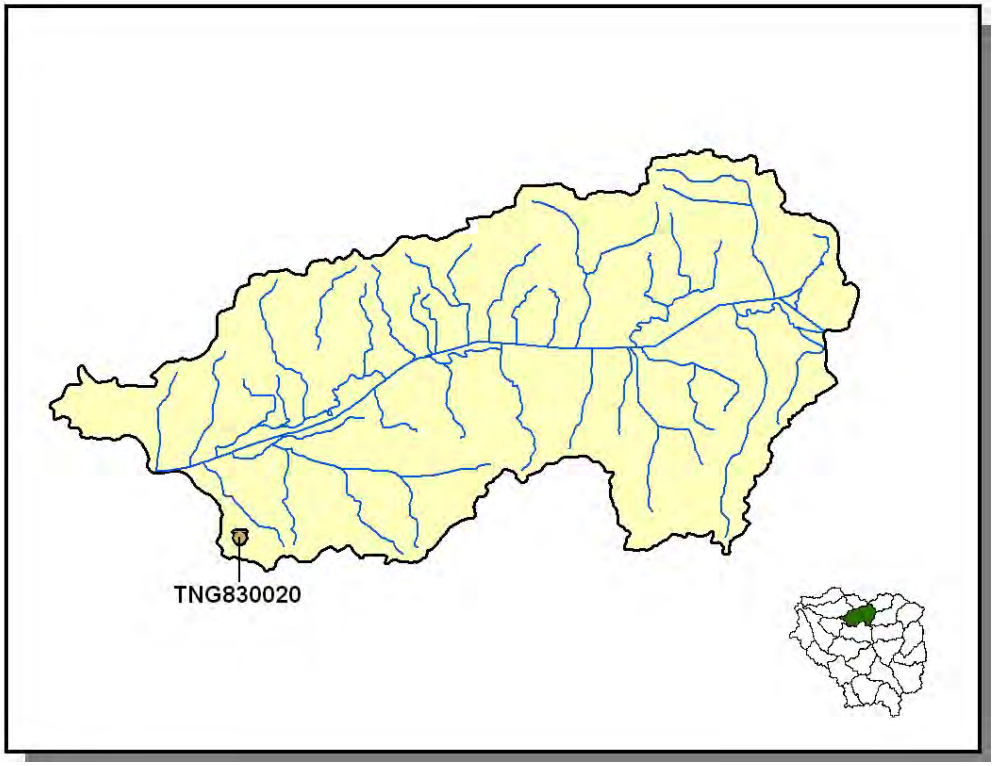


Figure 4-118. Location of Active UST Sites in Subwatershed 080102030303. *More information is provided in Appendix IV.*

4.2.K.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 4-79. 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 4-80. 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 4-81. Annual Estimated Total Soil Loss in Subwatershed 080102030303.

4.2.L. 080102030304 (Thompson Creek).

4.2.L.i. General Description.

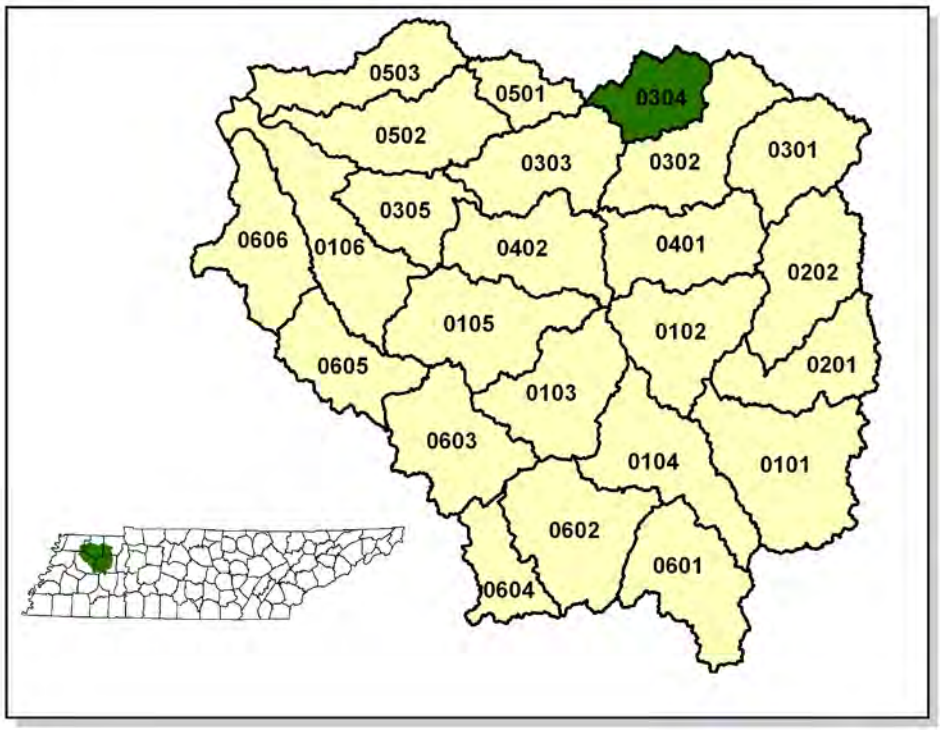


Figure 4-119. Location of Subwatershed 080102030304. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

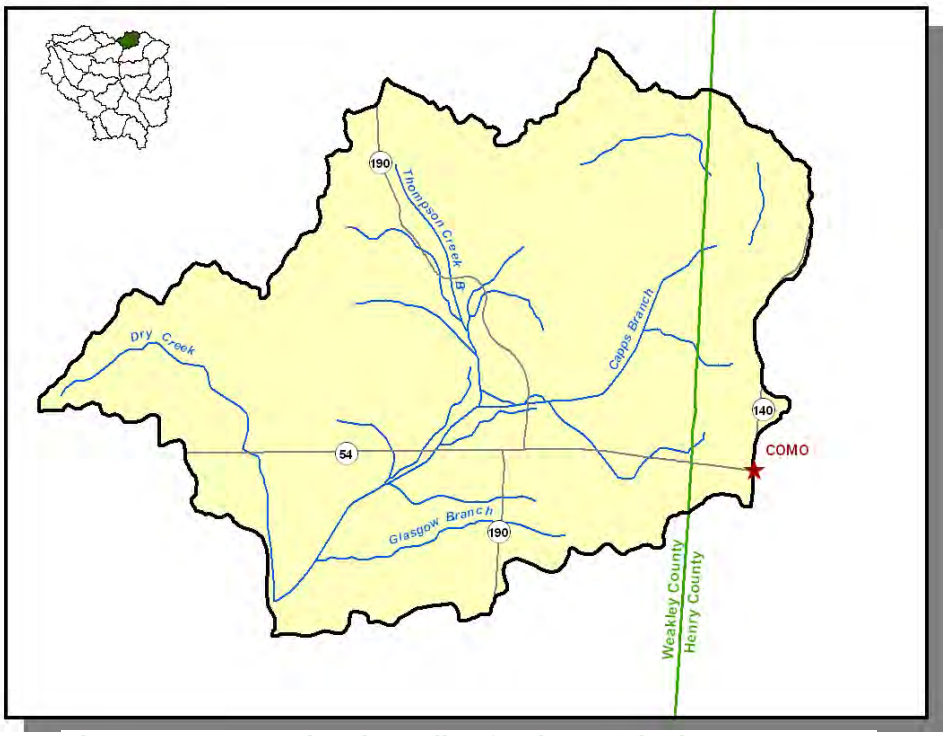


Figure 4-120. Locational Details of Subwatershed 080102030304.

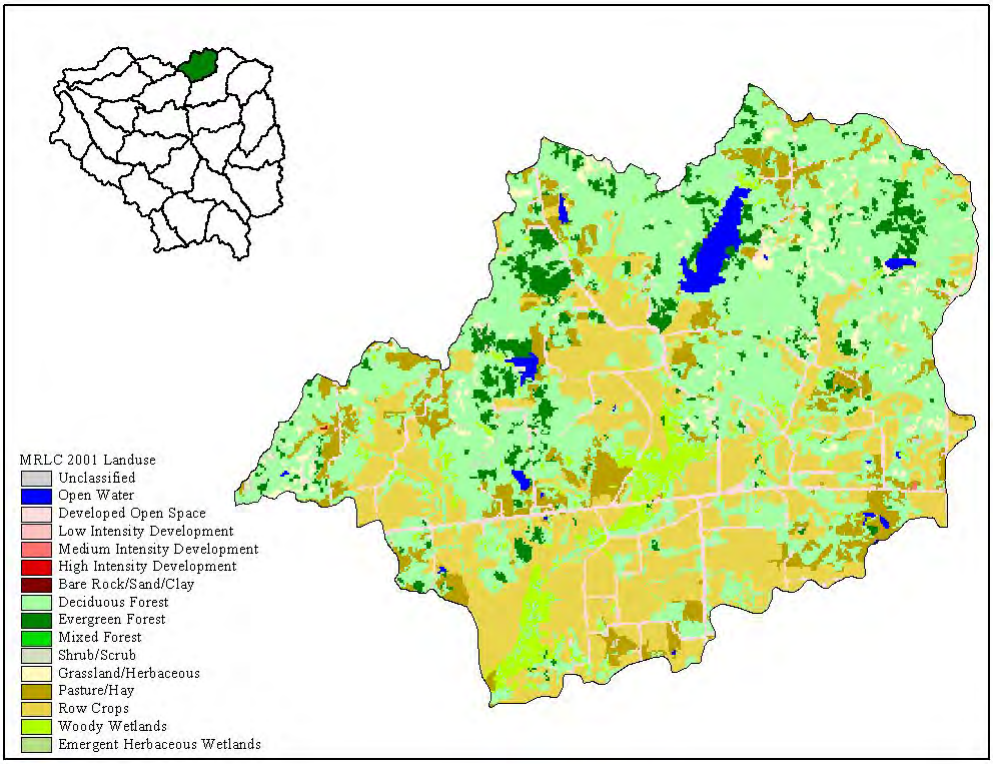


Figure 4-121. Illustration of Land Use Distribution in Subwatershed 080102030304.

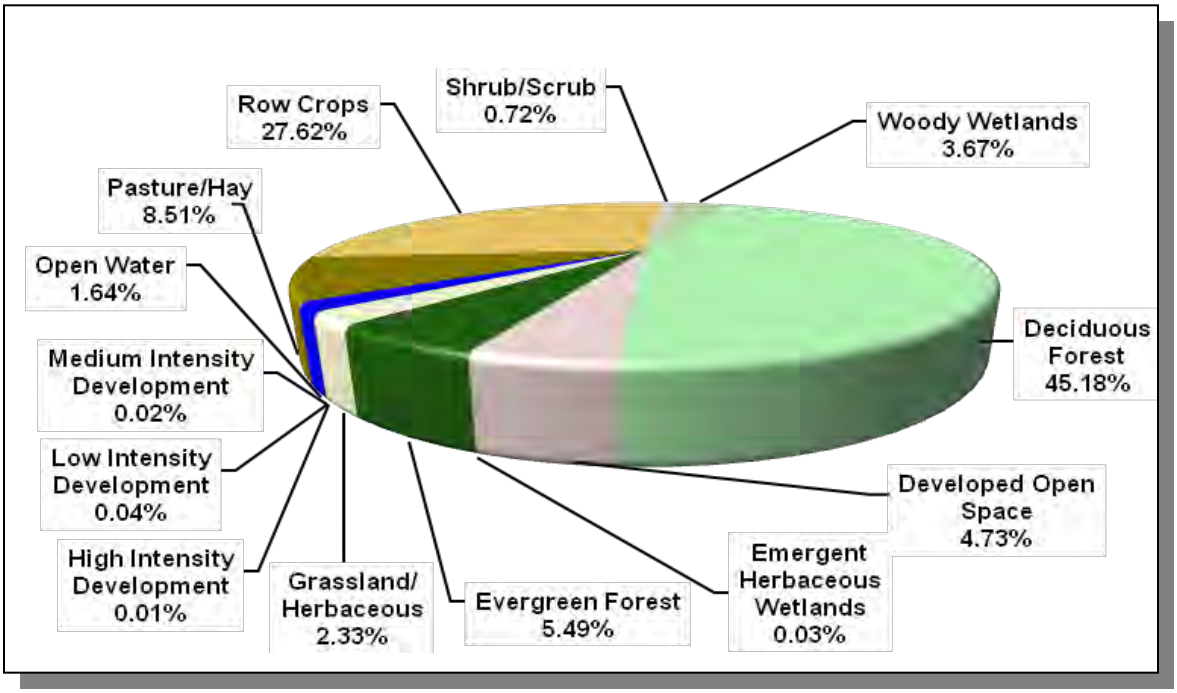


Figure 4-122. Land Use Distribution in Subwatershed 080102030304. *More information is provided in Appendix IV.*

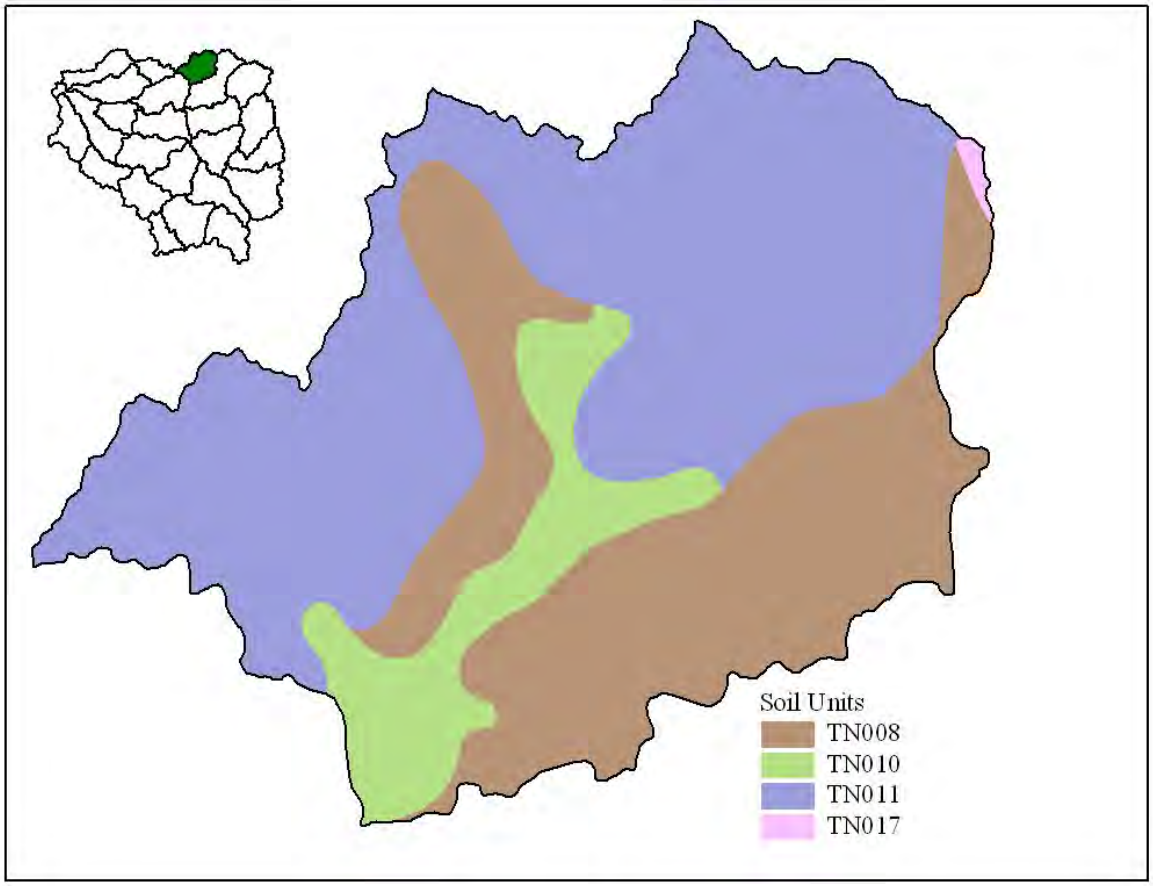


Figure 4-123. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030304.

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
TN017	0.00	B	1.81	5.26	Silty Loam	0.45

Table 4-82. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030304. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Henry	27,888	29,830	31,115	0.46	127	136	142	11.8
Weakley	31,972	32,808	34,895	4.47	1,428	1,465	1,559	9.20
Total	**59,860**	**62,638**	**66,010**		**1,555**	**1,601**	**1,701**	**9.40**

Table 4-83. Population Estimates in Subwatershed 080102030304.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030304.

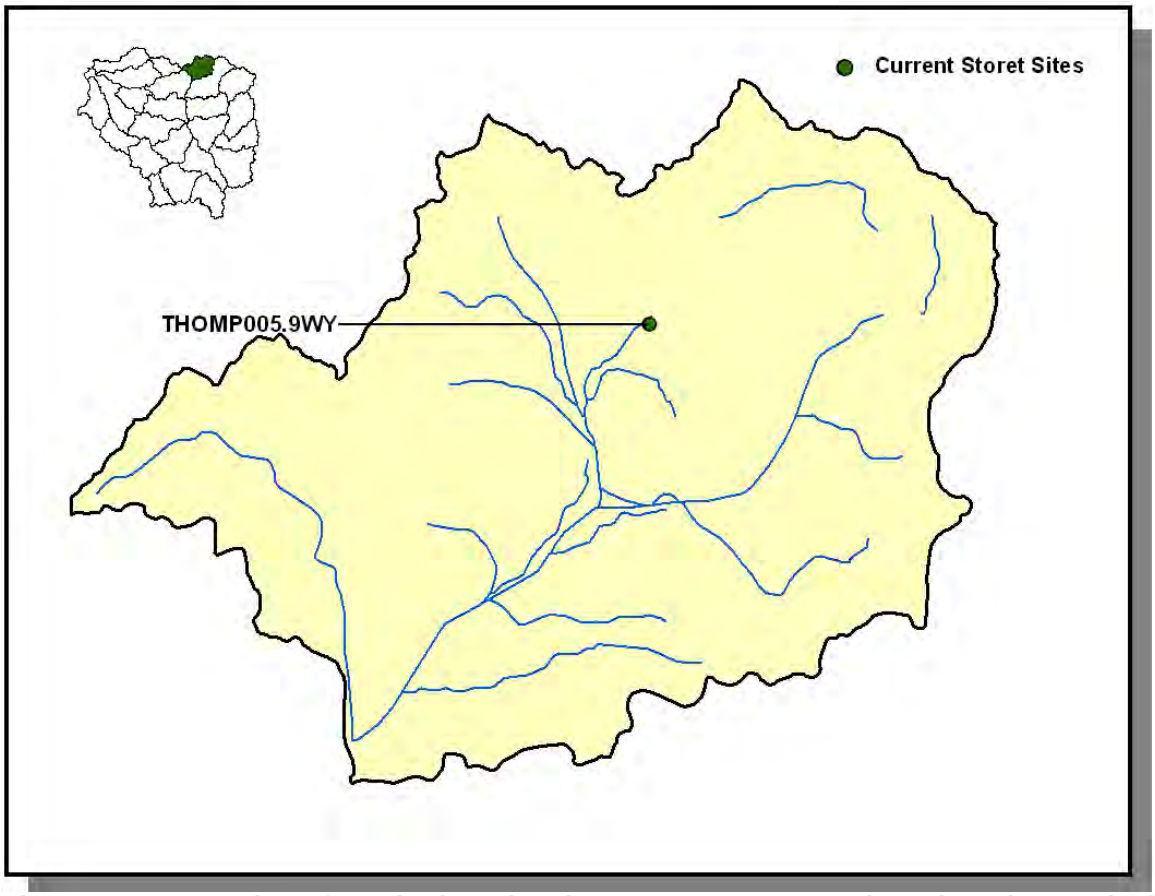


Figure 4-124. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030304. *More information, including site names and locations, is provided in Appendix IV.*

4.2.L.iii. Permitted Activities.

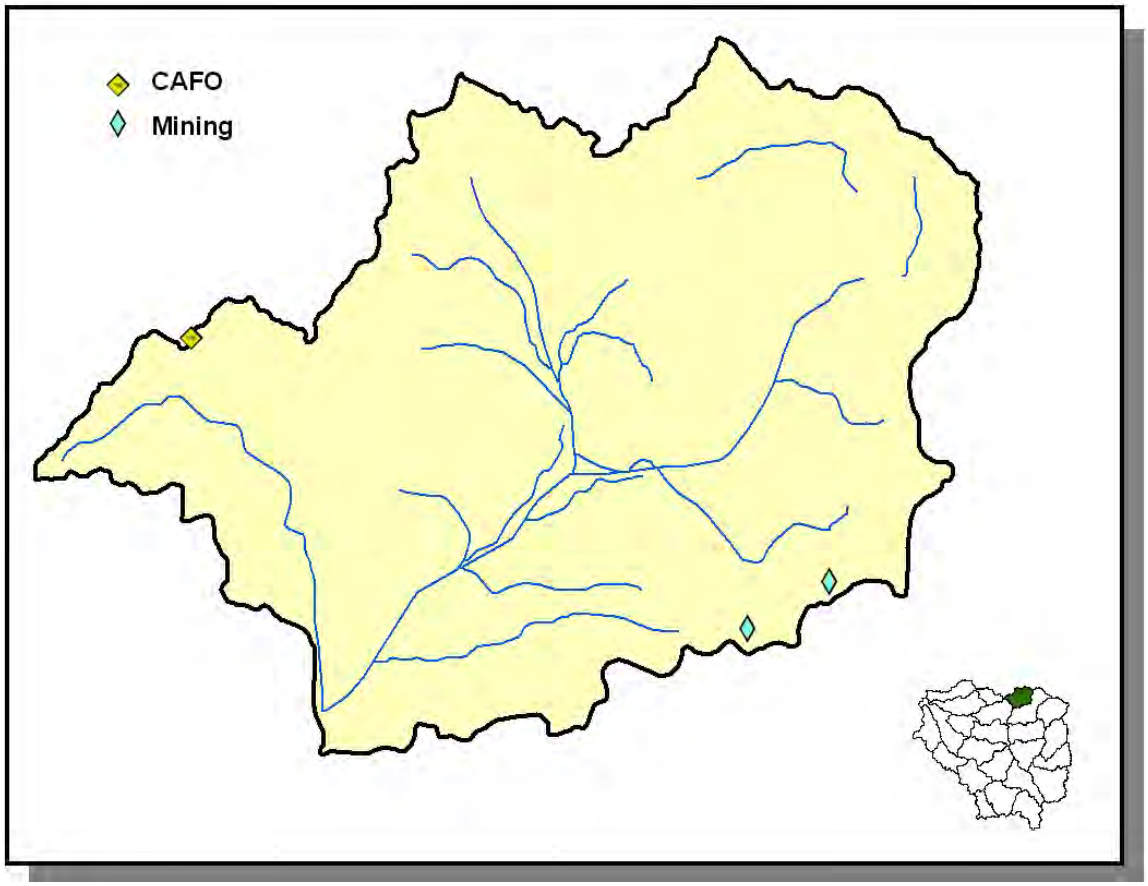


Figure 4-125. Location of Permits Issued in Subwatershed 080102030304. *More information, including the names of facilities, is provided in Appendix IV.*

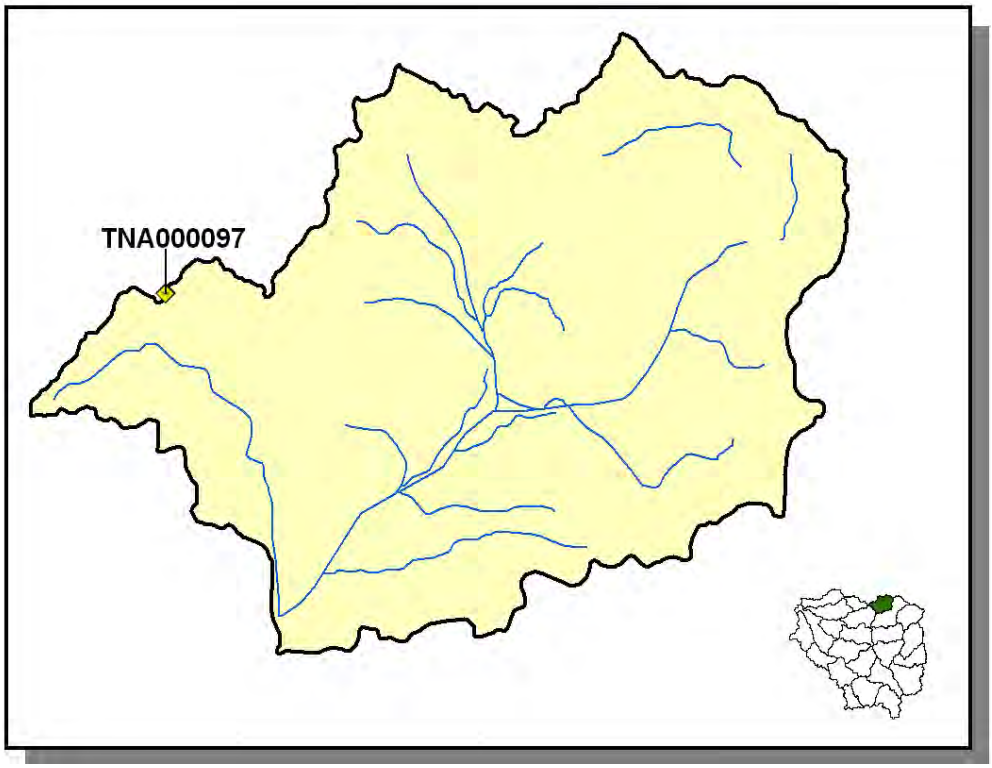


Figure 4-126. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102030304. *More information, including the names of facilities, is provided in Appendix IV.*

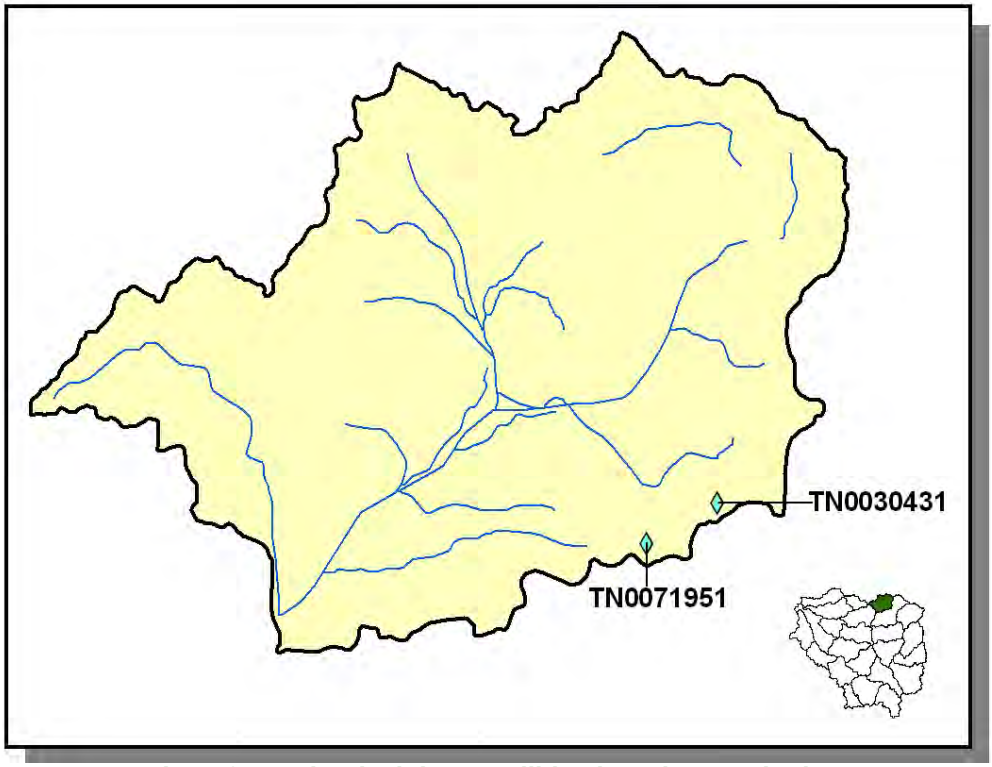


Figure 4-127. Location of Permitted Mining Facilities in Subwatershed 080102030304. *More information is provided in Appendix IV.*

4.2.L.iv. Nonpoint Source Contributions.

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

Table 4-84. 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 4-85. 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)	9.63
Corn (Row Crops)	7.58
Soybeans (Row Crops)	7.51
Other Cropland not Planted	4.31
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	1.05
Legume (Hayland)	0.49
Conservation Reserve Program Land	0.44
Farmsteads and Ranch Headquarters	0.40
Grass (Hayland)	0.23
Grass (Pastureland)	0.14
Legume Grass (Hayland)	0.11

Table 4-86. Annual Estimated Total Soil Loss in Subwatershed 080102030304.

4.2.M. 080102030305 (Middle Fork Obion River).

4.2.M.i. General Description.

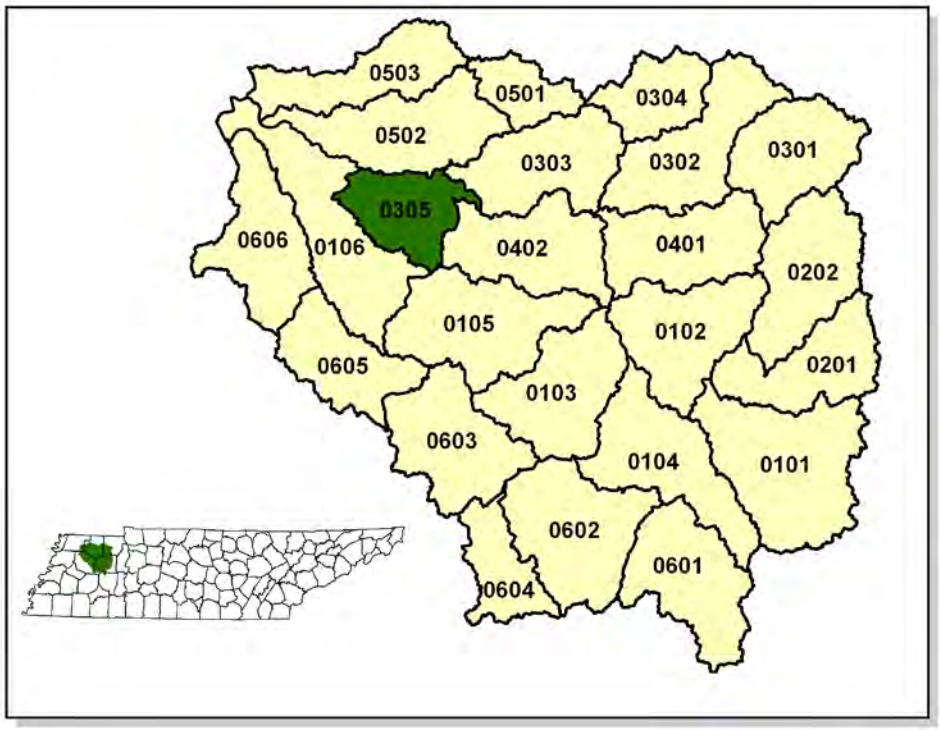


Figure 4-128. Location of Subwatershed 080102030305. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

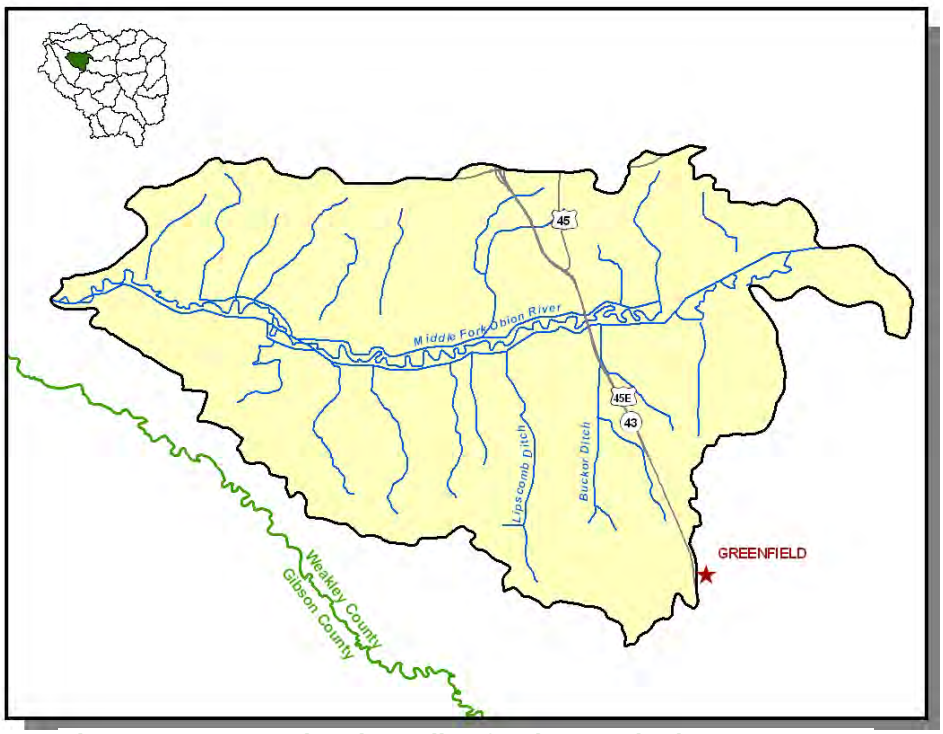


Figure 4-129. Locational Details of Subwatershed 080102030305.

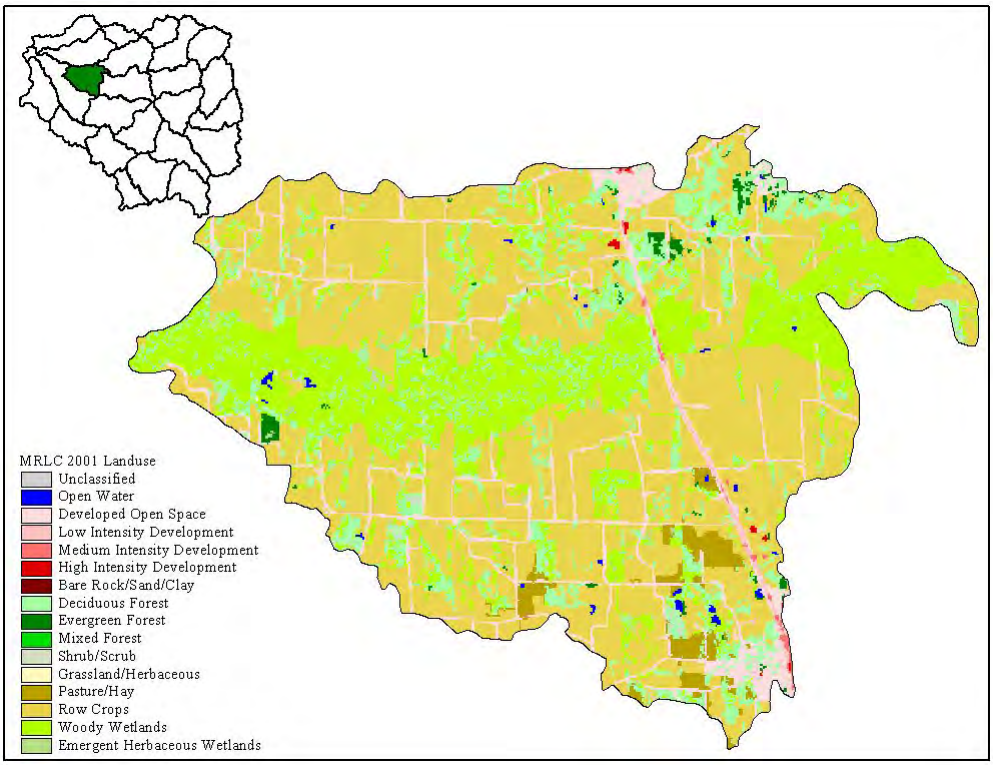


Figure 4-130. Illustration of Land Use Distribution in Subwatershed 080102030305.

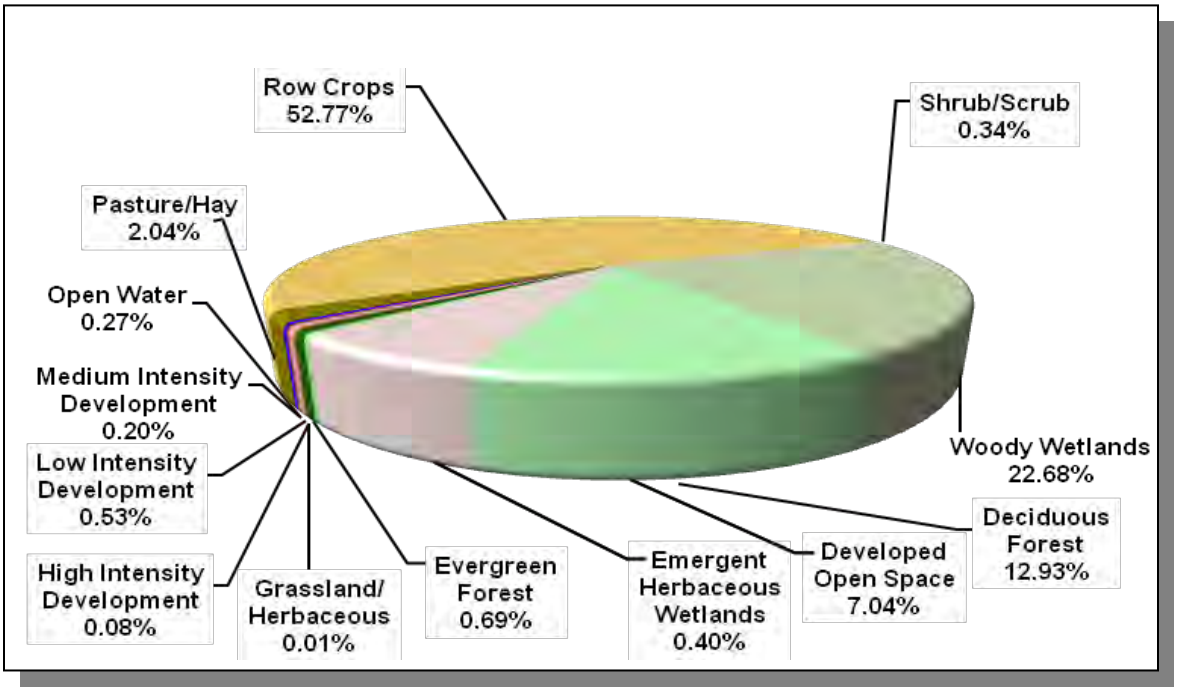


Figure 4-131. Land Use Distribution in Subwatershed 080102030305. *More information is provided in Appendix IV.*

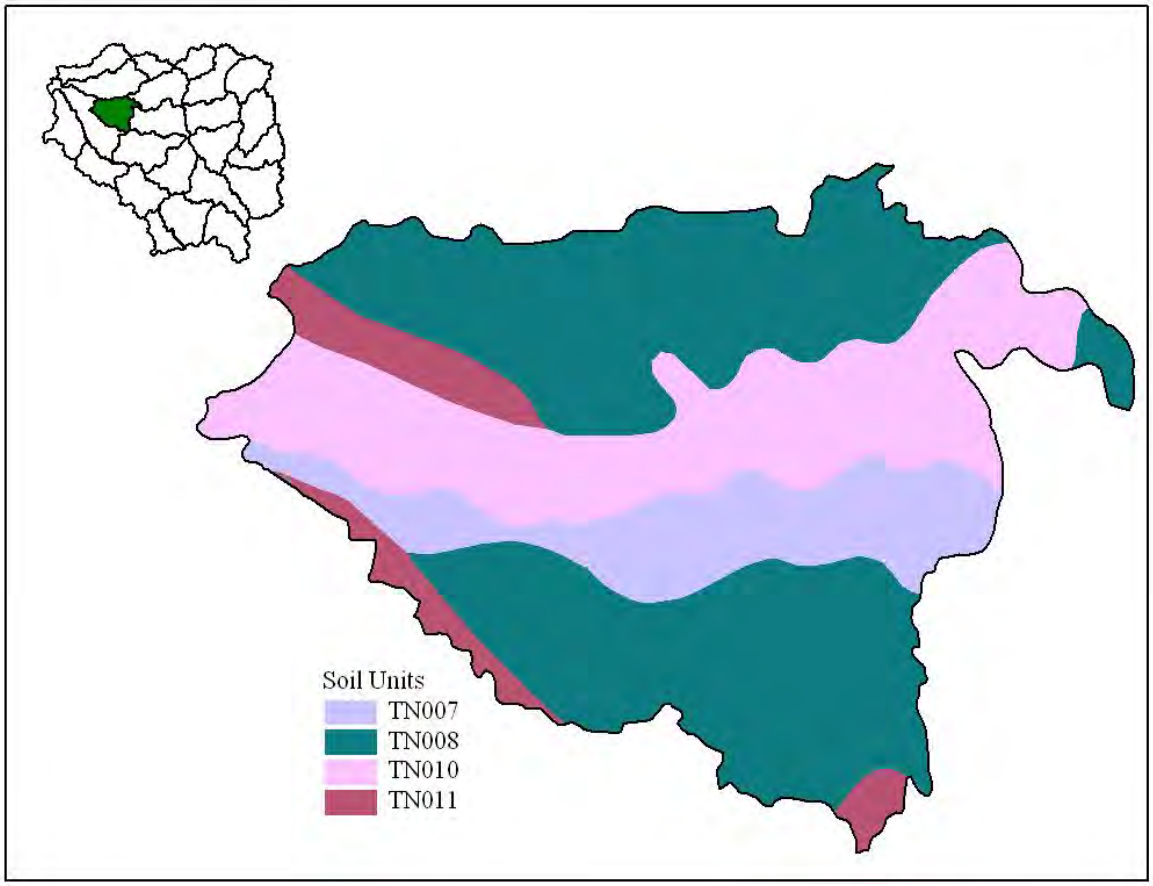


Figure 4-132. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030305.

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 4-87. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030305. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Gibson	46,315	48,083	48,152	0.03	15	15	15	0.00
Weakley	31,972	32,808	34,895	5.89	1,884	1,933	2,056	9.10
Total	**78,287**	**80,891**	**83,047**		**1,899**	**1,948**	**2,071**	**9.10**

Table 4-88. Population Estimates in Subwatershed 080102030305.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Greenfield	Weakley	2,105	949	900	46	3
Sharon	Weakley	1,047	493	473	20	0
Total		**3,152**	**1,442**	**1,373**	**66**	**3**

Table 4-89. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030305.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030305.

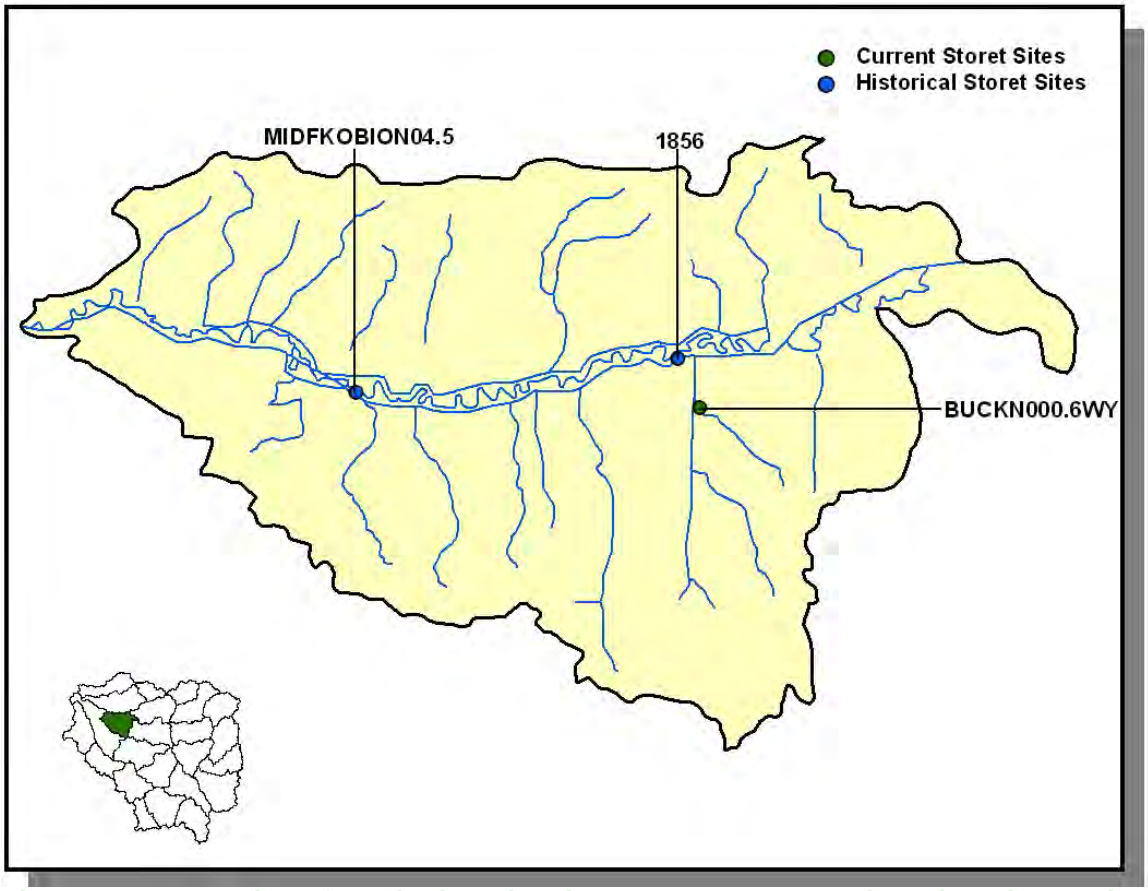


Figure 4-133. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030305. *More information, including site names and locations, is provided in Appendix IV.*

4.2.M.iii. Permitted Activities.

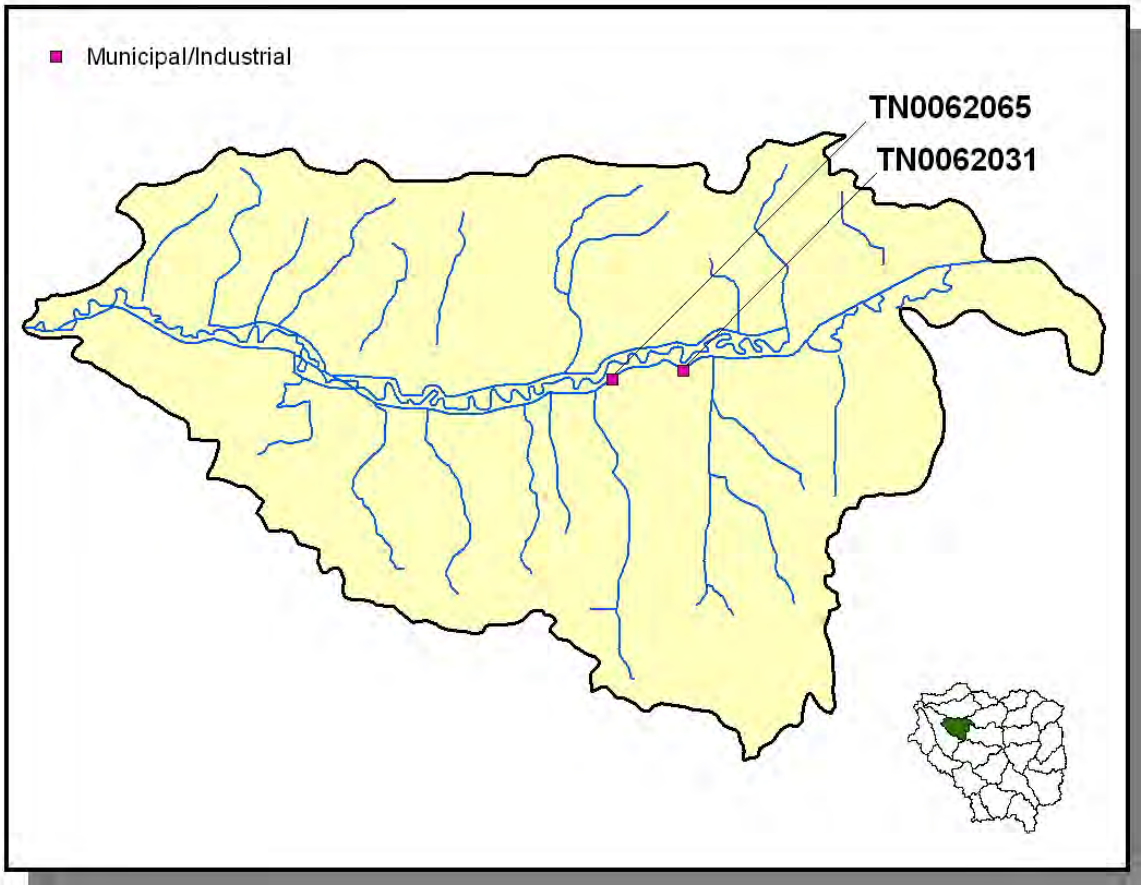


Figure 4-134. Location of Permits Issued in Subwatershed 080102030305. *More information, including the names of facilities, is provided in Appendix IV.*

4.2.M.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
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-90. 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
Weakley	96.1	95.9	6.7	24.6

Table 4-91. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Cotton (Row Crops)	17.21
Wheat (Close Grown Cropland)	10.01
Soybeans (Row Crops)	7.64
Corn (Row Crops)	7.59
Sorghum (Row Crops)	6.38
Other Cropland not Planted	4.47
Legume (Pastureland)	1.47
Other Land in Farms	1.34
Grass Forbs Legumes Mixed (Pastureland)	1.11
Legume (Hayland)	0.49
Farmsteads and Ranch Headquarters	0.43
Conservation Reserve Program Land	0.43
Grass (Hayland)	0.23
Grass (Pastureland)	0.13

Table 4-92. Annual Estimated Total Soil Loss in Subwatershed 080102030305.

4.2.N. 080102030401 (Spring Creek, Upper).

4.2.N.i. General Description.

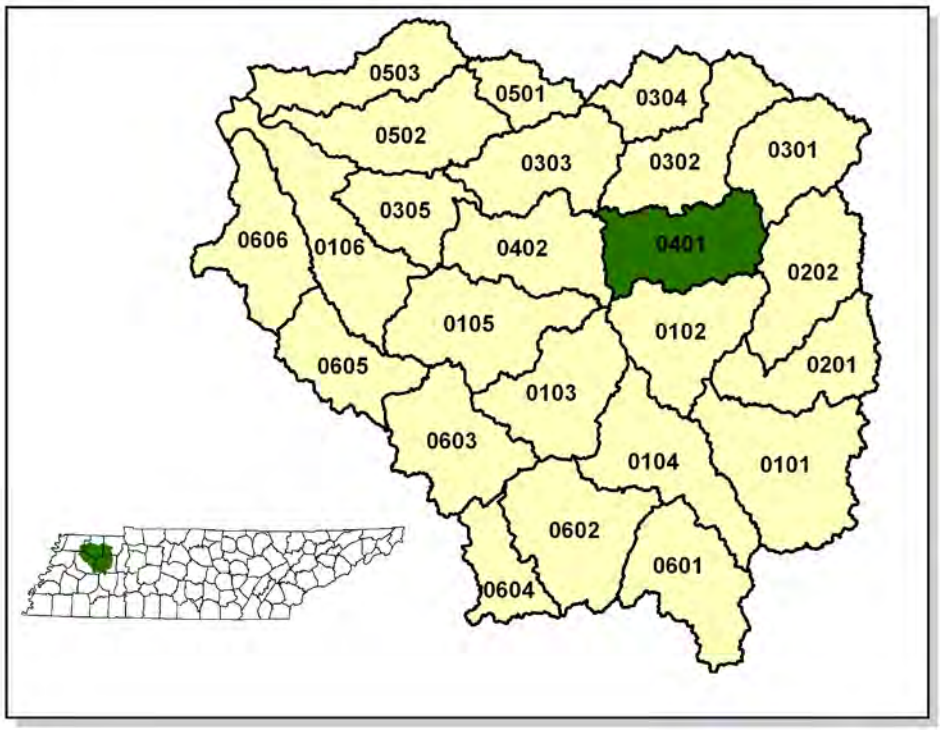


Figure 4-135. Location of Subwatershed 080102030401. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

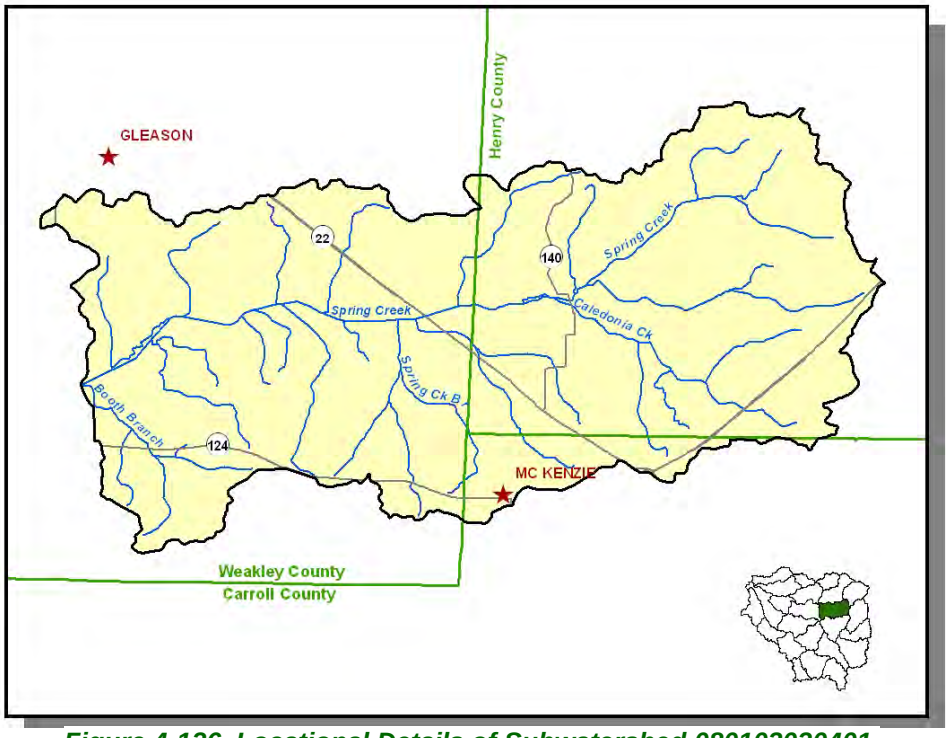


Figure 4-136. Locational Details of Subwatershed 080102030401.

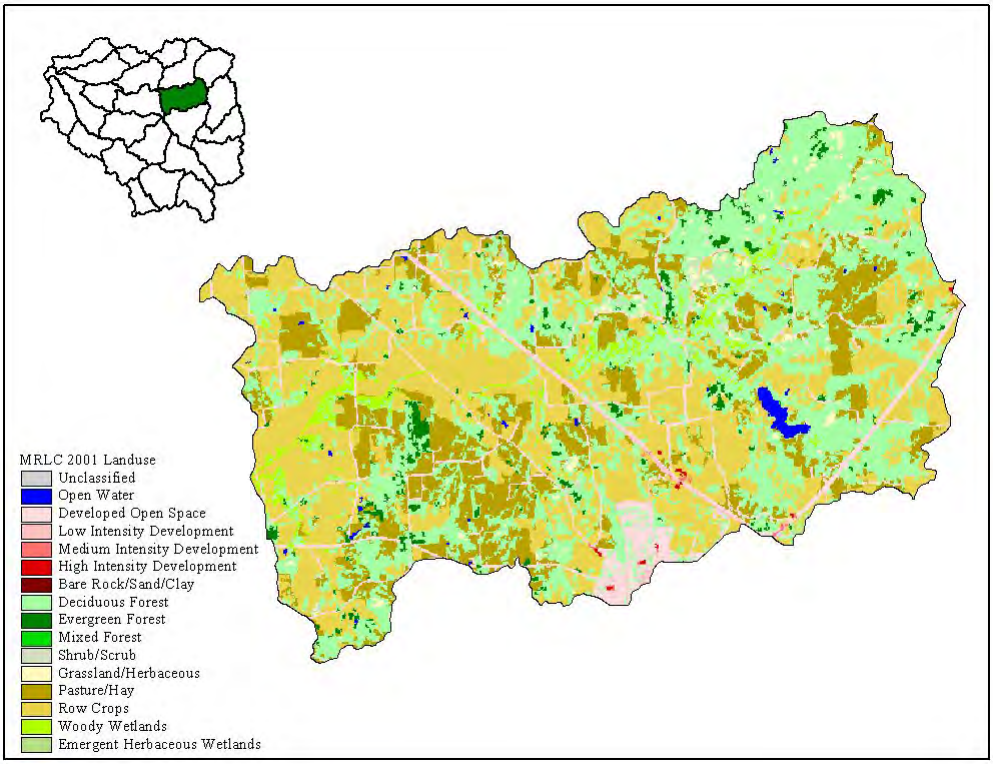


Figure 4-137. Illustration of Land Use Distribution in Subwatershed 080102030401.

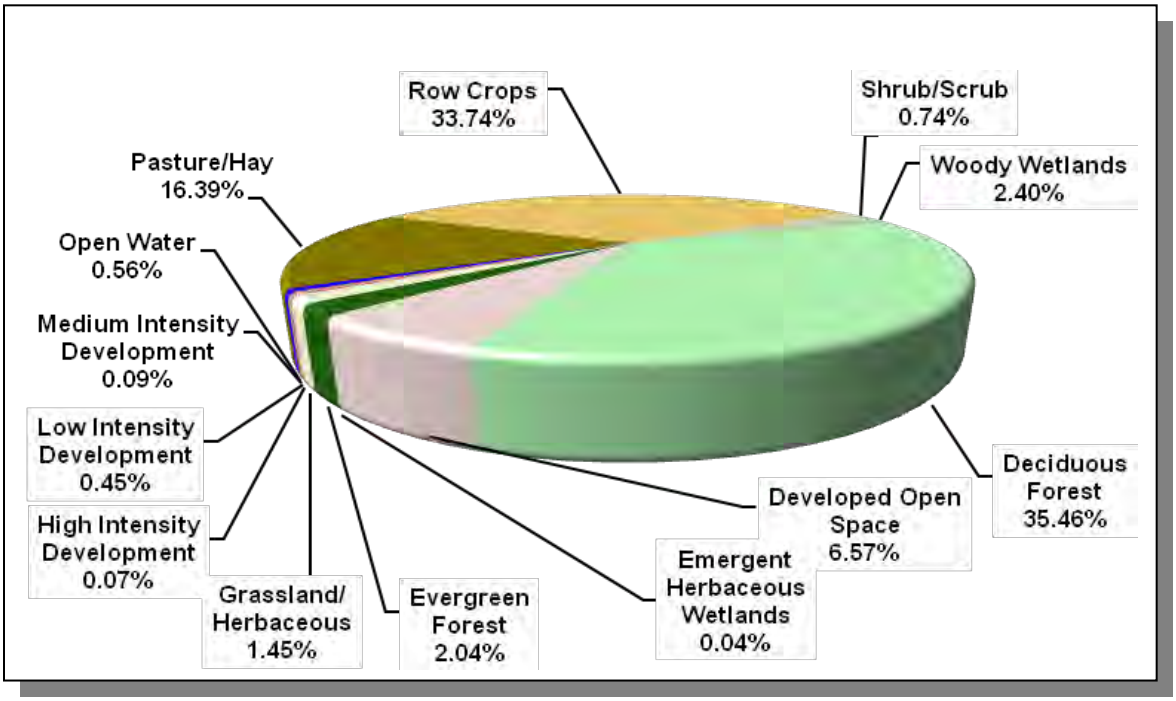


Figure 4-138. Land Use Distribution in Subwatershed 080102030401. *More information is provided in Appendix IV.*

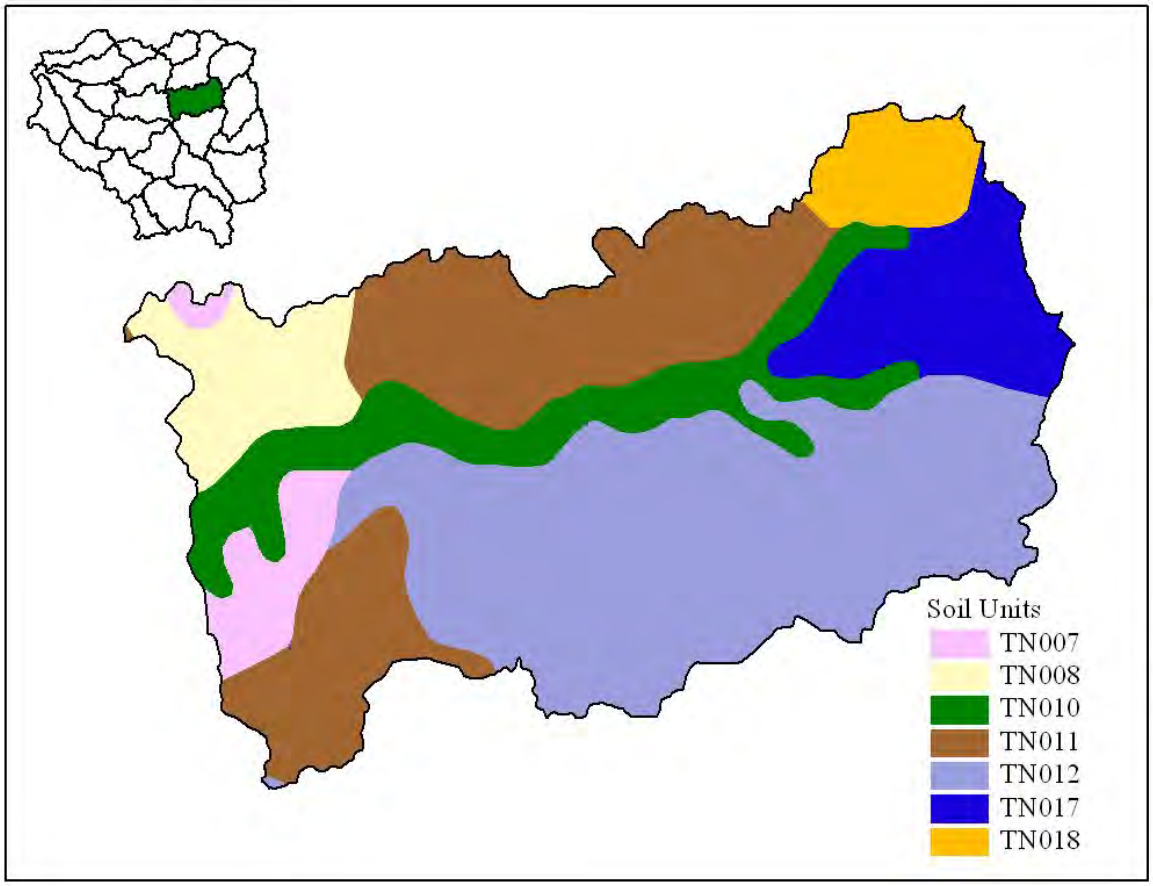


Figure 4-139. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030401.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39
TN017	0.00	B	1.81	5.26	Silty Loam	0.45
TN018	4.00	B	2.62	5.10	Loam	0.38

Table 4-93. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030401. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	0.63	172	182	185	7.60
Henry	27,888	29,830	31,115	3.46	964	1,031	1,076	11.60
Weakley	31,972	32,808	34,895	4.36	1,394	1,431	1,522	9.20
Total	**87,374**	**91,628**	**95,485**		**2,530**	**2,644**	**2,783**	**10.00**

Table 4-94. Population Estimates in Subwatershed 080102030401.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030401.

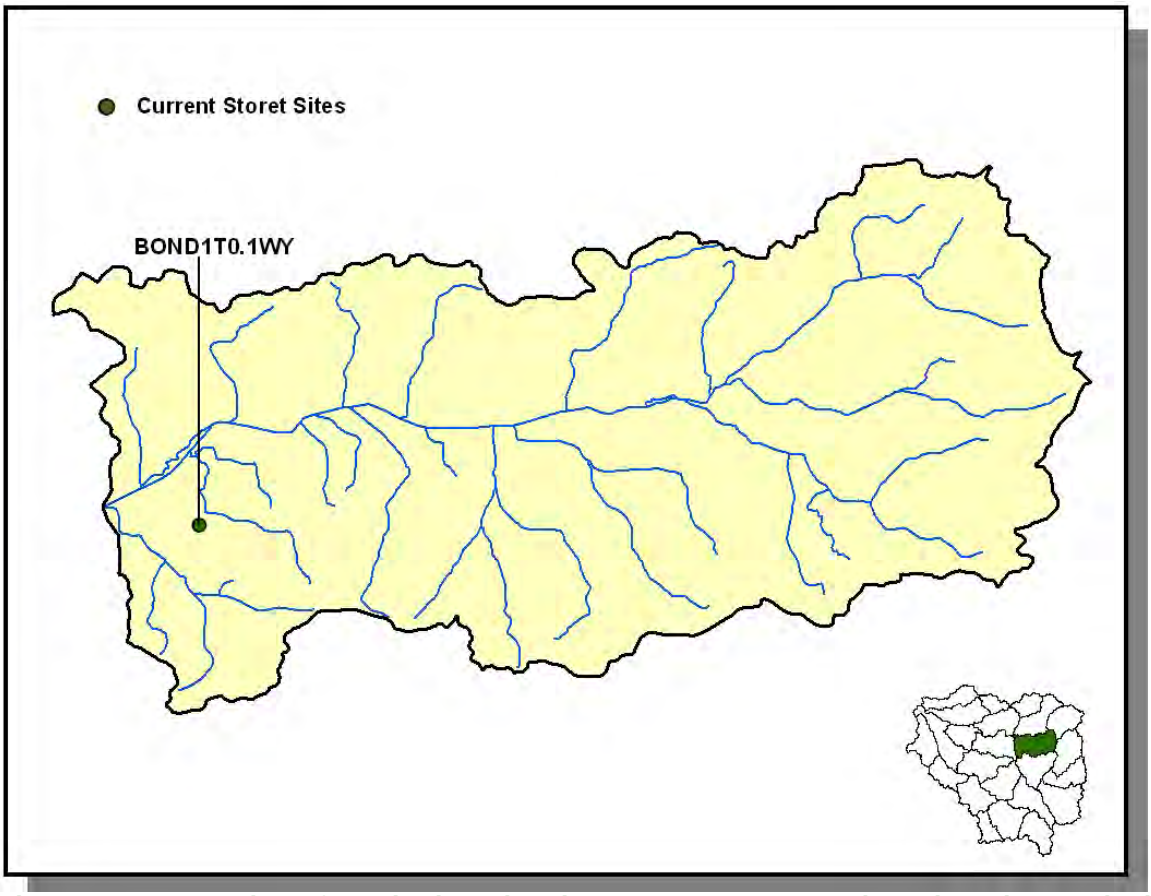


Figure 4-140. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030401. *More information, including site names and locations, is provided in Appendix IV.*

4.2.N.iii. Permitted Activities.

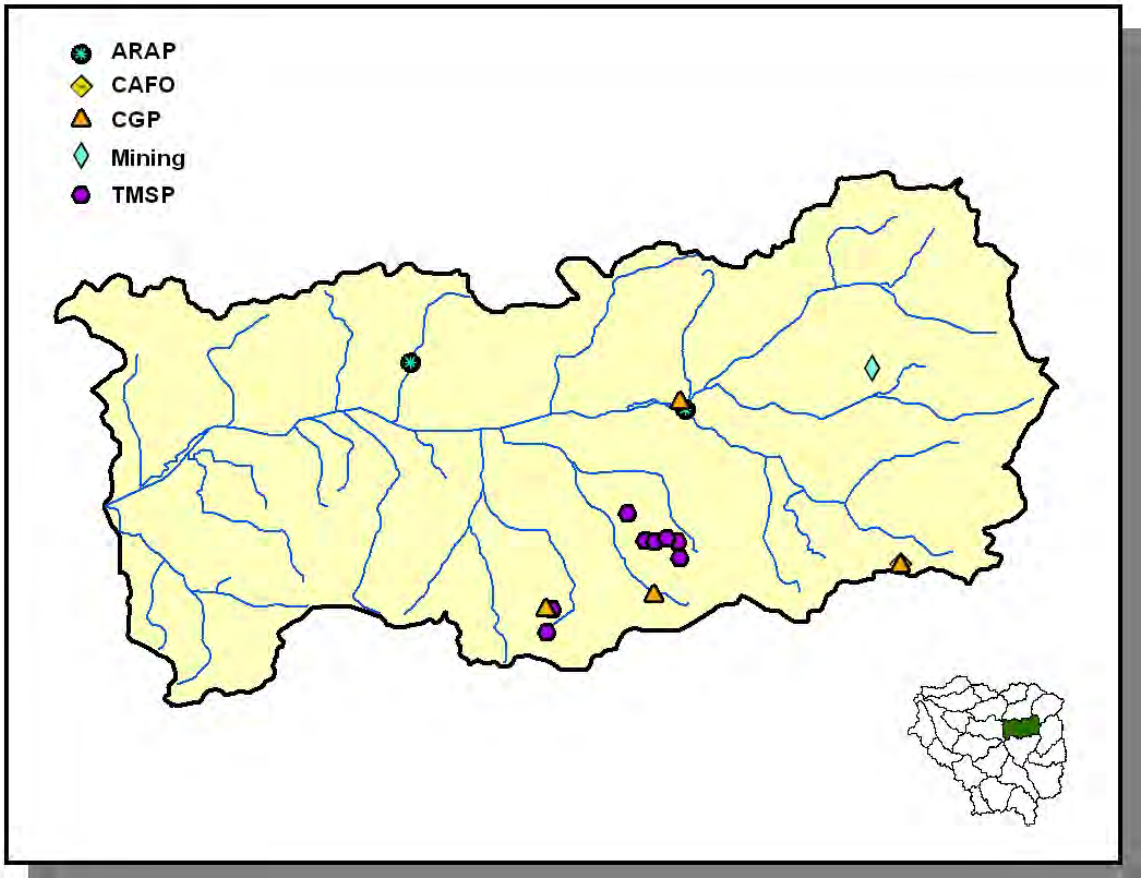


Figure 4-141. Location of Permits Issued in Subwatershed 080102030401. *More information, including the names of facilities, is provided in Appendix IV.*

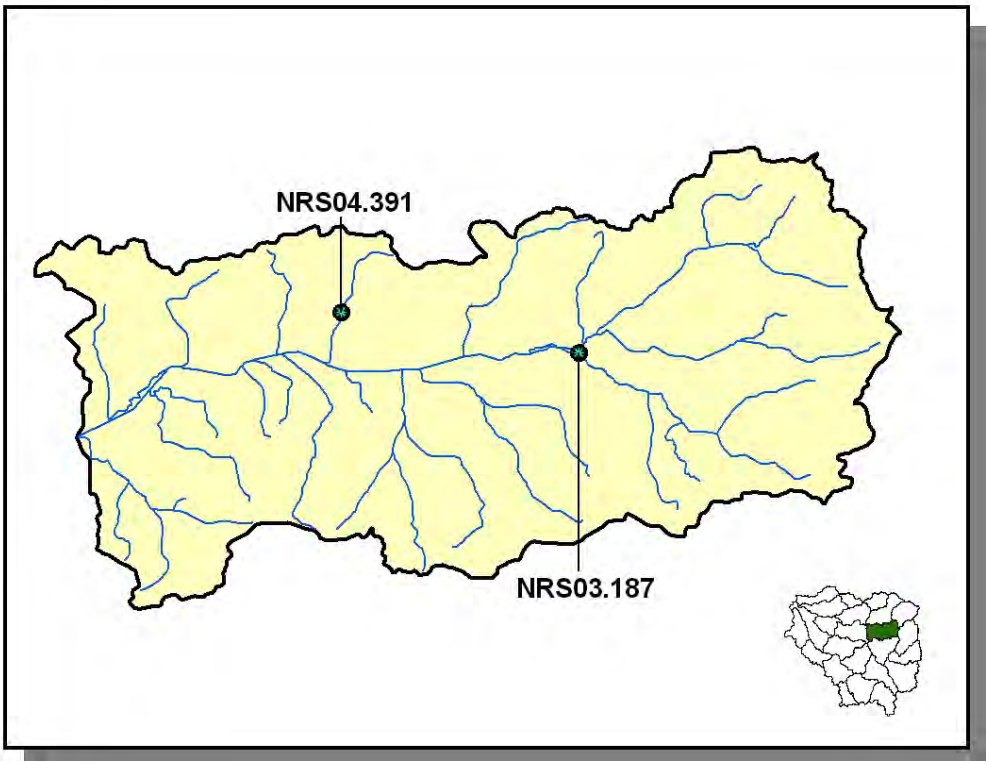


Figure 4-142. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030401. *More information is provided in Appendix IV.*

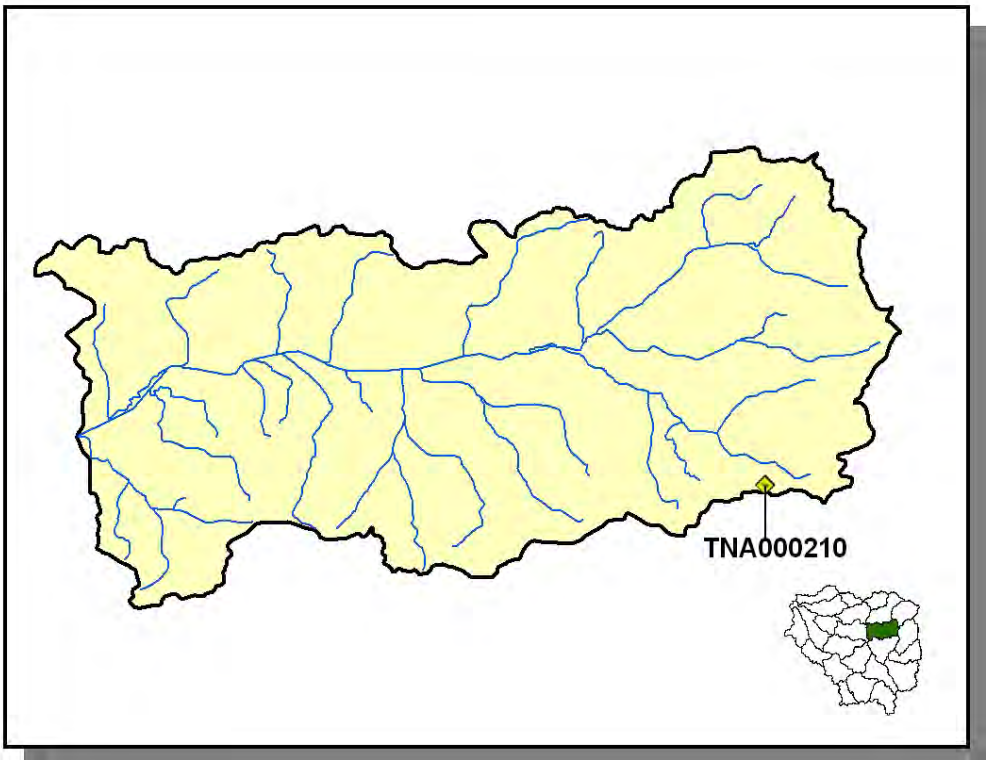


Figure 4-143. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102030401. *More information, including the names of facilities, is provided in Appendix IV.*

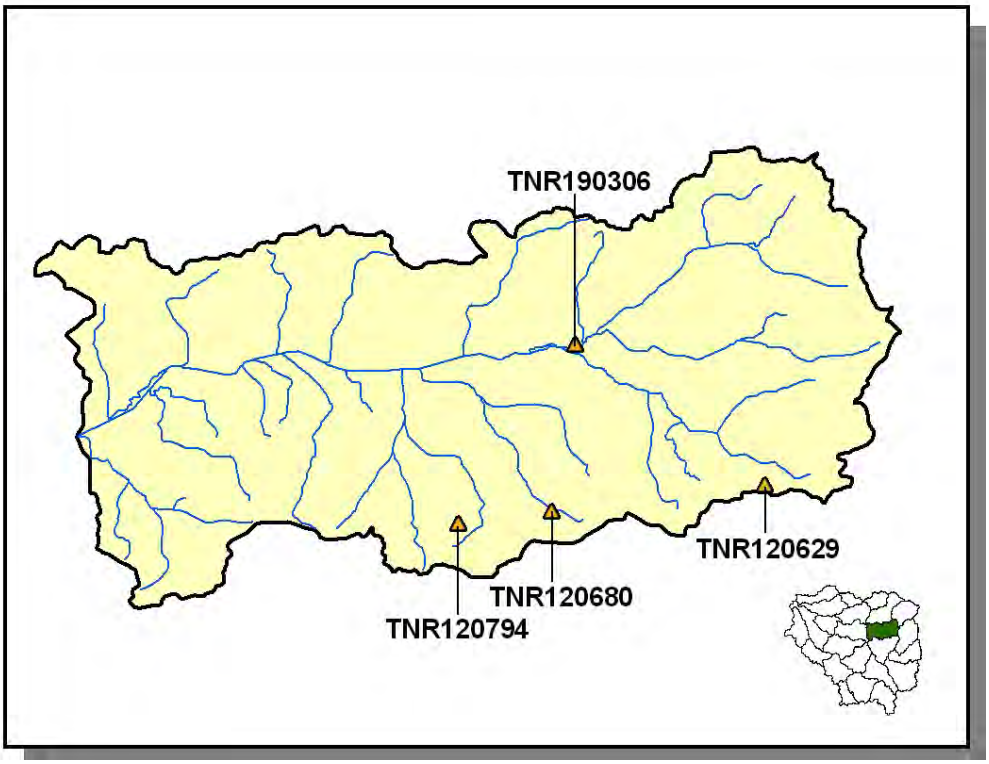


Figure 4-144. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030401. *More information is provided in Appendix IV.*

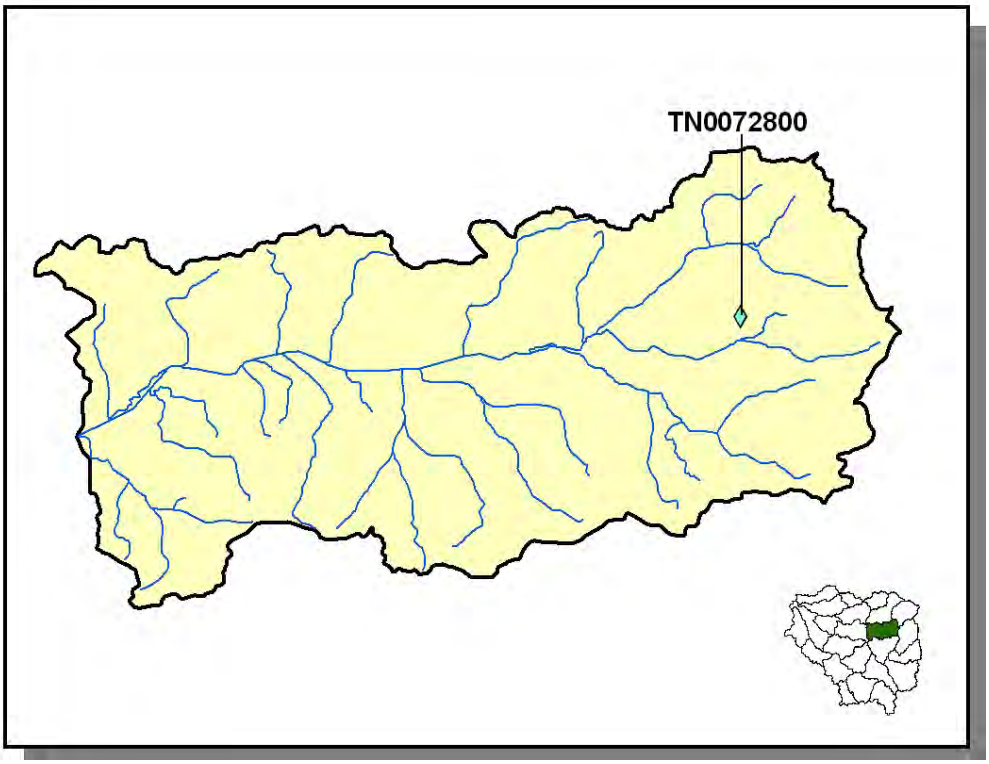


Figure 4-145. Location of Permitted Mining Facilities in Subwatershed 080102030401. *More information is provided in Appendix IV.*

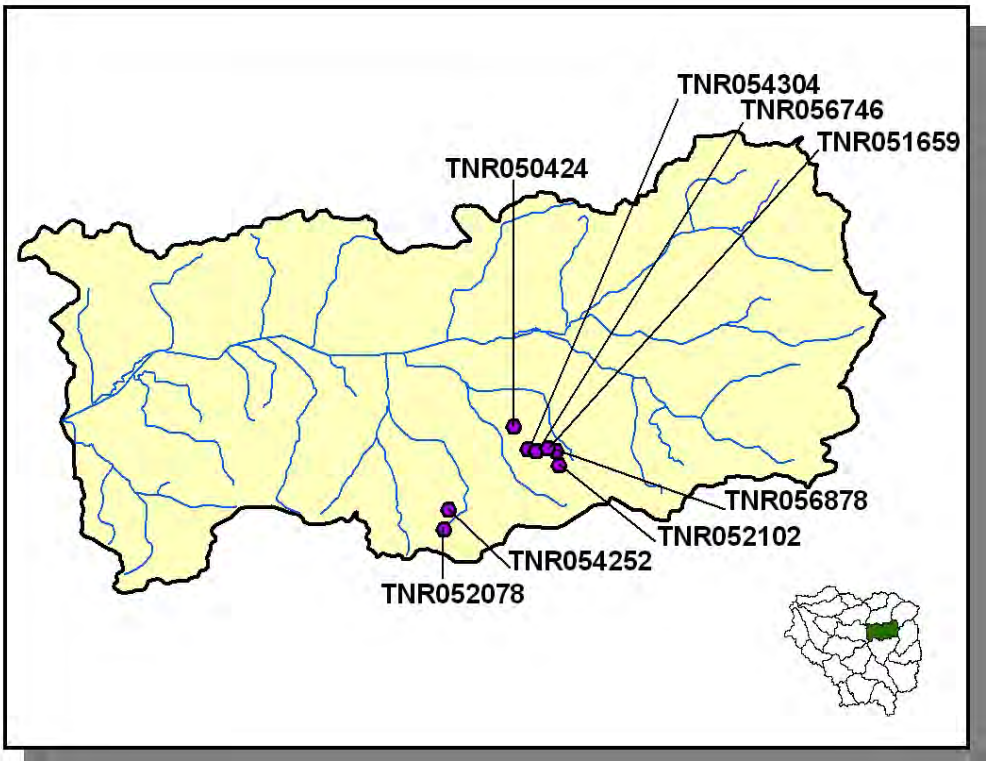


Figure 4-146. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030401. *More information is provided in Appendix IV.*

4.2.N.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	
Henry	8,920	20,299	1,793	29	36,205	89
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)
Carroll	169.1	169.1	0.6	2.0
Henry	176.1	176.1	1.9	7.1
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
Other (Horticultural)	16.41
Wheat (Close Grown Cropland)	9.00
Cotton (Row Crops)	7.58
Corn (Row Crops)	7.51
Soybeans (Row Crops)	7.31
Other Cropland not Planted	4.09
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	0.82
Other Land in Farms	0.59
Conservation Reserve Program Land	0.55
Legume (Hayland)	0.43
Farmsteads and Ranch Headquarters	0.35
Grass (Hayland)	0.24
Grass (Pastureland)	0.20
Legume Grass (Hayland)	0.16

Table 4-97. Annual Estimated Total Soil Loss in Subwatershed 080102030401.

4.2.O. 080102030402 (Spring Creek Lower).

4.2.O.i. General Description.

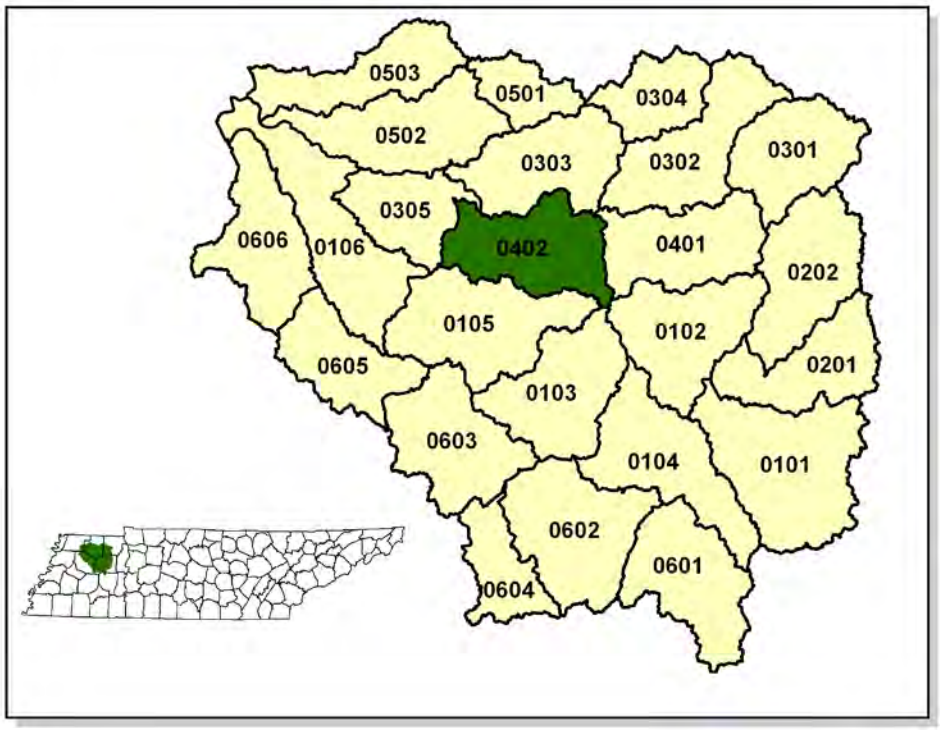


Figure 4-147. Location of Subwatershed 080102030402. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

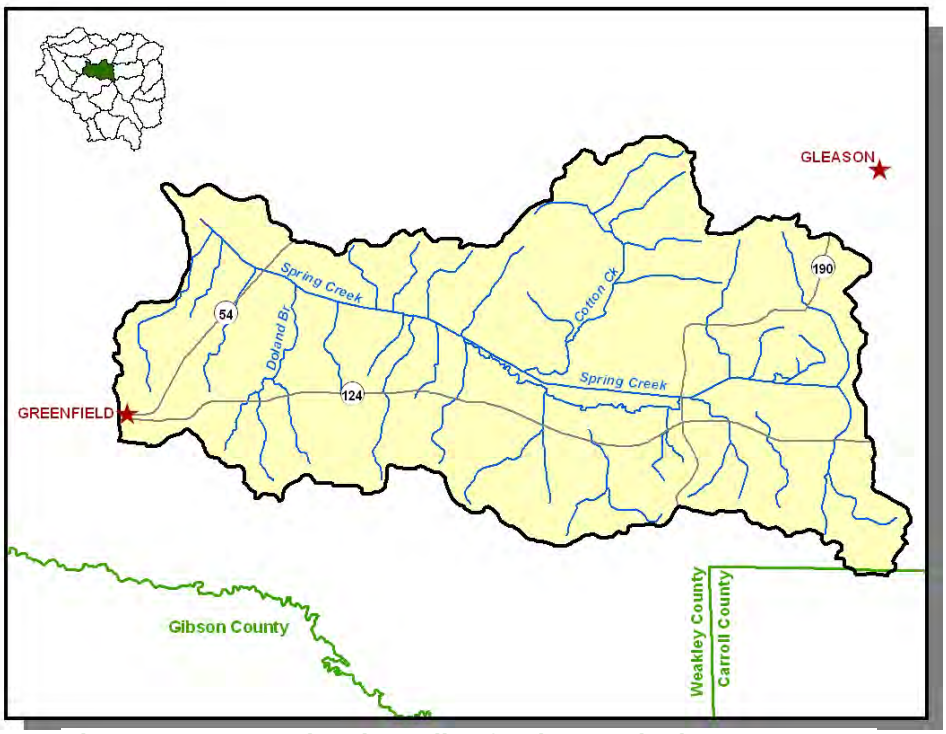


Figure 4-148. Locational Details of Subwatershed 080102030402.

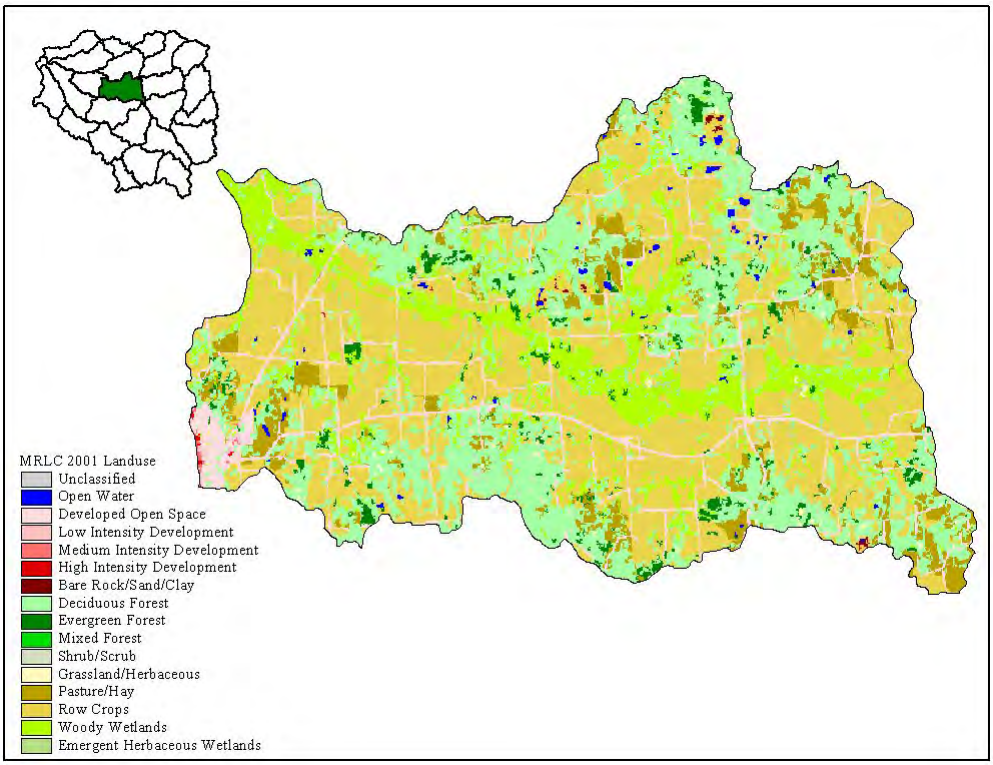


Figure 4-149. Illustration of Land Use Distribution in Subwatershed 080102030402.

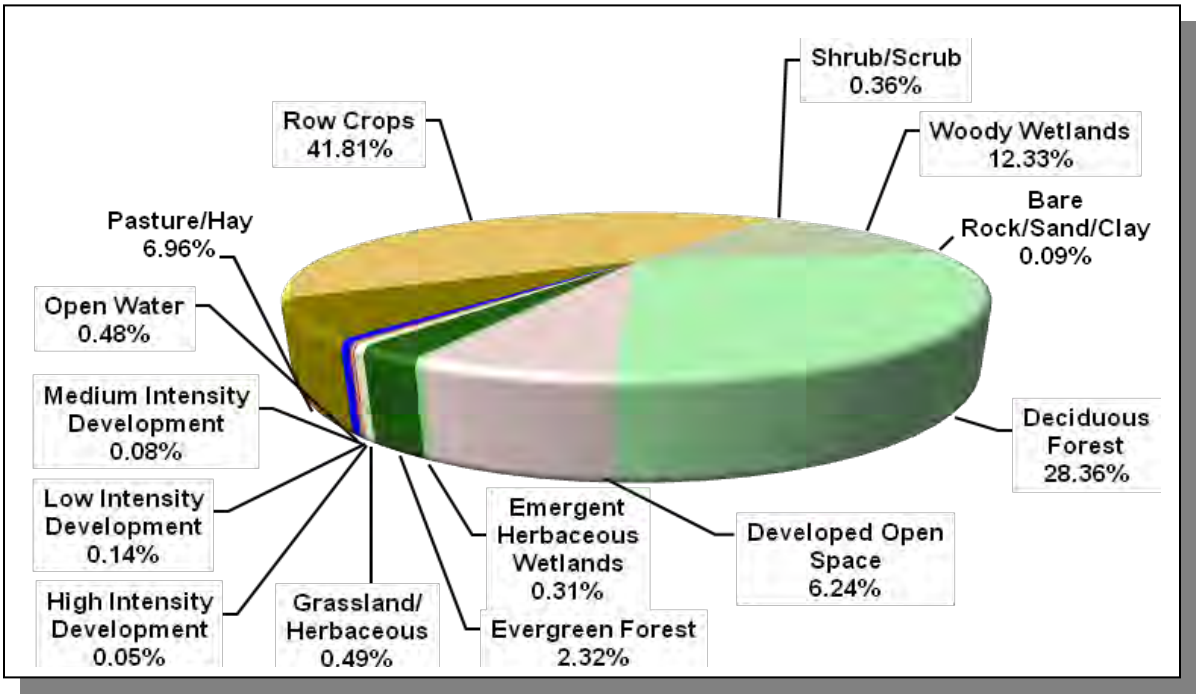


Figure 4-150. Land Use Distribution in Subwatershed 080102030402. *More information is provided in Appendix IV.*

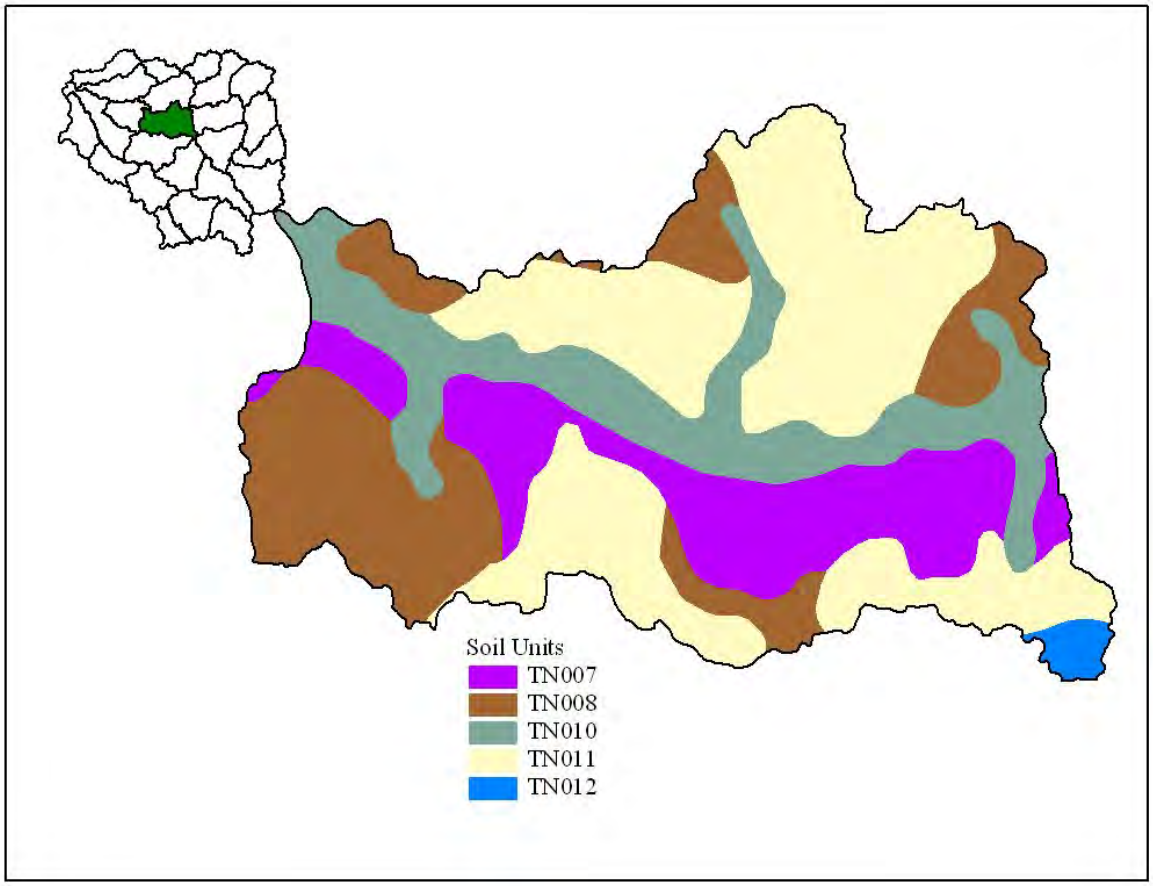


Figure 4-151. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030402.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39

Table 4-98. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030402. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Weakley	31,972	32,808	34,895	8.63	2,761	2,833	3,013	9.10

Table 4-99. Population Estimates in Subwatershed 080102030402.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Greenfield	Weakley	2,105	949	900	46	3

Table 4-100. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030402.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030402.

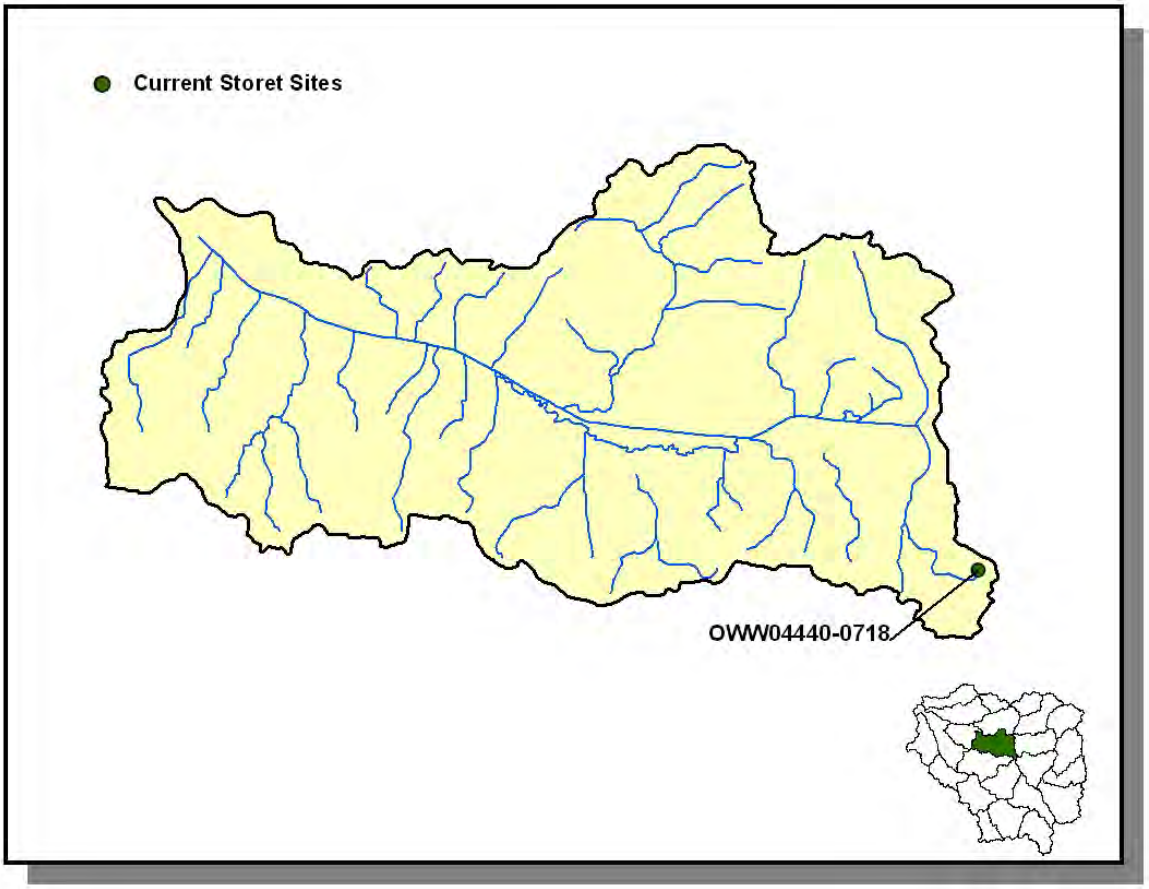


Figure 4-152. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030402. *More information, including site names and locations, is provided in Appendix IV.*

4.2.O.iii. Permitted Activities.

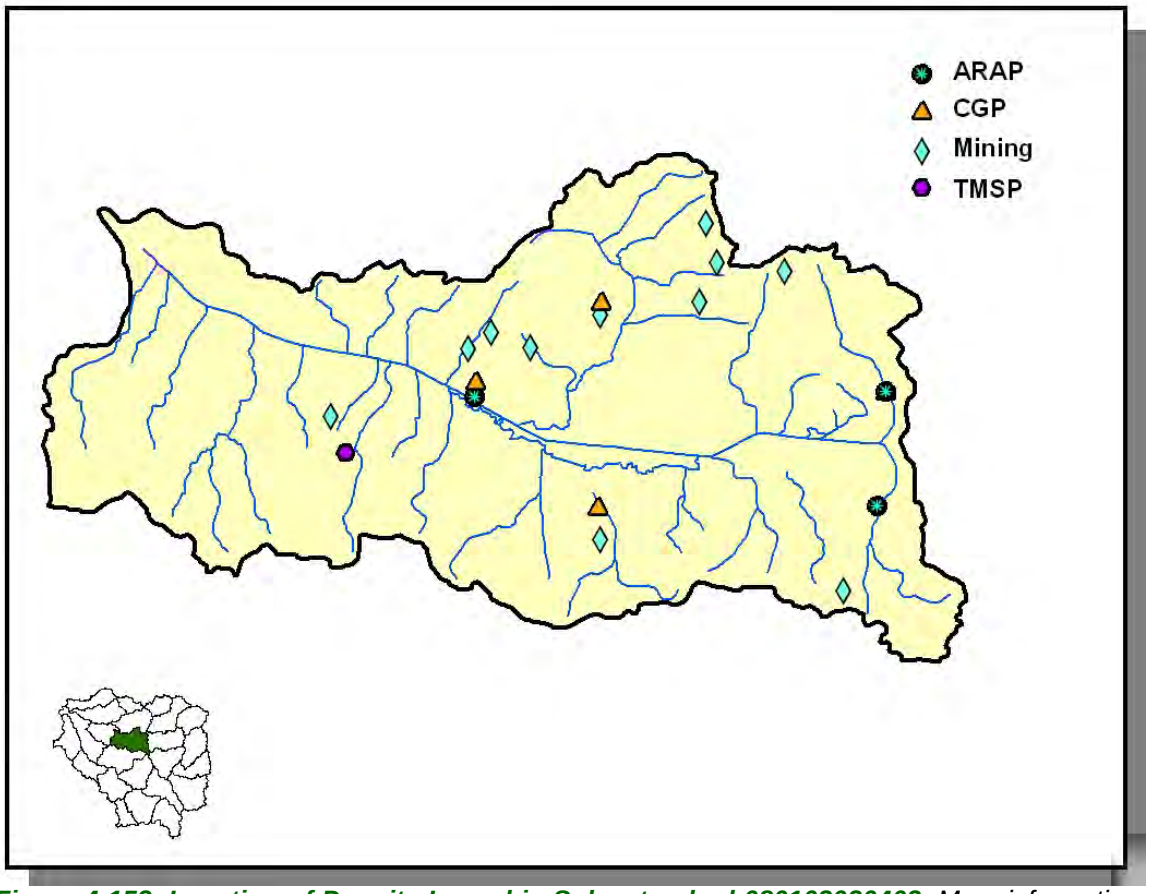


Figure 4-153. Location of Permits Issued in Subwatershed 080102030402. *More information, including the names of facilities, is provided in Appendix IV.*

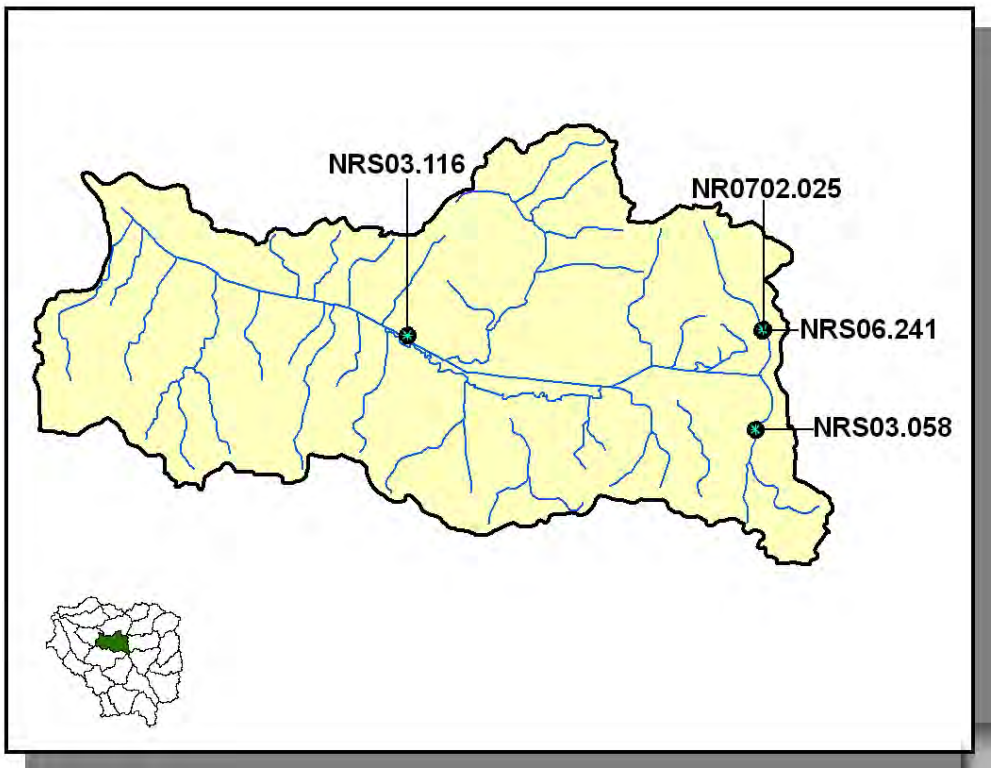


Figure 4-154. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030402. *More information is provided in Appendix IV.*

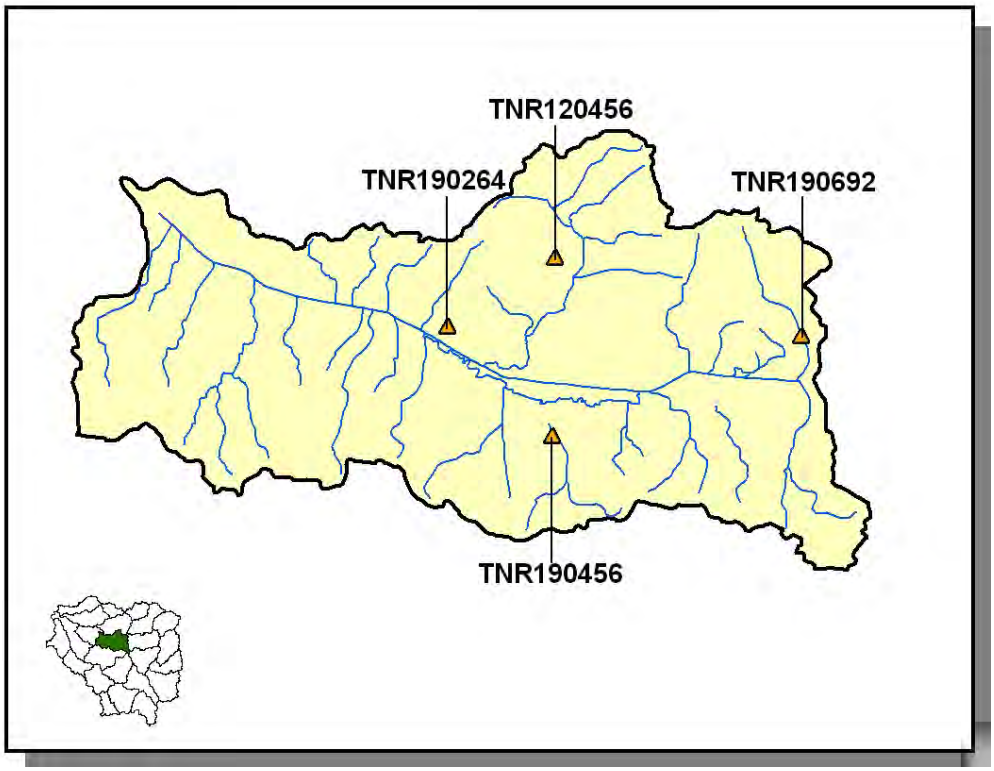


Figure 4-155. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030402. *More information is provided in Appendix IV.*

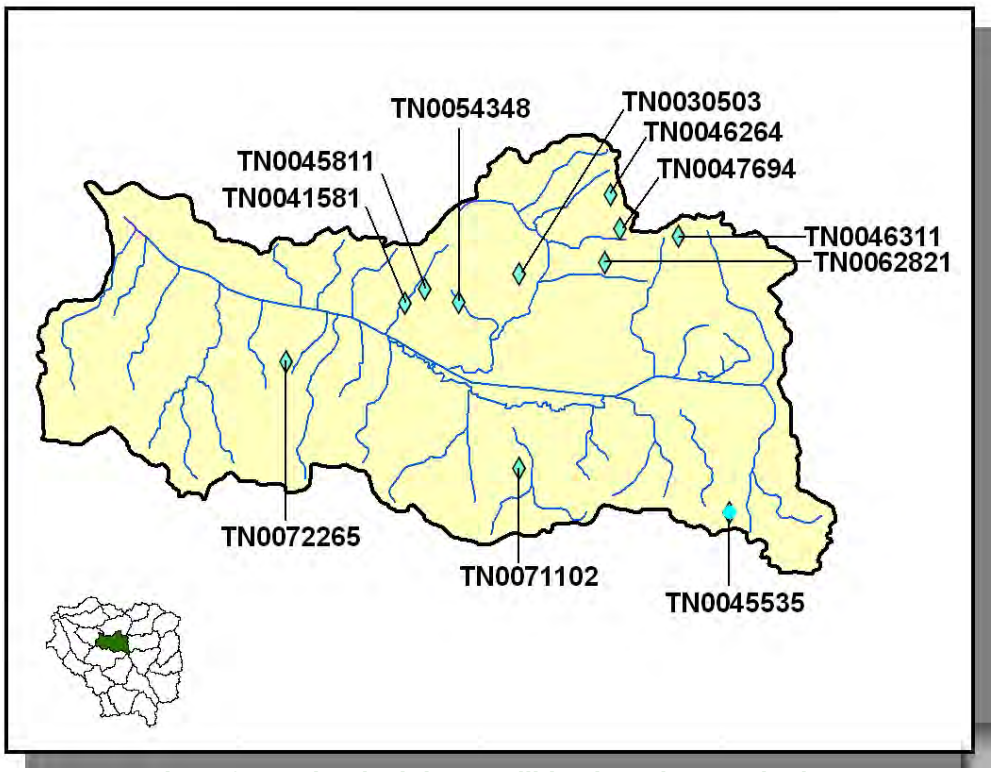


Figure 4-156. Location of Permitted Mining Facilities in Subwatershed 080102030402. *More information is provided in Appendix IV.*

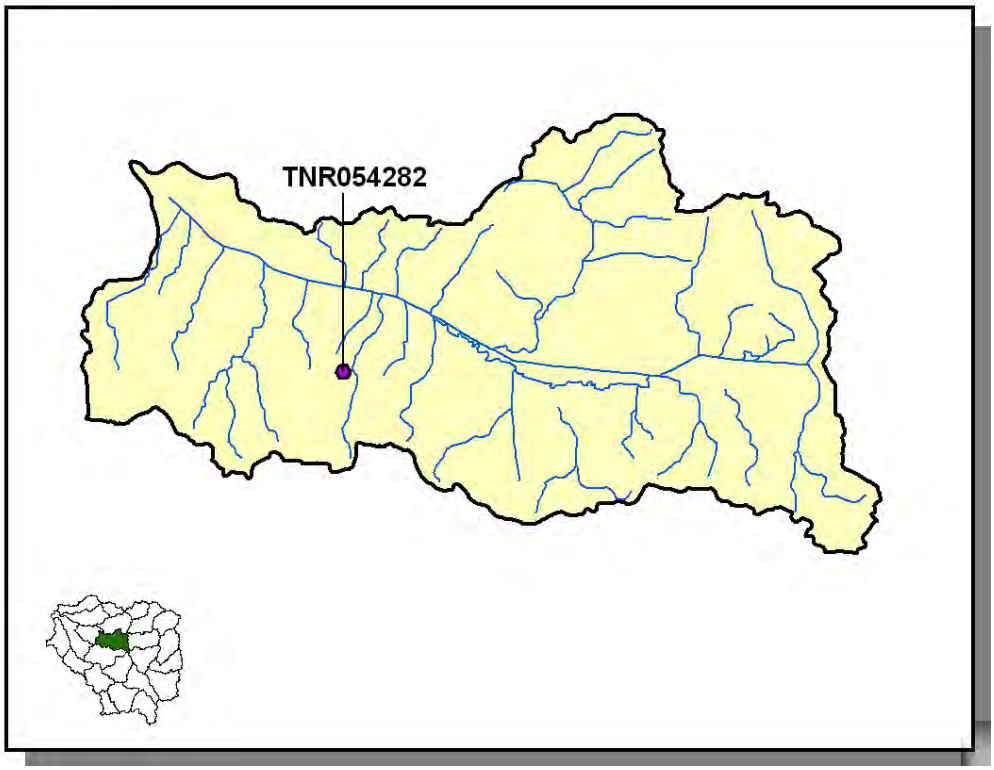


Figure 4-157. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030402. *More information is provided in Appendix IV.*

4.2.O.iv. Nonpoint Source Contributions.

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

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)
Weakley	96.1	95.9	6.7	24.6

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

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	10.03
Soybeans (Row Crops)	7.64
Cotton (Row Crops)	7.58
Corn (Row Crops)	7.56
Other Cropland not Planted	4.51
Legume (Pastureland)	1.47
Grass Forbs Legumes Mixed (Pastureland)	1.11
Other Land in Farms	0.59
Legume (Hayland)	0.49
Legume Grass (Hayland)	0.46
Farmsteads and Ranch Headquarters	0.44
Conservation Reserve Program Land	0.43
Grass (Hayland)	0.23
Grass (Pastureland)	0.13

Table 4-103. Annual Estimated Total Soil Loss in Subwatershed 080102030402.

4.2.P. 080102030501 (Mud Creek, Upper).

4.2.P.i. General Description.

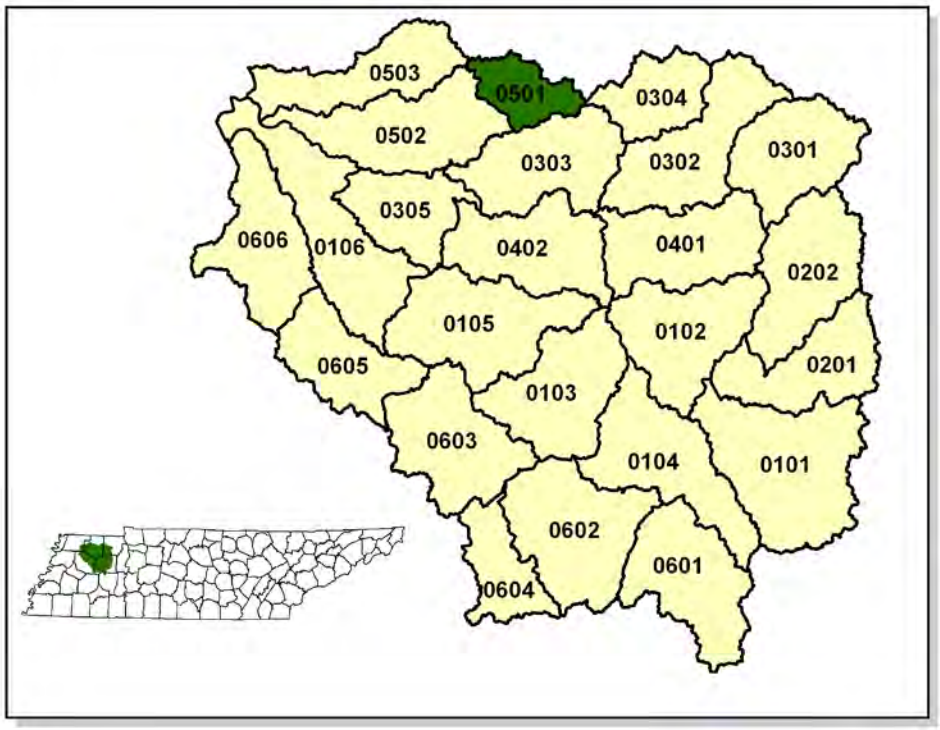


Figure 4-158. Location of Subwatershed 080102030501. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

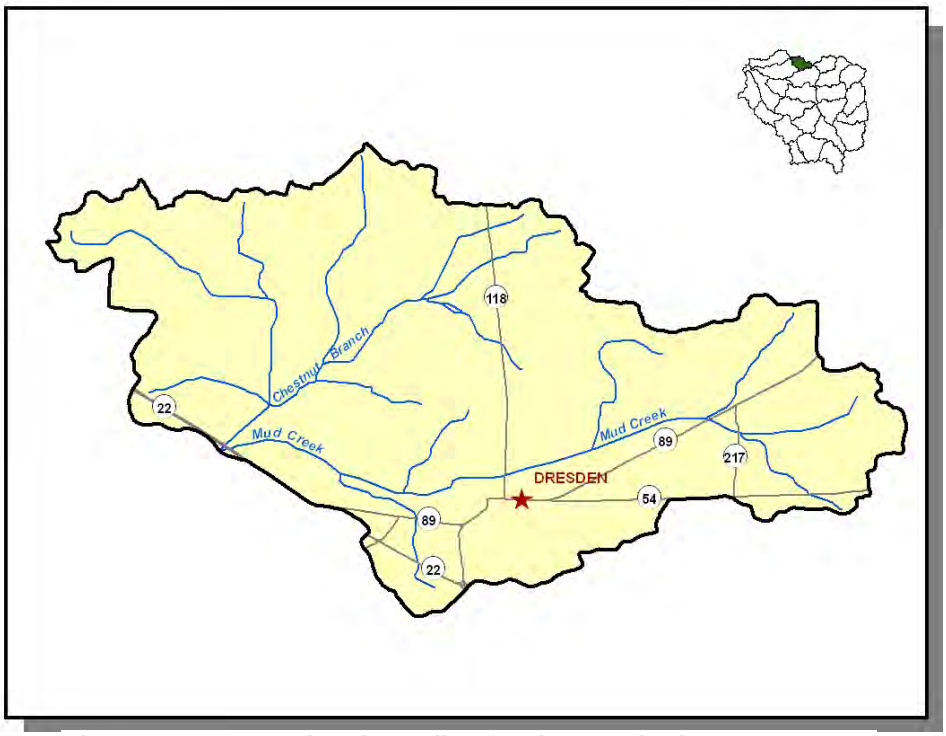


Figure 4-159. Locational Details of Subwatershed 080102030501.

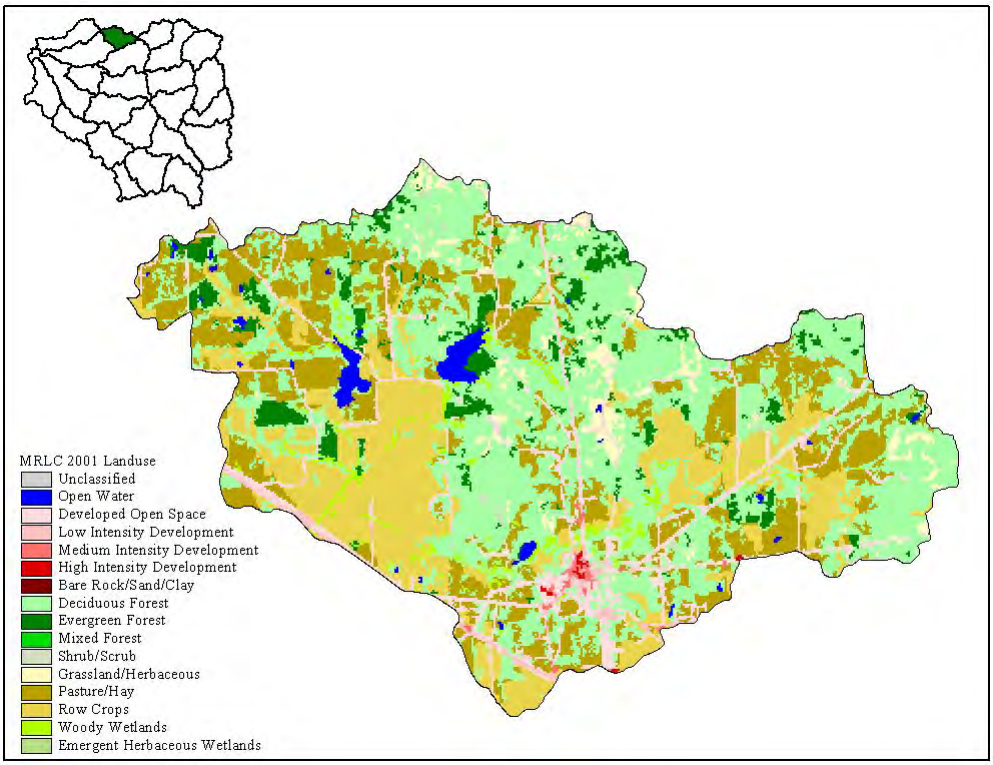


Figure 4-160. Illustration of Land Use Distribution in Subwatershed 080102030501.

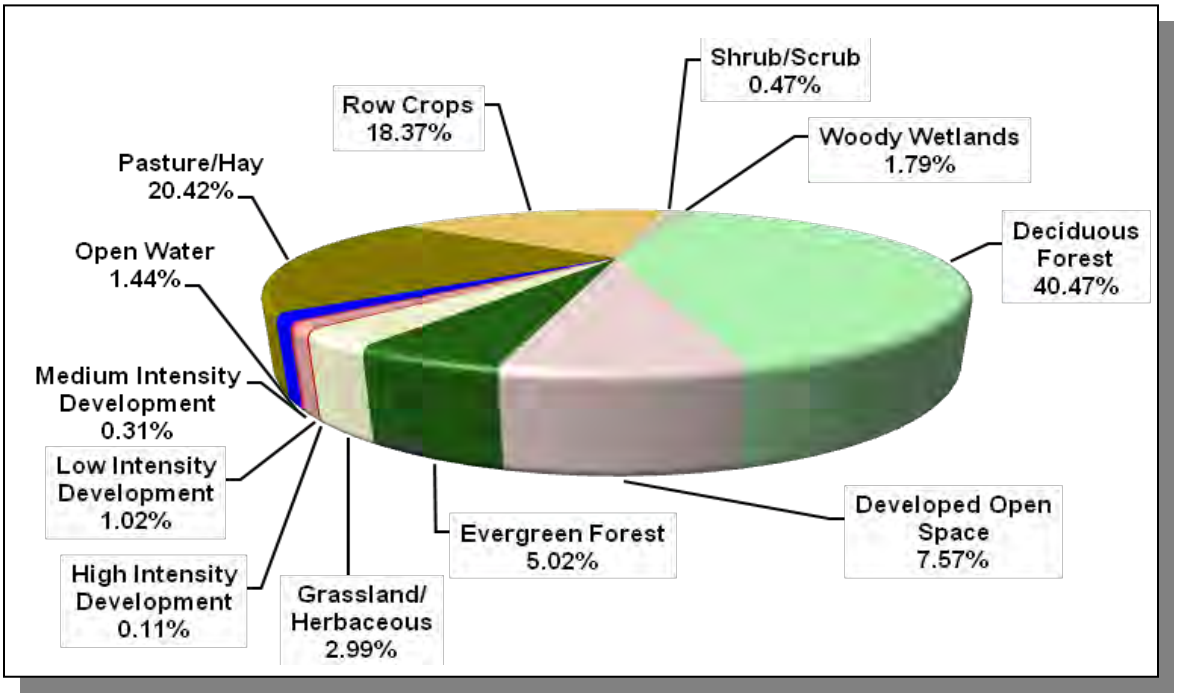


Figure 4-161. Land Use Distribution in Subwatershed 080102030501. *More information is provided in Appendix IV.*

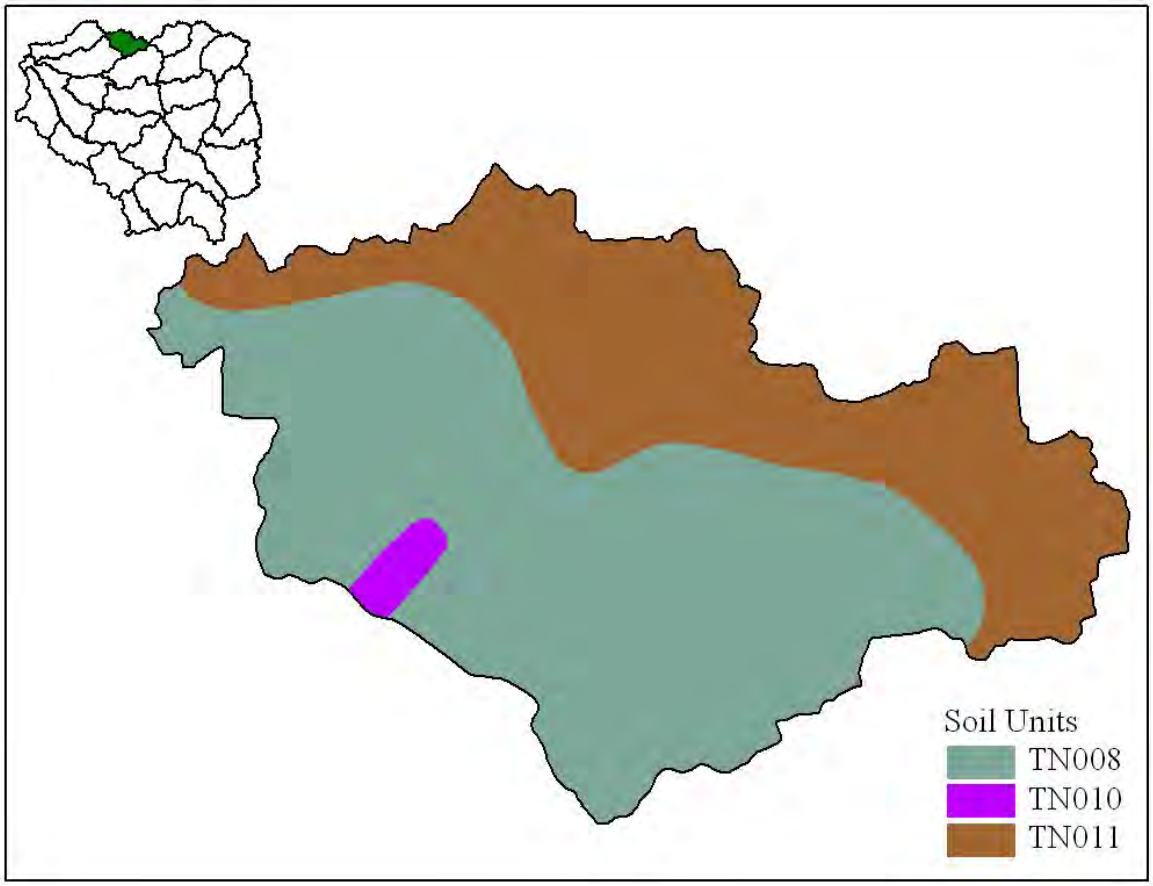


Figure 4-162. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030501.

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 4-104. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030501. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Weakley	31,972	32,808	34,895	3.57	1,141	1,171	1,245	9.10

Table 4-105. Population Estimates in Subwatershed 080102030501.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Dresden	Weakley	2,488	1,102	1,001	99	2

Table 4-106. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030501.

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

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102030501.

4.2.P.iii. Permitted Activities.

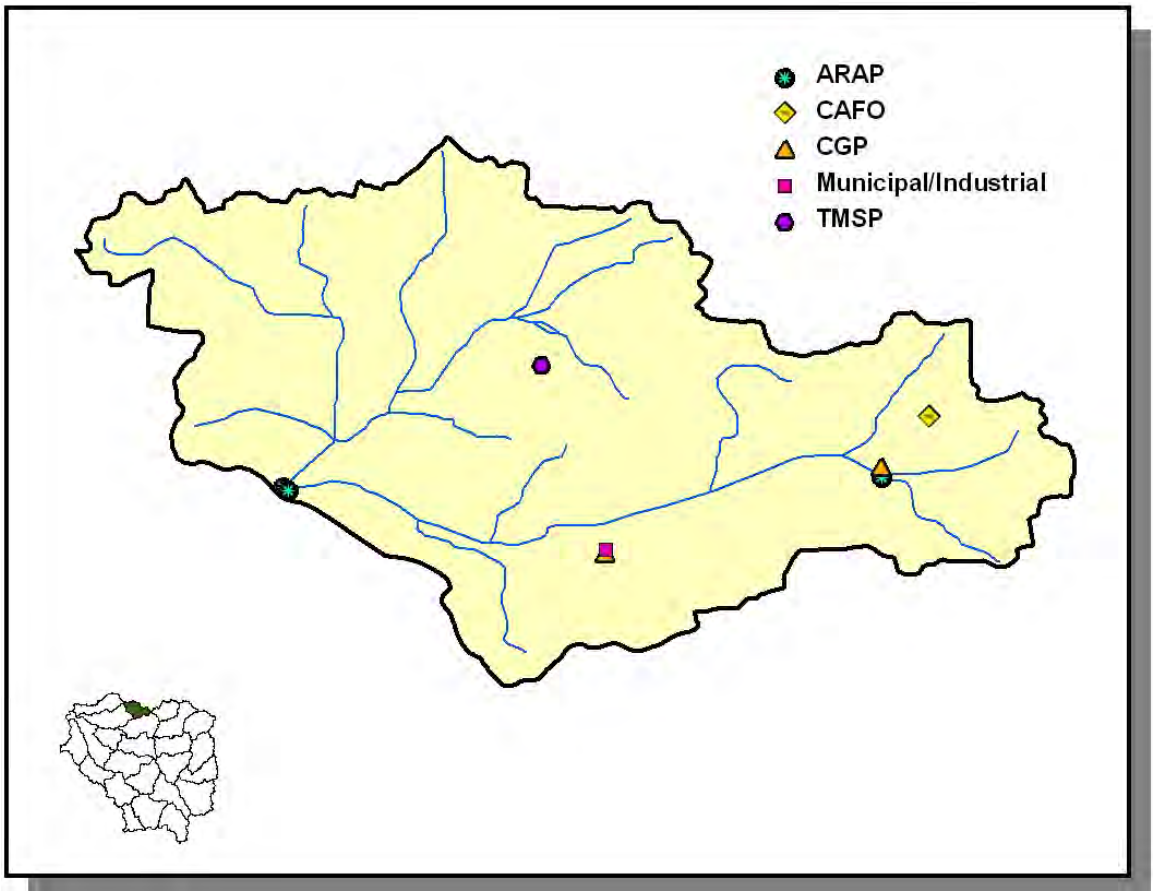


Figure 4-163. Location of Permits Issued in Subwatershed 080102030501. *More information, including the names of facilities, is provided in Appendix IV.*

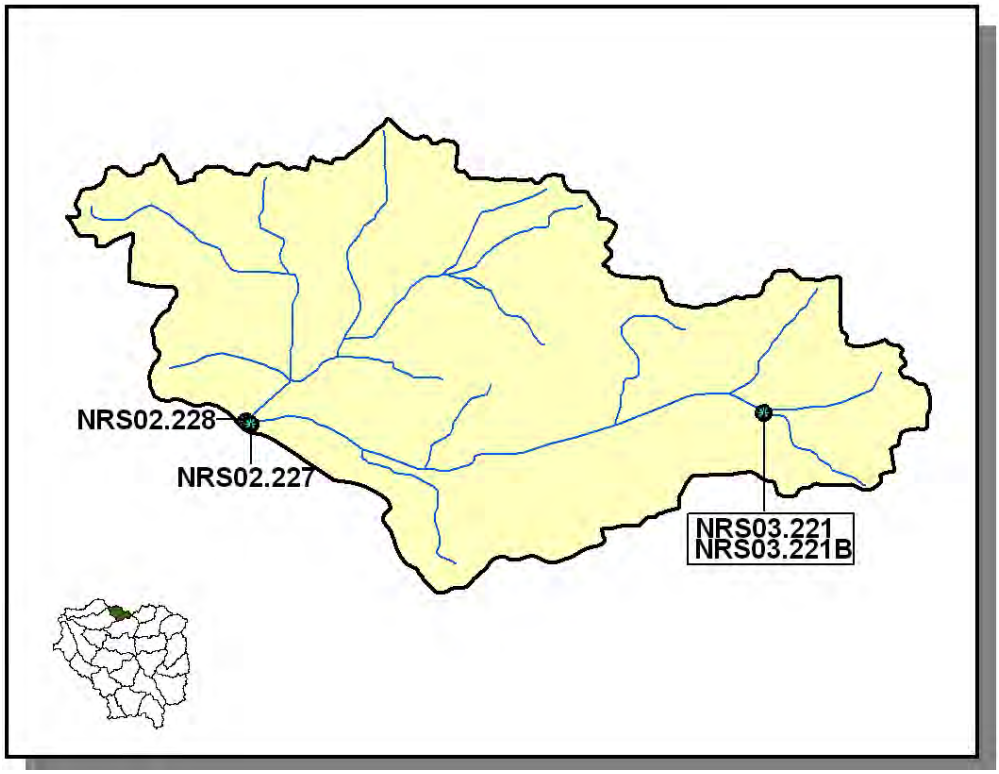


Figure 4-164. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030501. *More information is provided in Appendix IV.*

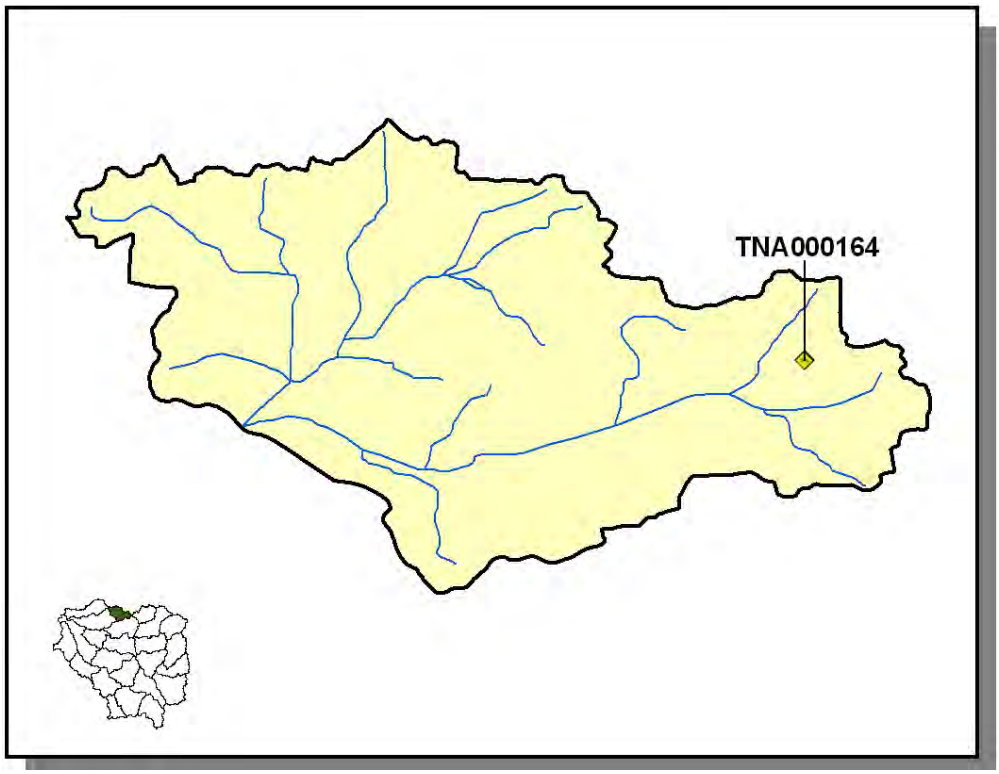


Figure 4-165. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102030501. *More information, including the names of facilities, is provided in Appendix IV.*

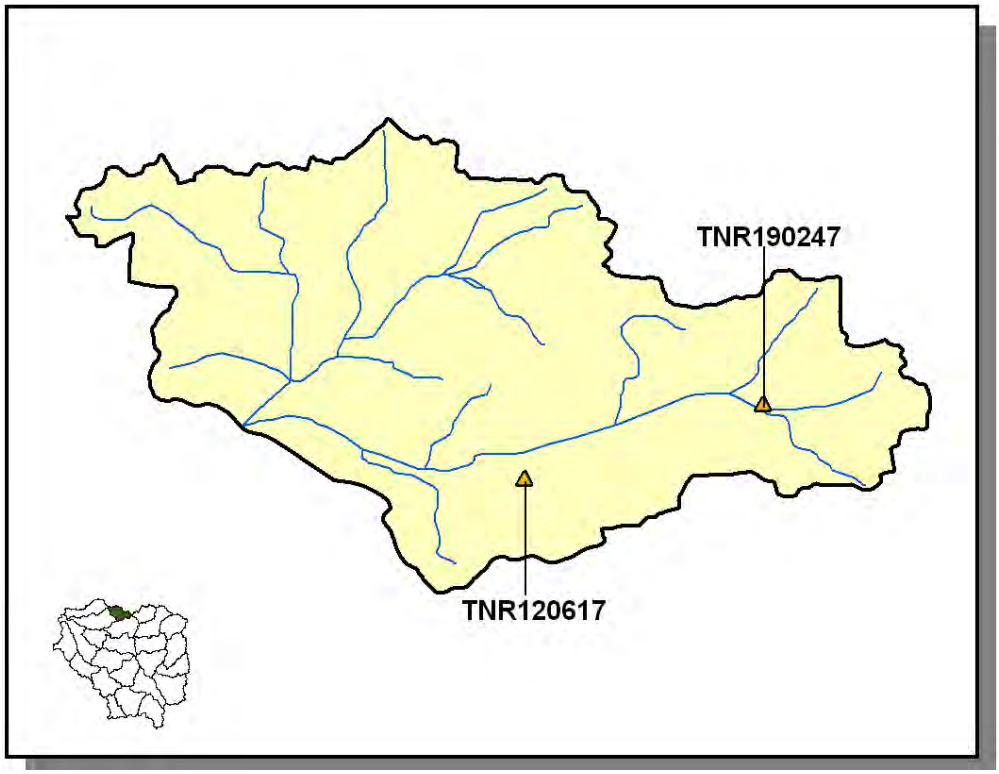


Figure 4-166. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030501. *More information is provided in Appendix IV.*

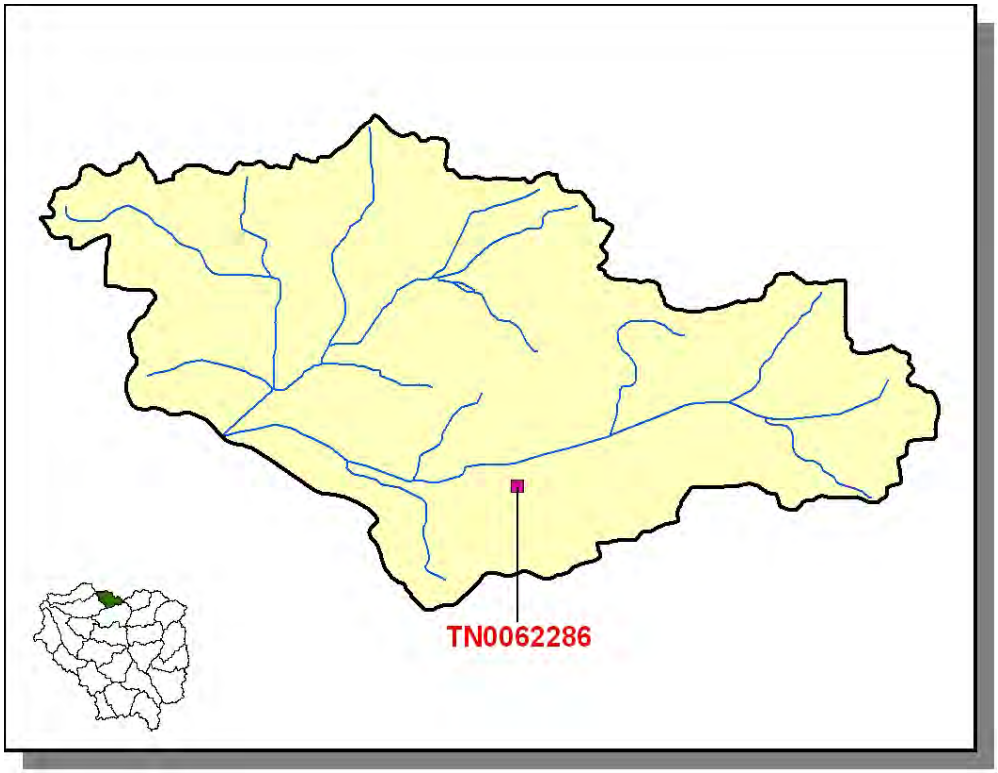


Figure 4-167. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030501. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0062286	30.8	0.589

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 080102030501. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	BOD_5	BOD % REMOVAL	AMMONIA AS N (TOTAL)	TKN	PHOSPHORUS TOTAL	NITRITE + NITRATE TOTAL	E. *coli*
TN0062286	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 080102030501. *BOD_5, Biochemical Oxygen Demand (5-day); TKN, Total Kjeldahl Nitrogen.*

PERMIT #	DO	TRC	FLOW	pH	TSS	SS
TN0062286	X	X	X	X	X	X

Table 4-109. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030501. *DO, Dissolved Oxygen; TRC, Total Residual Chlorine; TSS, Total Suspended Solids; SS, Settleable Solids.*

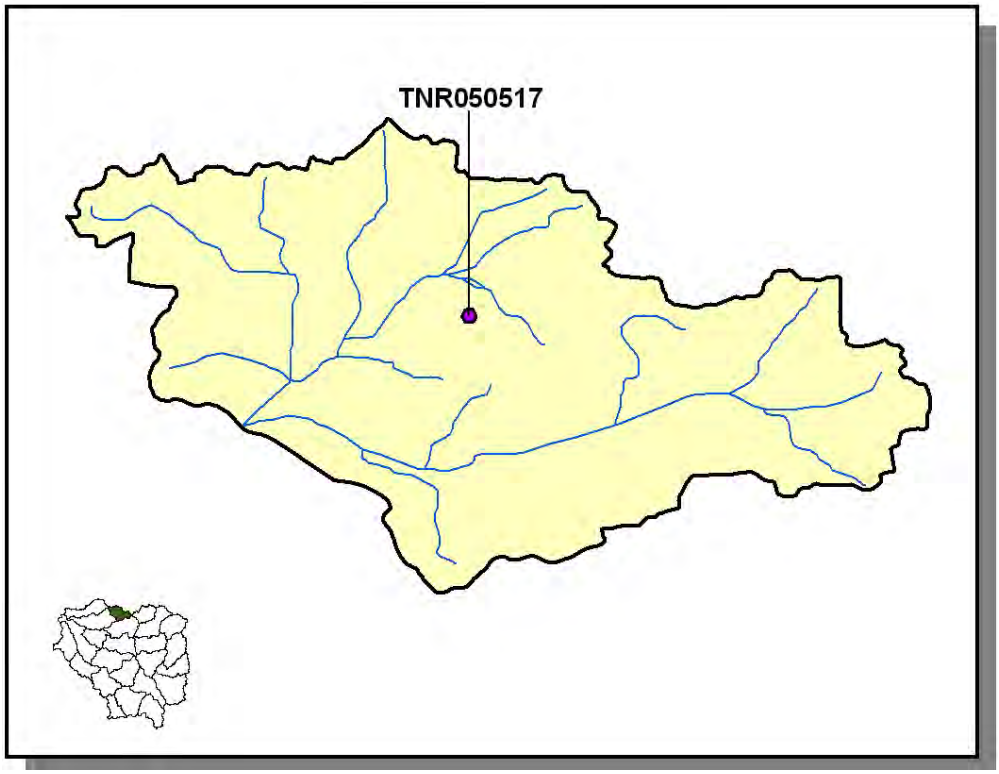


Figure 4-168. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030501. *More information is provided in Appendix IV.*

4.2.P.iv. Nonpoint Source Contributions.

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

Table 4-110. 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 4-111. 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 4-112. Annual Estimated Total Soil Loss in Subwatershed 080102030501.

4.2.Q. 080102030502 (Mud Creek, Lower).

4.2.Q.i. General Description.

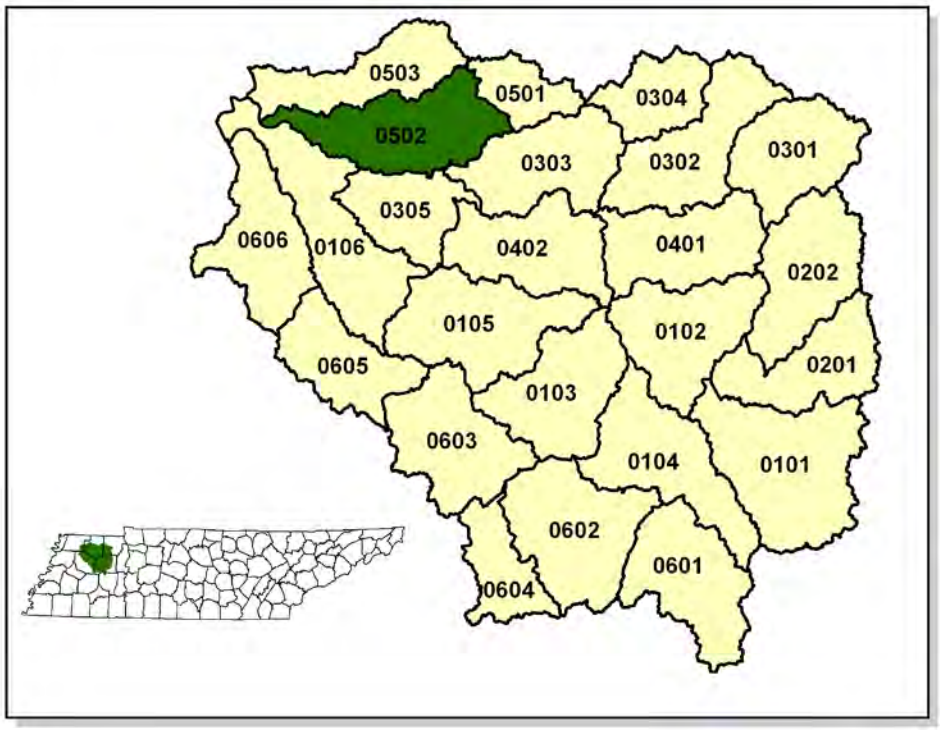


Figure 4-169. Location of Subwatershed 080102030502. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

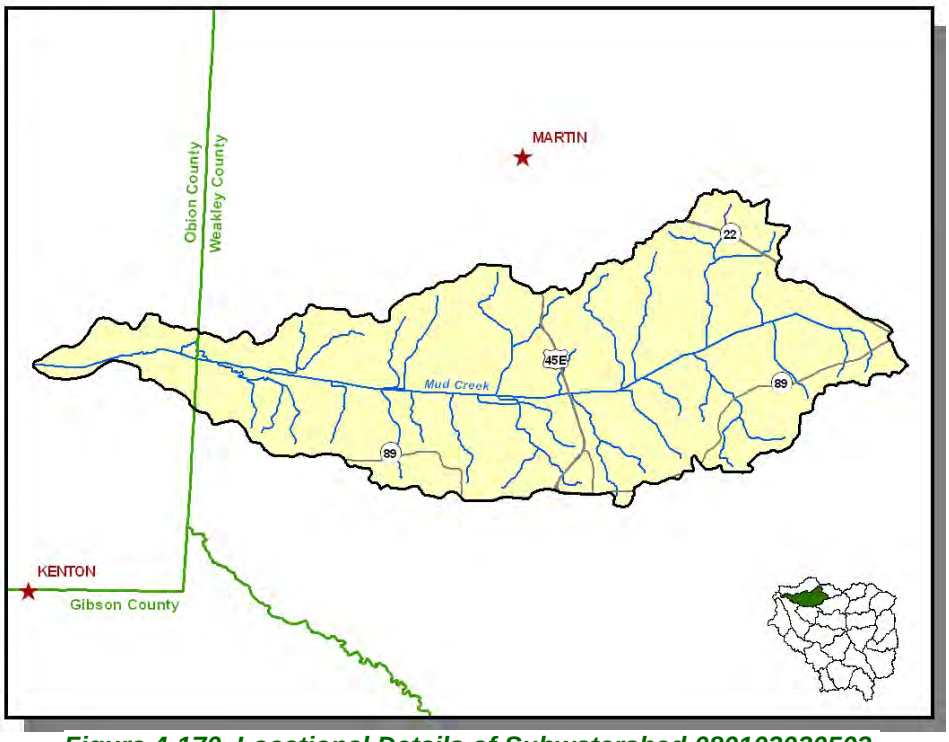


Figure 4-170. Locational Details of Subwatershed 080102030502.

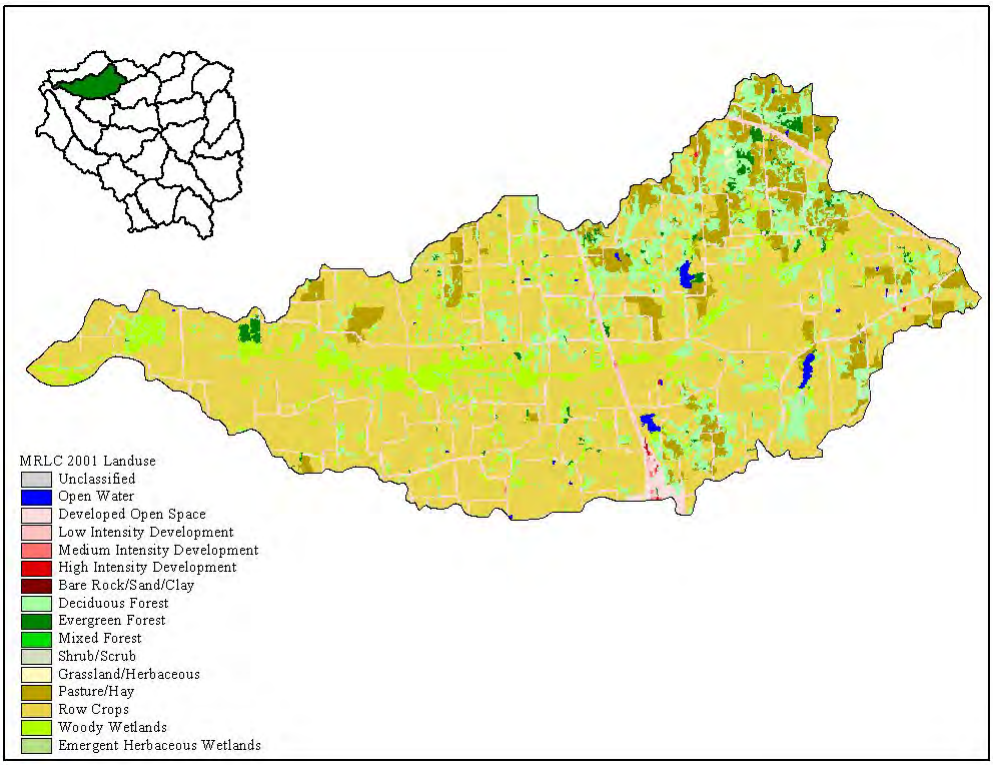


Figure 4-171. Illustration of Land Use Distribution in Subwatershed 080102030502.

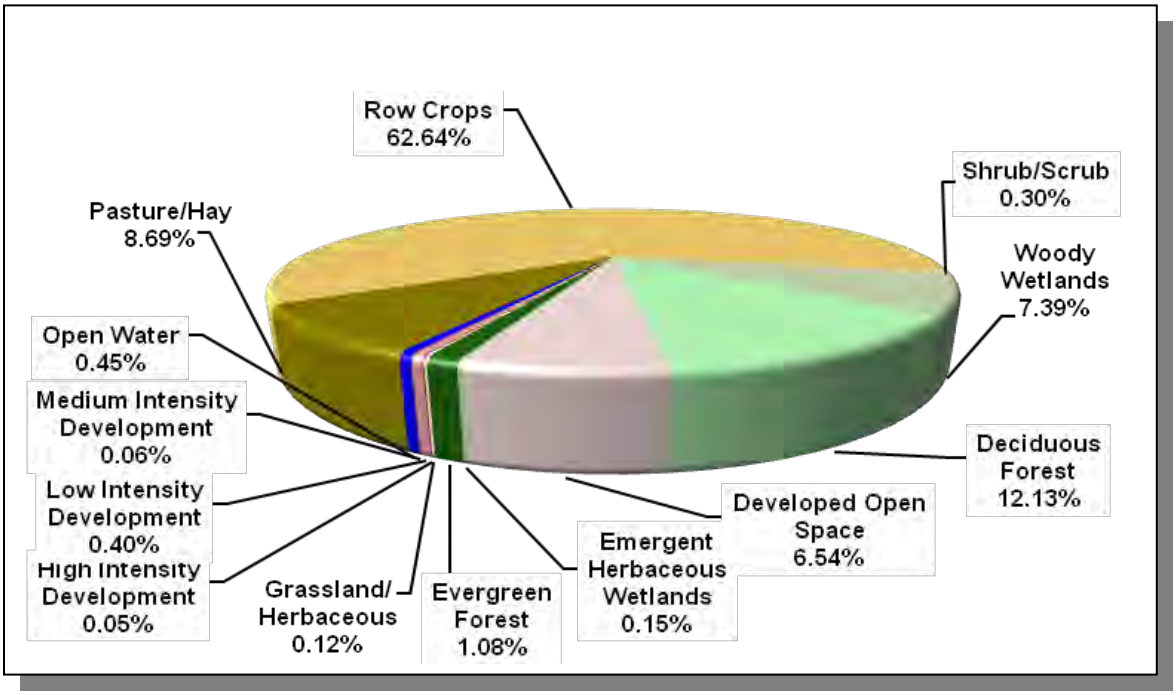


Figure 4-172. Land Use Distribution in Subwatershed 080102030502. *More information is provided in Appendix IV.*

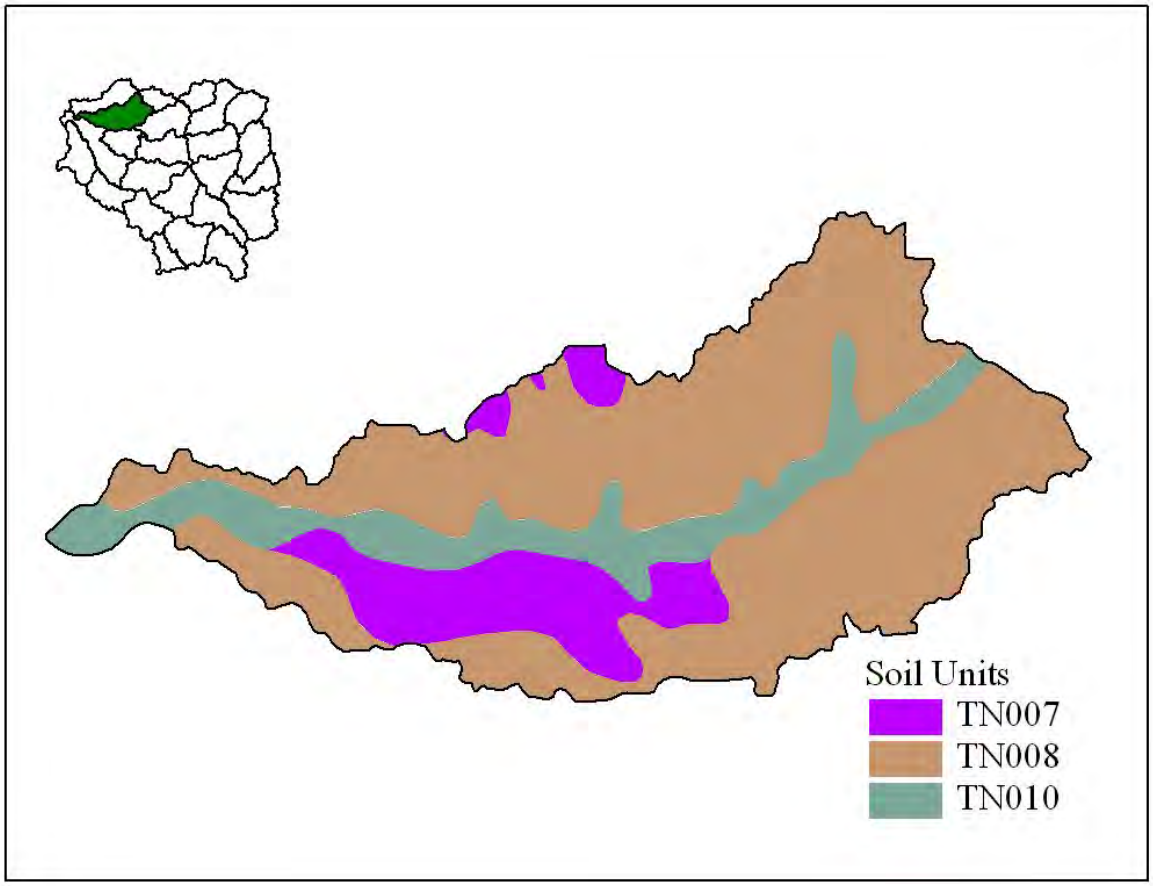


Figure 4-173. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030502.

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

Table 4-113. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030502. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32,450	0.58	185	187	190	2.70
Weakley	31,972	32,808	34,895	8.97	2,867	2,942	3,129	9.10
Total	**63,689**	**64,877**	**67,345**		**3,052**	**3,129**	**3,319**	**8.70**

Table 4-114. Population Estimates in Subwatershed 080102030502.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Dresden	Weakley	2488	1102	1001	99	2
Sharon	Weakley	1047	493	473	20	0

Table 4-115. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030502.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030502.

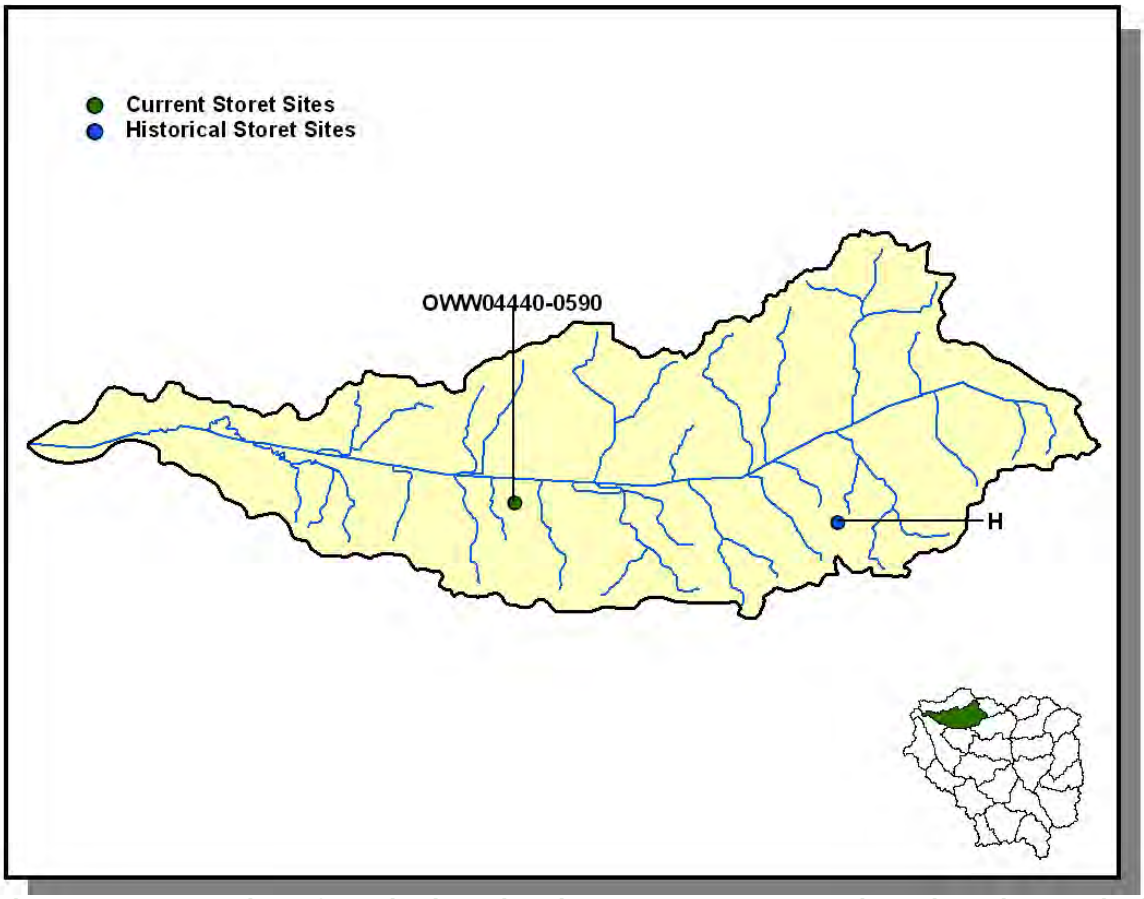


Figure 4-174. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030502. *More information, including site names and locations, is provided in Appendix IV.*

4.2.Q.iii. Permitted Activities.

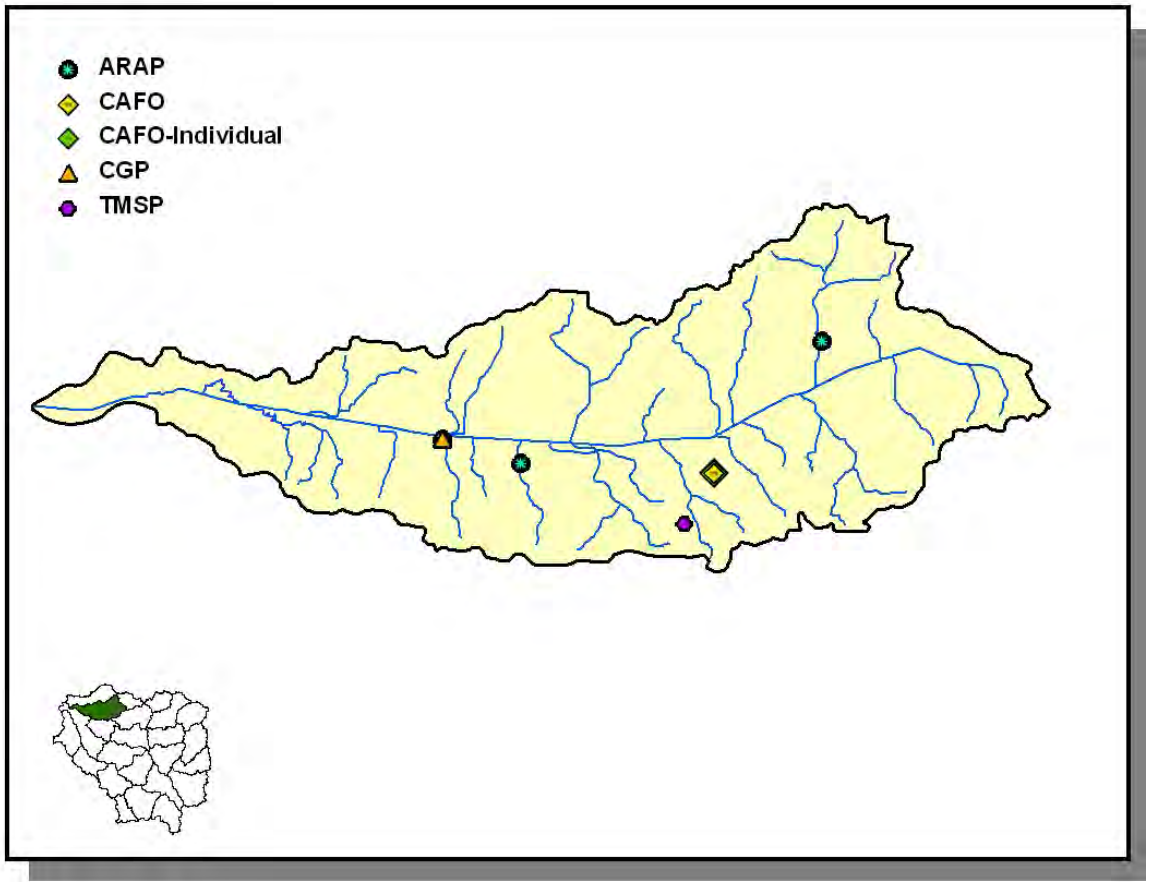


Figure 4-175. Location of Permits Issued in Subwatershed 080102030502. *More information, including the names of facilities, is provided in Appendix IV.*

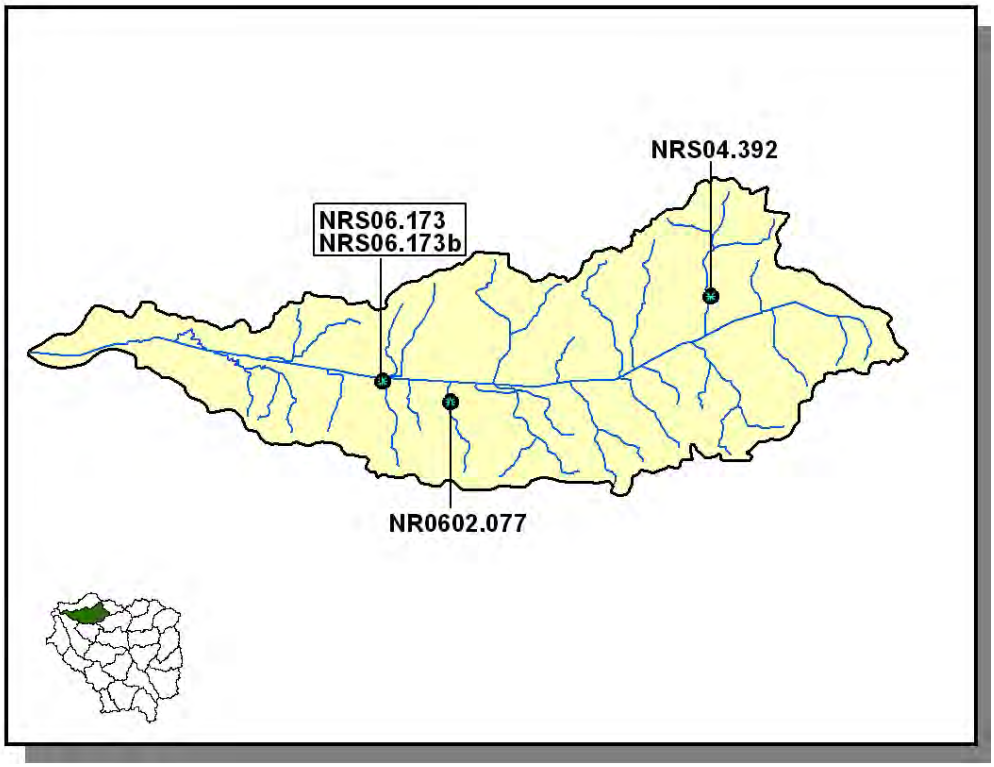


Figure 4-176. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030502. *More information is provided in Appendix IV.*

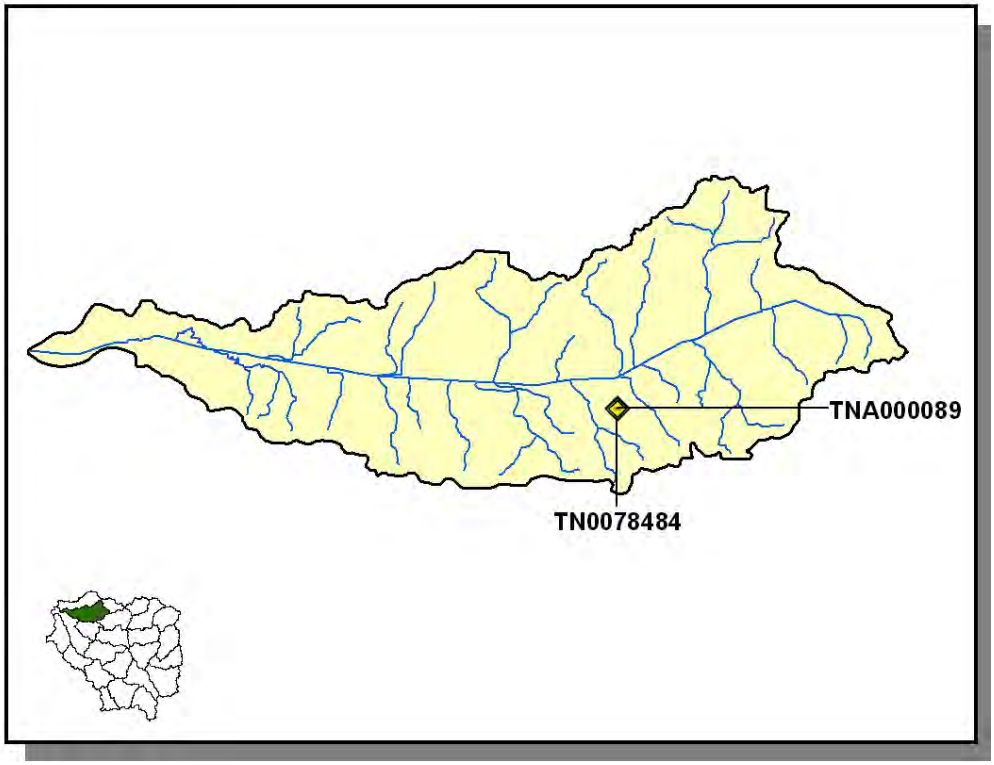


Figure 4-177. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102030502. *More information, including the names of facilities, is provided in Appendix IV.*

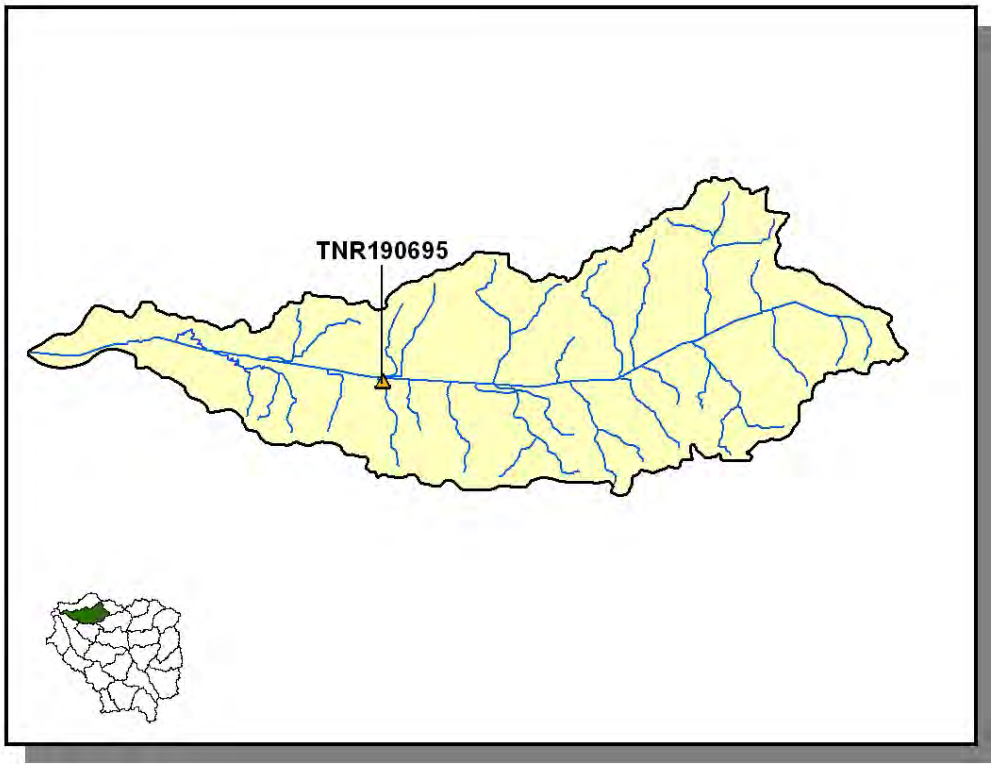


Figure 4-178. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030502. *More information is provided in Appendix IV.*

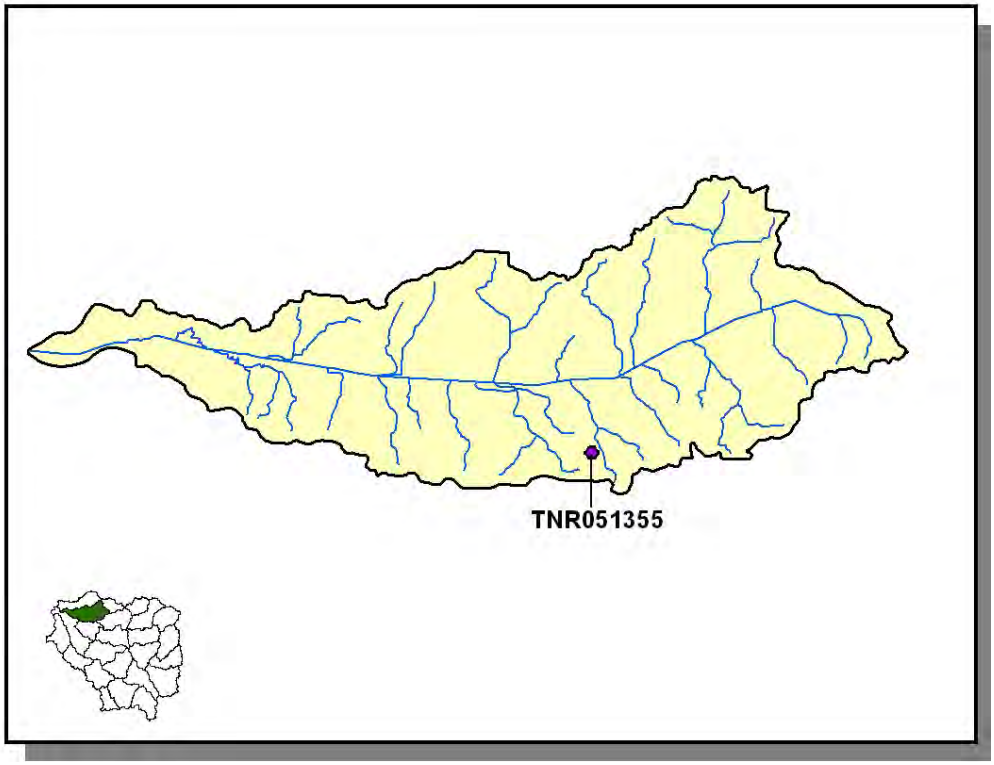


Figure 4-179. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030502. *More information is provided in Appendix IV.*

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
Weakley	8,004	17,326	1,342	280	44,572	161

Table 4-116. 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 4-117. Forest Acreage and Annual Removal Rates (1987-1994) by County.

Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	10.00
Soybeans (Row Crops)	7.66
Corn (Row Crops)	7.37
Cotton (Row Crops)	5.74
Other Cropland not Planted	5.08
Sorghum (Row Crops)	2.76
Legume (Pastureland)	1.39
Grass Forbs Legumes Mixed (Pastureland)	1.09
Conservation Reserve Program Land	0.52
Legume (Hayland)	0.49
Farmsteads and Ranch Headquarters	0.42
Grass (Hayland)	0.25
Grass (Pastureland)	0.16

Table 4-118. Annual Estimated Total Soil Loss in Subwatershed 080102030502.

4.2.R. 080102030503 (Cane Creek).

4.2.R.i. General Description.

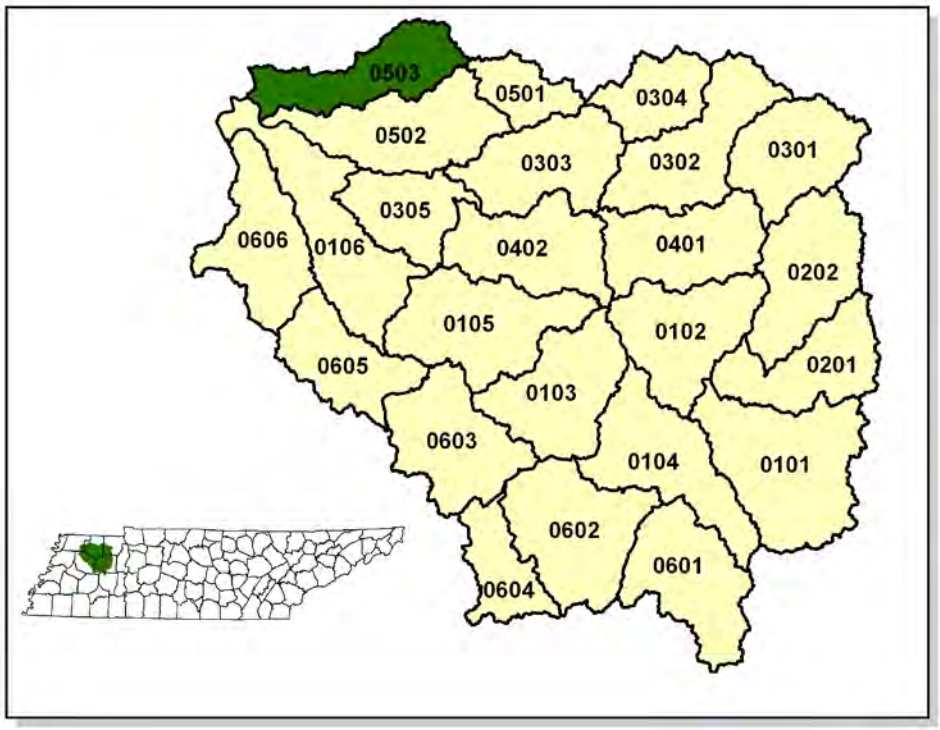


Figure 4-180. Location of Subwatershed 080102030503. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

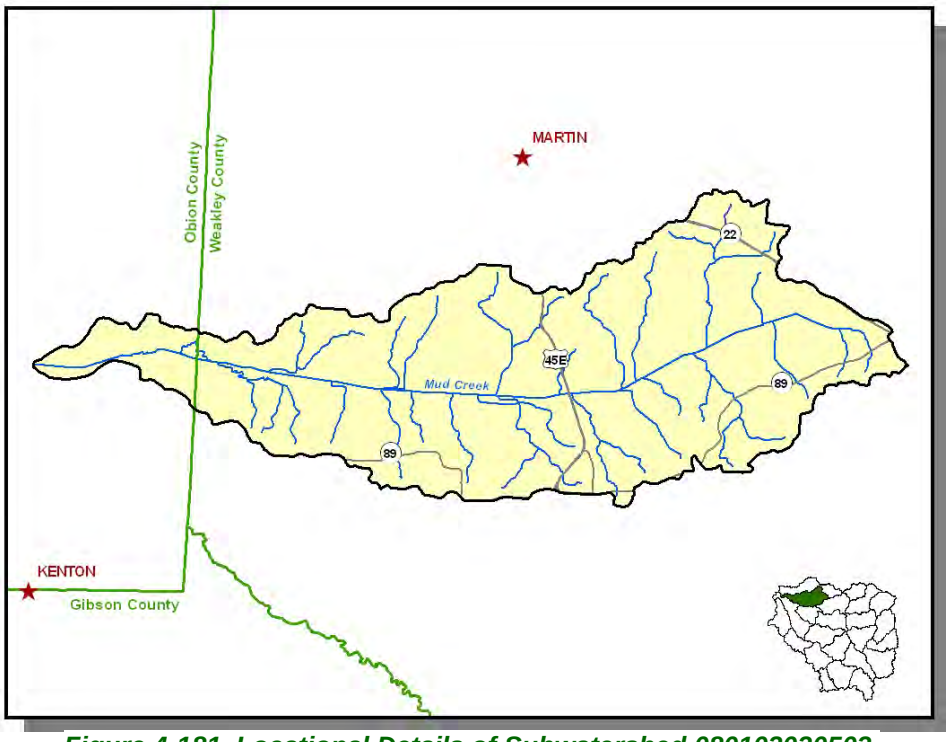


Figure 4-181. Locational Details of Subwatershed 080102030503.

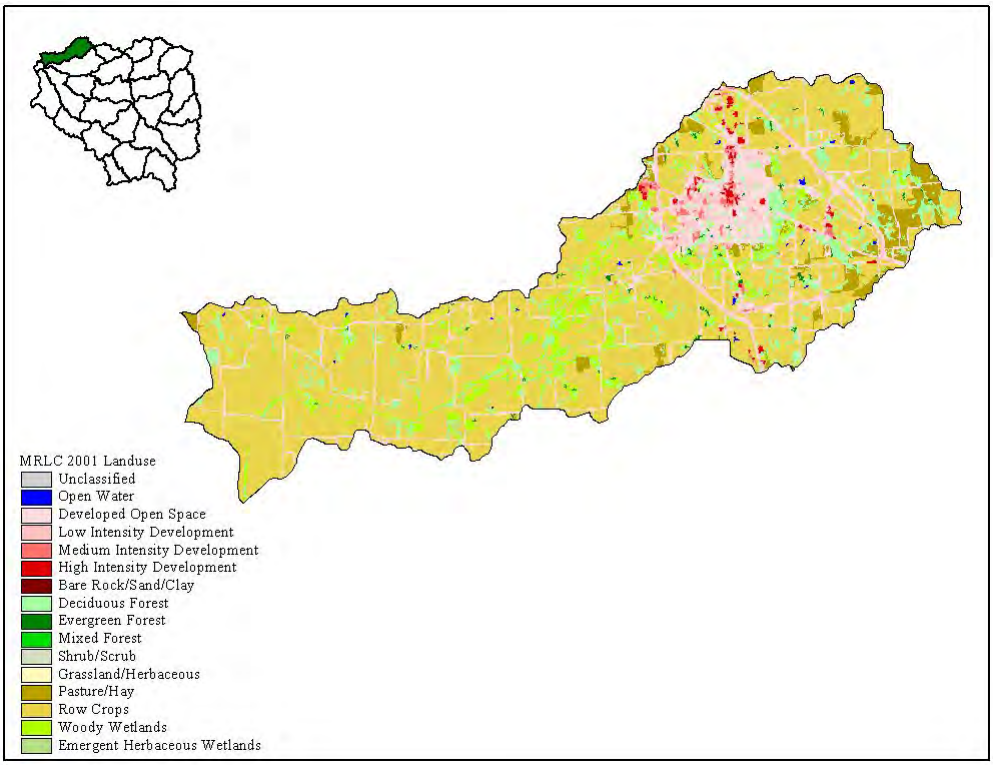


Figure 4-182. Illustration of Land Use Distribution in Subwatershed 080102030503.

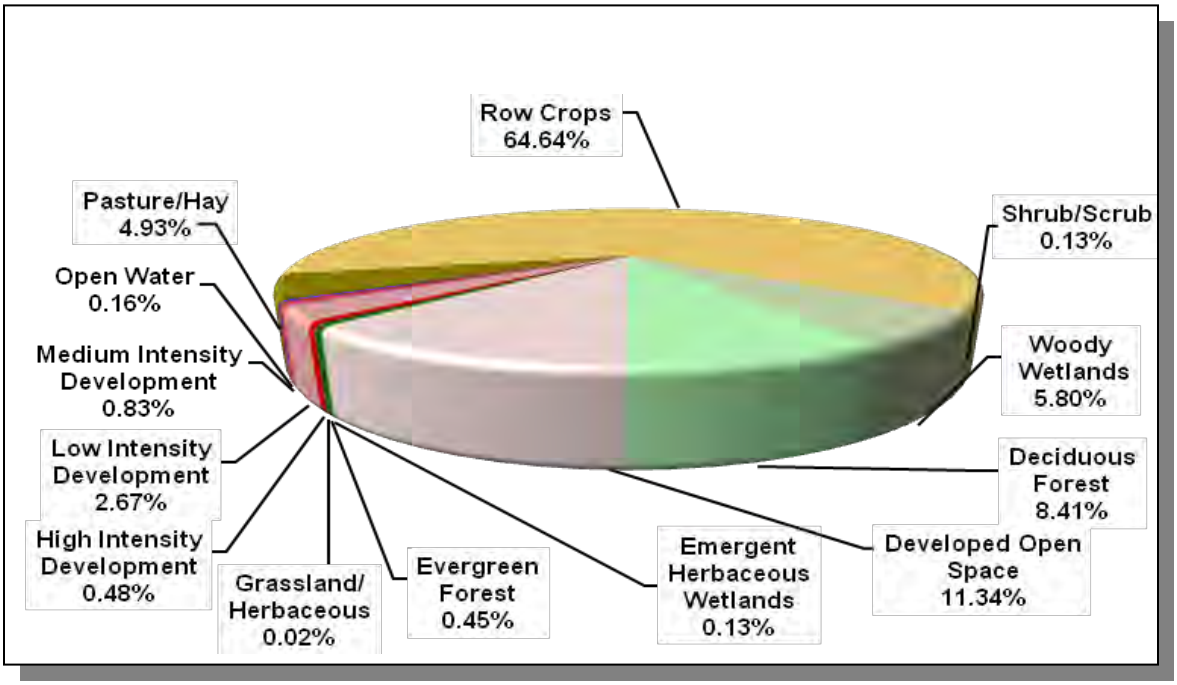


Figure 4-183. Land Use Distribution in Subwatershed 080102030503. *More information is provided in Appendix IV.*

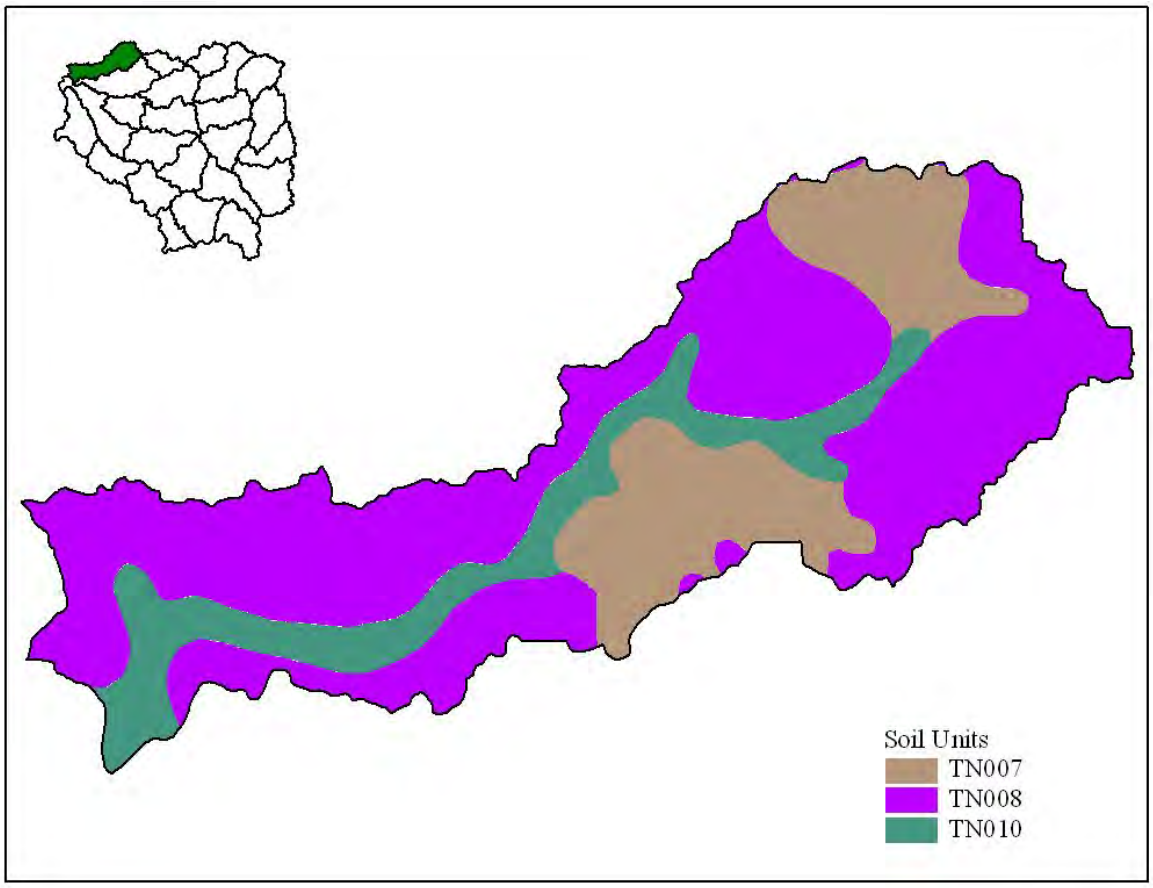


Figure 4-184. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030503.

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

Table 4-119. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030503. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Obion	31,717	32,069	32450	1.74	552	558	564	2.20
Weakley	31,972	32,808	34895	5.48	1,752	1,798	1,912	9.10
Total	**63,689**	**64,877**	**67345**		**2,304**	**2,356**	**2,476**	**7.50**

Table 4-120. Population Estimates in Subwatershed 080102030503.

			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 4-121. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030503.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030503.

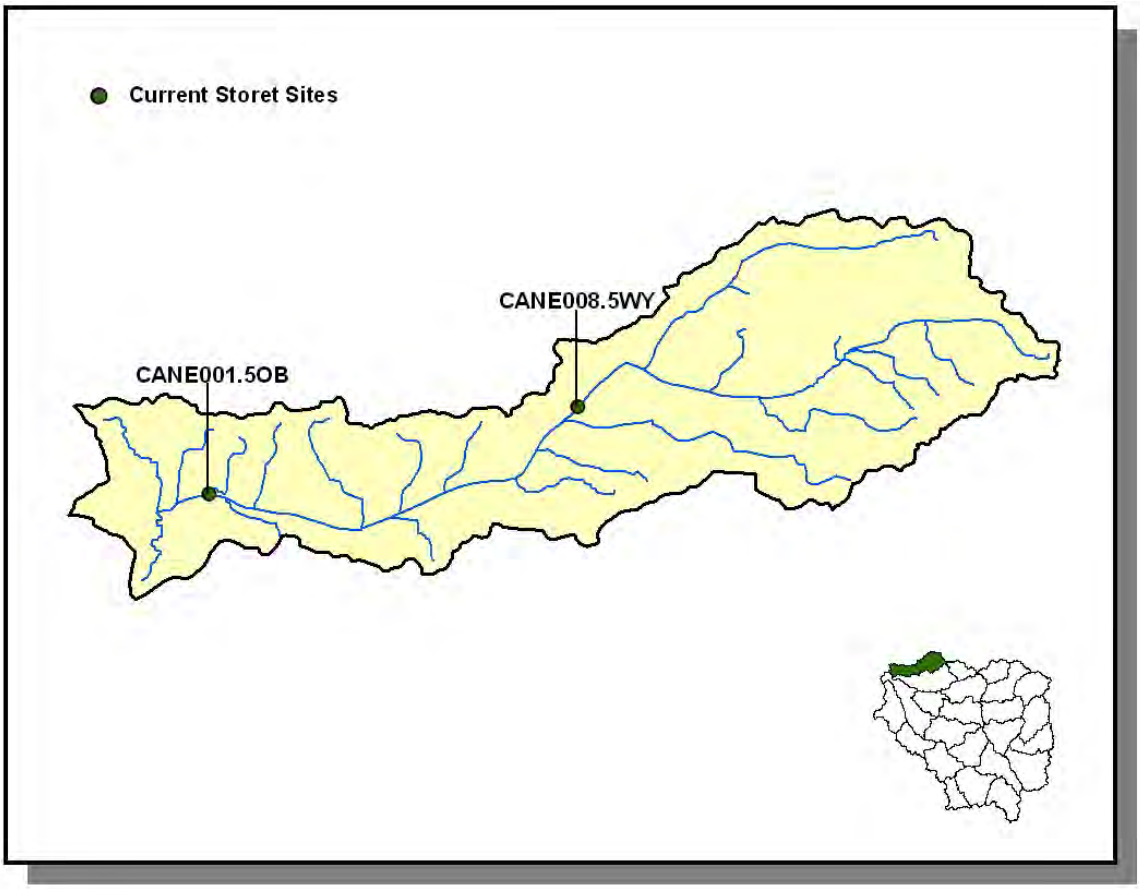


Figure 4-185. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030503. *More information, including site names and locations, is provided in Appendix IV.*

4.2.R.iii. Permitted Activities.

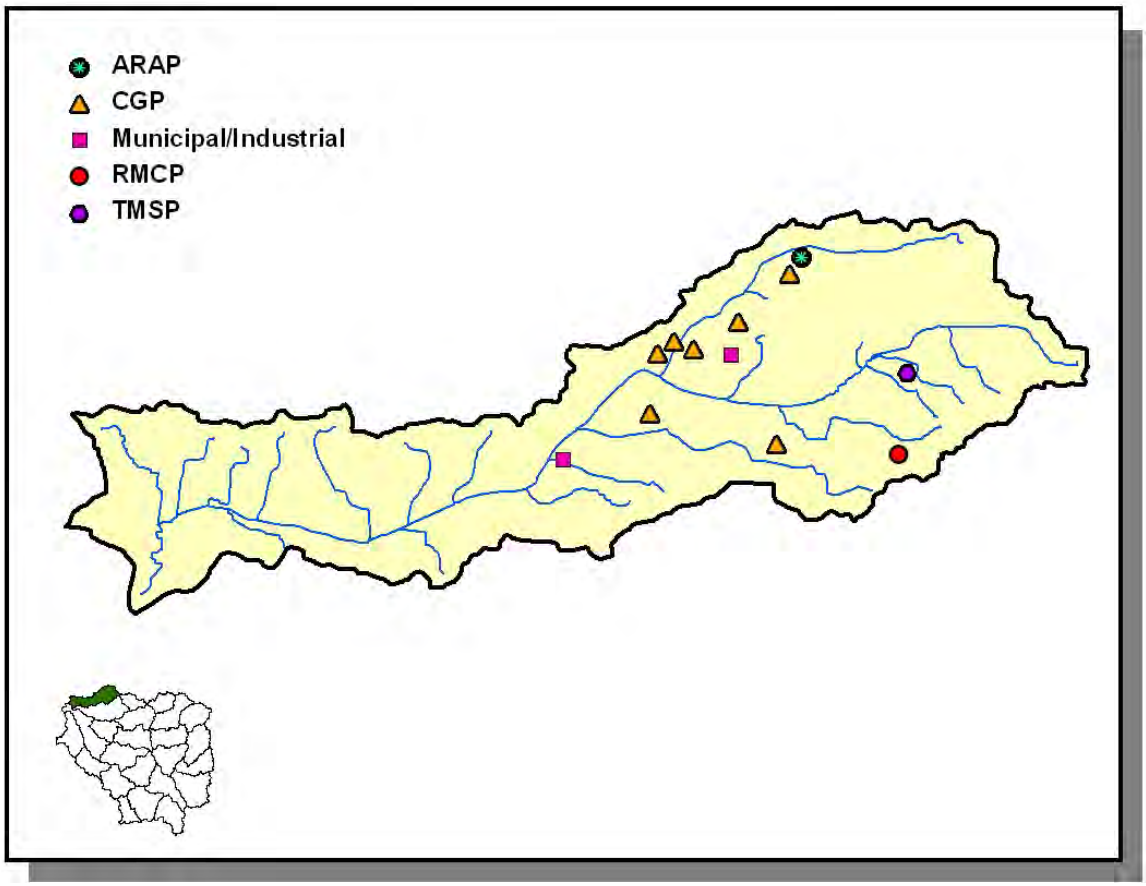


Figure 4-186. Location of Permits Issued in Subwatershed 080102030503. *More information, including the names of facilities, is provided in Appendix IV.*

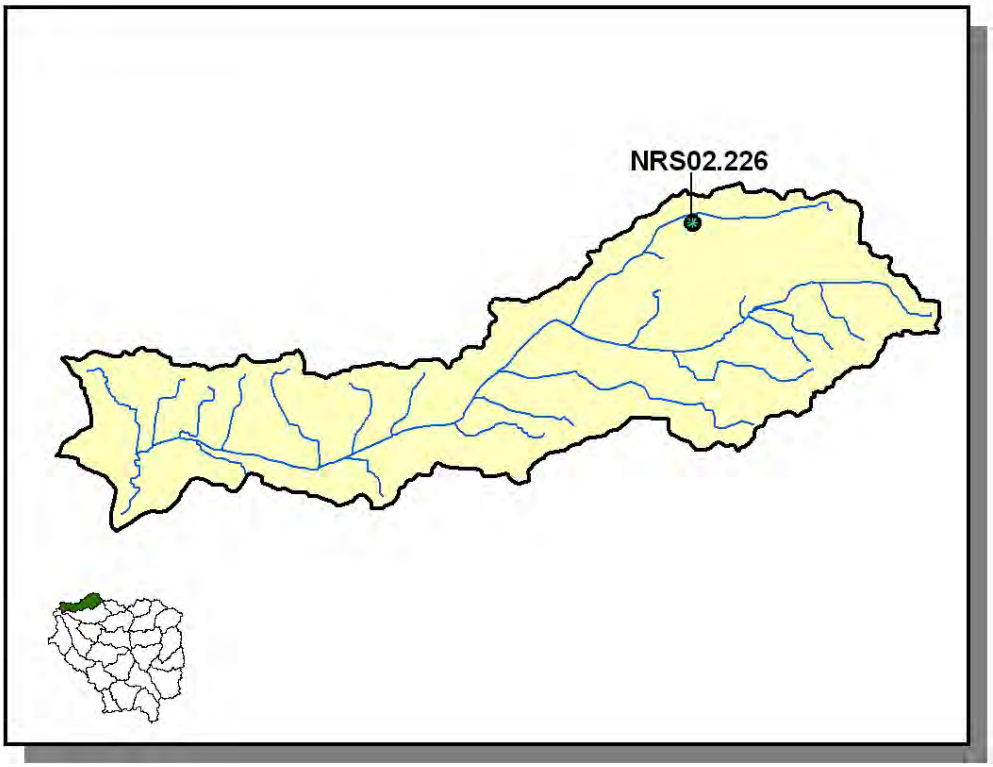


Figure 4-187. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030503. *More information is provided in Appendix IV.*

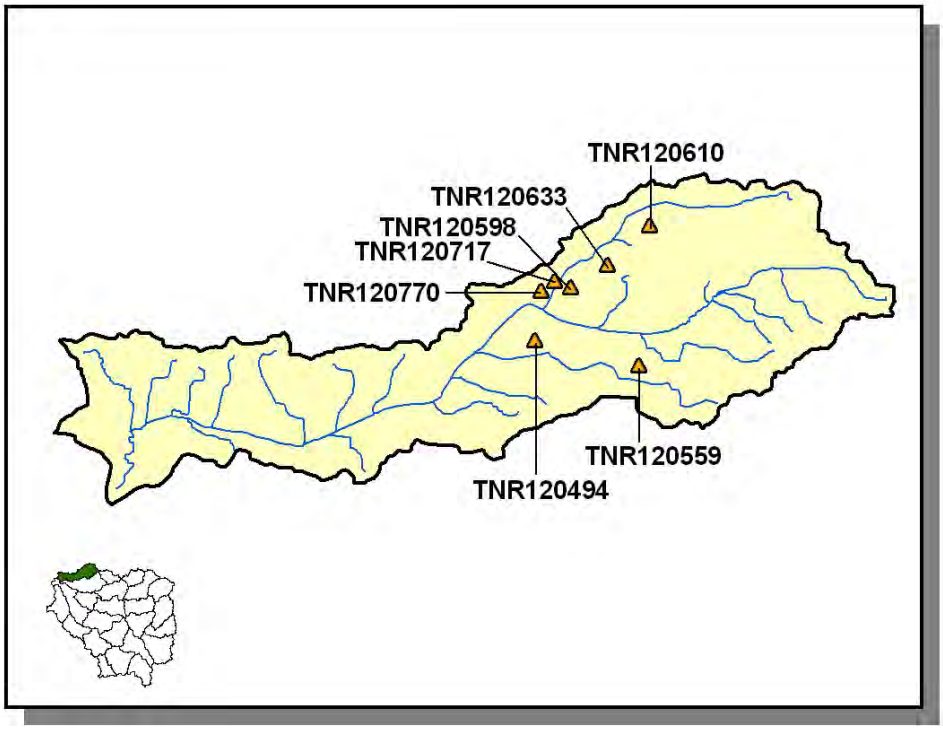


Figure 4-188. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030503. *More information is provided in Appendix IV.*

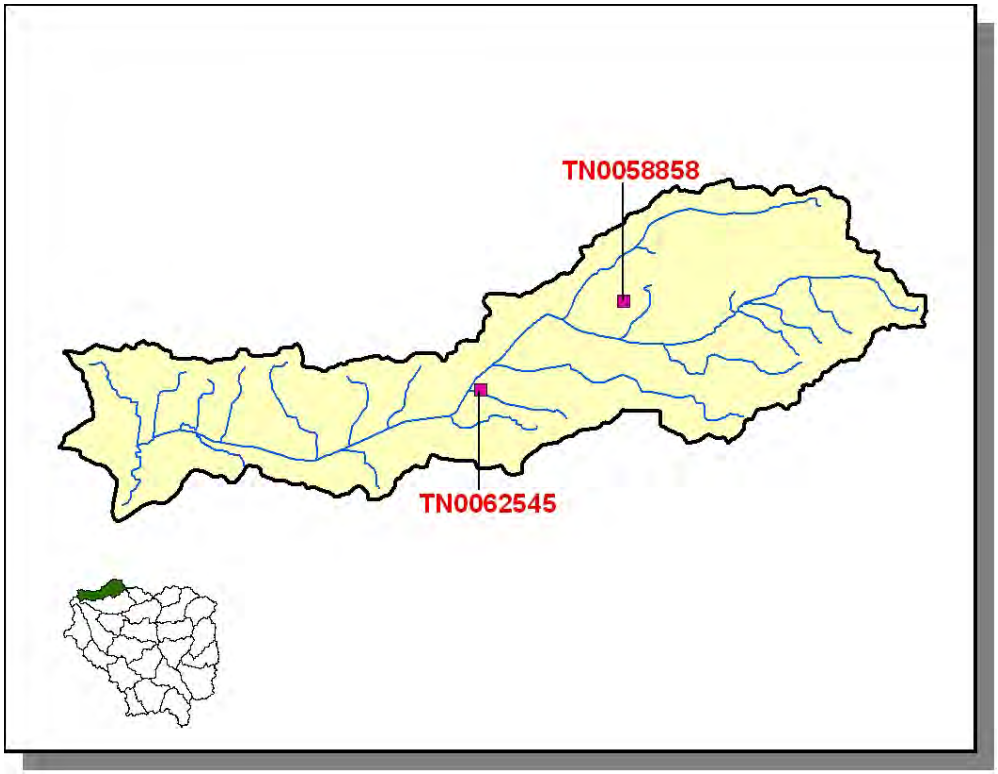


Figure 4-189. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030503. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	30Q5	DISCHARGE FLOW
TN0058858	0.0		0.0025
TN0062545		0.0	2.5

Table 4-122. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030503. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	$CBOD_5$	CBOD % REMOVAL	AMMONIA AS N (TOTAL)	E. *coli*
TN0062545	X	X	X	X

Table 4-123. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030503. *$CBOD_5$, Carbonaceous Biochemical Oxygen Demand (5-day).*

PERMIT #	WET	DO	TRC	FLOW	pH	TSS	TSS % REMOVAL	SS
TN0058858			X	X	X	X		
TN0062545	X	X	X	X	X	X	X	X

Table 4-124. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030503. *WET, Whole Effluent Toxicity; DO, Dissolved Oxygen; TRC, Total Residual Chlorine; TSS, Total Suspended Solids; SS, Settleable Solids.*

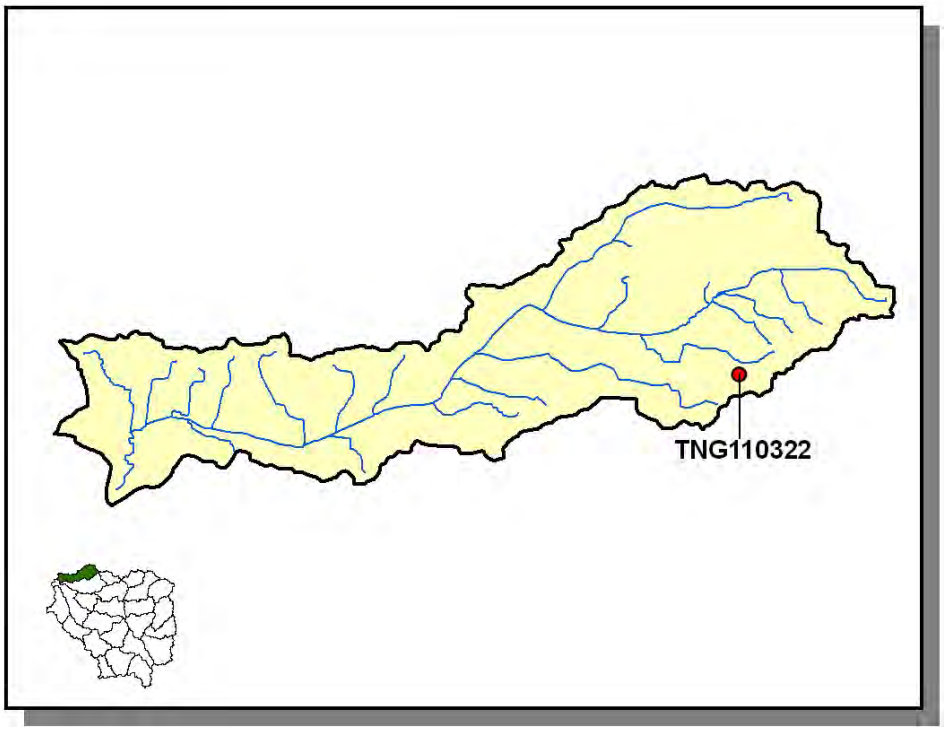


Figure 4-190. Location of RMCP (Ready Mix Concrete Plant) facilities in Subwatershed 080102030503. *More information, including the names of facilities, is provided in Appendix IV.*

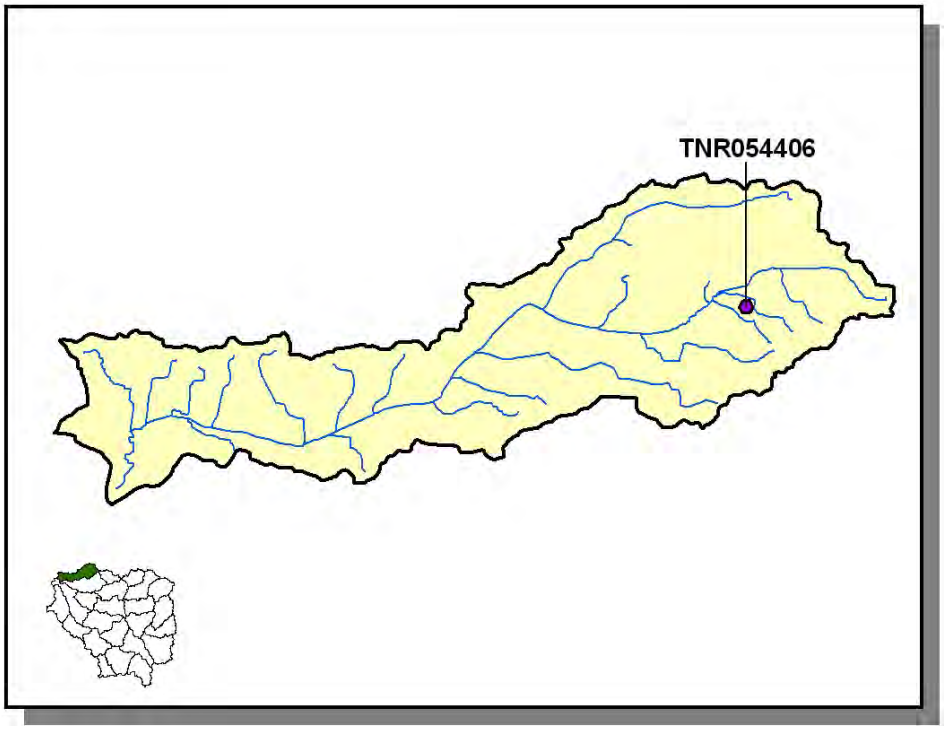


Figure 4-191. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030503. *More information is provided in Appendix IV.*

4.2.R.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 4-125. 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)
Obion	67.6	67.6	4.4	20.8
Weakley	96.1	95.9	6.7	24.6

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

CROPS	TONS/ACRE/YEAR
Summer Fallow (Other Cropland)	32.63
Wheat (Close Grown Cropland)	9.96
Soybeans (Row Crops)	7.73
Other Cropland not Planted	6.82
Corn (Row Crops)	6.80
Cotton (Row Crops)	5.74
Sorghum (Row Crops)	2.76
Legume (Pastureland)	1.14
Grass Forbs Legumes Mixed (Pastureland)	1.05
Conservation Reserve Program Land	0.78
Legume (Hayland)	0.49
Farmsteads and Ranch Headquarters	0.37
Grass (Hayland)	0.29
Grass (Pastureland)	0.26

Table 4-127. Annual Estimated Total Soil Loss in Subwatershed 080102030503.

4.2.S. 080102030601 (Rutherford Fork Obion River).

4.2.S.i. General Description.

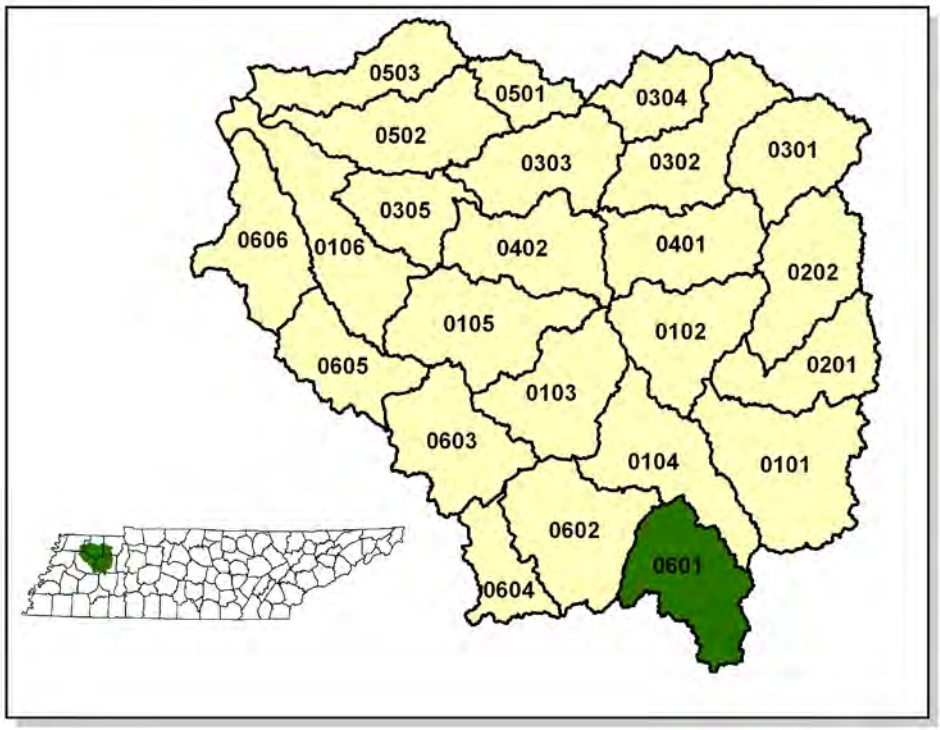


Figure 4-192. Location of Subwatershed 080102030601. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

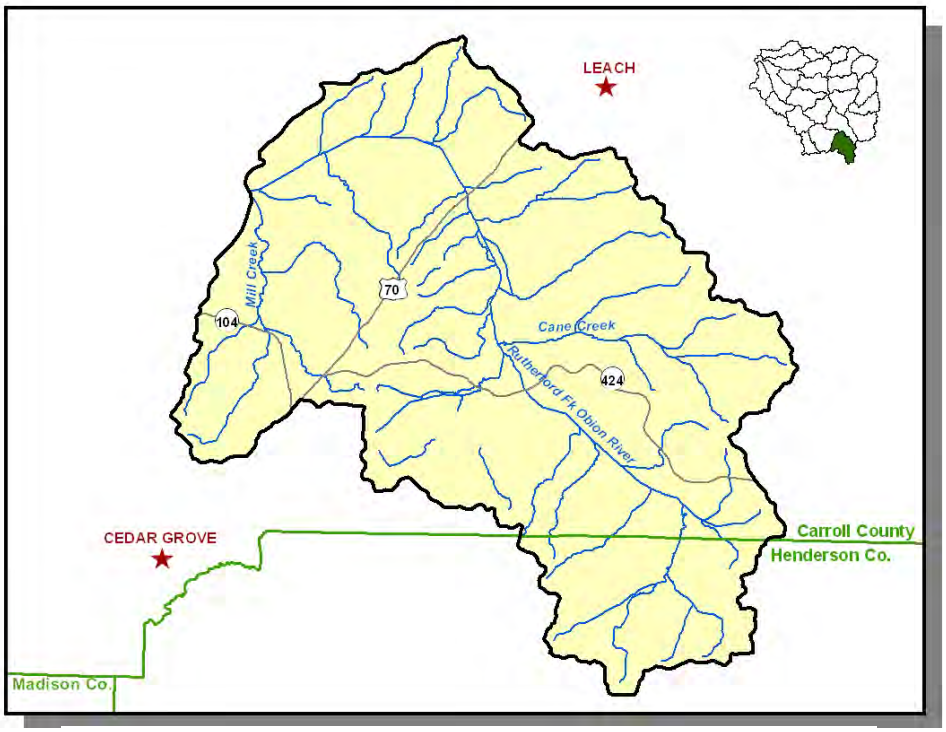


Figure 4-193. Locational Details of Subwatershed 080102030601.

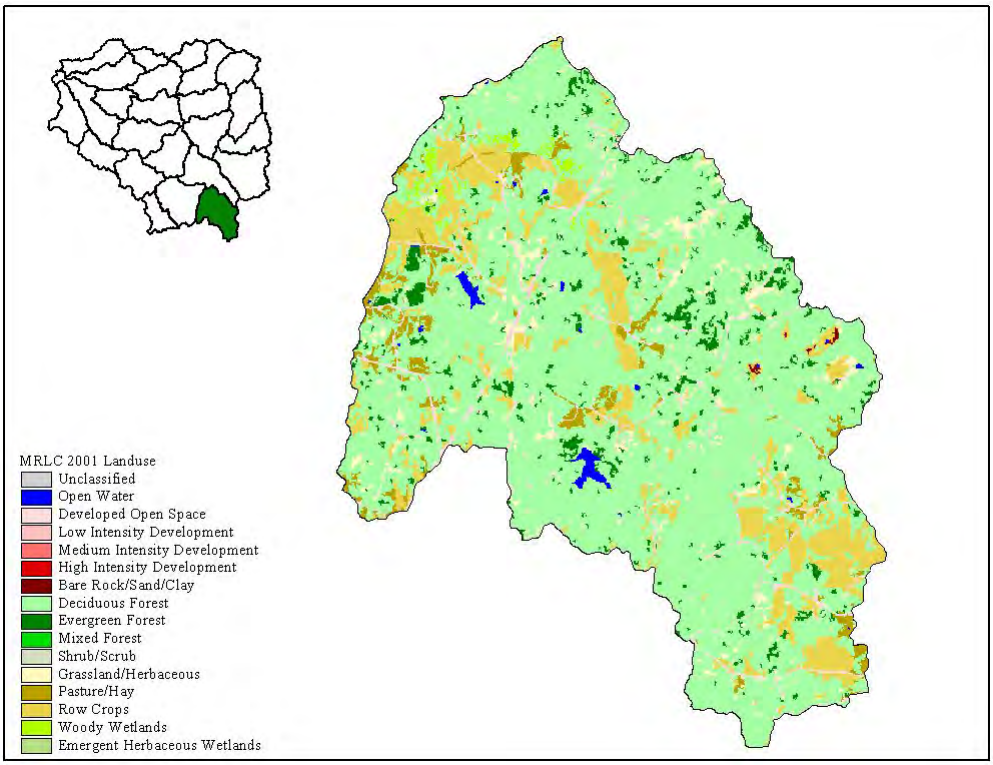


Figure 4-194. Illustration of Land Use Distribution in Subwatershed 080102030601.

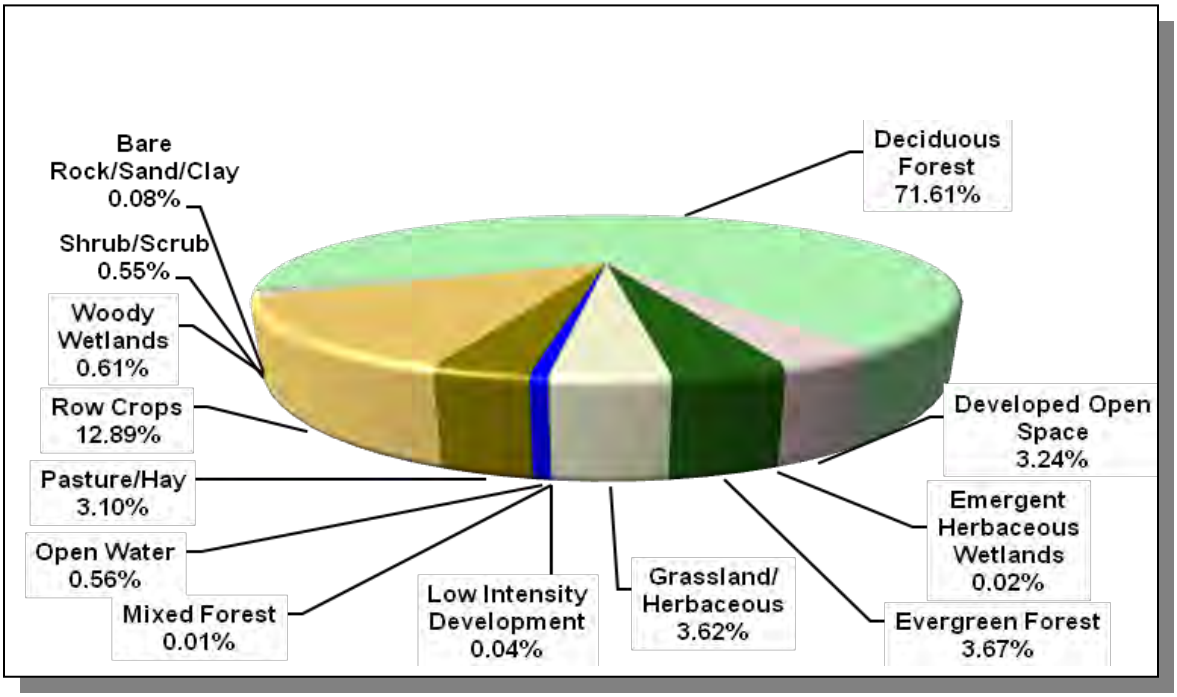


Figure 4-195. Land Use Distribution in Subwatershed 080102030601. *More information is provided in Appendix IV.*

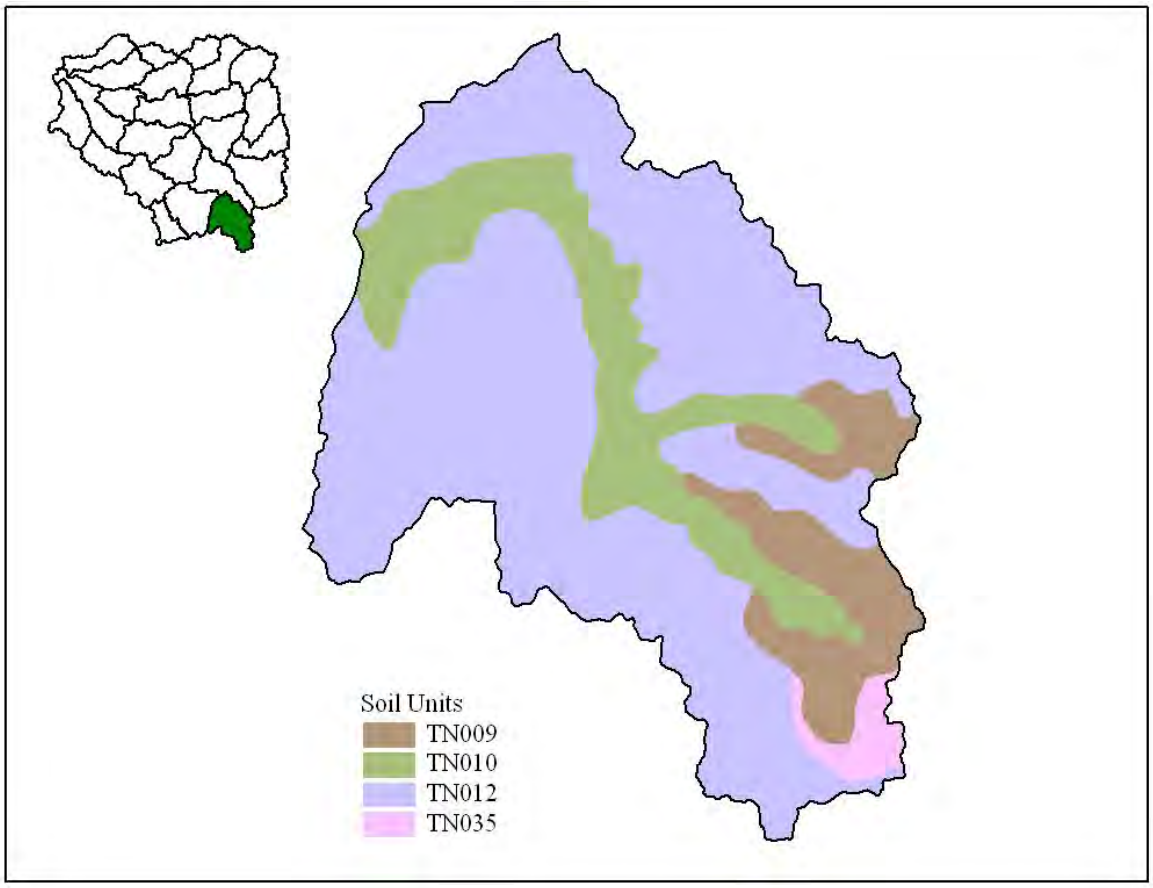


Figure 4-196. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030601.

STATSGO MAP UNIT ID	PERCENT HYDRIC	HYDROLOGIC GROUP	PERMEABILITY (in/hour)	SOIL pH	ESTIMATED SOIL TEXTURE	SOIL ERODIBILITY
TN009	7.00	C	1.30	5.10	Silty Loam	0.43
TN010	81.00	C	1.33	5.11	Silty Loam	0.44
TN012	1.00	C	2.52	5.13	Silty Loam	0.39
TN035	16.00	C	1.46	4.97	Silty Loam	0.40

Table 4-128. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030601. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	7.34	2,020	2,128	2,163	7.10
Henderson	21,844	24,000	25,522	1.35	294	323	344	17.00
Total	**49,358**	**52,990**	**54,997**		**2,314**	**2,451**	**2,507**	**8.30**

Table 4-129. Population Estimates in Subwatershed 080102030601.

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

There are no USGS continuous record gaging stations or storet sites located in subwatershed 080102030601.

4.2.S.iii. Permitted Activities.

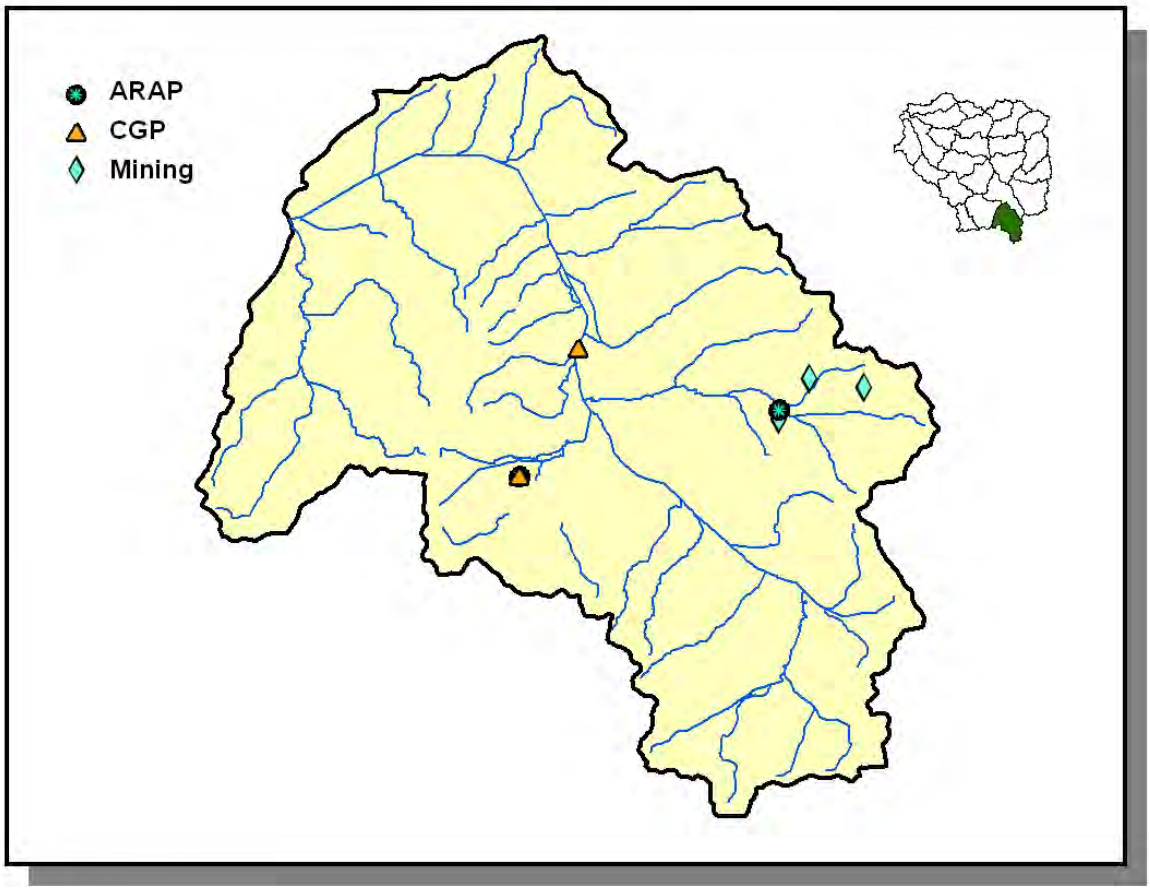


Figure 4-197. Location of Permits Issued in Subwatershed 080102030601. *More information, including the names of facilities, is provided in Appendix IV.*

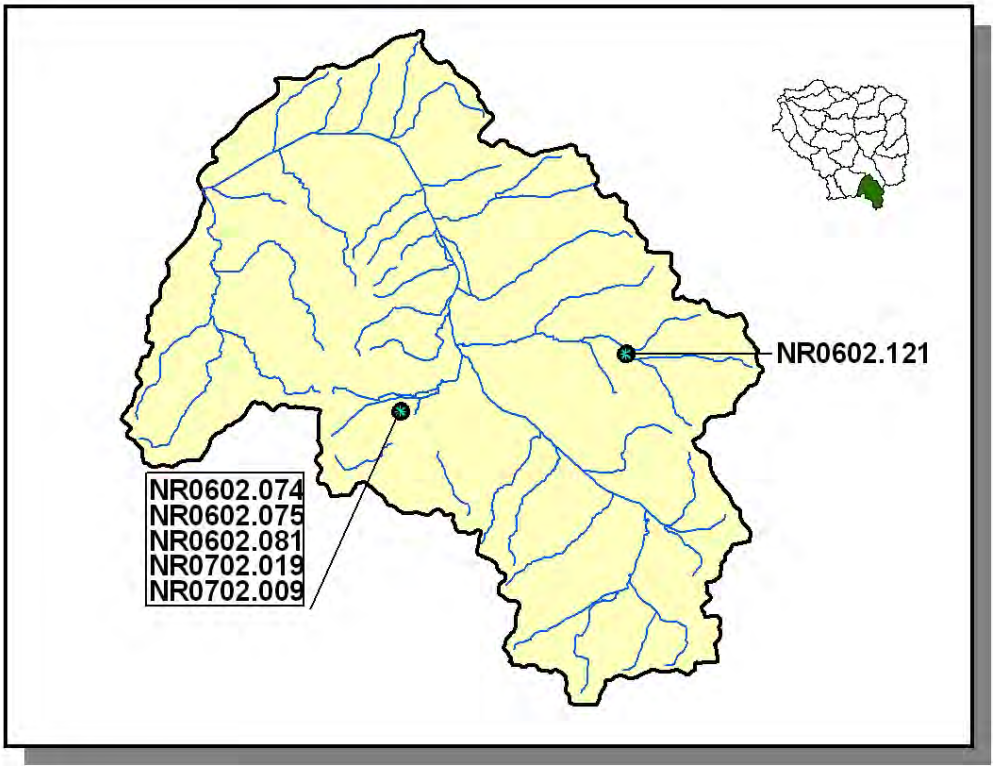


Figure 4-198. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030601. *More information is provided in Appendix IV.*

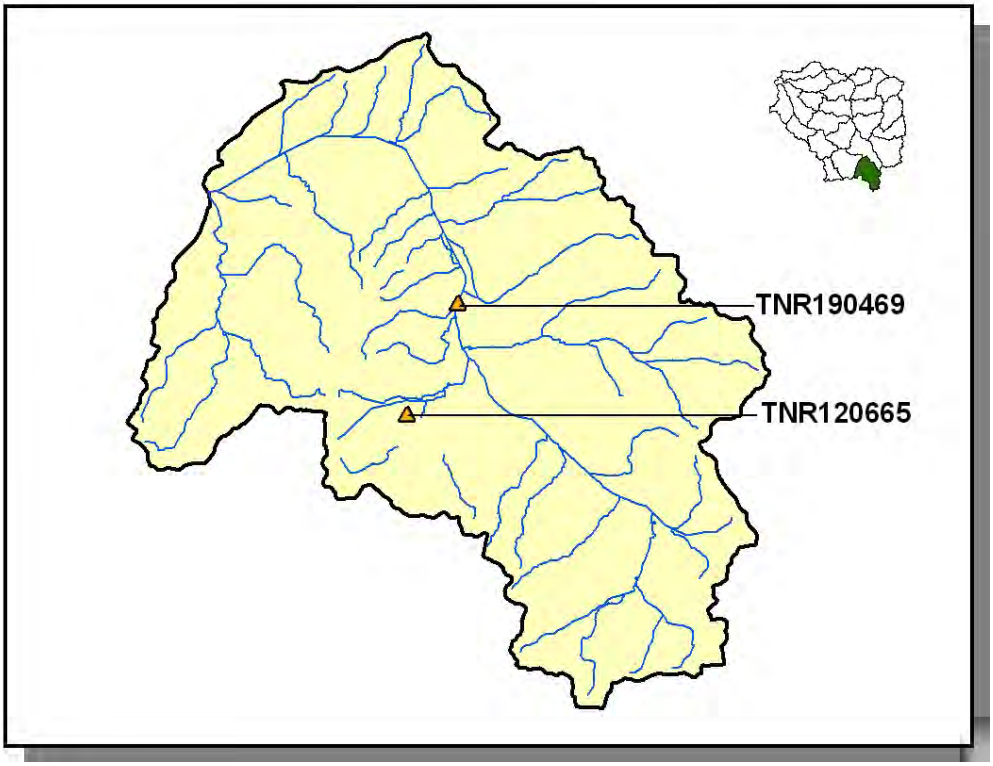


Figure 4-199. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030601. *More information is provided in Appendix IV.*

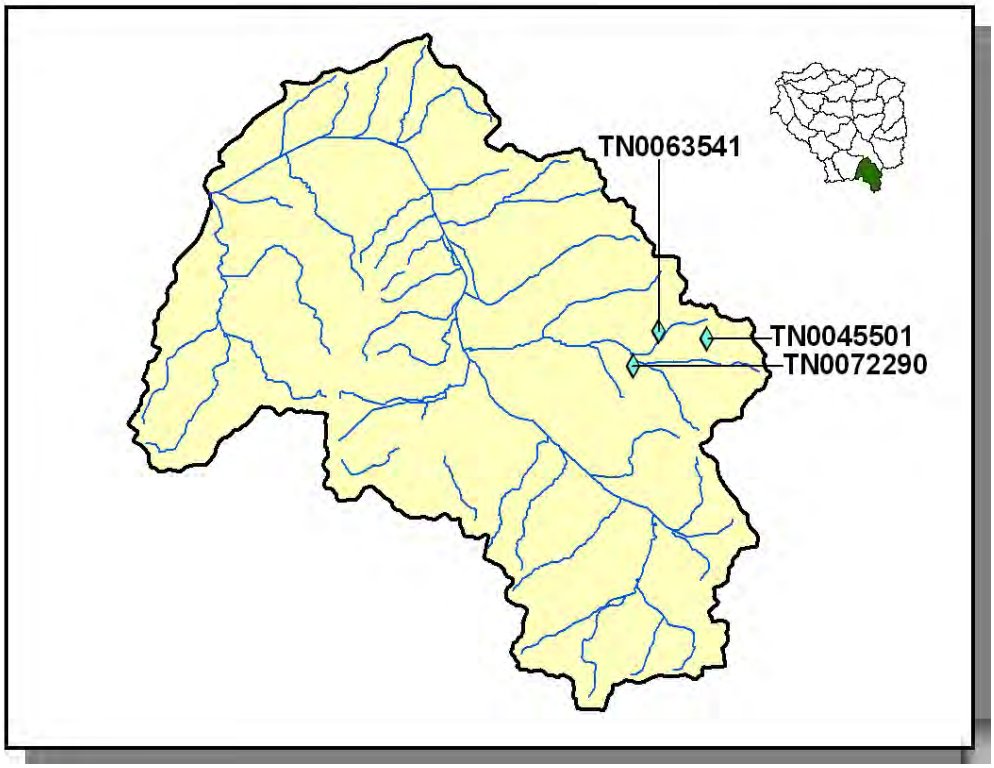


Figure 4-200. Location of Permitted Mining Facilities in Subwatershed 080102030601. *More information is provided in Appendix IV.*

4.2.S.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	
Henderson	12,709	28,924	65	26	10,485	182

Table 4-130. 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)
Carroll	169.1	169.1	0.6	2.0
Henderson	158.5	158.5	3.6	12.8

Table 4-131. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Wheat (Close Grown Cropland)	18.5
Soybeans (Row Crops)	9.66
Other Cropland not Planted	9.12
Cotton (Row Crops)	7.26
Corn (Row Crops)	6.09
Conservation Reserve Program Land	1.10
Farmsteads and Ranch Headquarters	1.03
Grass Forbs Legumes Mixed (Pastureland)	0.70
Other Land in Farms	0.59
Legume Grass (Hayland)	0.46
Grass (Pastureland)	0.46
Grass (Hayland)	0.19
Legume (Hayland)	0.07

Table 4-132. Annual Estimated Total Soil Loss in Subwatershed 080102030601.

4.2.T. 080102030602 (Rutherford Fork Obion River).

4.2.T.i. General Description.

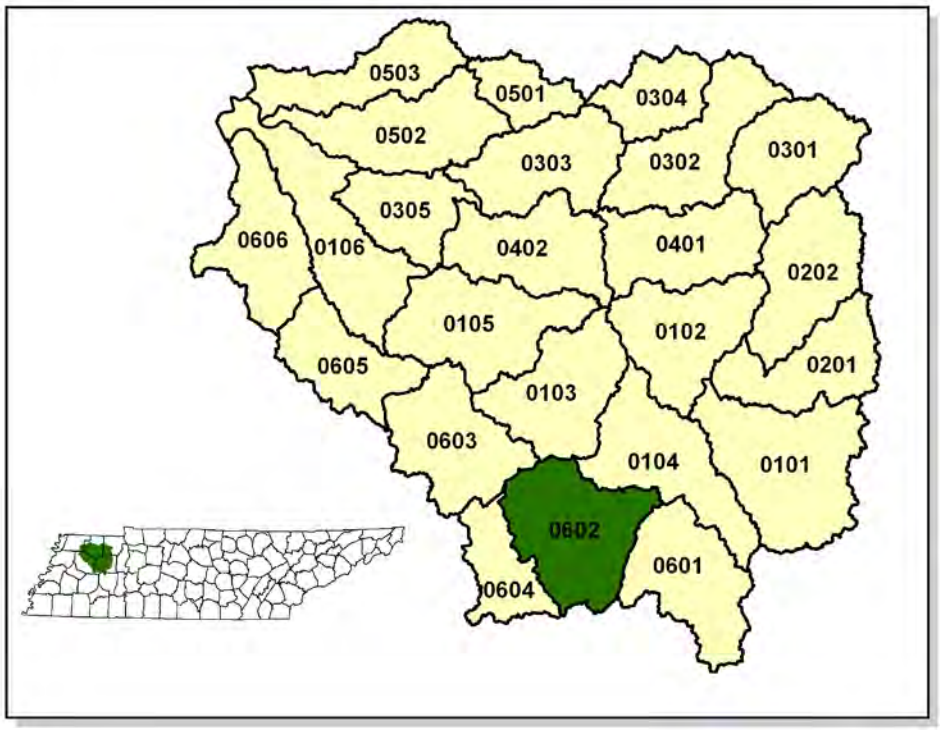


Figure 4-201. Location of Subwatershed 080102030602. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

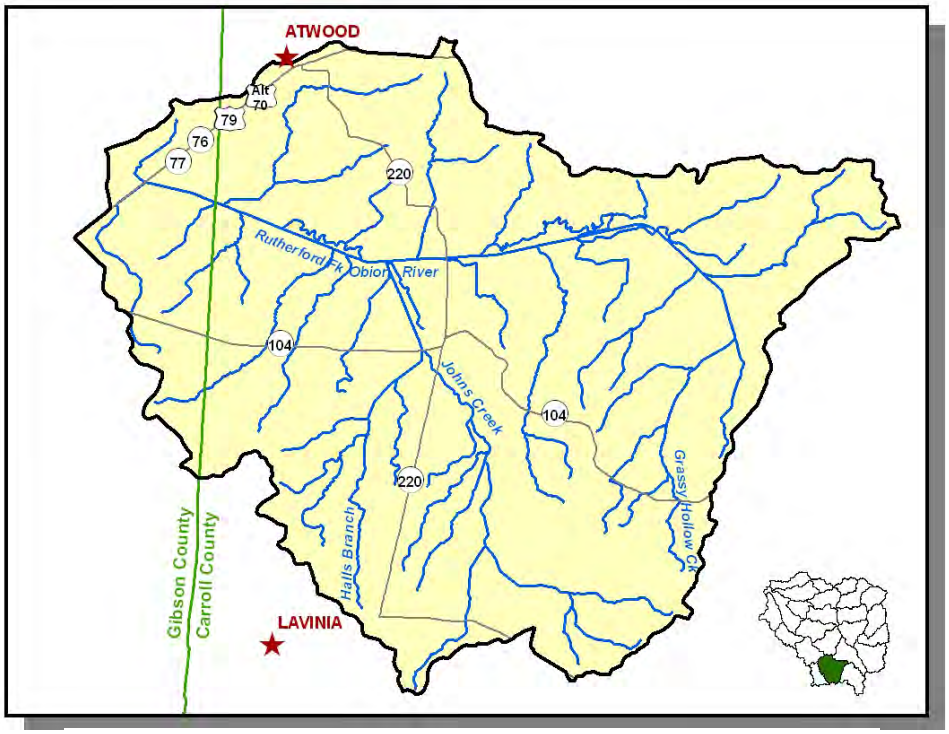


Figure 4-202. Locational Details of Subwatershed 080102030602.

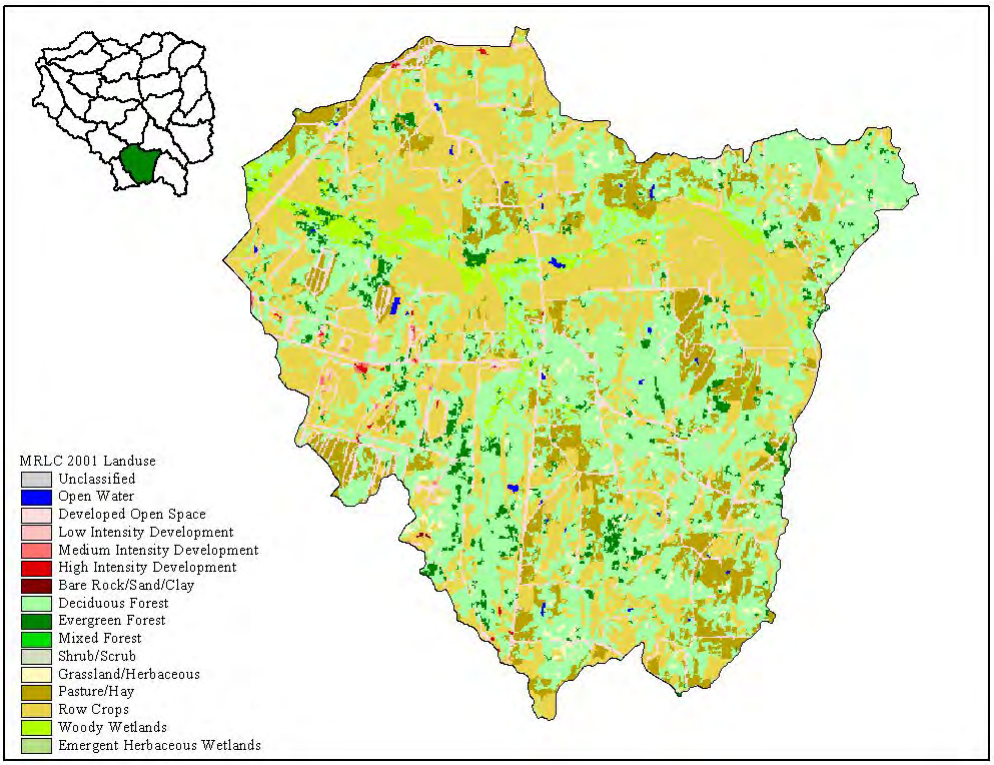


Figure 4-203. Illustration of Land Use Distribution in Subwatershed 080102030602.

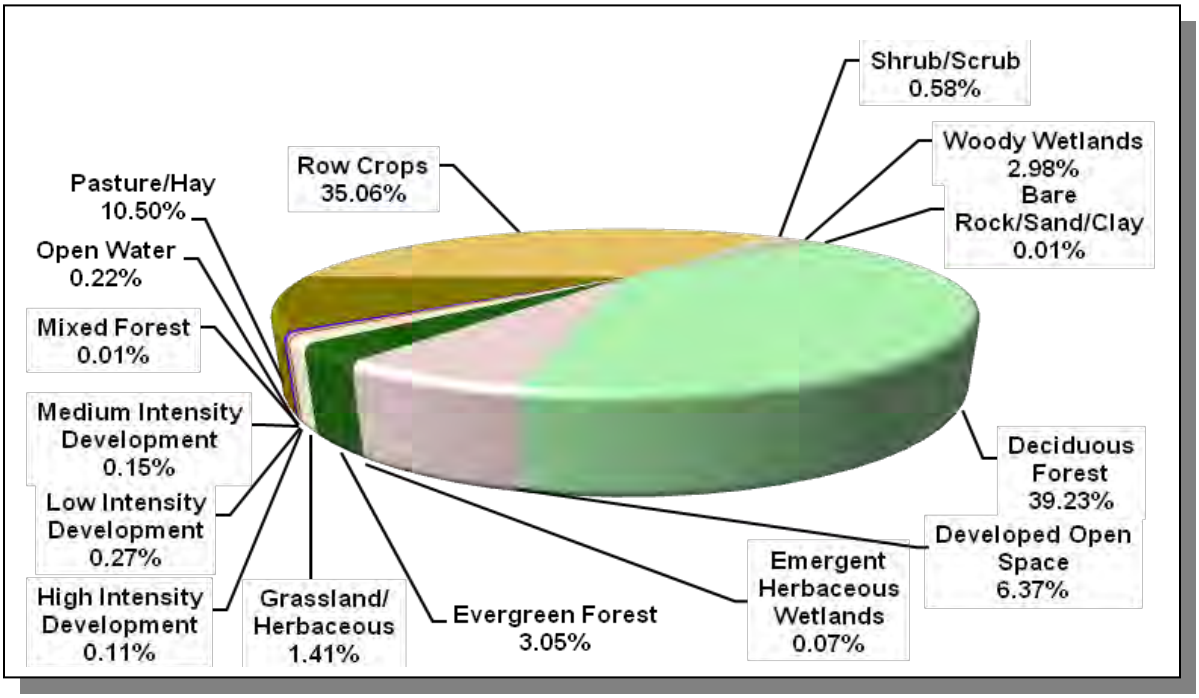


Figure 4-204. Land Use Distribution in Subwatershed 080102030602. *More information is provided in Appendix IV.*

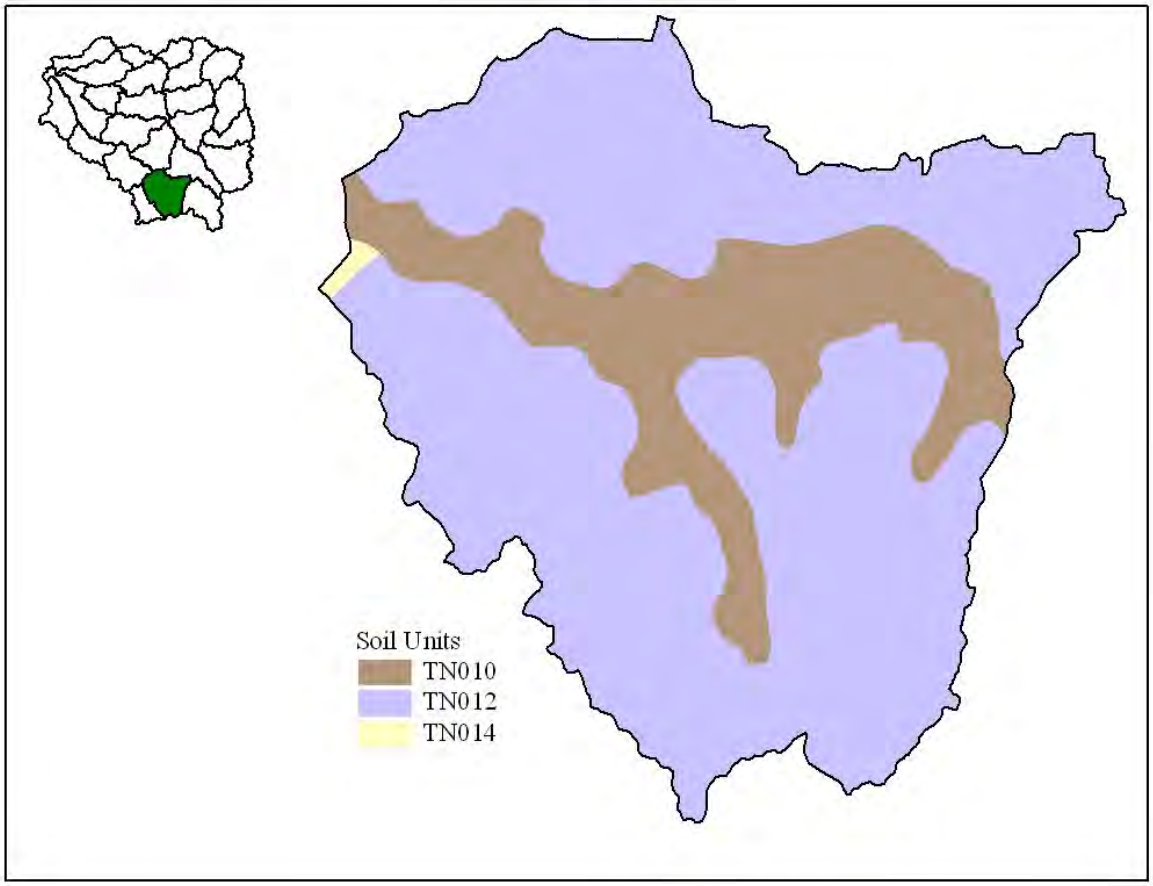


Figure 4-205. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030602.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-133. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030602. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	9.10	2,503	2,637	2,681	7.10
Gibson	46,315	48,083	48,152	0.90	415	431	431	3.90
Total	**73,829**	**77,073**	**77,627**		**2,918**	**3,068**	**3,112**	**6.60**

Table 4-134. Population Estimates in Subwatershed 080102030602.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Atwood	Carroll	1,080	454	417	36	1

Table 4-135. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030602.

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

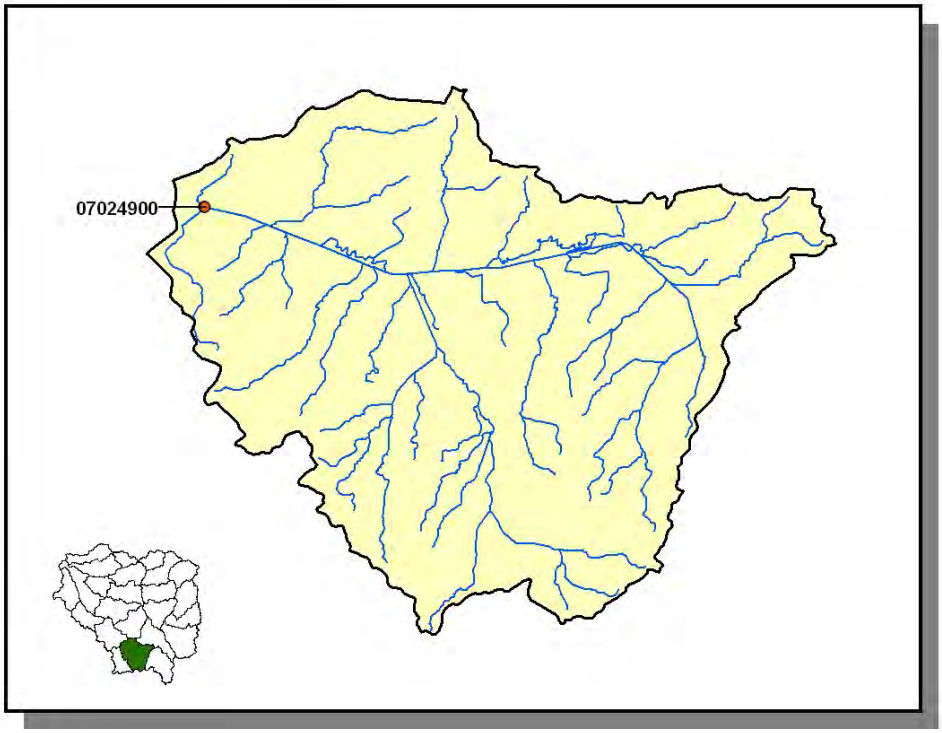


Figure 4-206. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102030602. *More information is provided in Appendix IV.*

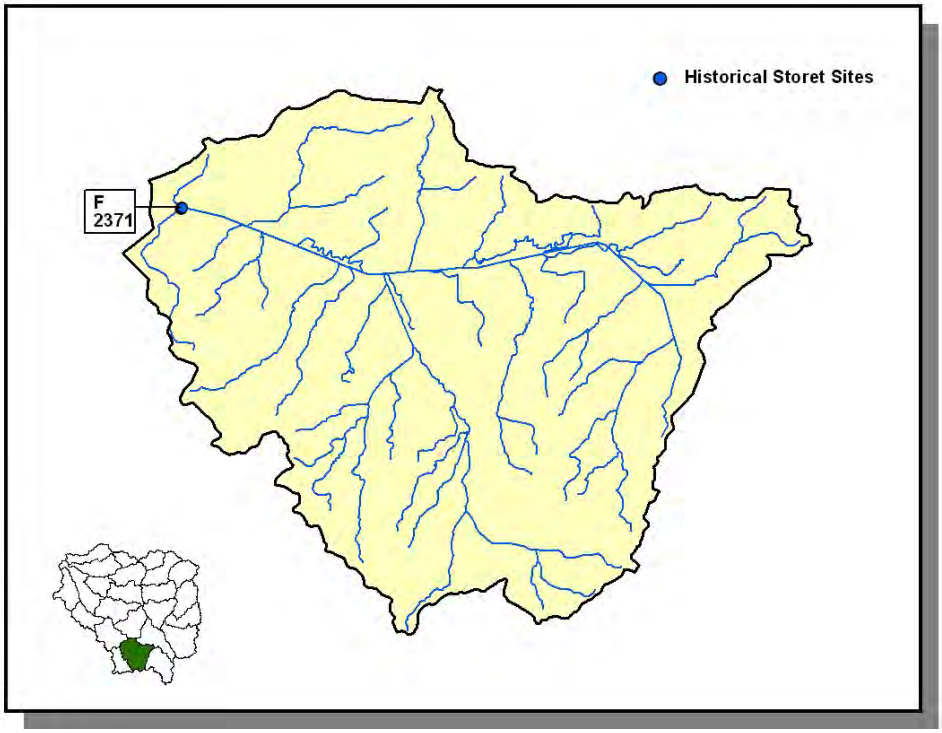


Figure 4-207. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030602. *More information, including site names and locations, is provided in Appendix IV.*

4.2.T.iii. Permitted Activities.

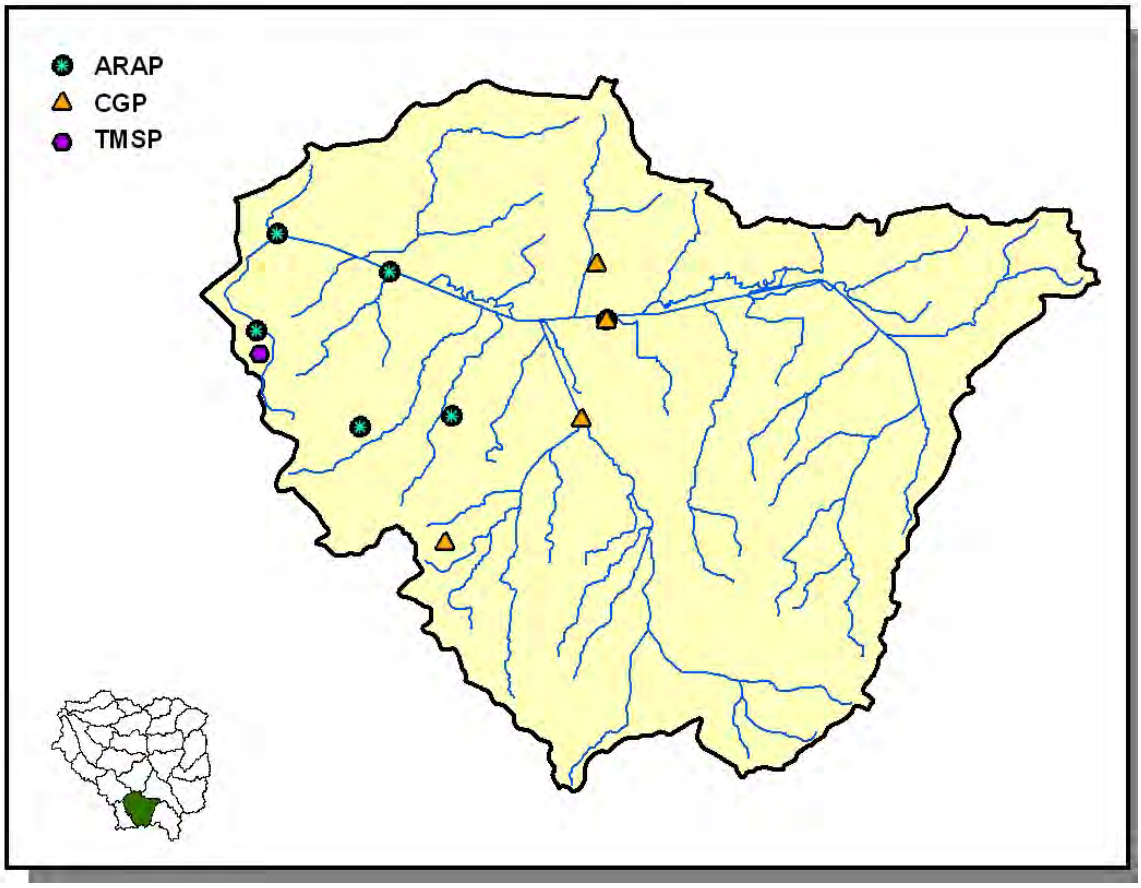


Figure 4-208. Location of Permits Issued in Subwatershed 080102030602. *More information, including the names of facilities, is provided in Appendix IV.*

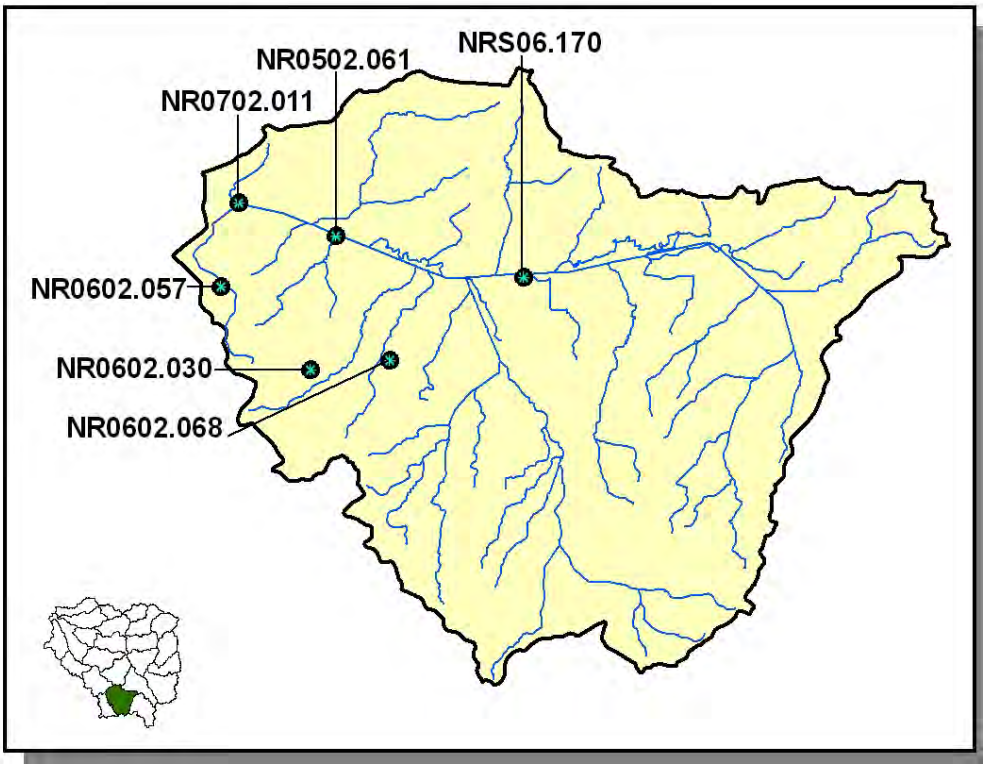


Figure 4-209. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030602. *More information is provided in Appendix IV.*

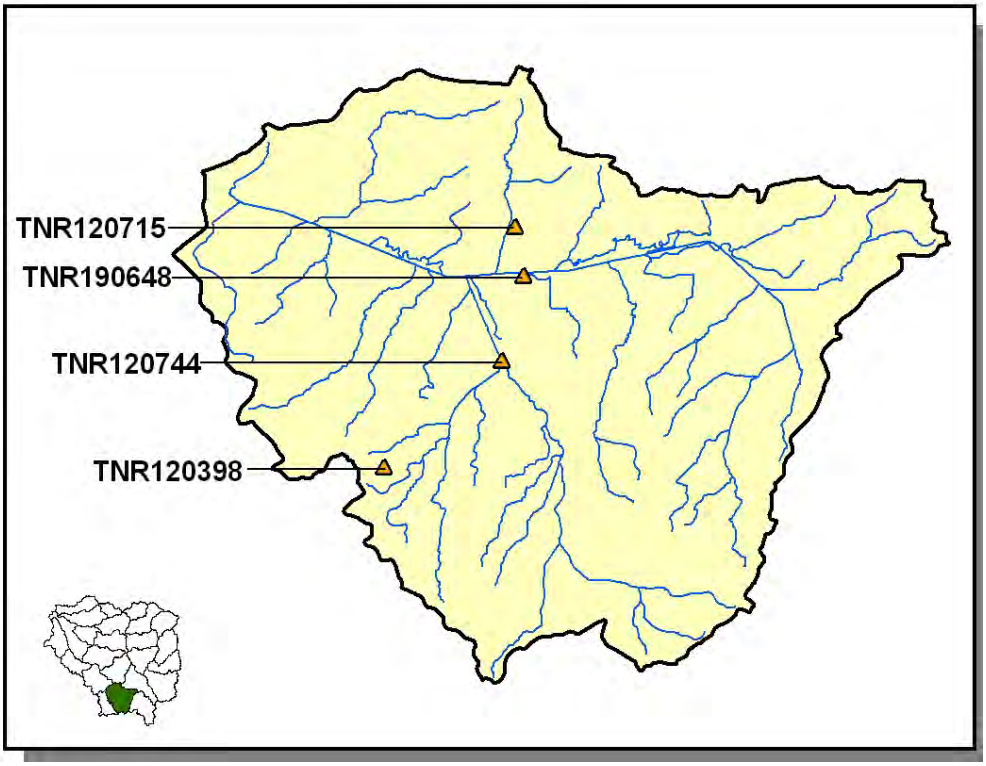


Figure 4-210. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030602. *More information is provided in Appendix IV.*

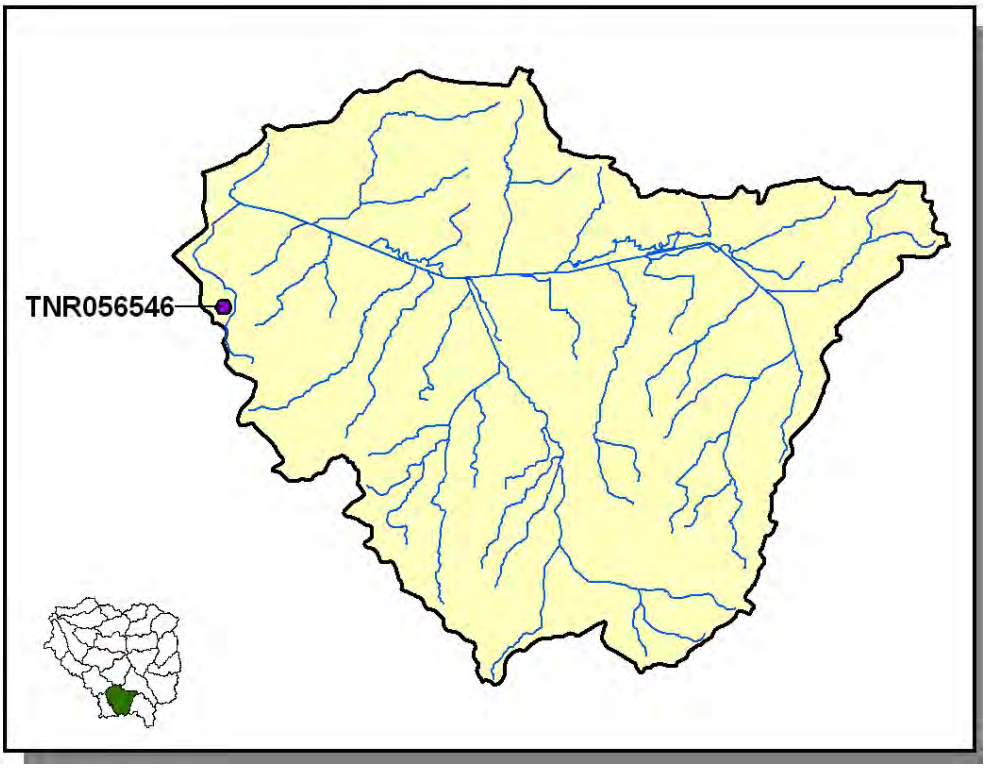


Figure 4-211. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030602. *More information is provided in Appendix IV.*

4.2.T.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	
Gibson	9,766	21,779	221	605	7,506	74

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)
Carroll	169.1	169.1	0.6	2.0
Gibson	36.4	36.4	2.0	8.6

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

CROPS	TONS/ACRE/YEAR
Wheat (Close Grown Cropland)	18.5
Soybeans (Row Crops)	10.06
Other Cropland not Planted	8.70
Cotton (Row Crops)	8.44
Corn (Row Crops)	6.47
Sorghum (Row Crops)	6.38
Conservation Reserve Program Land	1.16
Farmsteads and Ranch Headquarters	1.05
Other Land in Farms	0.66
Grass Forbs Legumes Mixed (Pastureland)	0.60
Legume Grass (Hayland)	0.46
Grass (Pastureland)	0.38
Grass (Hayland)	0.22
Legume (Hayland)	0.07

Table 4-138. Annual Estimated Total Soil Loss in Subwatershed 080102030602.

4.2.U. 080102030603 (Rutherford Fork Obion River).

4.2.U.i. General Description.

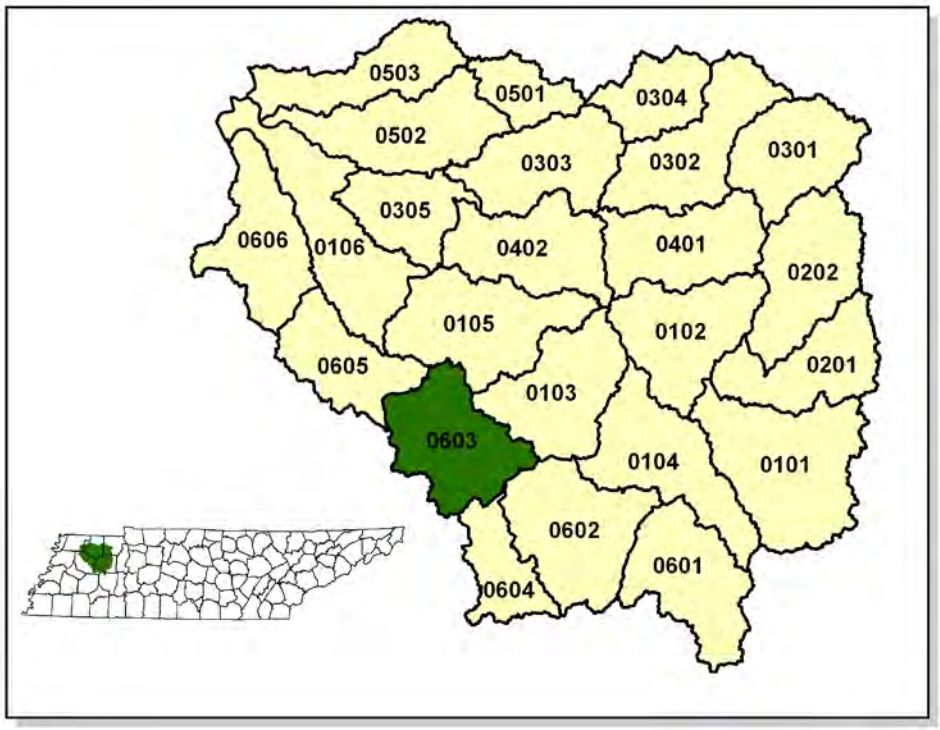


Figure 4-212. Location of Subwatershed 080102030603. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

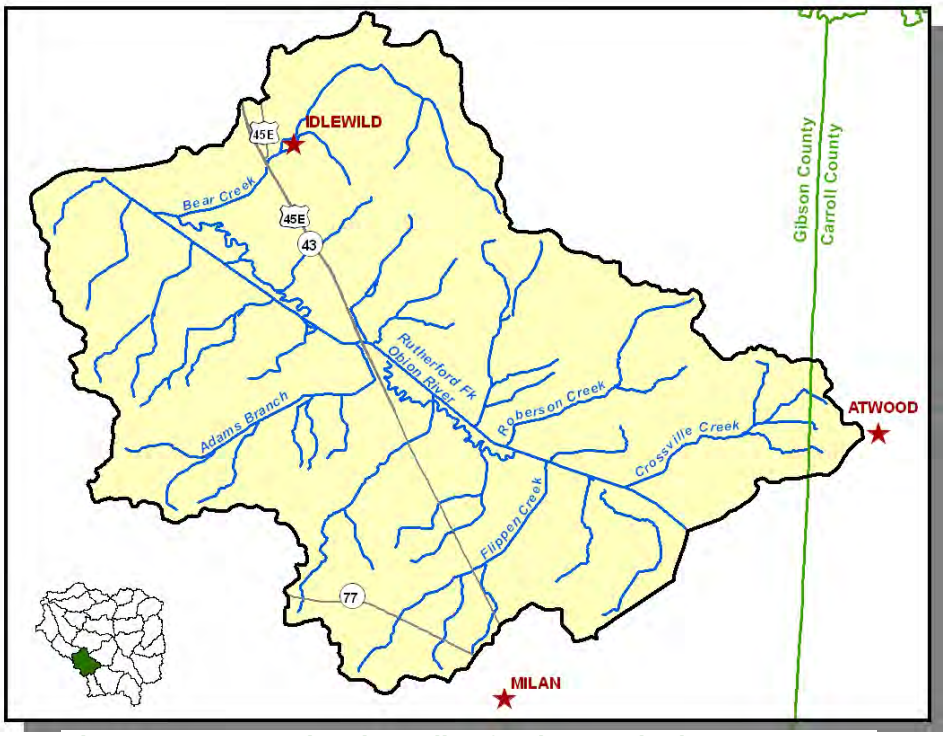


Figure 4-213. Locational Details of Subwatershed 080102030603.

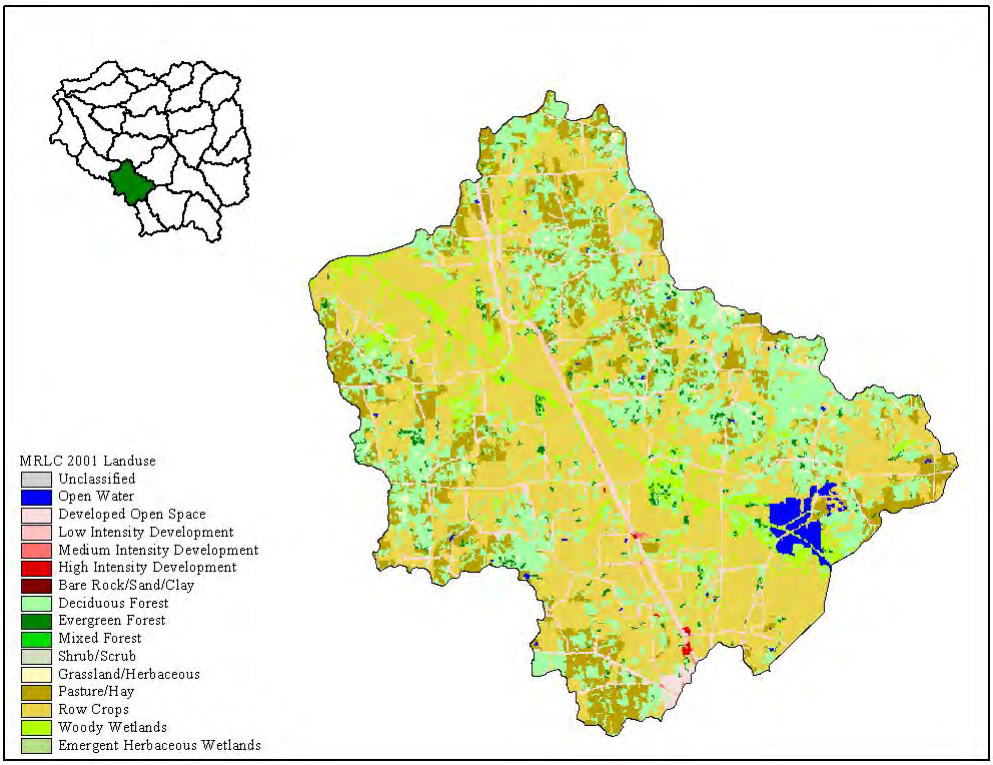


Figure 4-214. Illustration of Land Use Distribution in Subwatershed 080102030603.

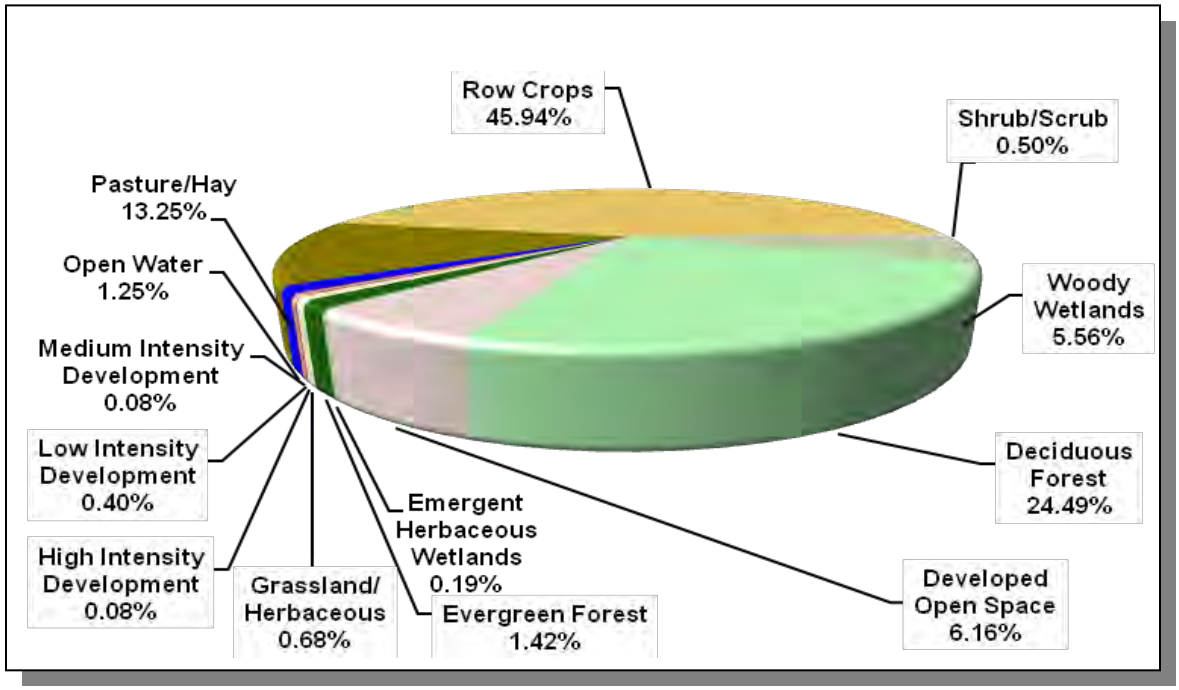


Figure 4-215. Land Use Distribution in Subwatershed 080102030603. *More information is provided in Appendix IV.*

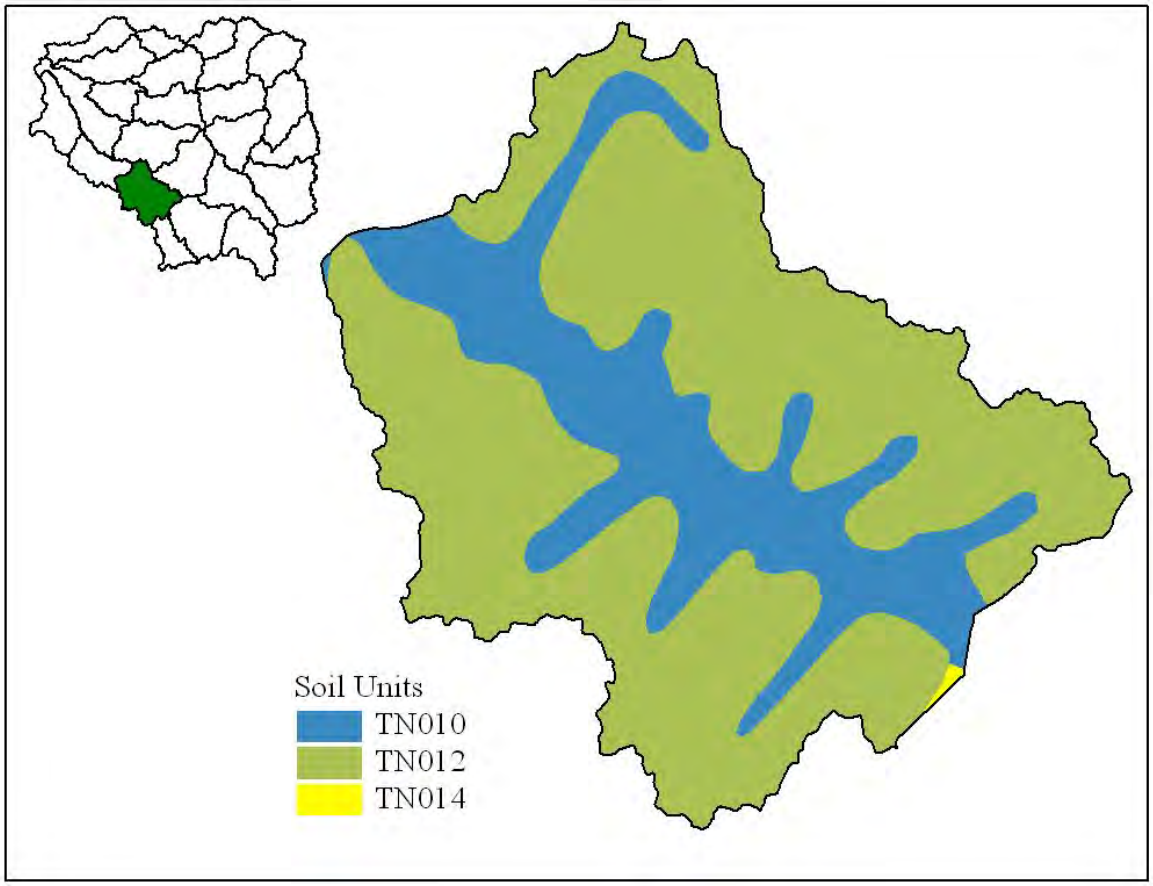


Figure 4-216. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030603.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39
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 080102030603. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	0.11	29	31	32	10.30
Gibson	46,315	48,083	48,152	8.51	3,943	4,094	4,100	4.00
Total	**73,829**	**77,073**	**77,627**		**3,972**	**4,125**	**4,132**	**4.00**

Table 4-140. Population Estimates in Subwatershed 080102030603.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Milan	Gibson	7,512	3,300	3,183	110	7
Atwood	Carroll	1,080	454	417	36	1
Total		**8,592**	**3,754**	**3,600**	**146**	**8**

Table 4-141. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030603.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030603.

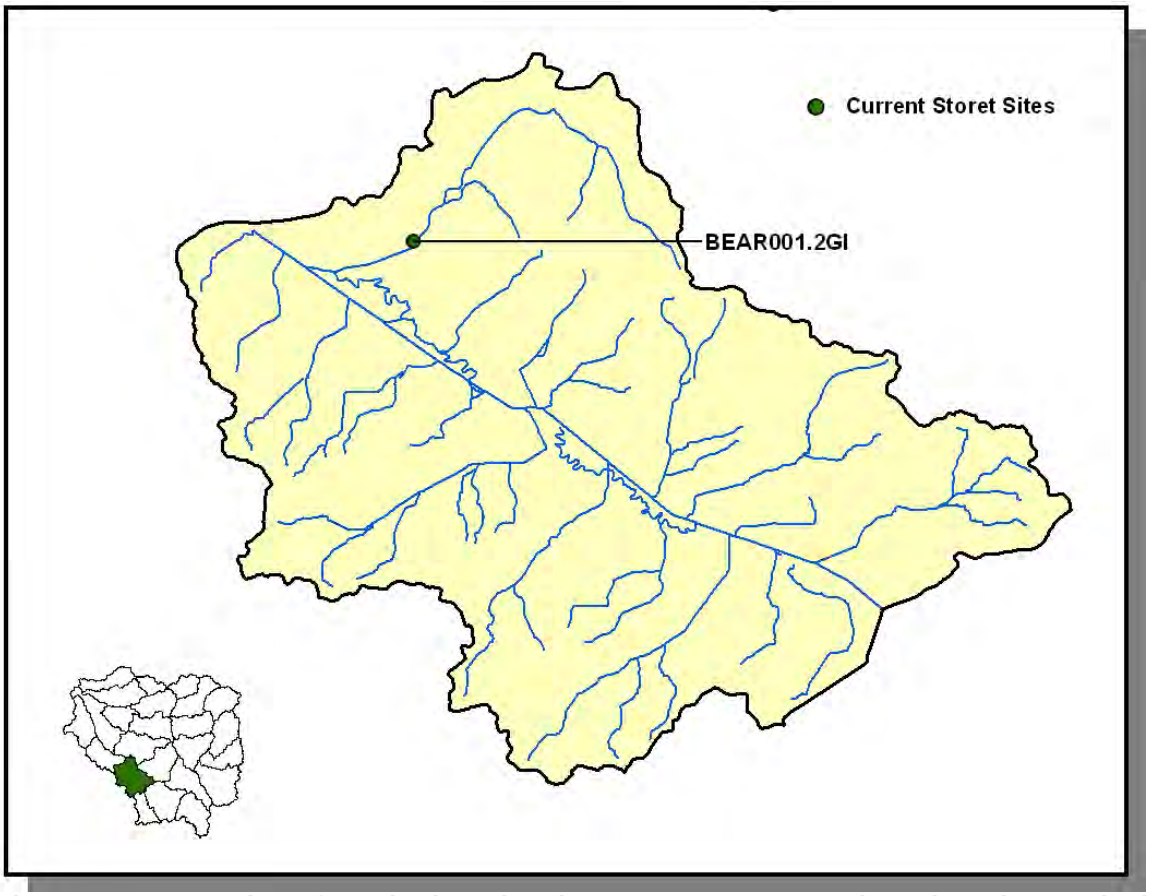


Figure 4-217. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030603. *More information, including site names and locations, is provided in Appendix IV.*

4.2.U.iii. Permitted Activities.

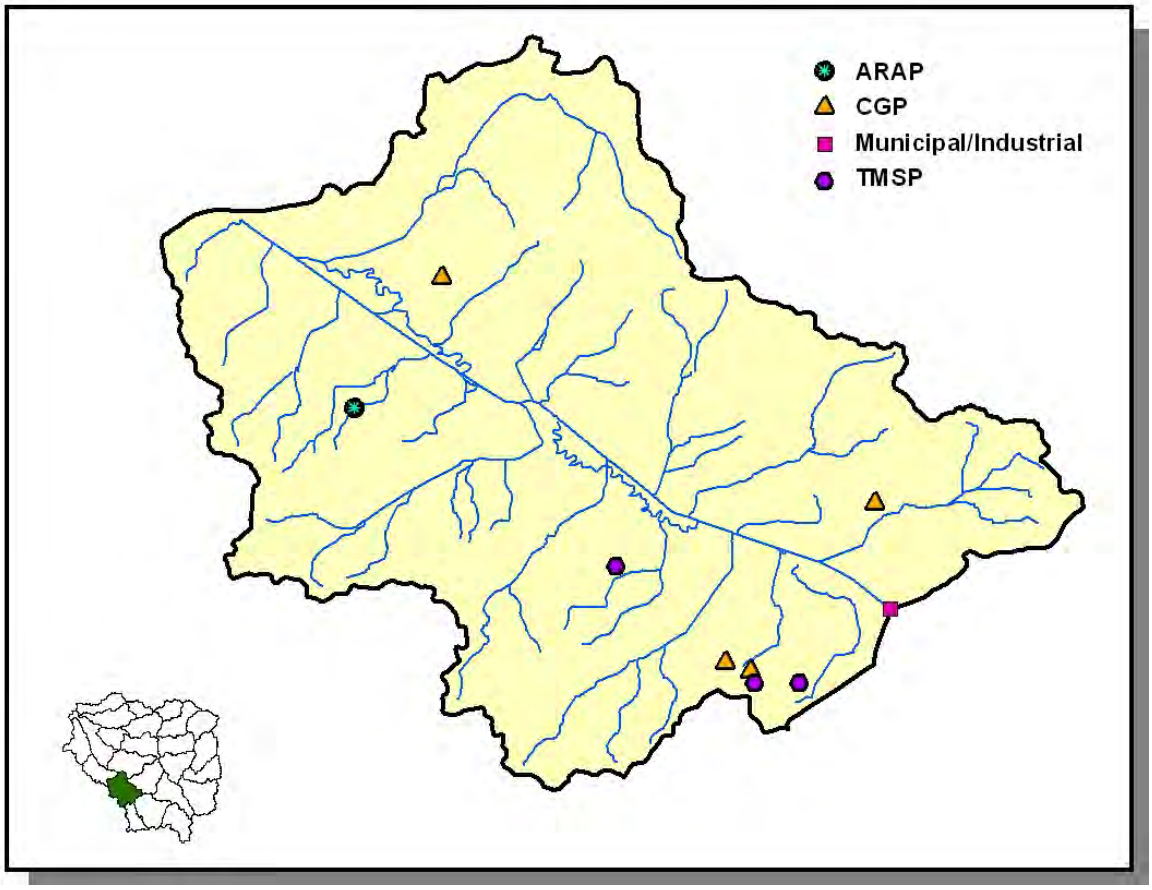


Figure 4-218. Location of Permits Issued in Subwatershed 080102030603. *More information, including the names of facilities, is provided in Appendix IV.*

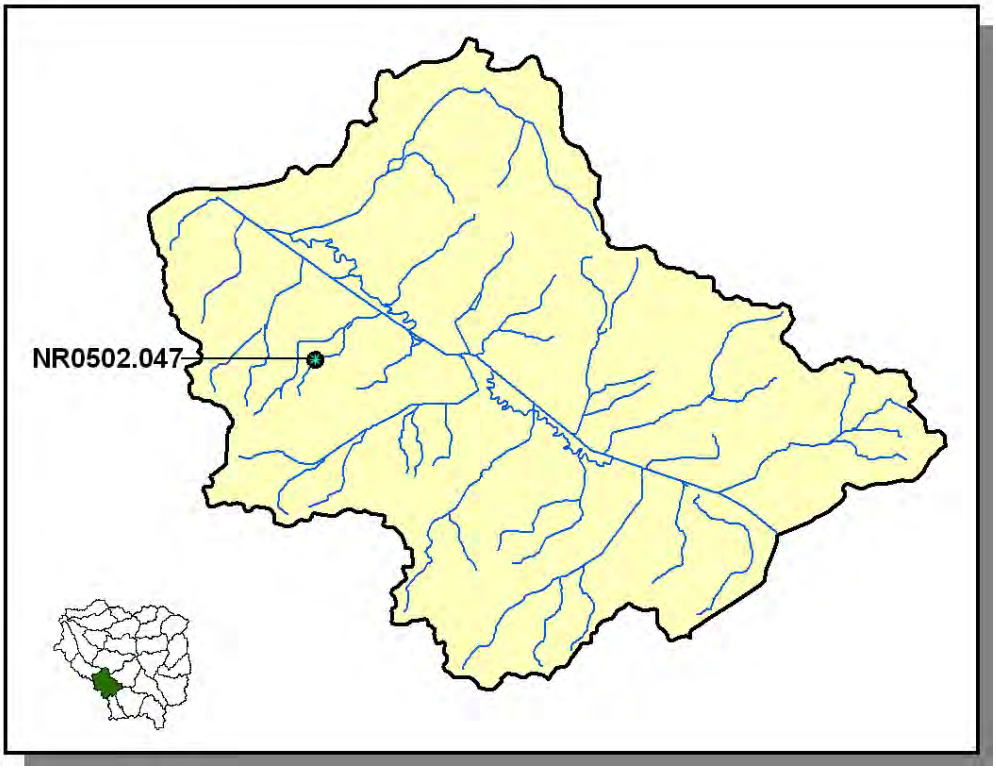


Figure 4-219. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030603. *More information is provided in Appendix IV.*

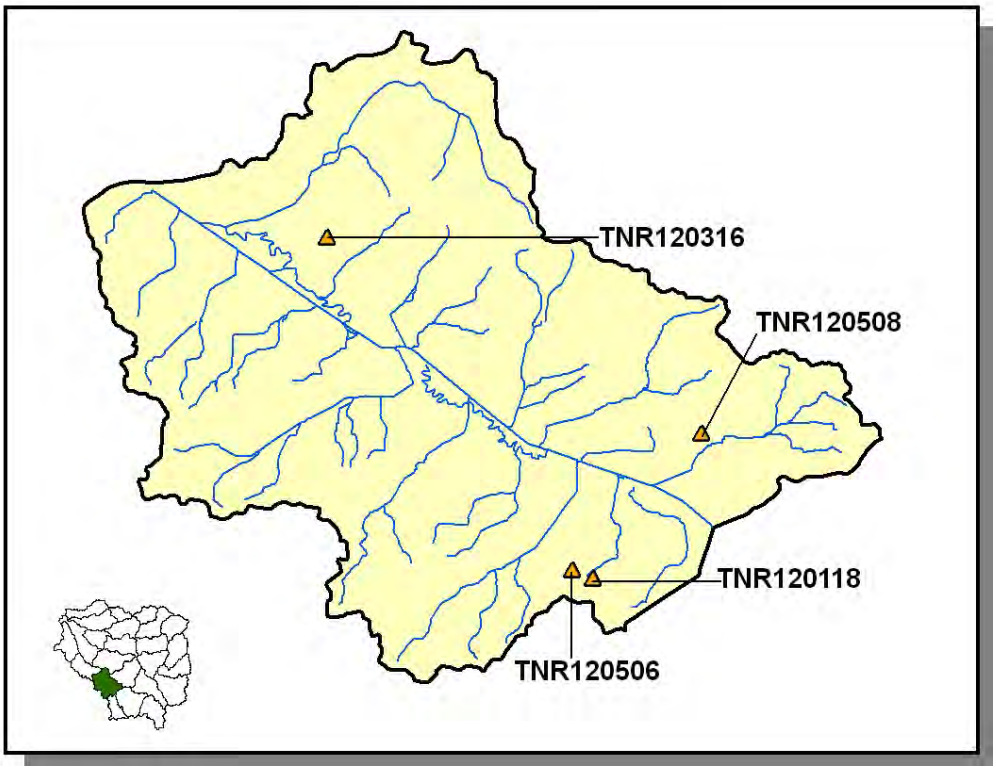


Figure 4-220. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030603. *More information is provided in Appendix IV.*

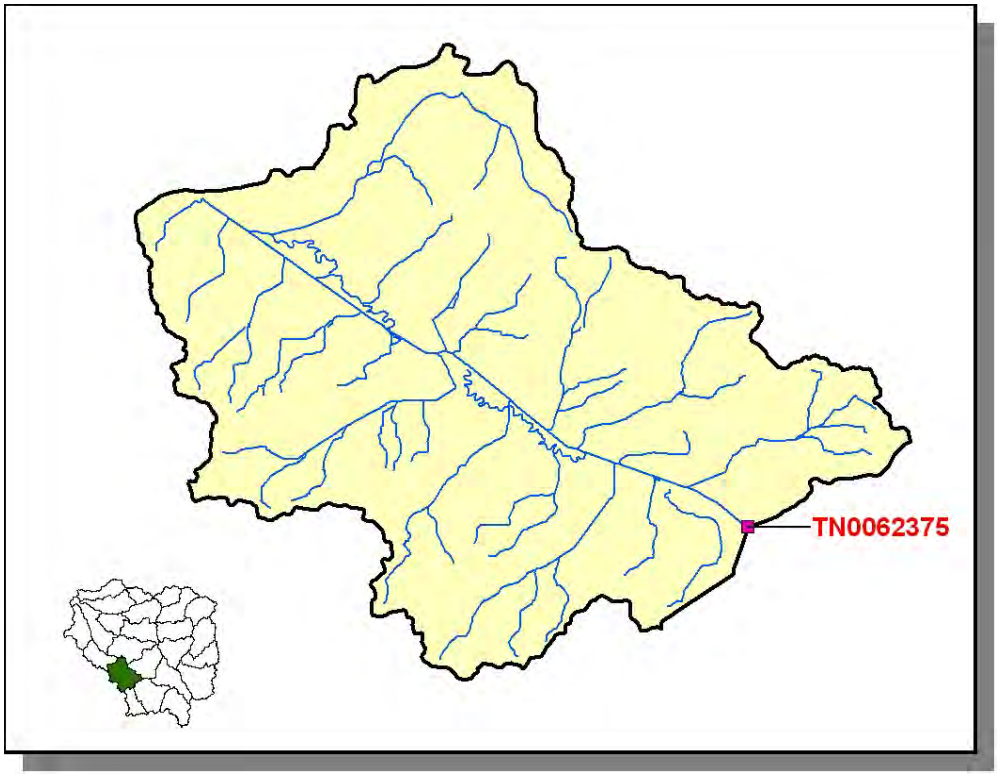


Figure 4-221. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030603. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0062375	7.75	2.55

Table 4-142. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030603. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	$CBOD_5$	CBOD % REMOVAL	AMMONIA AS N (TOTAL)	E. *coli*	Cu	Ag
TN0062375	X	X	X	X	X	X

Table 4-143. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030603. *$CBOD_5$, Carbonaceous Biochemical Oxygen Demand (5-day).*

PERMIT #	WET	DO	TRC	FLOW	pH	TSS	TSS % REMOVAL	SS
TN0062375	X	X	X	X	X	X	X	X

Table 4-144. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030603. *WET, Whole Effluent Toxicity; DO, Dissolved Oxygen; TRC, Total Residual Chlorine; TSS, Total Suspended Solids; SS, Settleable Solids.*

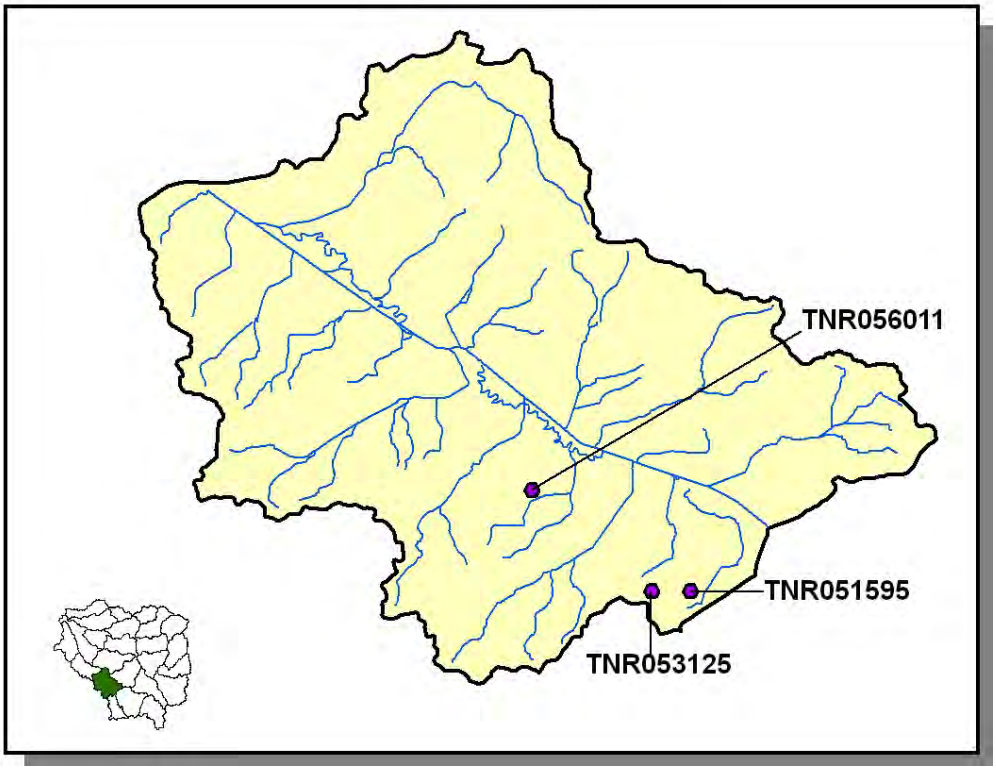


Figure 4-222. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030603. *More information is provided in Appendix IV.*

4.2.U.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	
Gibson	9,766	21,779	221	605	7,506	74

Table 4-145. 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)
Carroll	169.1	169.1	0.6	2.0
Gibson	36.4	36.4	2.0	8.6

Table 4-146. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Wheat (Close Grown Cropland)	18.50
Cotton (Row Crops)	17.09
Corn (Row Crops)	11.63
Soybeans (Row Crops)	8.61
Sorghum (Row Crops)	6.38
Other Land in Farms	1.33
Grass Forbs Legumes Mixed (Pastureland)	0.88
Other Cropland not Planted	0.68
Conservation Reserve Program Land	0.48
Legume Grass (Hayland)	0.46
Farmsteads and Ranch Headquarters	0.37
Grass (Hayland)	0.34
Grass (Pastureland)	0.28
Legume (Hayland)	0.07

Table 4-147. Annual Estimated Total Soil Loss in Subwatershed 080102030603.

4.2.V. 080102030604 (Wolf Creek).

4.2.V.i. General Description.

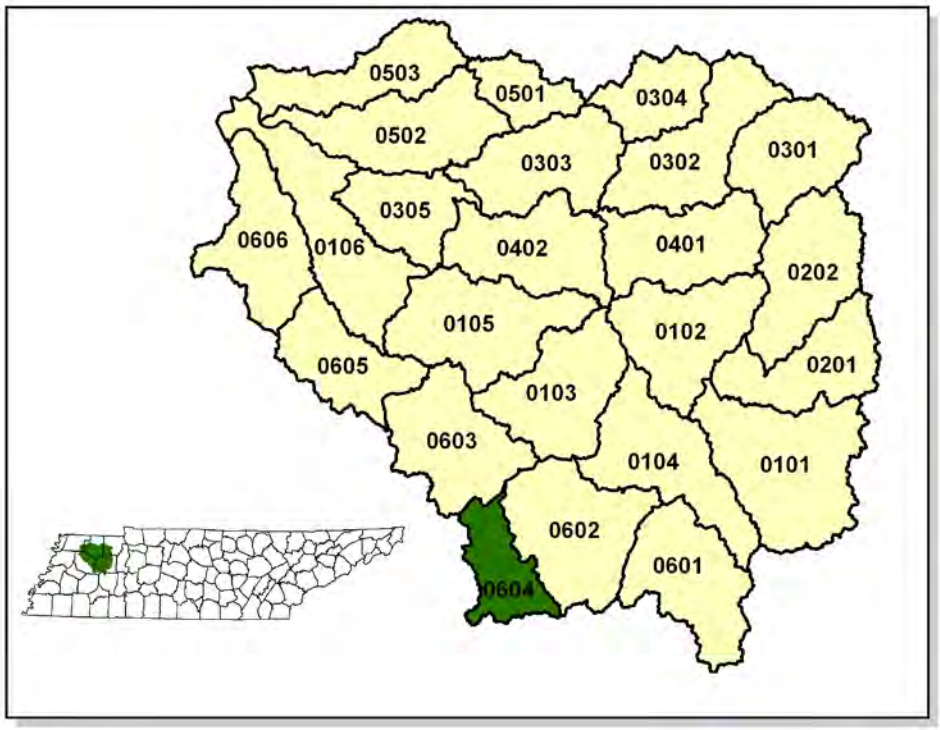


Figure 4-223. Location of Subwatershed 080102030604. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

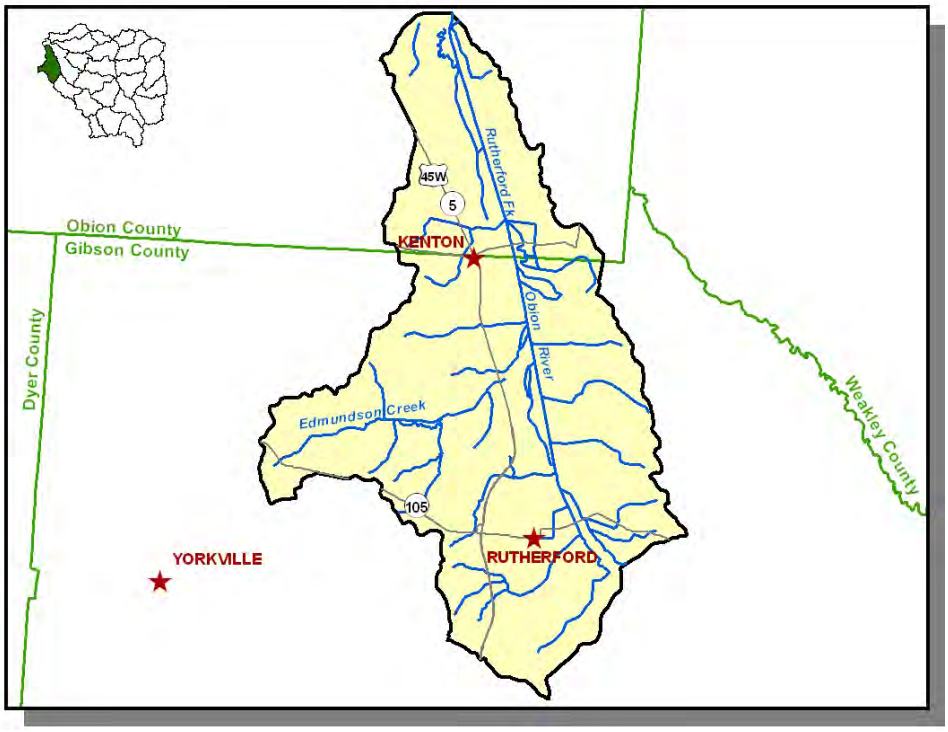


Figure 4-224. Locational Details of Subwatershed 080102030604.

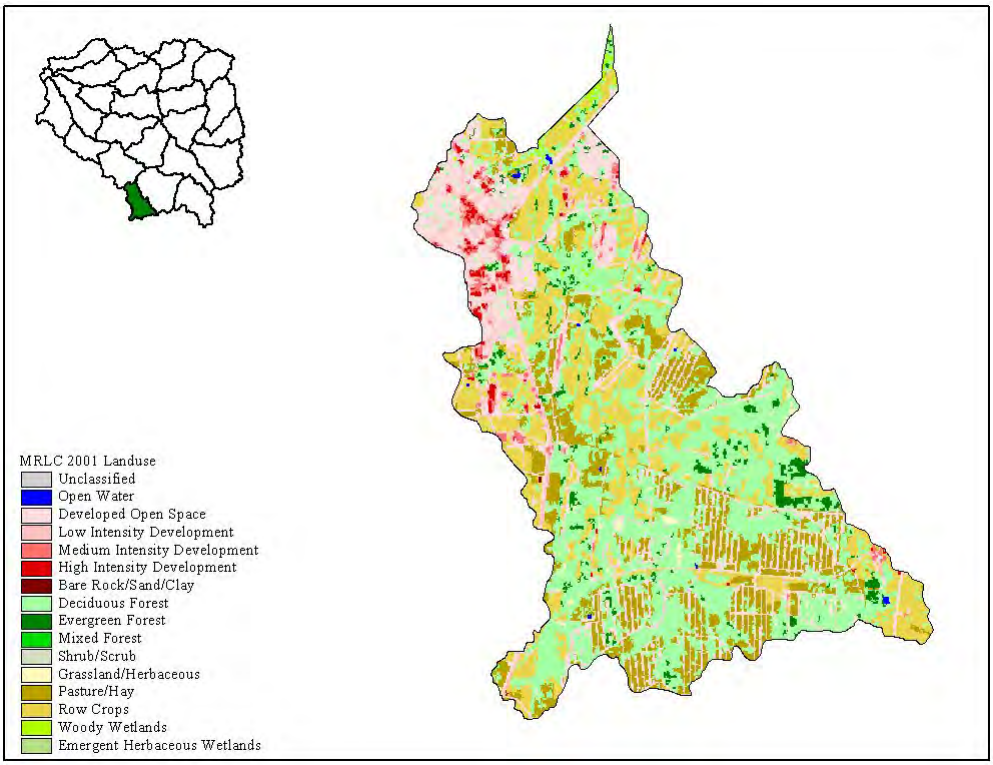


Figure 4-225. Illustration of Land Use Distribution in Subwatershed 080102030604.

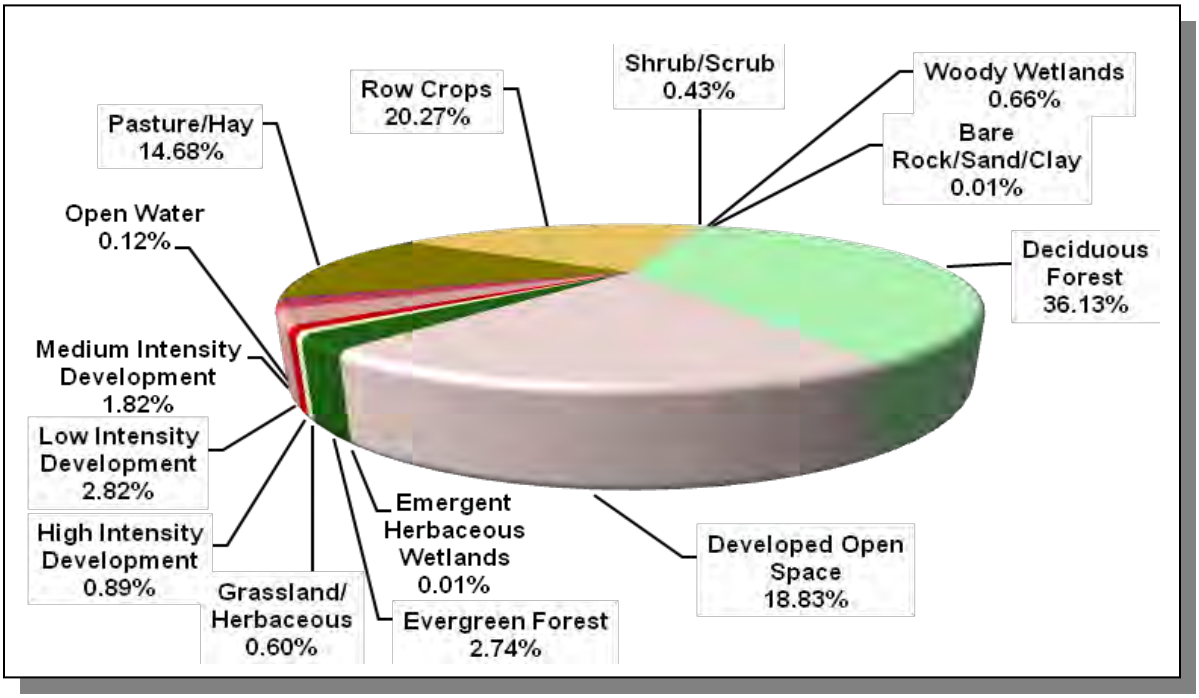


Figure 4-226. Land Use Distribution in Subwatershed 080102030604. *More information is provided in Appendix IV.*

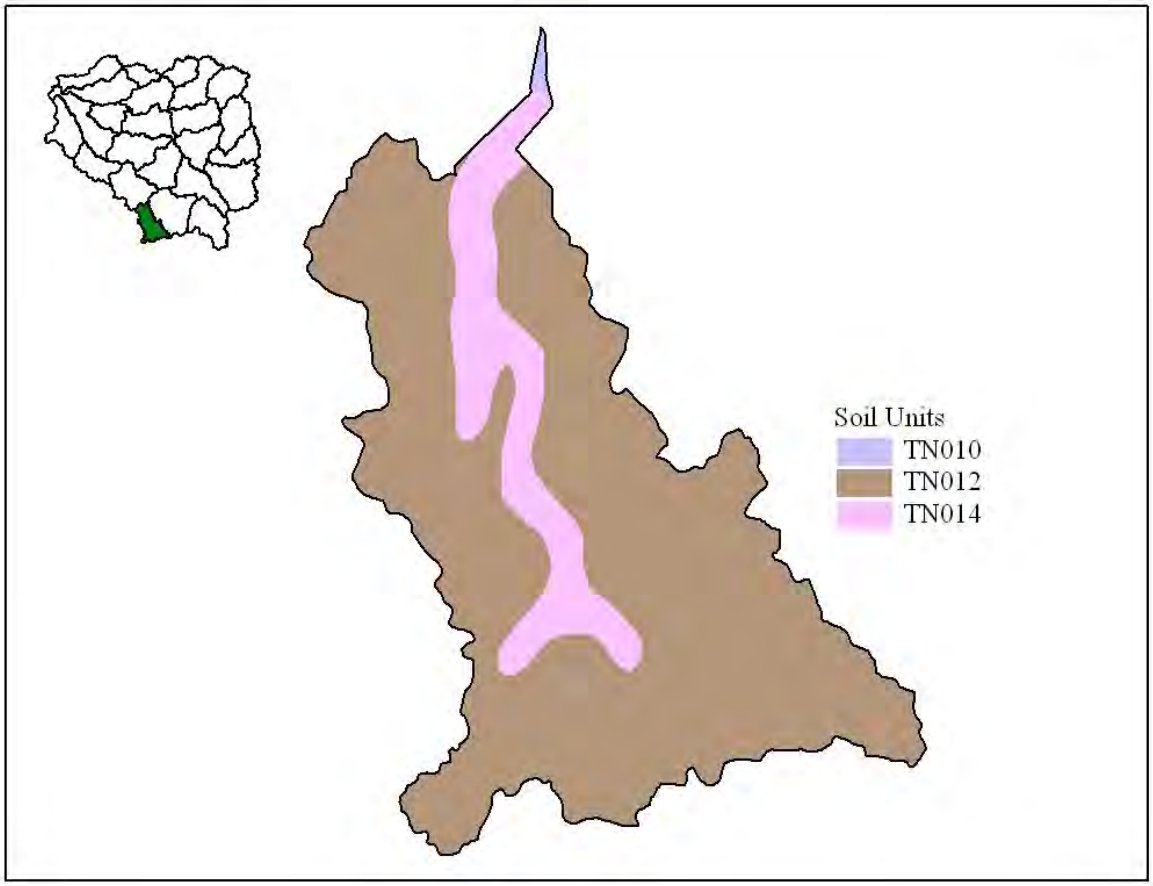


Figure 4-227. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030604.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39
TN014	30.00	C	1.30	5.12	Silty Loam	0.47

Table 4-148. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030604. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Carroll	27,514	28,990	29,475	0.96	264	278	283	7.20
Gibson	46,315	48,083	48,152	3.50	1,621	1,683	1,686	4.00
Total	**73,829**	**77,073**	**77,627**		**1,885**	**1,961**	**1,969**	**4.50**

Table 4-149. Population Estimates in Subwatershed 080102030604.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Milan	Gibson	7,512	3,300	3,183	110	7

Table 4-150. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030604.

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

There are no USGS continuous record gaging stations or STORET sites located in subwatershed 080102030604.

4.2.V.iii. Permitted Activities.

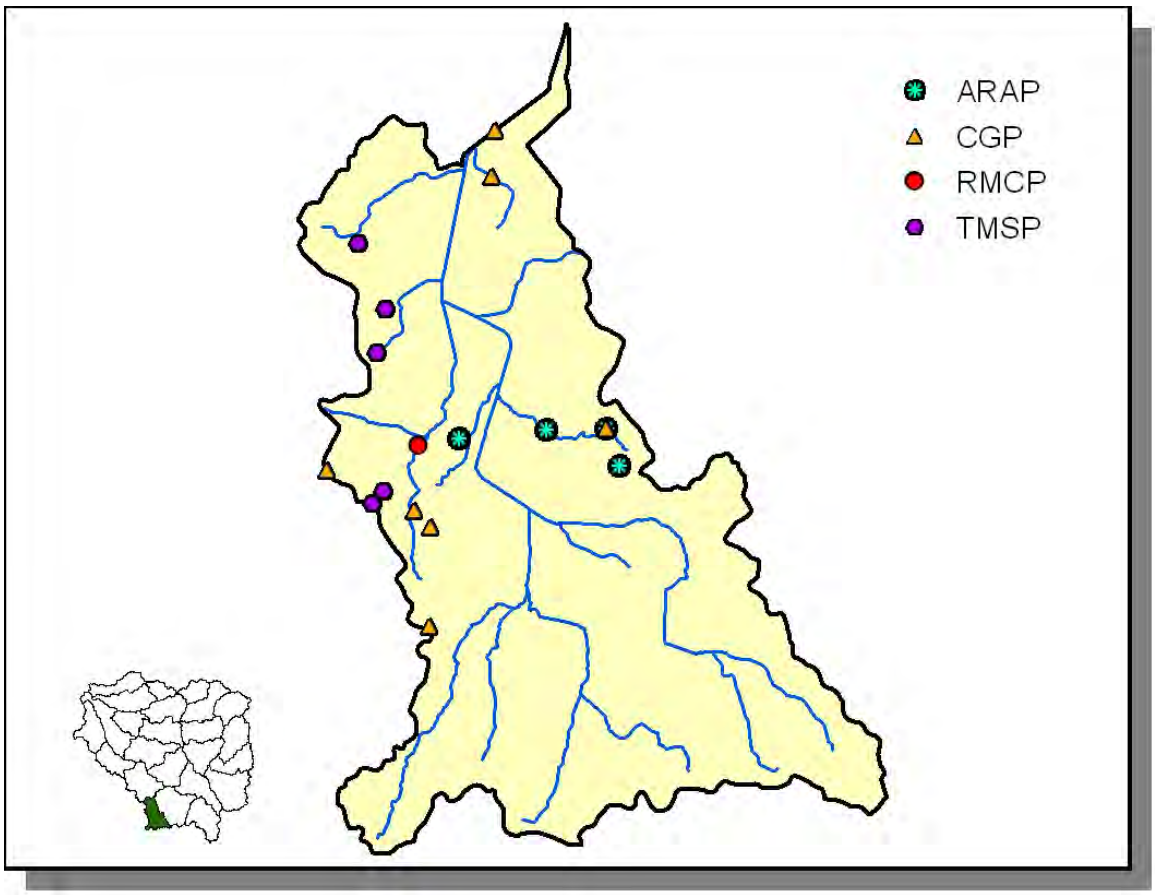


Figure 4-228. Location of Permits Issued in Subwatershed 080102030604. *More information, including the names of facilities, is provided in Appendix IV.*

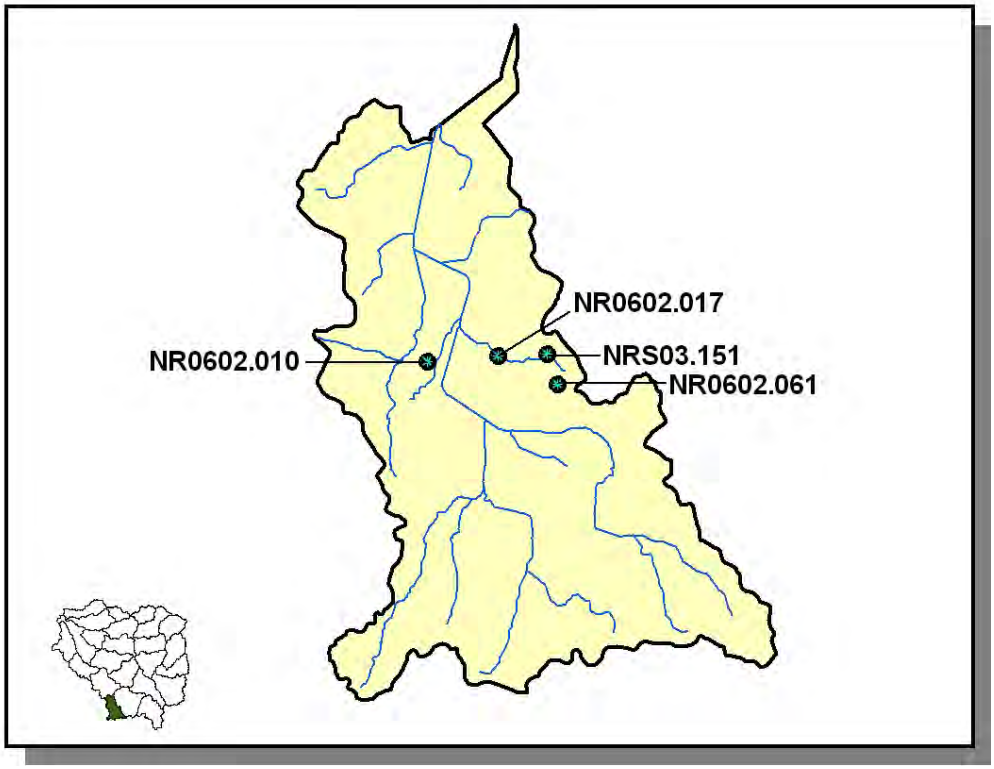


Figure 4-229. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030604. *More information is provided in Appendix IV.*

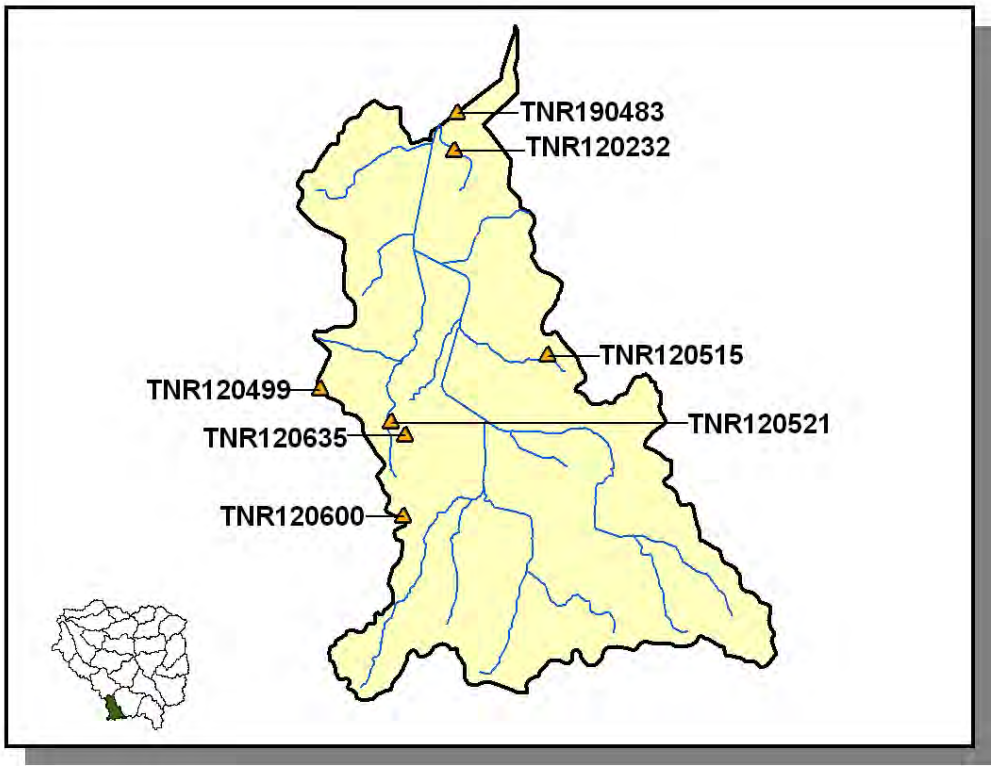


Figure 4-230. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030604. *More information is provided in Appendix IV.*

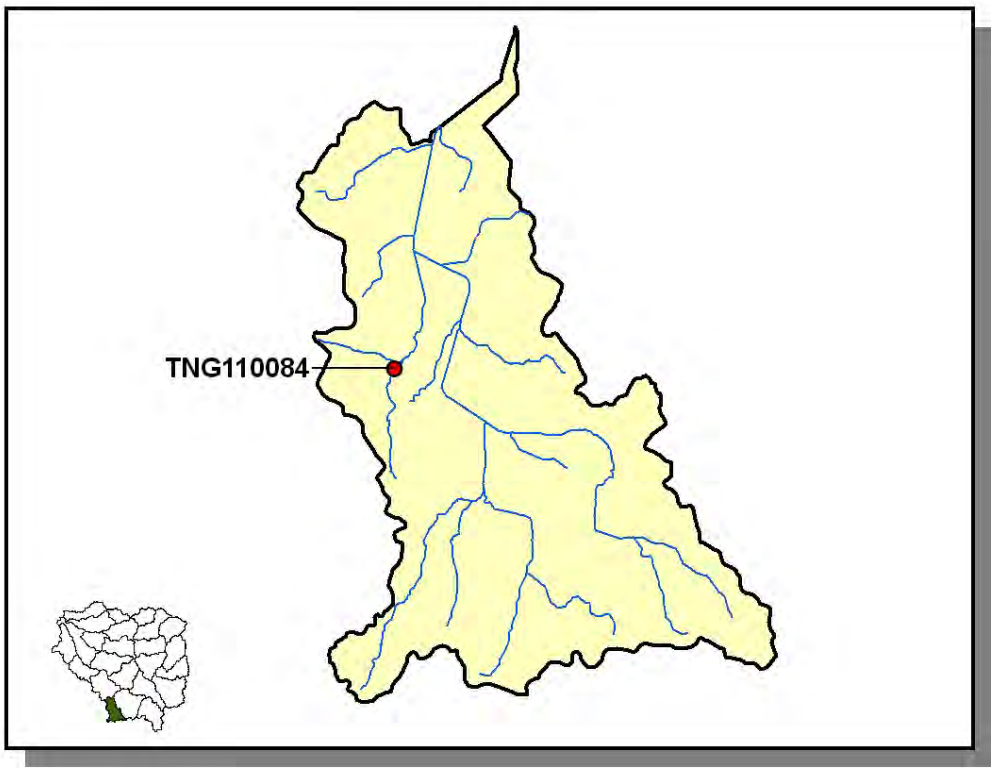


Figure 4-231. Location of RMCP (Ready Mix Concrete Plant) facilities in Subwatershed 080102030604. *More information, including the names of facilities, is provided in Appendix IV.*

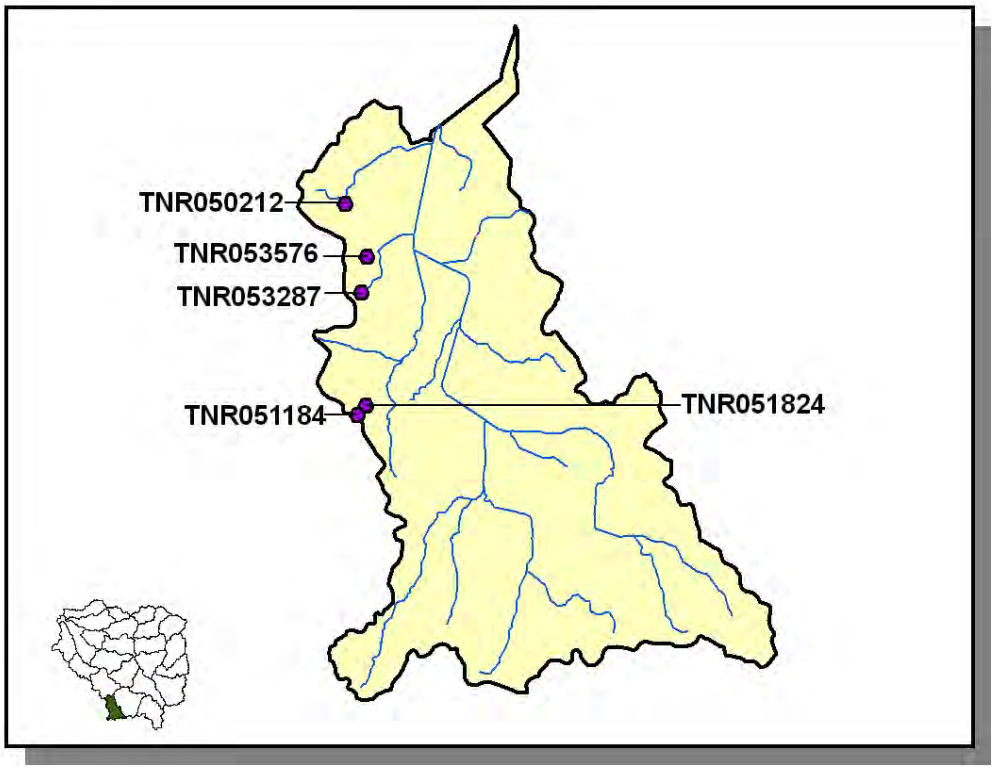


Figure 4-232. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030604. *More information is provided in Appendix IV.*

4.2.V.iv. Nonpoint Source Contributions.

LIVESTOCK COUNTS						
County	Beef Cow	Cattle	Milk Cow	Chickens (Layers)	Hogs	Sheep
Carroll	9,636	17,433	272	673	4,949	
Gibson	9,766	21,779	221	605	7,506	74

Table 4-151. 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)
Carroll	169.1	169.1	0.6	2.0
Gibson	36.4	36.4	2.0	8.6

Table 4-152. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Wheat (Close Grown Cropland)	18.50
Cotton (Row Crops)	15.14
Corn (Row Crops)	10.47
Soybeans (Row Crops)	8.93
Sorghum (Row Crops)	6.38
Other Cropland not Planted	2.49
Other Land in Farms	1.17
Grass Forbs Legumes Mixed (Pastureland)	0.82
Conservation Reserve Program Land	0.63
Farmsteads and Ranch Headquarters	0.53
Legume Grass (Hayland)	0.46
Grass (Hayland)	0.32
Grass (Pastureland)	0.30
Legume (Hayland)	0.07

Table 4-153. Annual Estimated Total Soil Loss in Subwatershed 080102030604.

4.2.W. 080102030605 (Rutherford Fork Obion River).

4.2.W.i. General Description.

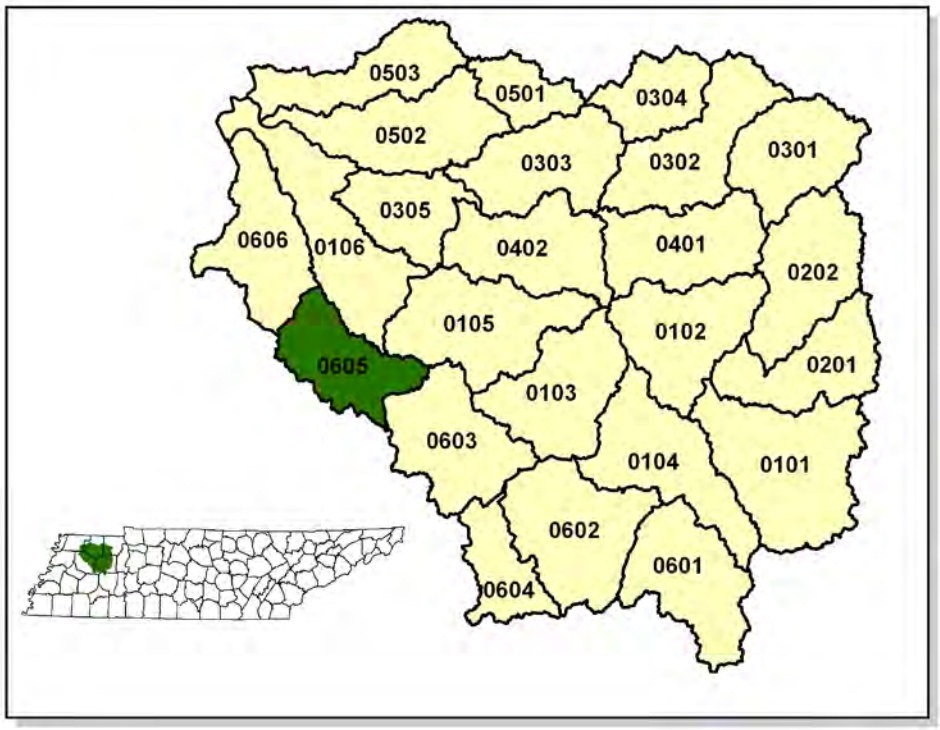


Figure 4-233. Location of Subwatershed 080102030605. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

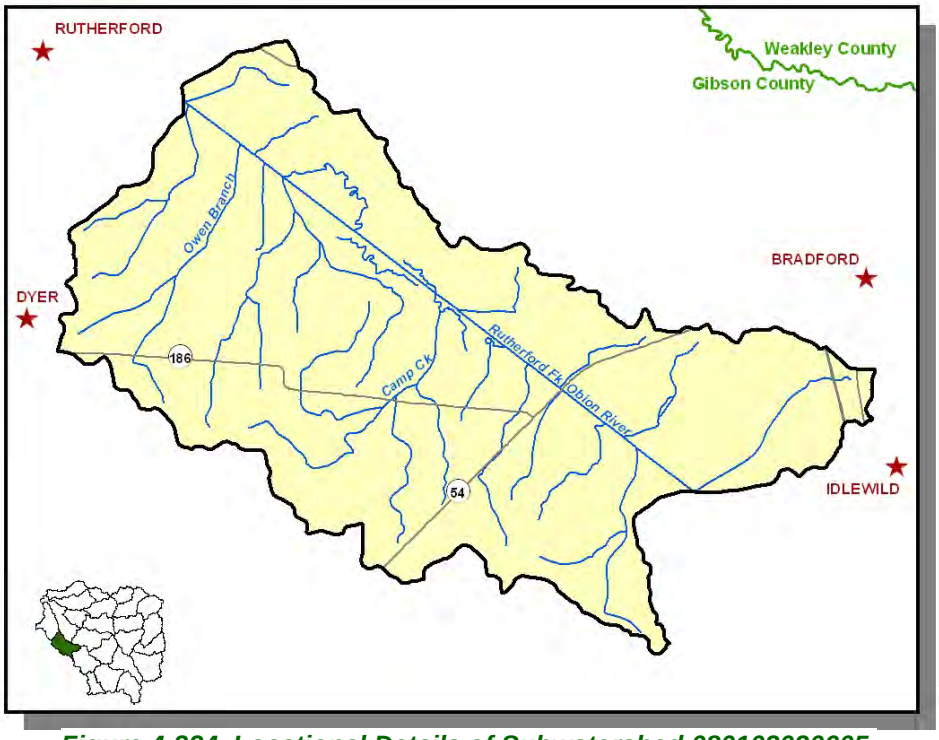


Figure 4-234. Locational Details of Subwatershed 080102030605.

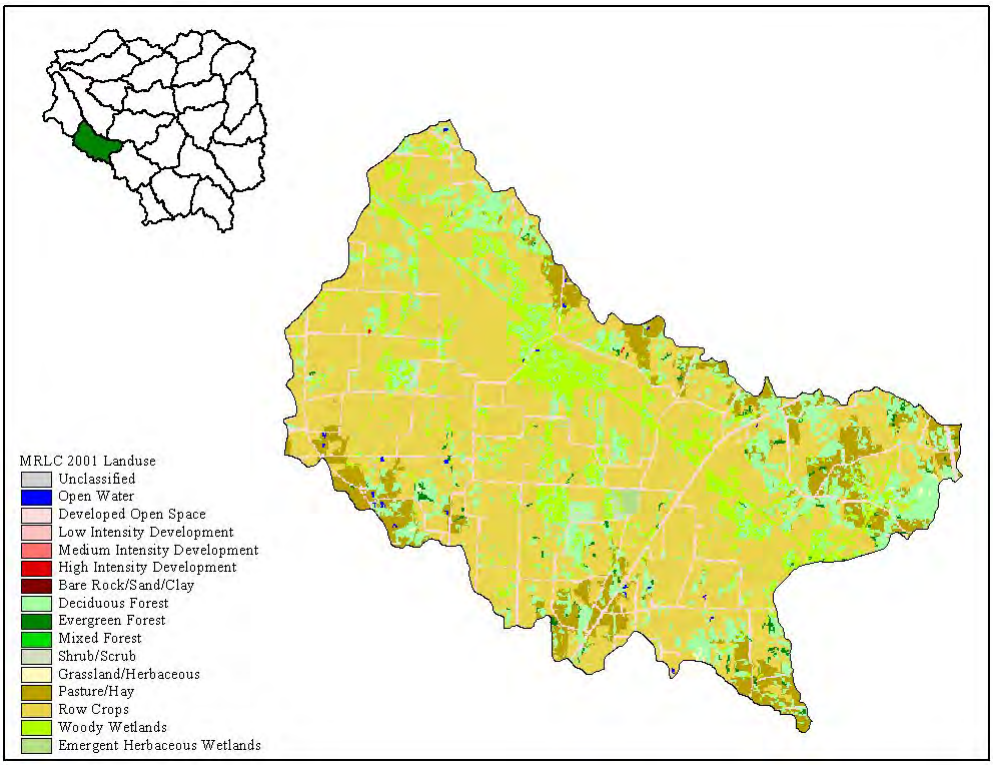


Figure 4-235. Illustration of Land Use Distribution in Subwatershed 080102030605.

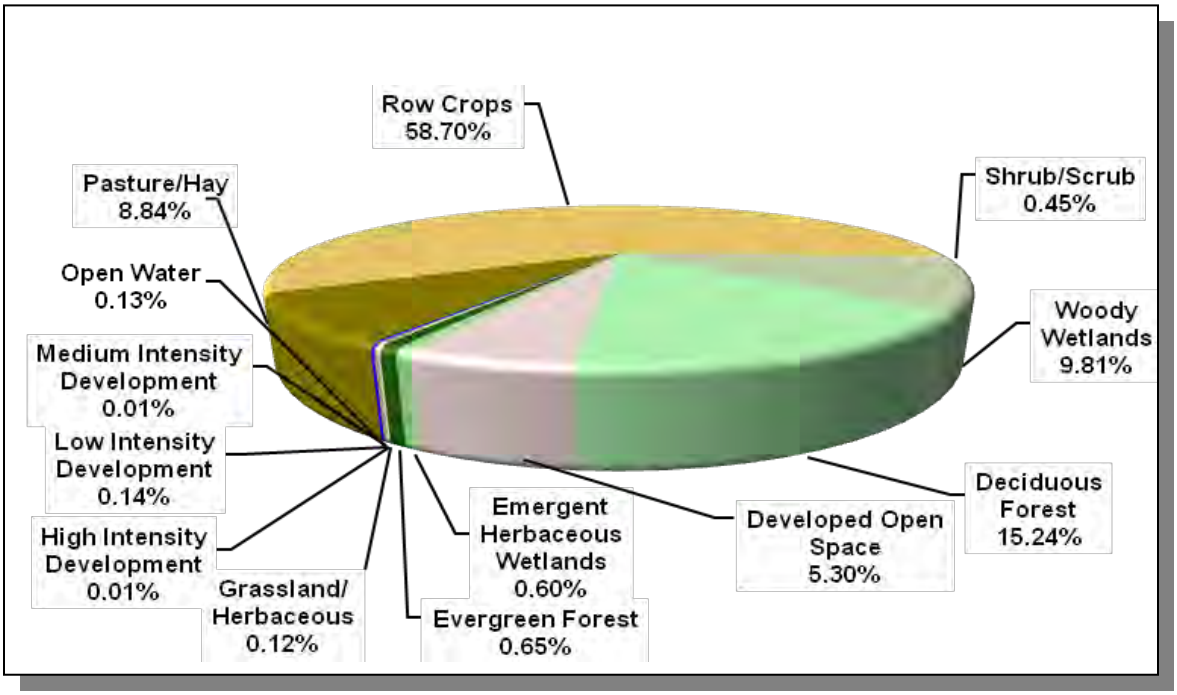


Figure 4-236. Land Use Distribution in Subwatershed 080102030605. *More information is provided in Appendix IV.*

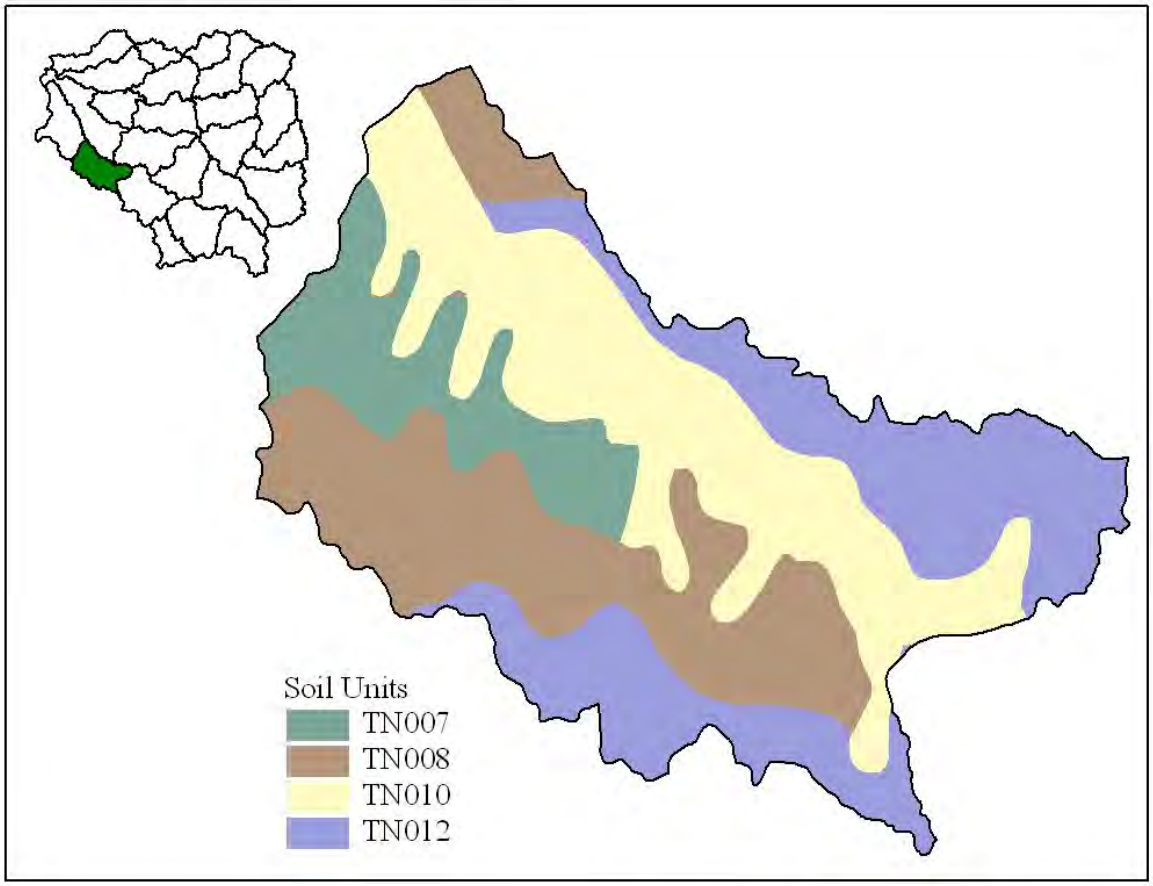


Figure 4-237. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030605.

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
TN012	1.00	C	2.52	5.13	Silty Loam	0.39

Table 4-154. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030605. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Gibson	46,315	48,083	48152	6.5	3,009	3,124	3,129	4.0

Table 4-155. Population Estimates in Subwatershed 080102030605.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Bradford	Gibson	1,154	503	480	23	0
Dyer	Gibson	2,190	972	932	40	0
Total		**3,344**	**1,475**	**1,412**	**63**	**0**

Table 4-156. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030605.

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

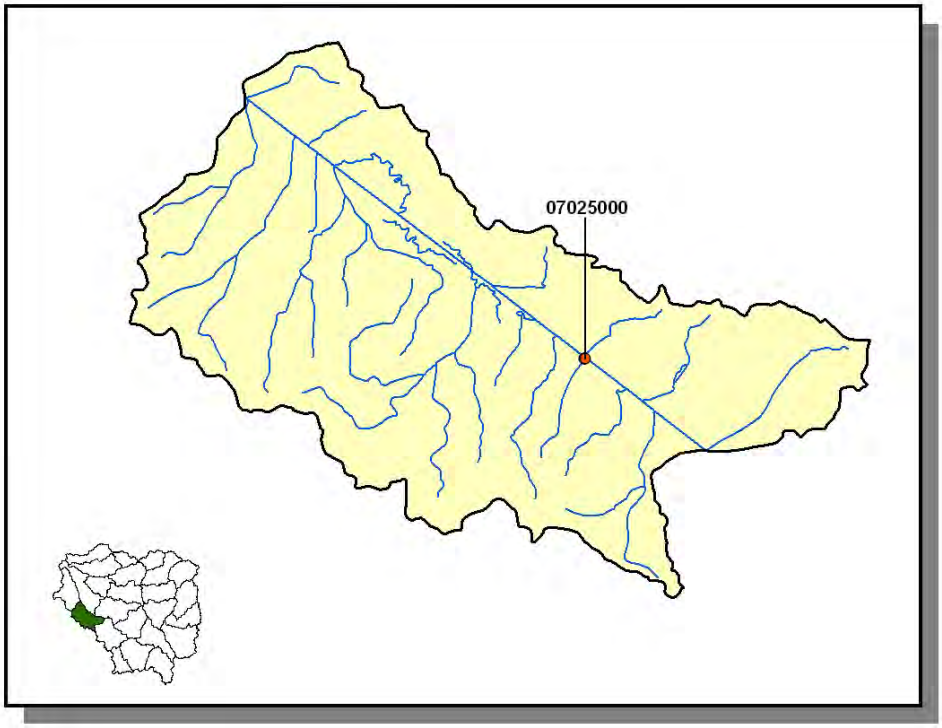


Figure 4-238. Location of USGS Continuous Record Gaging Stations in Subwatershed 080102030605. *More information is provided in Appendix IV.*

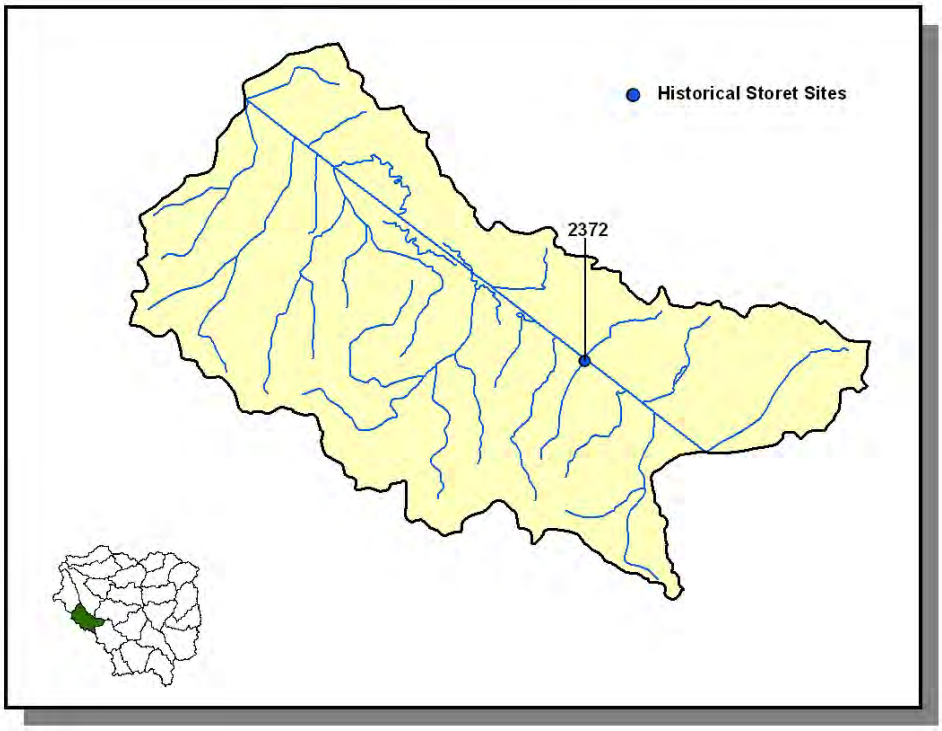


Figure 4-239. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030605. *More information, including site names and locations, is provided in Appendix IV.*

4.2.W.iii. Permitted Activities.

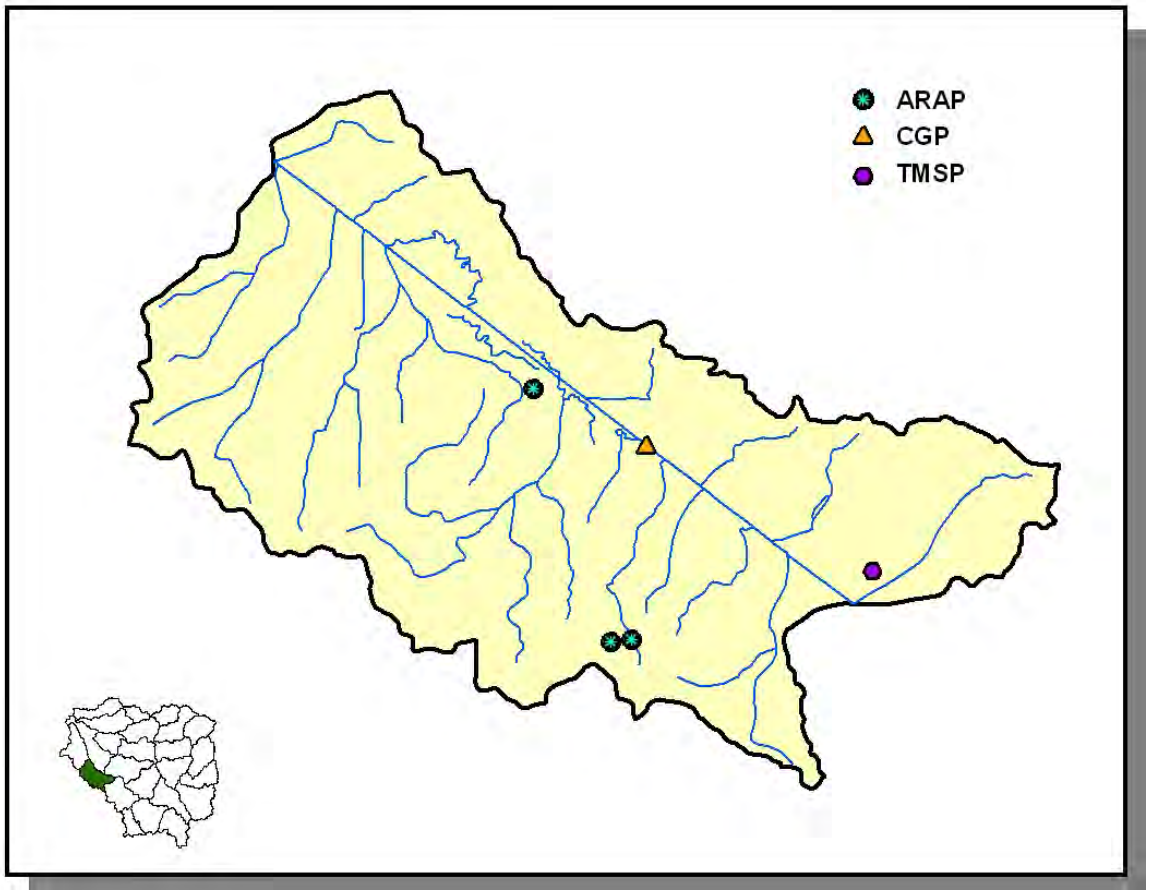


Figure 4-240. Location of Permits Issued in Subwatershed 080102030605. *More information, including the names of facilities, is provided in Appendix IV.*

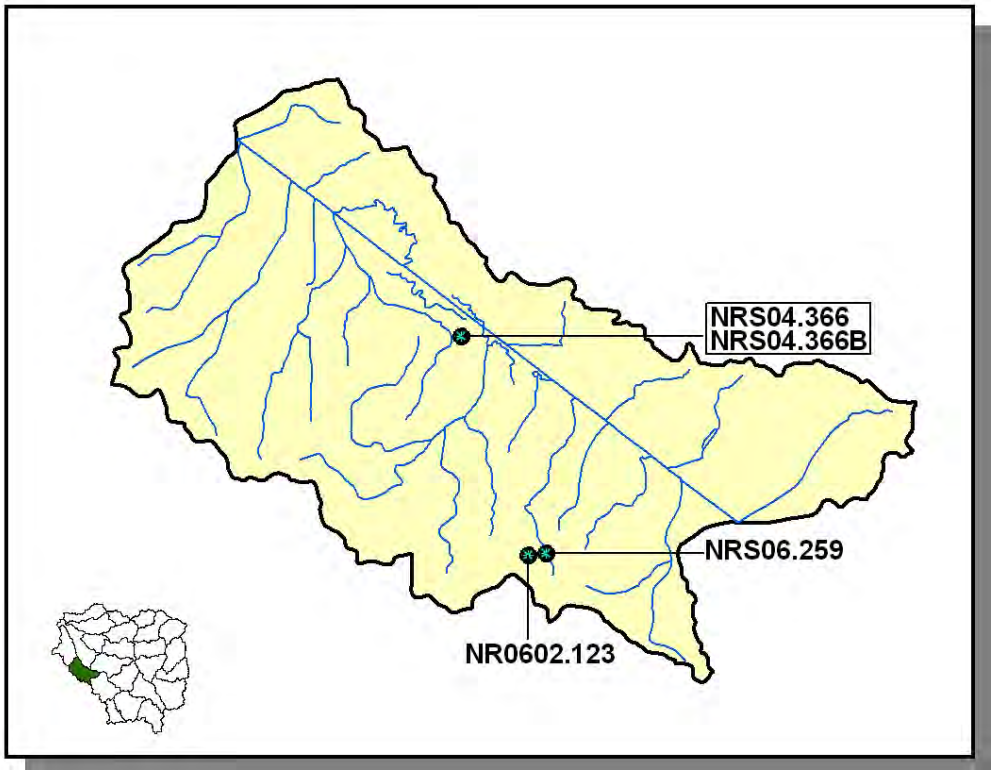


Figure 4-241. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030605. *More information is provided in Appendix IV.*

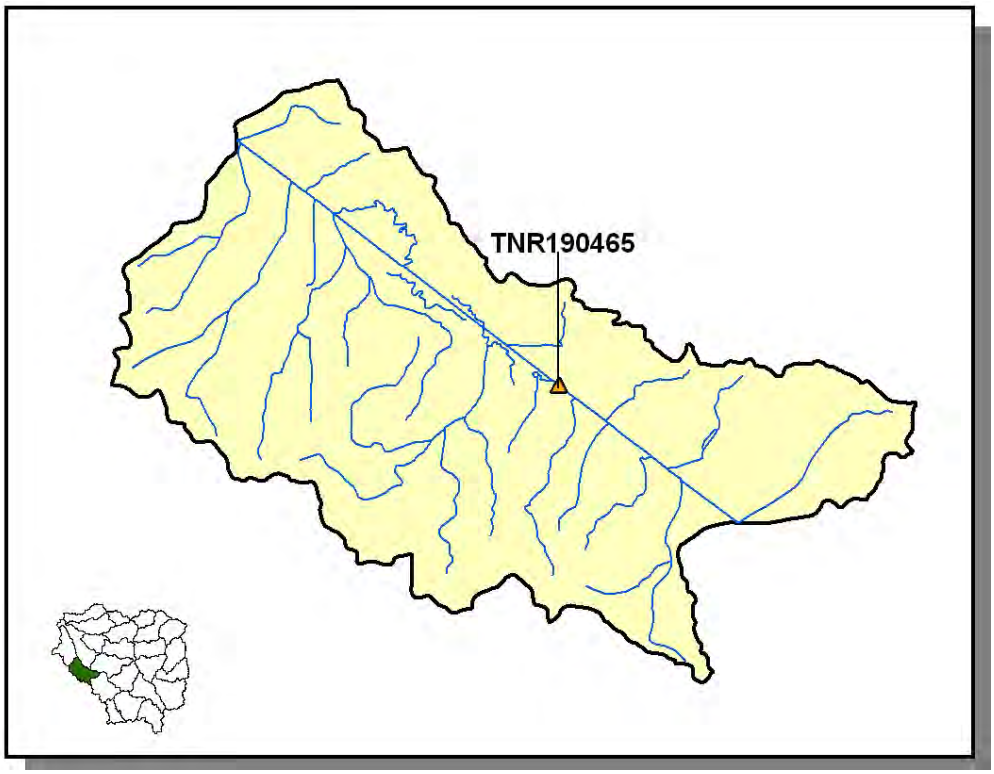


Figure 4-242. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030605. *More information is provided in Appendix IV.*

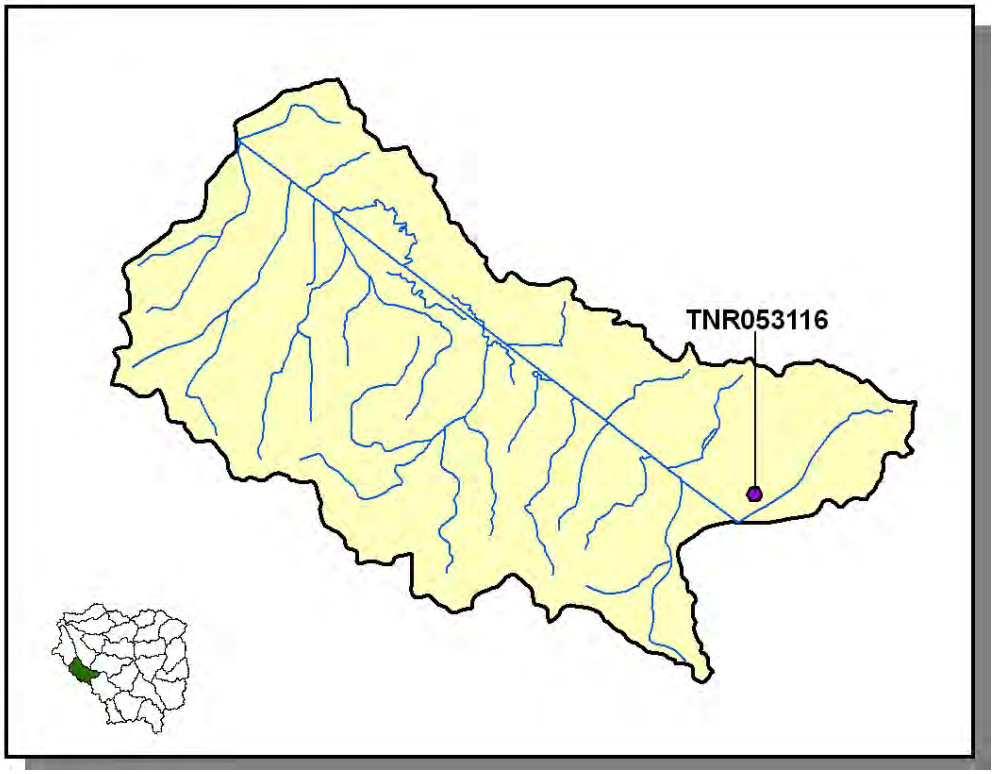


Figure 4-243. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030605. *More information is provided in Appendix IV.*

4.2.W.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

Table 4-157. 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

Table 4-158. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Cotton (Row Crops)	17.21
Corn (Row Crops)	11.70
Soybeans (Row Crops)	8.59
Sorghum (Row Crops)	6.38
Other Land in Farms	1.34
Grass Forbs Legumes Mixed (Pastureland)	0.88
Other Cropland not Planted	0.57
Conservation Reserve Program Land	0.47
Farmsteads and Ranch Headquarters	0.36
Grass (Hayland)	0.34
Grass (Pastureland)	0.28

Table 4-159. Annual Estimated Total Soil Loss in Subwatershed 080102030605.

4.2.X. 080102030606 (Rutherford Fork Obion River).

4.2.X.i. General Description.

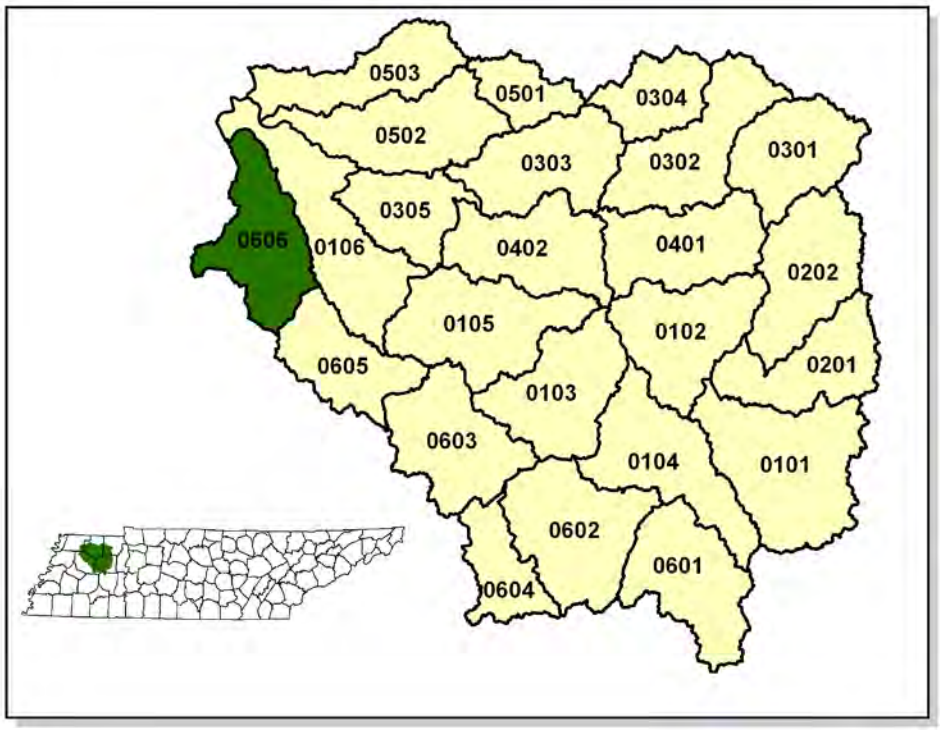


Figure 4-244. Location of Subwatershed 080102030606. *All South Fork Obion River HUC-12 subwatershed boundaries are shown for reference.*

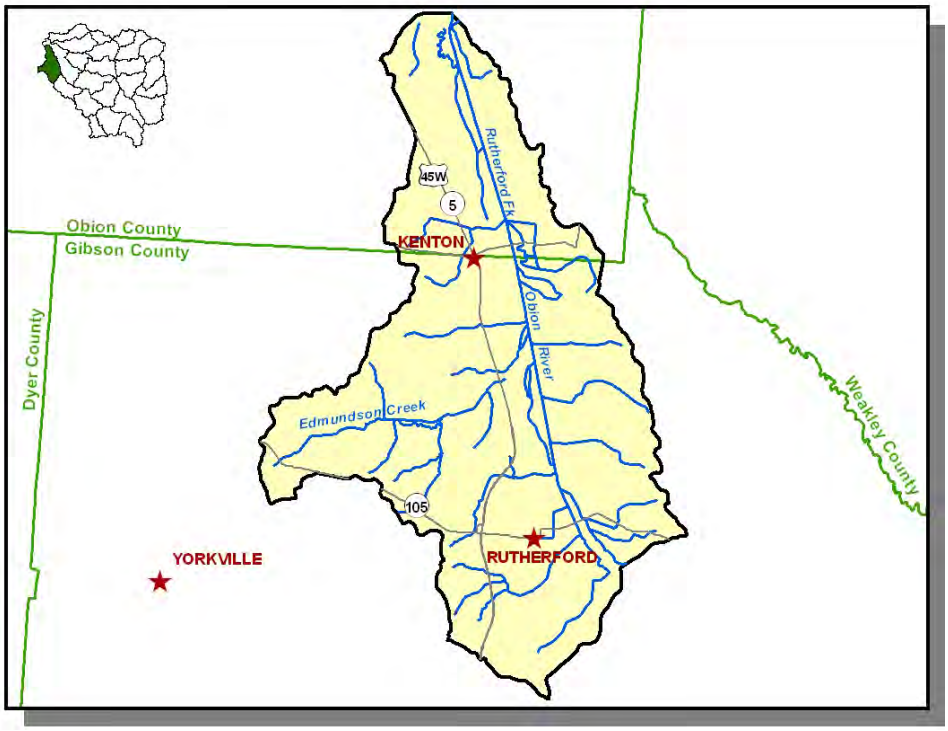


Figure 4-245. Locational Details of Subwatershed 080102030606.

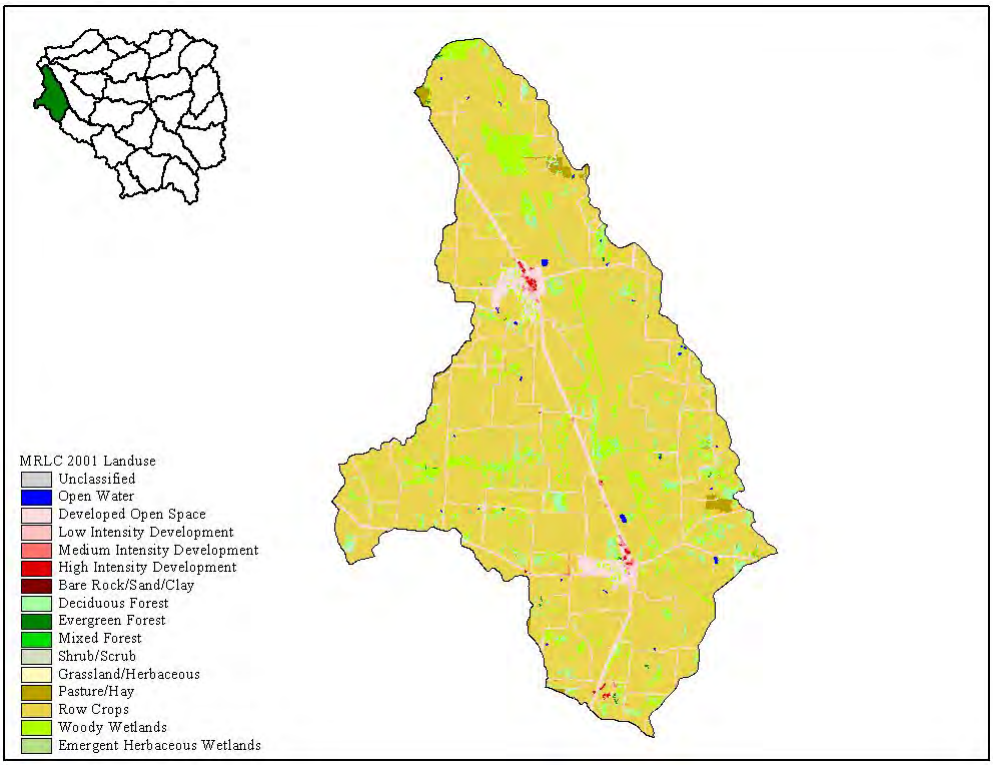


Figure 4-246. Illustration of Land Use Distribution in Subwatershed 080102030606.

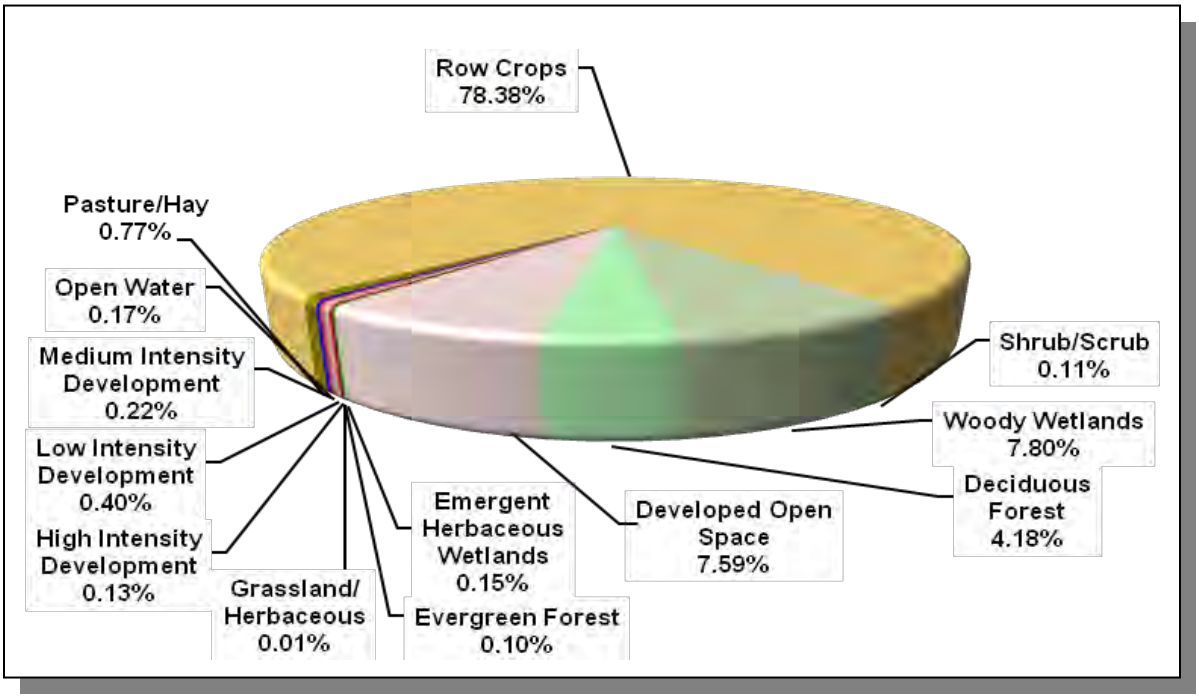


Figure 4-247. Land Use Distribution in Subwatershed 080102030606. *More information is provided in Appendix IV.*

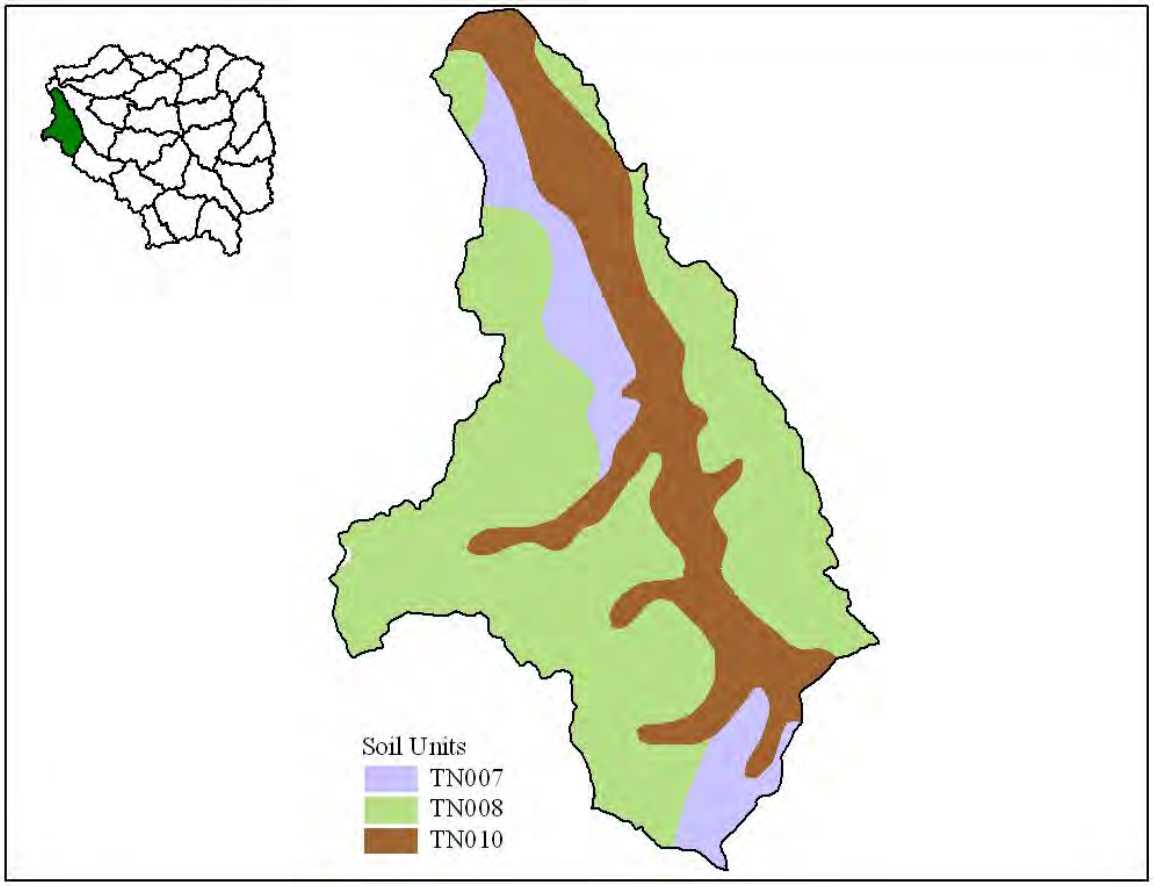


Figure 4-248. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030606.

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

Table 4-160. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 080102030606. *The definition of "Hydrologic Group" is provided in Appendix IV.*

	COUNTY POPULATION				ESTIMATED POPULATION IN WATERSHED			
County	1990	1997	2000	Portion of Watershed (%)	1990	1997	2000	% Change (1990-2000)
Gibson	46,315	48,083	48,152	6.21	2,876	2,986	2,990	4.00
Obion	31,717	32,069	32,450	1.96	622	628	636	2.30
Total	**78,032**	**80,152**	**80,602**		**3,498**	**3,614**	**3,626**	**3.70**

Table 4-161. Population Estimates in Subwatershed 080102030606.

			NUMBER OF HOUSING UNITS			
Populated Place	County	Population	Total	Public Sewer	Septic Tank	Other
Kenton	Obion	1,403	623	609	14	0
Dyer	Gibson	2,190	972	932	40	0
Rutherford	Gibson	1,280	576	555	21	0
Total		**4,873**	**2,171**	**2,096**	**75**	**0**

Table 4-162. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 080102030606.

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

There are no USGS continuous record gaging stations located in subwatershed 080102030606.

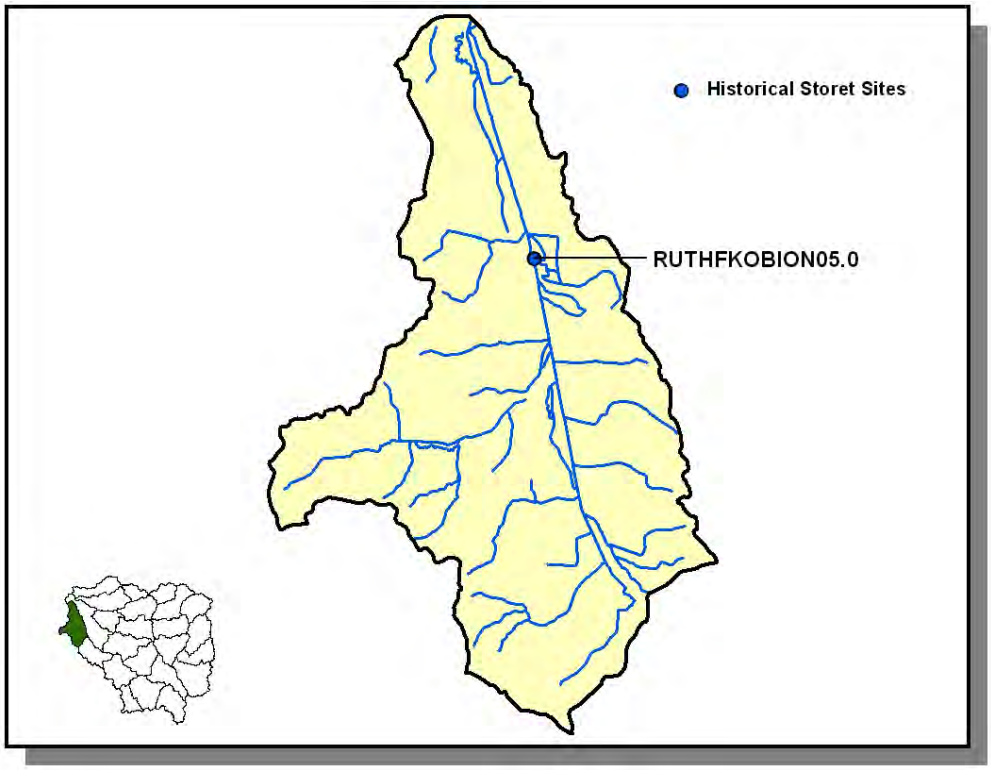


Figure 4-249. Location of Monitoring Sites in EPA's STORET Database in Subwatershed 080102030606. *More information, including site names and locations, is provided in Appendix IV.*

4.2.X.iii. Permitted Activities.

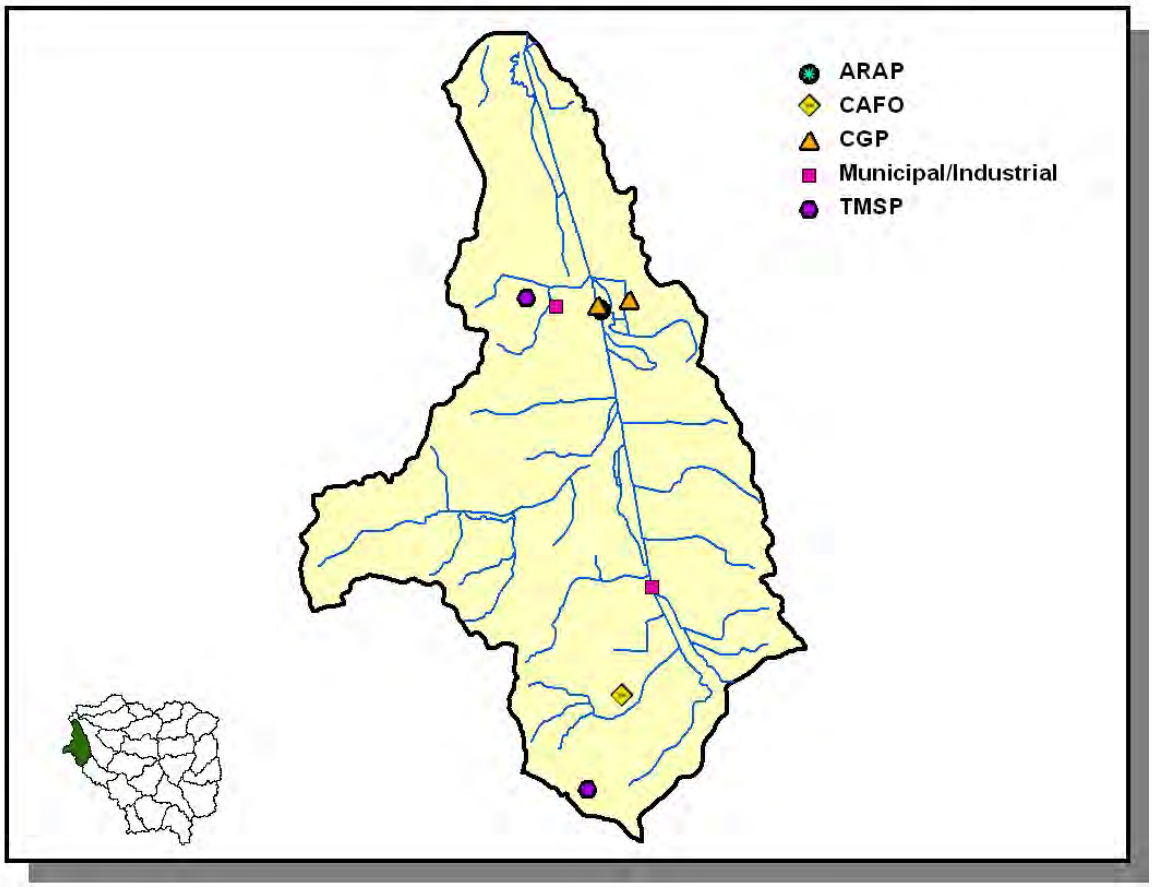


Figure 4-250. Location of Permits Issued in Subwatershed 080102030606. *More information, including the names of facilities, is provided in Appendix IV.*

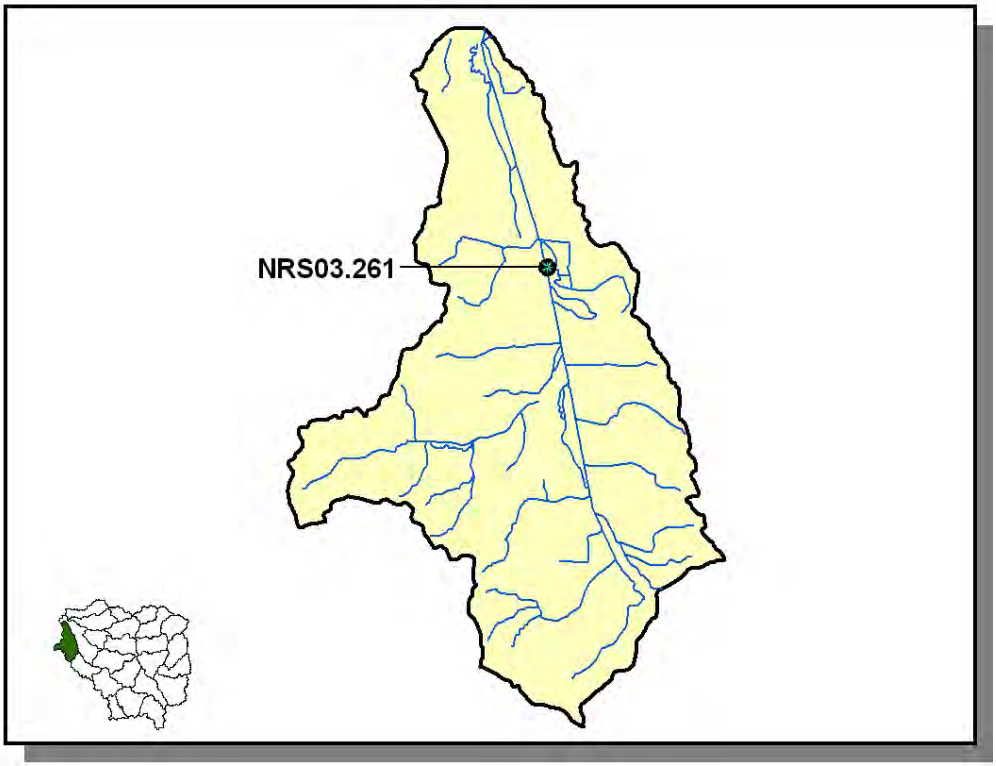


Figure 4-251. Location of ARAP (Aquatic Resource Alteration Permit) Sites in Subwatershed 080102030606. *More information is provided in Appendix IV.*

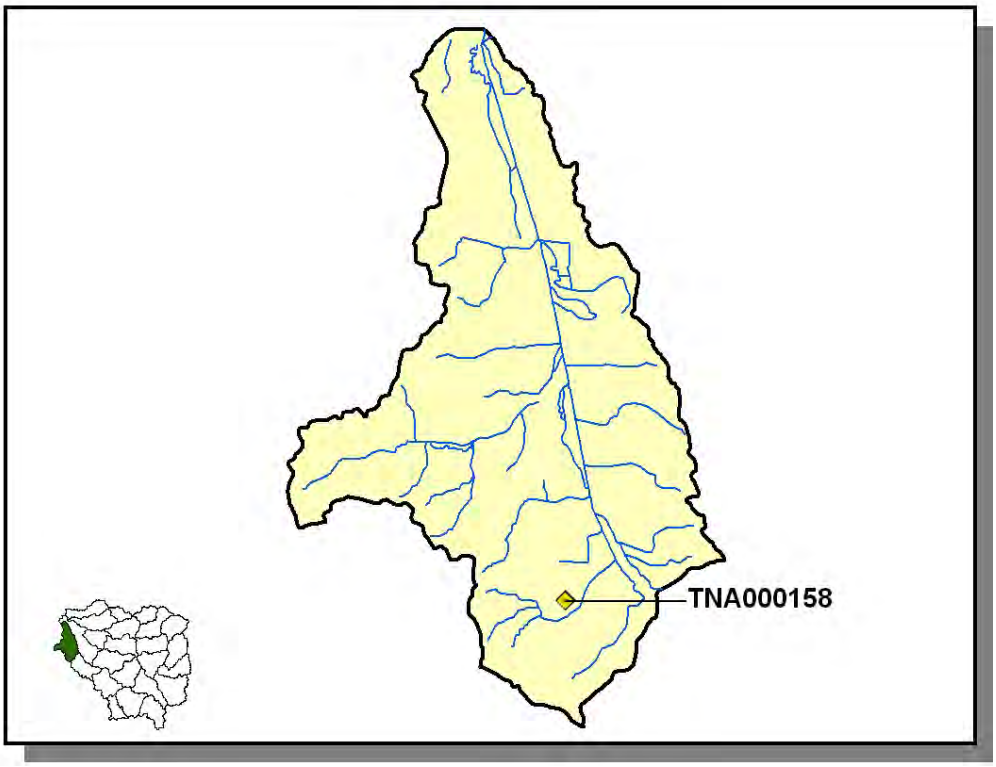


Figure 4-252. Location of CAFO (Concentrated Animal Feel Operation) Permit Sites in Subwatershed 080102030606. *More information, including the names of facilities, is provided in Appendix IV.*

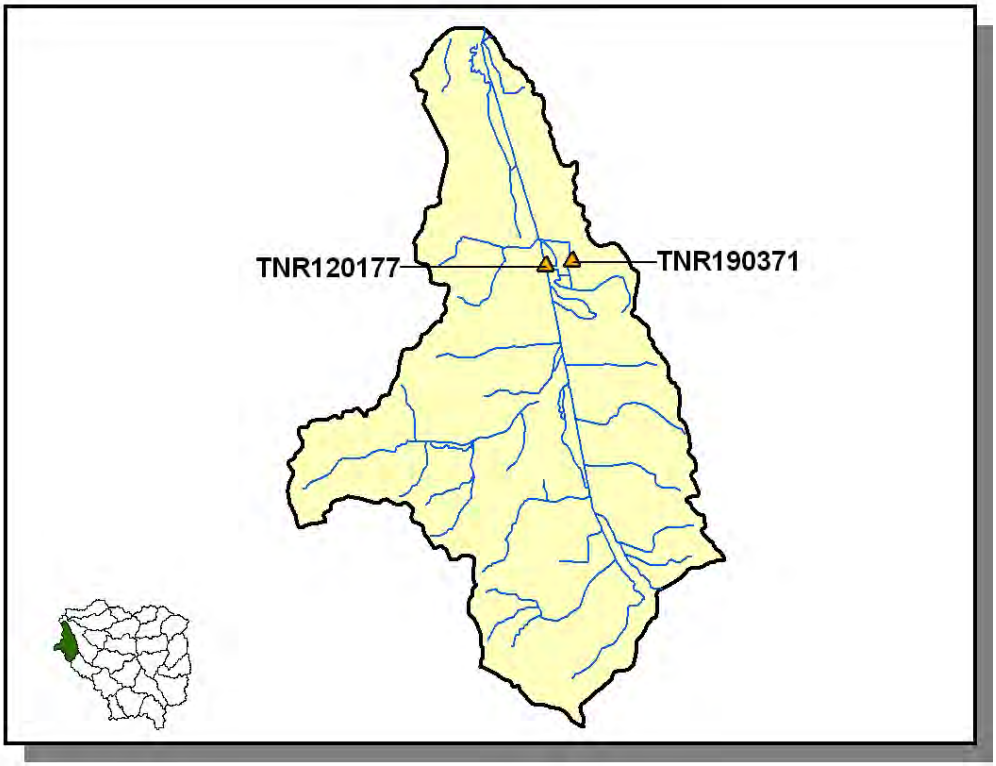


Figure 4-253. Location of CGP (Construction General Permit) Sites in Subwatershed 080102030606. *More information is provided in Appendix IV.*

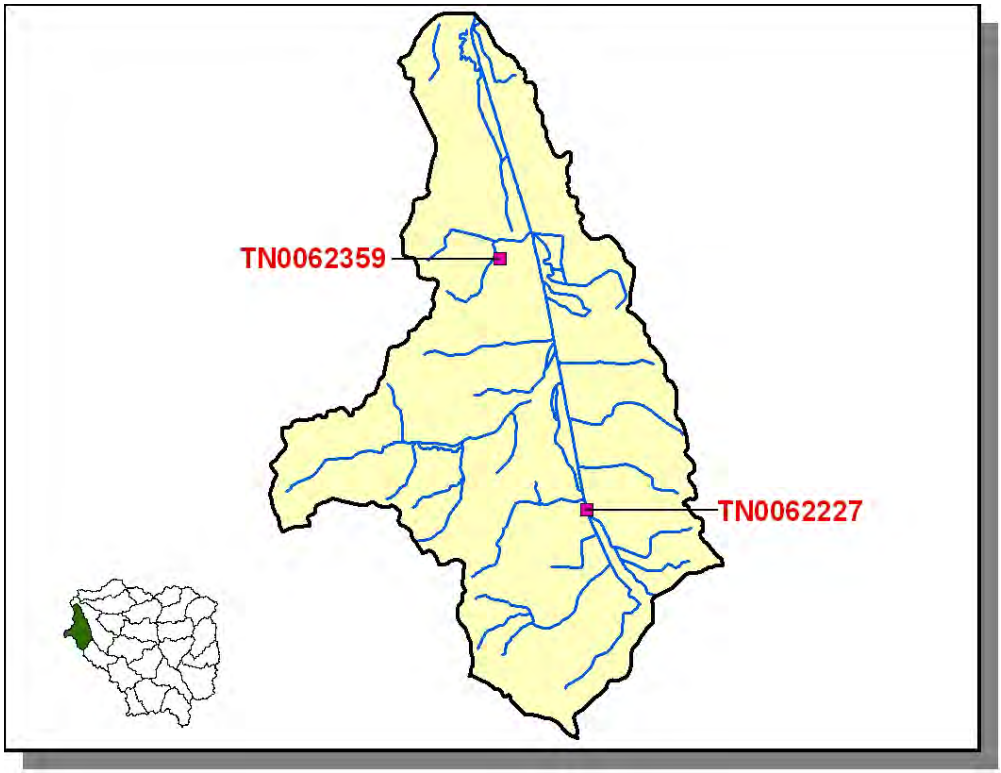


Figure 4-254. Location of Permitted Municipal and Industrial Facilities in Subwatershed 080102030606. *Permit numbers in red indicate that the facility discharges to a stream listed on the 2006 303(d) list. More information, including the name of the facility is provided in Appendix IV.*

PERMIT #	7Q10	DISCHARGE FLOW
TN0062227	9.5	0.36
TN0062359	11.4	0.22

Table 4-163. Receiving Stream Flow Information Used for Limit Calculations for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030606. *Data are in million gallons per day (MGD).Data were obtained from permit files.*

PERMIT #	BOD_5	BOD % REMOVAL	E. *coli*	FECAL COLIFORM	DO	TRC	FLOW	pH	TSS	SS
TN0062227	X	X	X	X	X	X		X	X	X
TN0062359	X	X	X		X	X	X	X	X	X

Table 4-164. Parameters Monitored for Limits for NPDES Dischargers to Waterbodies Listed on the 2006 303(d) List in Subwatershed 080102030606. *BOD_5, Biochemical Oxygen Demand (5-day); DO, Dissolved Oxygen; TRC, Total Residual Chlorine; TSS, Total Suspended Solids; SS, Settleable Solids.*

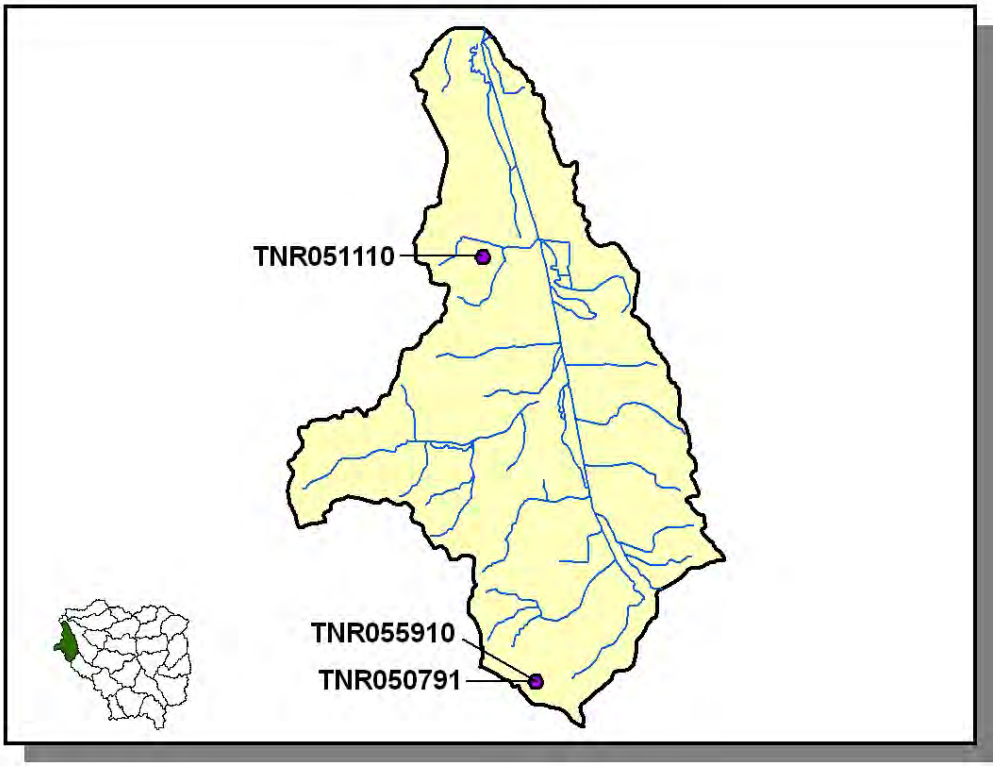


Figure 4-255. Location of TMSP (Tennessee Multi Sector Permit) Sites in Subwatershed 080102030606. *More information is provided in Appendix IV.*

4.2.X.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 4-165. 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 4-166. Forest Acreage and Annual Removal Rates (1987-1994) by County.

CROPS	TONS/ACRE/YEAR
Cotton (Row Crops)	14.60
Corn (Row Crops)	10.03
Wheat (Close Grown Cropland)	9.78
Soybeans (Row Crops)	8.47
Sorghum (Row Crops)	5.55
Other Cropland not Planted	3.68
Other Land in Farms	1.34
Grass Forbs Legumes Mixed (Pastureland)	0.88
Conservation Reserve Program Land	0.80
Grass (Hayland)	0.38
Grass (Pastureland)	0.37
Farmsteads and Ranch Headquarters	0.32
Legume (Pastureland)	0.07

Table 4-167. Annual Estimated Total Soil Loss in Subwatershed 080102030606.

CHAPTER 5

WATER QUALITY PARTNERSHIPS IN THE OBION RIVER (SOUTH 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 South 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	NUMBER
Conservation Buffers	171,935	76	
Erosion Control		15,348	
Nutrient Management		41,576	
Pest Management		42,516	
Grazing / Forages	8,260	3,210	
Tree and Shrub Practices		11,840	
Tillage and Cropping		34,882	
Wetlands		558	
Wildlife Habitat Management		18,024	
Water Supply	2,750		9

Table 5-1. Landowner Conservation Practices in Partnership with NRCS in the South 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.*

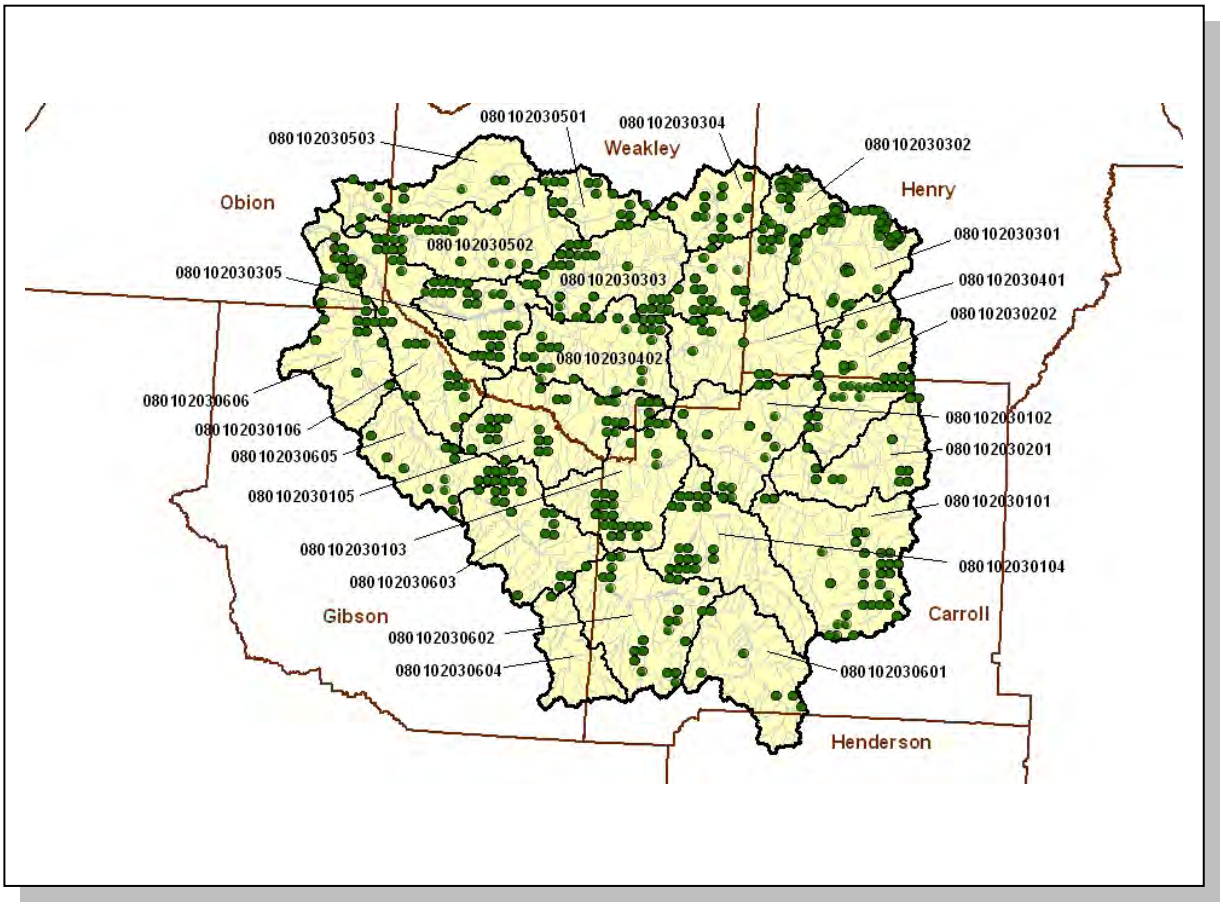


Figure 5-1. BMPs Installed by NRCS in the South Fork Obion River Watershed in 2006 and 2007. Information was provided as part of Conservation Technical Assistance Grant 060701T47. *Best Management Practices applied in the watershed may be found in Appendix V.*

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 other rare species that are under threat. Early intervention preserves management options and minimizes the cost of recovery.

The federally threatened bald eagle (*Haliaeetus leucocephalus*) occurs in the South 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 Tennessee 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.

As part of a CAP project, the Memphis District has partnered with the Tennessee Wildlife Resources Agency to restore habitat along the lower reaches of the Obion River in Dyer County. The project consists of constructing moist soil management areas and the restoration of bottomland hardwood habitat on five tracts of land.

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.

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 South 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/wglogging_cn1274.doc

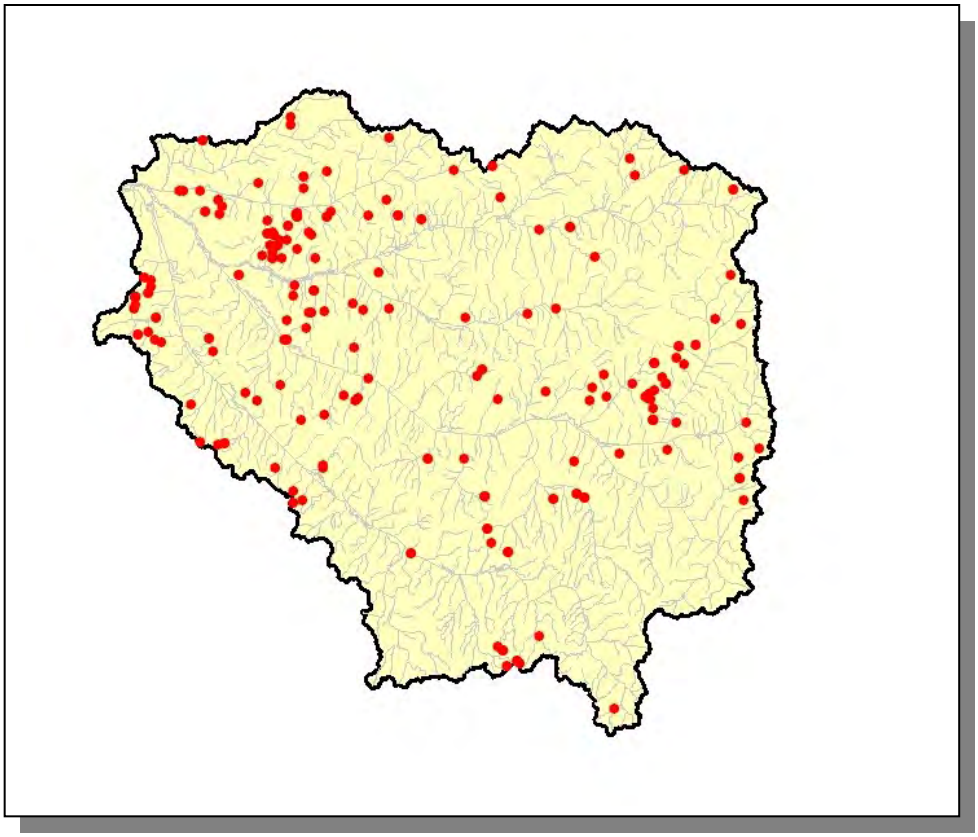


Figure 5-2. Location of BMPs installed from 2002 through 2006 in the South Fork Obion River Watershed with Financial Assistance from the Tennessee Department of Agriculture's Nonpoint Source and Agricultural Resources Conservation Fund Grant Programs. *More information is provided in Appendix V.*

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, South Fork Obion River and North 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 riverbanks, 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 South Fork Obion River, North Fork Obion River and Forked Deer 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 South 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.

5.4. 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 (SOUTH 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 South 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 South Fork Obion River Watershed public meeting was held jointly with the North 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 South Fork Obion River Watershed public meeting was held jointly with the North 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 (South 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 (North 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.

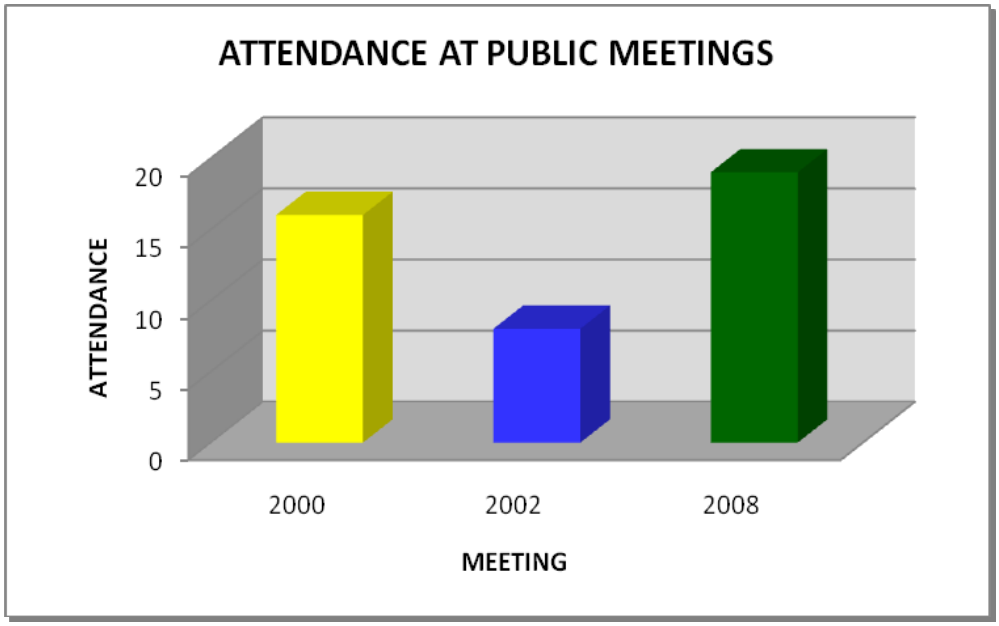


Figure 6-1. Attendance at the South Fork Obion River, North Fork Obion River, and Mississippi River Watershed Joint Public Meetings. *Attendance numbers do not include TDEC personnel.*

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:

> **South Fork Obion River Watershed** - Total Maximum Daily Load for E. Coli in the South Fork Obion River Watershed in Carroll, Gibson, Henderson, Henry, Obion, and Weakley Counties. Approved 03/05/2007.
>
> http://www.state.tn.us/environment/wpc/tmdl/approvedtmdl/SFObionEcoli.pdf

TMDLs are prioritized for development based on many factors.

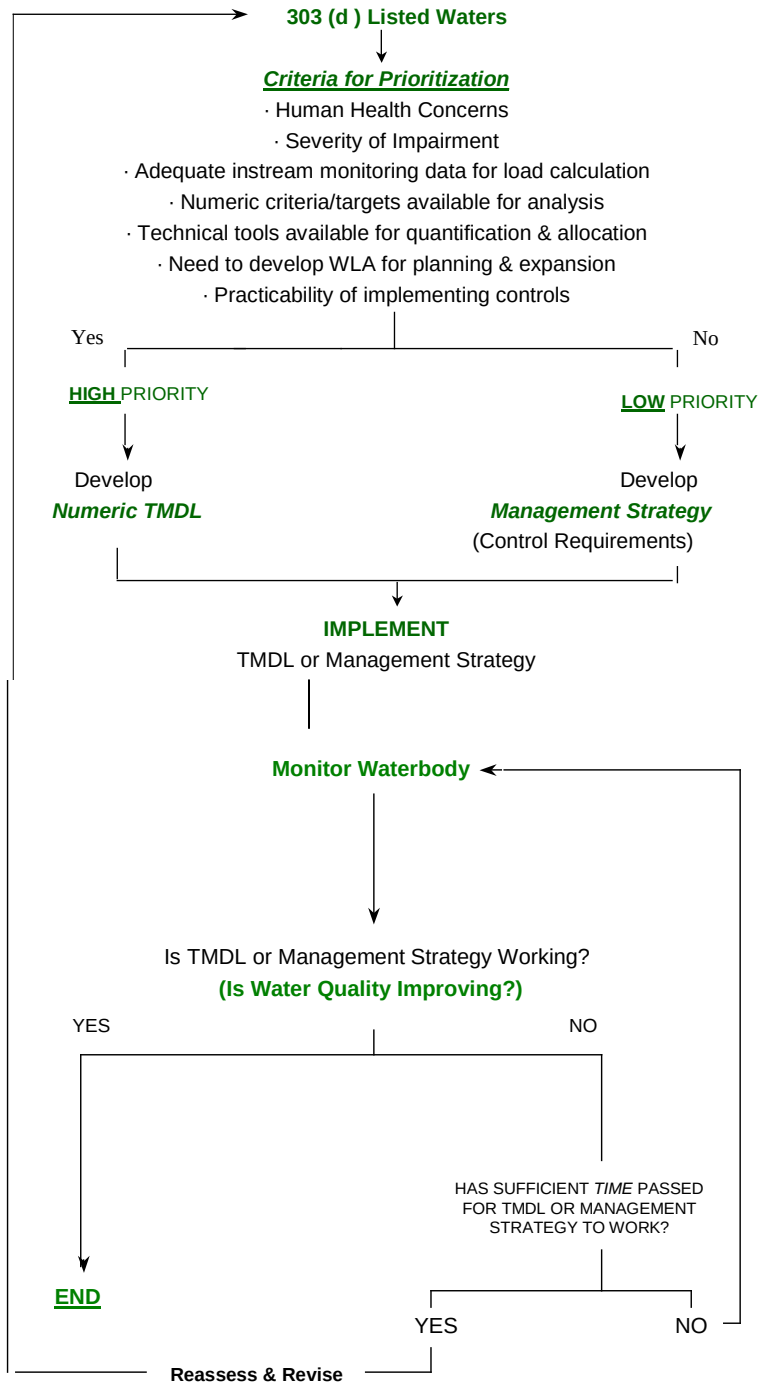


Figure 6-2. Prioritization Scheme for TMDL Development.

Several permitted discharges within the South Fork of the Obion River 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. Those facilities with solids restrictions are Milan, Rutherford, Kenton, Greenfield, Gleason and McKenzie.

6.3.B. Nonpoint Sources. Common nonpoint sources of pollution in the South Fork Obion River Watershed include urban storm water runoff, riparian vegetation removal and other habitat alterations, and inappropriate land development, road construction, and agricultural practices. Since nonpoint pollution exists essentially everywhere rain falls, existing point source regulations can have only a limited effect. Other measures are, therefore, necessary.

There are several state and federal regulations that address contaminants impacting waters in the South 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 South Fork Obion River Watershed in Tennessee currently covered by an active MS4 program is Cane and Mud Creeks which drain the city of Martin.

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 South Fork Obion River Watershed suffer from varying degrees of streambank erosion. When steam channels are altered, banks can become unstable and highly erodable. Efforts to speed the drainage and to dry up wetlands by channelization severely impacted the main stem and most of the tributaries in this watershed. Heavy livestock traffic can also severely disturb banks. When large tracts of land are cleared of vegetation (especially trees) or wetlands and replaced with row crops or impermeable surfaces like asphalt and rooftops, the large increases in the velocities and volumes of storm water runoff can also overwhelm channel and bank integrity because 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 South Fork Obion River watershed.

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, like Cane Creek, Dolan Creek or Mud Creek, would benefit from these types of projects.

Some methods or controls that might be necessary to address common problems are:

Voluntary Activities

- Re-establish bank vegetation. An example is Reedy 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
- Limit cattle access to streams and bank vegetation A greater effort to educate landowners concerning the damage done to creeks with bank clearing and the requirement of permits.

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.
- Limit road and utility crossings of streams through better site design.

- Limit clearing of stream and ditch banks or other alterations such as that along Thompson Creek or Edmundson Creek. *Note: Permits are 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 Milan with Wolf Creek, Huntingdon with Beaver Creek, and Martin with Cane Creek.

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.

The University of Tennessee's Research and Education Center at Milan on the Wolf Creek is a international leader in the development and promotion of NoTill techniques to avoid soil loss from cropping.

Many sediment problems traceable to agricultural practices also involve riparian loss due to row cropping or pasture clearing for grazing. Lack of vegetated buffers along stream corridors is a problem in some areas of the South Fork Obion River Watershed, due both to agricultural and residential/commercial land uses. Many streams, like the Rutherford Fork of the Obion River, 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, only one stream in the South Fork Obion River Watershed is known to have excessive pathogen contamination. Clear Creek is impacted by urban areas, with contributions of bacterial contamination possibly coming from livestock, storm water runoff, sewage collection system leaks, or treatment plant operation failures.
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.
- Limit livestock access to streams and restrict stream crossings.
- Improve and educate on the proper management of animal waste from confined feeding operations.

Regulatory Strategies

- *Strengthen enforcement of regulations governing on-site wastewater treatment.*
- Determine timely and appropriate enforcement for non-complying sewage treatment plants, large and small, and their collection systems. The city of McKenzie is currently under a Commission's Order to address several problems at the treatment plant and in the collection system. Nearly all have been corrected and a sewer rehabilitation project is underway. The efforts should improve Clear Creek.
- Identify Concentrated Animal Feeding Operations not currently permitted.
- 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 An example is that of Clear Creek and the City of McKenzie.
- Review the pathogen limits in discharge permits to determine the need for further restriction, which is currently underway with Clear Creek.

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 South 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.

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. *Note: Permits may be required for any work on a stream, including impoundments.* In fact, the permit issued for the impoundment of Reedy Creek for the Carroll County Lake contained many requirements intended to protect the creek downstream of the dam.

Regulatory Strategies.

- Strengthen enforcement of regulations governing on-site wastewater treatment.
- Impose more stringent permit limits for nutrients discharged from sewage treatment plants
- Impose timely and appropriate enforcement for noncomplying sewage treatment plants, large and small, and their collection systems as was needed for Clear Creek.
- 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 and other programs within municipalities to deal with storm water pollution issues and require additional storm runoff quality control measures.
- Require nutrient management plans for all golf courses, campuses or other large landscaped facility. Currently, nutrient management plans are prepared for farm operations and are required for Confined Animal Feeding Operations.

Additional Strategies

- Encourage TDA-, UT- 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. More stringent inspection and regulation of permitted industrial facilities, and local storm water quality initiatives and regulations, could help avoid contaminated runoff reaching state waters. Johns Creek, Halls Branch and Wolf Creek are all impacted by materials released or improperly disposed of from the production of ammunition at the Milan Army Ammunition Plant. The Department of the Army, the EPA and TDEC's Division of Remediation are taking measures to address this contamination.

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 South Fork Obion River Watershed suffer from some degree of habitat alteration, especially riparian loss and bank disturbances from agricultural practices. Thompson Creek, Dolan Creek, Reedy Creek, Terrell Branch, Buckor Ditch, the Middle Fork Obion River, and the Rutherford Fork Obion River are all impacted by habitat alteration.

Although large-scale public projects such as channelization and 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. *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 South 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 South Fork Obion River Watershed.*

6.4.A. Municipal Permits

TN0020613 McKenzie STP

Discharger rating: Major
City: McKenzie
County: Carroll
EFO Name: Jackson
Issuance Date: 6/30/05
Expiration Date: 6/30/10
Receiving Stream(s): Unnamed tributary at mile 2.8 to Clear Creek at mile 2.4
HUC-12: 080102030102
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Waste Activated Sludge to aerobic digester to drybeds to land application sites

SEGMENT	TN08010203001_0700
Name	Clear Creek
Size	3.6
Unit	Miles
First Year on 303(d) List	2002
Designated Uses	Irrigation (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Non-Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Escherichia coli, Oxygen, Dissolved, Physical substrate habitat alterations, Sedimentation/Siltation
Sources	Upstream Impoundments (e.g., Pl-566 NRCS Structures), Channelization, Source Unknown

Table 6-1. Stream Segment Information for McKenzie STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ag (T)	All Year	0.0009	mg/L	DMax Conc	Semi-annually	Composite	Effluent
Ammonia as N (Total)	Summer	1.6	mg/L	DMax Conc	4/Week	Composite	Effluent
Ammonia as N (Total)	Summer	20	lb/day	WAvg Load	4/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1.2	mg/L	WAvg Conc	4/Week	Composite	Effluent
Ammonia as N (Total)	Summer	0.8	mg/L	MAvg Conc	4/Week	Composite	Effluent
Ammonia as N (Total)	Summer	13.3	lb/day	MAvg Load	4/Week	Composite	Effluent
Ammonia as N (Total)	Winter	3.2	mg/L	DMax Conc	4/Week	Composite	Effluent
Ammonia as N (Total)	Winter	40	lb/day	WAvg Load	4/Week	Composite	Effluent
Ammonia as N (Total)	Winter	1.6	mg/L	MAvg Conc	4/Week	Composite	Effluent
Ammonia as N (Total)	Winter	26.7	lb/day	MAvg Load	4/Week	Composite	Effluent
Ammonia as N (Total)	Winter	2.4	mg/L	WAvg Conc	4/Week	Composite	Effluent
Bypass of Treatment (Occurrences)	All Year		Occurences/ Month	MAvg Load	Continuous	Visual	
CBOD % Removal	All Year	40	Percent	DMin % Removal	3/Week	Calculated	
CBOD % Removal	All Year	85	Percent	MAvg % Removal	3/Week	Calculated	
CBOD5	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
CBOD5	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
CBOD5	Summer	20	mg/L	DMax Conc	3/Week	Composite	Effluent
CBOD5	Summer	15	mg/L	WAvg Conc	3/Week	Composite	Effluent
CBOD5	Summer	167	lb/day	MAvg Load	3/Week	Composite	Effluent
CBOD5	Summer	10	mg/L	MAvg Conc	3/Week	Composite	Effluent
CBOD5	Summer	250	lb/day	WAvg Load	3/Week	Composite	Effluent
CBOD5	Winter	25	mg/L	DMax Conc	3/Week	Composite	Effluent
CBOD5	Winter	15	mg/L	MAvg Conc	3/Week	Composite	Effluent
CBOD5	Winter	250	lb/day	MAvg Load	3/Week	Composite	Effluent
CBOD5	Winter	20	mg/L	WAvg Conc	3/Week	Composite	Effluent
CBOD5	Winter	334	lb/day	WAvg Load	3/Week	Composite	Effluent
Copper Dissolved (as Cu)	All Year	0.0128	mg/L	MAvg Conc	Semi-annually	Composite	Effluent
Cyanide, Total (CN-)	All Year	0.0047	mg/L	MAvg Conc	Semi-annually	Composite	Effluent
Cyanide, Total (CN-)	All Year	0.0198	mg/L	DMax Conc	Semi-annually	Composite	Effluent
D.O.	All Year	5	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	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Hg (T)	All Year	5E-05	mg/L	MAvg Conc	Semi-annually	Composite	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
Nitrogen Total (as N)	All Year		mg/L	MAvg Conc	2/Month	Composite	Effluent
Nitrogen Total (as N)	All Year		mg/L	DMax Conc	2/Month	Composite	Effluent

Table 6-2a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
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
Phosphorus, Total	All Year		mg/L	MAvg Conc	2/Month	Composite	Effluent
Selenium Dissolved (as Se)	All Year	0.0045	mg/L	MAvg Conc	Semi-annually	Composite	Effluent
Selenium Dissolved (as Se)	All Year	0.018	mg/L	DMax Conc	Semi-annually	Composite	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	4/Week	Grab	Effluent
TRC	All Year	0.02	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	667	lb/day	WAvg Load	3/Week	Composite	Effluent
TSS	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent
TSS	All Year	500	lb/day	MAvg Load	3/Week	Composite	Effluent
TSS	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
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	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
Zn (T)	All Year	0.2052	mg/L	MAvg Conc	Monthly	Composite	Effluent
Zn (T)	All Year	0.2035	mg/L	DMax Conc	Monthly	Composite	Effluent
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-2b.

Tables 6-2a-b. Permit Limits for McKenzie STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 12 Zinc
- 18 Whole Effluent Toxicity Tests
- 6 Ammonia
- 4 Total Chlorine
- 2 Carbonaceous Biological Oxygen Demand (CBOD)
- 3 Fecal coliform
- 1 Carbonaceous Oxygen Demand (COD)
- 1 Cyanide
- 1 Silver
- 111 Overflows

Enforcement:
Commissioner's Order # 04-0583 issued 1/24/06 for having well over 200 permit violations within 2 years, including 40+ overflows. They are on the EPA's watch list.

Comments:
The city of McKenzie is currently under a Commission's Order primarily for ammonia exceedences and overflows. Nearly all have been corrected and a sewer rehabilitation project is underway. The efforts should improve Clear Creek. McKenzie operates a Schreiber system. A belt press was purchased recently and should enable the city to keep up with its sludge.

3/23/07 Compliance Evaluation Inspection: Oil is making its way through the WWTP. CSI has not admitted the oil came from them but they have been cooperative. McKenzie says that lab results received 03/22/07 show a "perfect match" between oil from CSI and oil from McKenzie's Como St. lift station. CSI is the only industry on the Como St. lift station. The scum pump is down on one of McKenzie's two clarifiers and it is 80% covered with scum. The 2 aeration basins are 2/3 covererd with scum. The effluent is cloudy. NH3 is abnormally high. McKenzie's Water Superintendent was working on enforcement.

2/27/07 Technical Assictance Visit (TAV) and File Review: On the above date Jackson EFO-WPC personnel conducted a TAV pretreatment inspection at the Mckenzie WWTP. Discussed the status of the Pretreatment program. CMI, a metal plater, went out of business and left town. The Mckenzie Industrial Developement, Inc., which owns the building, has gotten Shomaker Lumber Co. to clean up the wastewater left inside the building in exchange for using the building for storage of lumber. Shomaker plans to pretreat the wastewater and discharge into the sewer. The sewer manhole is plugged at this time until it can be shown the wastewater is in compliance. The files and reords appeared to be in good order.

TN0026174 Huntingdon- Barnett Street Lagoon

Discharger rating: Minor
City: Huntingdon
County: Carroll
EFO Name: Jackson
Issuance Date: 10/31/05
Expiration Date: 6/30/10
Receiving Stream(s): Unnamed tributary at mile 2.8 to Clear Creek at mile 2.4
HUC-12: 080102030101
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Lagoon system

SEGMENT	TN08010203010_2000
Name	Beaver Creek
Size	3.4
Unit	Miles
First Year on 303(d) List	1990
Designated Uses	Industrial Water Supply (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Sedimentation/Siltation, Oxygen, Dissolved, Phosphate
Sources	Municipal Point Source Discharges, Discharges from Municipal Separate Storm Sewer Systems (MS4), Non-irrigated Crop Production

Table 6-3. Stream Segment Information for Huntingdon- Barnett Street Lagoon.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year		mg/L	MAvg Conc	Weekly	Grab	Effluent
Ammonia as N (Total)	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
Ammonia as N (Total)	Summer	20	mg/L	DMax Conc	Weekly	Grab	Effluent
Ammonia as N (Total)	Summer	38	lb/day	WAvg Load	Weekly	Grab	Effluent
Ammonia as N (Total)	Summer	15	mg/L	WAvg Conc	Weekly	Grab	Effluent
Ammonia as N (Total)	Summer	10	mg/L	MAvg Conc	Weekly	Grab	Effluent
Ammonia as N (Total)	Summer	50	lb/day	DMax Load	Weekly	Grab	Effluent
Ammonia as N (Total)	Summer	25	lb/day	MAvg Load	Weekly	Grab	Effluent
Ammonia as N (Total)	Winter		mg/L	MAvg Conc	Weekly	Grab	Effluent
CBOD % Removal	All Year	65	Percent	MAvg % Removal	Weekly	Calculated	%Removal
CBOD5	All Year	125	lb/day	DMax Load	Weekly	Grab	Effluent
CBOD5	All Year	60	mg/L	DMax Conc	2/Month	Grab	Effluent
CBOD5	All Year	100	lb/day	MAvg Load	2/Month	Grab	Effluent
CBOD5	All Year	50	mg/L	WAvg Conc	2/Month	Grab	Effluent
CBOD5	All Year	40	mg/L	MAvg Conc	2/Month	Grab	Effluent
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	Weekly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
IC25 7day *Ceriodaphnia dubia*	All Year	2.4	Percent	DMin Conc	Quarterly	Composite	Effluent
IC25 7day Fathead Minnows	All Year	2.4	Percent	DMin Conc	Quarterly	Composite	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	0.7	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	275	lb/day	WAvg Load	Weekly	Grab	Effluent
TSS	All Year	110	mg/L	WAvg Conc	Weekly	Grab	Effluent
TSS	All Year	250	lb/day	MAvg Load	Weekly	Grab	Effluent
TSS	All Year	300	lb/day	DMax Load	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 6-4. Permit Limits for Huntingdon- Barnett Street Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 3 Total Suspended Solids
- 1 Carbonaceous Biological Oxygen Demand (CBOD)
- 1 Bypass

Enforcement:
Notice of Violation issued on June 15, 2007, for failure to inspect each Significant Industrial User (SIU) every twelve months.

Comments:
Two cell aerated lagoon. This lagoon system was upgraded several years ago. Compliance Evaluation Inspection 10/30/06: Four of the seven lift stations inspected had excess grease in the wet wells. There were two pumps that would not work properly and one shroud that needs to be repaired or replaced. Several aerators at the lagoon would not work, the flow meters need to be calibrated and the fence needs to be cleaned up and repaired. Huntingdon is currently repairing manholes and sliplining portions of the collection system.

3/28/07 Pretreatment Compliance Evaluation Inspection: In Compliance

10/30/06 Compliance Evaluation Inspection: Four of the seven lift stations inspected had excess grease in the wet wells. There were two pumps that would not work properly and one shroud that needs to be repaired or replaced. Several aerators at the lagoon would not work, the flow meters need to be calibrated and the fence needs to be cleaned up and repaired. Huntingdon is currently repairing manholes and sliplining portions of the collection system.

12/20/05 Technical Assistance Visit (TAV) and file review: TAV was conducted on 12/20/05 at this facility, with a follow-up in spection on 1/5/06. Some problems with the reissuance of Industrial User (IU) permit were found. One IU, Behlen Mfgr. (CIU) was visited. Some other questions arose about the sampling point and what waste streams were entering the sewer and being sampled.

TN0026166 Huntingdon- Hwy 22 Lagoon

Discharger rating: Minor
City: Huntingdon
County: Carroll
EFO Name: Jackson
Issuance Date: 5/31/05
Expiration Date: 5/30/10
Receiving Stream(s): Beaver Creek Mile 4.2
HUC-12: 080102030101
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Lagoon

SEGMENT	TN08010203010_2000
Name	Beaver Creek
Size	3.4
Unit	Miles
First Year on 303(d) List	1990
Designated Uses	Industrial Water Supply (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Sedimentation/Siltation, Oxygen, Dissolved, Phosphate
Sources	Municipal Point Source Discharges, Discharges from Municipal Separate Storm Sewer Systems (MS4), Non-irrigated Crop Production

Table 6-5. Stream Segment Information for Huntingdon- Hwy 22 Lagoon.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	Summer		mg/L	DMax Conc	Weekly	Grab	Effluent
Ammonia as N (Total)	Summer	10	mg/L	MAvg Conc	Weekly	Grab	Effluent
Ammonia as N (Total)	Summer	15	mg/L	WAvg Conc	Weekly	Grab	Effluent
Ammonia as N (Total)	Summer	54	lb/day	MAvg Load	Weekly	Grab	Effluent
Ammonia as N (Total)	Summer	81	lb/day	WAvg Load	Weekly	Grab	Effluent
Ammonia as N (Total)	Winter		mg/L	DMax Conc	Weekly	Grab	Effluent
Ammonia as N (Total)	Winter		mg/L	MAvg Conc	Weekly	Grab	Effluent
CBOD % Removal	All Year	65	Percent	MAvg % Removal	Weekly	Calculated	% Removal
CBOD5	All Year	60	mg/L	DMax Conc	Weekly	Composite	Effluent
CBOD5	All Year	40	mg/L	MAvg Conc	Weekly	Composite	Effluent
CBOD5	All Year	271	lb/day	WAvg Load	Weekly	Composite	Effluent
CBOD5	All Year	50	mg/L	WAvg Conc	Weekly	Composite	Effluent
CBOD5	All Year	217	lb/day	MAvg Load	Weekly	Composite	Effluent
CBOD5	All Year		mg/L	MAvg Conc	Weekly	Composite	Influent (Raw Sewage)
CBOD5	All Year	325	lb/day	DMax Load	Weekly	Composite	Effluent
CBOD5	All Year		mg/L	DMax Conc	Weekly	Composite	Influent (Raw Sewage)
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
E. coli	All Year	941	#/100mL	DMax Conc	Weekly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	0.4	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	651	lb/day	DMax Load	2/Month	Grab	Effluent
TSS	All Year	100	mg/L	MAvg Conc	2/Month	Grab	Effluent
TSS	All Year	110	mg/L	WAvg Conc	2/Month	Grab	Effluent
TSS	All Year	596	lb/day	WAvg Load	2/Month	Grab	Effluent
TSS	All Year	542	lb/day	MAvg Load	2/Month	Grab	Effluent
pH	All Year	10	SU	DMax Conc	2/Week	Grab	Effluent
pH	All Year	6	SU	DMin Conc	2/Week	Grab	Effluent

Table 6-6. Permit Limits for Huntingdon- Hwy 22 Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 12 Carbonaceous Biological Demand (CBOD)
- 5 Total Suspended Solids (TSS)
- 3 Ammonia
- 1 pH
- 1 Fecal coliform
- 1 Dissolved Oxygen
- 9 Bypasses

Comments:
Town of Clarksburg pumps 20,000 GPD to lagoon. A two-cell lagoon which last year was upgraded in anticipation of a proposed industrial park and additional flow from the Town of Clarksburg. The upgrade included the addition of aerators, a new sampler, etc. It seems to be working well.

TN0062201 Trezevant STP

Discharger rating: Minor
City: Trezevant
County: Carroll
EFO Name: Jackson
Issuance Date: 6/30/05
Expiration Date: 6/30/10
Receiving Stream(s): Reedy Creek at mile 4.4
HUC-12: 080102030104
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Lagoon system

SEGMENT	TN08010203007_1000
Name	Reedy Creek
Size	19.3
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Physical substrate habitat alterations, Sedimentation/Siltation
Sources	Non-irrigated Crop Production

Table 6-7. Stream Segment Information for Trezevant STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year	10	mg/L	DMax Conc	Weekly	Composite	Effluent
Ammonia as N (Total)	All Year	12	lb/day	DMax Load	Weekly	Composite	Effluent
Ammonia as N (Total)	All Year	7	mg/L	MAvg Conc	Weekly	Composite	Effluent
Ammonia as N (Total)	All Year	5	mg/L	WAvg Conc	Weekly	Composite	Effluent
Ammonia as N (Total)	All Year	8	lb/day	MAvg Load	Weekly	Composite	Effluent
CBOD % Removal	All Year	65	Percent	MAvg % Removal	Weekly	Calculated	% Removal
CBOD5	All Year	60	mg/L	DMax Conc	Weekly	Composite	Effluent
CBOD5	All Year	55	mg/L	MAvg Conc	Weekly	Composite	Effluent
CBOD5	All Year	75	lb/day	MAvg Load	Weekly	Composite	Effluent
CBOD5	All Year	45	mg/L	DMin Conc	Weekly	Composite	Effluent
CBOD5	All Year	92	lb/day	DMax Load	Weekly	Composite	Effluent
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	#/100mL	DMax Conc	Weekly	Grab	Effluent
Fecal Coliform	All Year	200	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Grab	Effluent
TRC	All Year	0.27	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Composite	Effluent
TSS	All Year	183	lb/day	DMax Load	Weekly	Composite	Effluent
TSS	All Year	100	mg/L	WAvg Conc	Weekly	Composite	Effluent
TSS	All Year	167	lb/day	MAvg Load	Weekly	Composite	Effluent
TSS	All Year	110	mg/L	MAvg Conc	Weekly	Composite	Effluent
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
PH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-8. Permit Limits for Trezevant STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 18 Ammonia
- 9 Total Chlorine
- 3 pH
- 2 Fecal coliform
- 2 Carbonaceous Oxygen Demand (COD)
- 1 Settleable Solids
- 1 Carbonaceous Biological Oxygen Demand (CBOD)
- 1 Total Suspended Solids (TSS)
- 6 Bypasses
- 11 Overflows

Comments:
Trezevant operates a small, aerated, 2-cell lagoon. It is usually able to go a few months each year without discharging. Trezevant will occasionally have an ammonia problem.

Compliance Evaluation Inspection March 2, 2007. The operator, Tony Curtis put approximately 40 grass carp in the first cell of the lagoon and approximately 20 in the final cell to control duckweed. All the duckweed is gone from the first cell.

Jackson EFO personnel told Trezevant to run fecal coliform from a grab instead of a composite sample. Also discussed calibration logs, bench sheets, and other lab protocols. Trezevant is experiencing NH3 problems about once a year during cold weather.

TN0062227 Rutherford Lagoon

Discharger rating: Minor
City: Rutherford
County: Gibson
EFO Name: Jackson
Issuance Date: 1/31/07
Expiration Date: 1/30/10
Receiving Stream(s): Rutherford Fork of Obion River at mile 9.8
HUC-12: 080102030606
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Lagoon

SEGMENT	TN08010203032_1000
Name	Rutherford Fork Obion River
Size	19.9
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Fish and Aquatic Life (Non-Supporting)
Causes	Physical substrate habitat alterations, Sedimentation/Siltation
Sources	Channelization, Non-irrigated Crop Production

Table 6-9. Stream Segment Information for Rutherford 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	65	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	195	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	150	lb/day	WAvg Load	Weekly	Grab	Effluent
BOD5	All Year	135	lb/day	MAvg Load	Weekly	Grab	Effluent
BOD5	All Year	60	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	45	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	941	#/100mL	MAvg Ari Mean	Weekly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	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	Weekdays	Grab	Effluent
TRC	All Year	0.5	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	300	lb/day	MAvg Load	Weekly	Grab	Effluent
TSS	All Year	360	lb/day	DMax Load	Weekly	Grab	Effluent
TSS	All Year	330	lb/day	WAvg Load	Weekly	Grab	Effluent
TSS	All Year	100	mg/L	WAvg Conc	Weekly	Grab	Effluent
TSS	All Year	110	mg/L	MAvg 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 6-10. Permit Limits for Rutherford Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 1 Total Chlorine
- 1 Biological Oxygen Demand (BOD)
- 1 Settleable Solids

Enforcement:
Notice of Violation for expired permit on 8/31/05.

Notice of Violation issued on June 15, 2007 - Discharge Monitoring Reports (DMRs) for the reporting months beginning January 2007 to present as required by Part I of the permit have not been received.

Comments:
Inflow and infiltration problems in the collection system. Rutherford is in the process of repairing the aerators in the lagoon.

Compliance Evaluation Inspection on February 7, 2007: New Mayor, Casey Harris. Bids have been open for replacement of lagoon, which was damaged by Spring Tornado. No influent flow meter. Two lines enter the lagoon. There is no common line to install one influent flow meter. Signature has been changed on NPDES permit application to reflect new mayor, Casey Harris.

Compliance Evaluation Inspection on May 16, 2007: Reconnaissance on lagoon showed the chlorinator to be out, the flow meter needed calibrating, chlorine contact chamber needed the railing repaired, foot bridge to effluent box needed to be constructed and the steps to the influents structure needed replacement. Recommended lab work for BOD, TSS and E. coli to be contracted out to an outside lab for the time being.

TN0062022 Bradford Lagoon

Discharger rating: Minor
City: Bradford
County: Gibson
EFO Name: Jackson
Issuance Date: 12/29/05
Expiration Date: 12/29/10
Receiving Stream(s): South Fork of the Obion River at mile 9.7
HUC-12: 080102030105
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Lagoon

SEGMENT	TN08010203001_1000
Name	South Fork Obion River
Size	26
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Physical substrate habitat alterations, Sedimentation/Siltation
Sources	Channelization, Non-irrigated Crop Production

Table 6-11. Stream Segment Information for Bradford 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	65	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	157	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	121	lb/day	WAvg Load	Weekly	Grab	Effluent
BOD5	All Year	109	lb/day	MAvg Load	Weekly	Grab	Effluent
BOD5	All Year	50	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	45	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	941	#/100mL	DMax Conc	Weekly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Effluent
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	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	242	lb/day	MAvg Load	Weekly	Grab	Effluent
TSS	All Year	290	lb/day	DMax Load	Weekly	Grab	Effluent
TSS	All Year	266	lb/day	WAvg Load	Weekly	Grab	Effluent
TSS	All Year	100	mg/L	MAvg Conc	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 6-12. Permit Limits for Bradford Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 7 Biological Oxygen Demand (BOD)
- 4 Total Suspended Solids
- 1 Total Chlorine
- 3 Overflows
- 1 Bypass

Comments:
Facility was significantly damaged in a tornado in 2006. They are in the process of repairing. Inflow and infiltration problems getting worked on as money becomes available.

TN0062359 Kenton Lagoon

Discharger rating: Minor
City: Kenton
County: Obion
EFO Name: Jackson
Issuance Date: 7/1/07
Expiration Date: 2/28/10
Receiving Stream(s): Rutherford Fork Obion River Mile 4.5
HUC-12: 080102030606
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: 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	70	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	128	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	110	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	83	lb/day	MAvg Load	Weekly	Grab	Effluent
BOD5	All Year	60	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	45	mg/L	MAvg Conc	Weekly	Grab	Effluent
D.O.	All Year	1	mg/L	DMin Conc	Weekdays	Grab	Effluent
Fecal Coliform	All Year	1000	#/100mL	DMax Conc	Weekly	Grab	Effluent
Fecal Coliform	All Year	200	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	1	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	220	lb/day	DMax Load	Weekly	Grab	Effluent
TSS	All Year	100	mg/L	WAvg Conc	Weekly	Grab	Effluent
TSS	All Year	110	mg/L	MAvg Conc	Weekly	Grab	Effluent
TSS	All Year	183	lb/day	MAvg Load	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 6-13. Permit Limits for Kenton Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 7 Biological Oxygen Demand (BOD)
- 1 pH

Enforcement:
Notice of Violation issued June 11, 2007 - Discharge Monitoring Reports (DMRs) for the reporting months beginning January 2007 to present as required by Part I of the permit have not been received.

Comments:
Sam Shoulders, operator, telephoned 3/10/06 to say he has an application and will be contacting his contract lab to do the Part B.6 scans to get the application into the EAC-J ASAP. 8/1/06- Sam Shoulders said tornado damaged lagoon in April and delayed application submittal. Inflow and infiltration problems. Influent pump station is subject to flooding.

Compliance Evaluation Inspection on May 14, 2007: Jim Copper has become the certified operator for the City of Kenton after Sam Shoulders left for military duty. This may be a 12-18 month arrangement. Sam left on very short notice so some of the lab work has been sent off to contract lab. BOD, TSS and fecal coliform are presently being done at contract lab. Chlorine, Settleable Solids, DO and pH are being done at the facility.

TN0021717 Dresden- Printing Factory Lagoon

Discharger rating: Minor
City: Dresden
County: Weakley
EFO Name: Jackson
Issuance Date: 1/30/06
Expiration Date: 4/30/10
Receiving Stream(s): Middle Fork-Obion River at mile 18.3
HUC-12: 080102030303
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Lagoon

SEGMENT	TN08010203015_2000
Name	Middle Fork Obion River
Size	7
Unit	Miles
First Year on 303(d) List	2002
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Nitrates, Sedimentation/Siltation
Sources	Non-irrigated Crop Production, Channelization

Table 6-14. Stream Segment Information for Dresden- Printing Factory Lagoon.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year		mg/L	DMax Conc	Semi-annually	Grab	Effluent
BOD % removal	All Year	65	Percent	MAvg % Removal	Weekly	Calculated	Percent Removal
BOD5	All Year	45	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	55	lb/day	WAvg Load	Weekly	Grab	Effluent
BOD5	All Year	30	mg/L	MAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	40	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year		mg/L	MAvg Load	Weekly	Grab	Influent (Raw Sewage)
BOD5	All Year	42	lb/day	MAvg Load	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	941	#/100mL	DMax Conc	Weekly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Influent (Raw Sewage)
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Influent (Raw Sewage)
Nitrite + Nitrate Total (as N)	All Year		mg/L	DMax Conc	Semi-annually	Grab	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
Phosphorus, Total	All Year		mg/L	DMax Conc	Semi-annually	Grab	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TKN – Total Kjeldahl Nitrogen	All Year		mg/L	DMax Conc	Semi-annually	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	152	lb/day	WAvg Load	Weekly	Grab	Effluent
TSS	All Year	100	mg/L	MAvg Conc	Weekly	Grab	Effluent
TSS	All Year	110	mg/L	WAvg Conc	Weekly	Grab	Effluent
TSS	All Year	138	lb/day	MAvg Load	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 6-15. Permit Limits for Dresden- Printing Factory Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 49 Biological Oxygen Demand (BOD)
- 14 pH
- 6 Total Suspended Solids (TSS)
- 1 Dissolved Oxygen

Comments:
Compliance Evaluation Inspection on April 2, 2007: Dresden has purchased two cameras to locate areas of inflow and infiltration. The purchased included a monitoring trailer, which is capable of operating the cameras, and also record what the camera is seeing. Work is continuing to correct areas of inflow and infiltration using Insitu Company.

TN0055794 Dresden High School

Discharger rating: Minor
City: Dresden
County: Weakley
EFO Name: Jackson
Issuance Date: 1/1/06
Expiration Date: 4/30/10
Receiving Stream(s): Unnamed tributary at mile 0.4 to Atkinson Branch at mile 1.4
HUC-12: 080102030303
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Lagoon

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	Summer	2	mg/L	DMax Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	Summer	1	mg/L	MAvg Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	10	mg/L	DMax Conc	2/Month	Grab	Effluent
Ammonia as N (Total)	Winter	5	mg/L	MAvg Conc	2/Month	Grab	Effluent
CBOD5	Summer	20	mg/L	DMax Conc	2/Month	Grab	Effluent
CBOD5	Summer	10	mg/L	MAvg Conc	2/Month	Grab	Effluent
CBOD5	Winter	35	mg/L	DMax Conc	2/Month	Grab	Effluent
CBOD5	Winter	20	mg/L	MAvg Conc	2/Month	Grab	Effluent
D.O.	All Year	6	mg/L	DMin Conc	Weekdays	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
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TRC	All Year	0.02	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	2/Month	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 6-16. Permit Limits for Dresden High School.

Comments:
The High School needs to tie on to City sewer.

TN0062545 Martin STP

Discharger rating: Minor
City: Martin
County: Weakley
EFO Name: Jackson
Issuance Date: 12/01/05
Expiration Date: 10/30/10
Receiving Stream(s): Unnamed tributary at mile 0.25 to Cane Creek mile 7.7
HUC-12: 080102030503
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Extended aeration activated sludge (oxidation ditch) preceded by a storm water reservoir (optional), mechanical screening and followed by clarification, sand filtration, chlorine disinfecting, dechlorinating, and cascade aeration.

SEGMENT	TN08010203020_0100
Name	Cane Creek
Size	16.7
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Not Assessed), Fish and Aquatic Life (Non-Supporting)
Causes	Physical substrate habitat alterations
Sources	Discharges from Municipal Separate Storm Sewer Systems (MS4)

Table 6-17. Stream Segment Information for Martin STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	Summer	26	lb/day	WAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	0.85	mg/L	MAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	18	lb/day	MAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1.27	mg/L	WAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	1.7	mg/L	DMax Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	3	mg/L	DMax Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	1.5	mg/L	MAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	31	lb/day	MAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	2.3	mg/L	WAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	48	lb/day	WAvg 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	Summer	10	mg/L	DMax Conc	3/Week	Composite	Effluent
CBOD5	Summer	156	lb/day	WAvg Load	3/Week	Composite	Effluent
CBOD5	Summer		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
CBOD5	Summer		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
CBOD5	Summer	7.5	mg/L	WAvg Conc	3/Week	Composite	Effluent
CBOD5	Summer	5	mg/L	MAvg Conc	3/Week	Composite	Effluent
CBOD5	Summer	104	lb/day	MAvg Load	3/Week	Composite	Effluent
CBOD5	Winter	7.5	mg/L	MAvg Conc	3/Week	Composite	Effluent
CBOD5	Winter		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
CBOD5	Winter		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
CBOD5	Winter	156	lb/day	MAvg Load	3/Week	Composite	Effluent
CBOD5	Winter	15	mg/L	DMax Conc	3/Week	Composite	Effluent
CBOD5	Winter	11.3	mg/L	WAvg Conc	3/Week	Composite	Effluent
CBOD5	Winter	236	lb/day	WAvg Load	3/Week	Composite	Effluent
D.O.	All Year	6	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	Influent (Raw Sewage)
Flow	Winter		MGD	MAvg Conc	Continuous	Continuous	Influent (Raw Sewage)
Flow	Winter		MGD	DMax Conc	Continuous	Continuous	Influent (Raw Sewage)
IC25 7day *Ceriodaphnia dubia*	All Year	100	Percent	DMin Conc	Quarterly	Composite	Effluent

Table 6-18a.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
IC25 7day Fathead Minnows	All Year	100	Percent	DMin Conc	Quarterly	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	3/Week	Composite	Effluent
TRC	All Year	0.02	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
TSS	All Year	834	lb/day	WAvg Load	3/Week	Composite	Effluent
TSS	All Year	40	mg/L	WAvg Conc	3/Week	Composite	Effluent
TSS	All Year	626	lb/day	MAvg Load	3/Week	Composite	Effluent
TSS	All Year		mg/L	DMax Conc	3/Week	Composite	Influent (Raw Sewage)
TSS	All Year		mg/L	MAvg Conc	3/Week	Composite	Influent (Raw Sewage)
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	85	Percent	MAvg % Removal	3/Week	Calculated	% Removal
pH	All Year	8.5	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6.5	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-18b.

Tables 6-18a-b. Permit Limits for Martin STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 5 Carbonaceous Oxygen Demand (COD)
- 3 Total Copper
- 1 Dissolved Oxygen
- 5 Whole Effluent Toxicity Tests
- 1 Overflow

Comments:
Facility is installing submersible pumps to replace screw pumps on influent.

May 29, 2007 Compliance Evaluation Inspection: Inflow / Infiltration is the main problem with the system. City has contracted out work to locate and eliminate areas of I / I. Contract workers plus city employees have spent 2242 man hours in 9 months addressing the problem. Treatment plant has installed 3 influent pumps to replace the old ones and installed a new bar screen. Plant in good condition.

TN0062031 Sharon Lagoon

Discharger rating: Minor
City: Sharon
County: Weakley
EFO Name: Jackson
Issuance Date: 10/01/05
Expiration Date: 4/30/10
Receiving Stream(s): Middle Fork Obion River at mile 6.5
HUC-12: 080102030305
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Lagoon

SEGMENT	TN08010203015_2000
Name	Middle Fork Obion River
Size	7
Unit	Miles
First Year on 303(d) List	2002
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Nitrates, Sedimentation/Siltation
Sources	Non-irrigated Crop Production, Channelization

Table 6-19. Stream Segment Information for Sharon 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	65	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	78	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	60	lb/day	WAvg Load	Weekly	Grab	Effluent
BOD5	All Year	54	lb/day	MAvg Load	Weekly	Grab	Effluent
BOD5	All Year		mg/L	MAvg Conc	Weekly	Composite	Influent (Raw Sewage)
BOD5	All Year		mg/L	DMax Conc	Weekly	Composite	Influent (Raw Sewage)
BOD5	All Year	50	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	45	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	941	#/100mL	DMax Conc	Weekly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Continuous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Continuous	Influent (Raw Sewage)
Flow	All Year		MGD	DMax 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	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	143	lb/day	DMax Load	Weekly	Grab	Effluent
TSS	All Year	131	lb/day	WAvg Load	Weekly	Grab	Effluent
TSS	All Year	110	mg/L	WAvg Conc	Weekly	Grab	Effluent
TSS	All Year	119	lb/day	MAvg Load	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 6-20. Permit Limits on Sharon Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 6 Biological Oxygen Demand (BOD)
- 7 pH
- 3 Total Suspended Solids
- 1 Settleable Solids

Comments:
March 27, 2007, Compliance Evaluation Letter:

1. Inflow and/or infiltration continue to be a problem within the collection system. These extraneous flows reduce the useful life of the lift station, as well as increasing the power needed to operate them. Efforts must be made to locate and eliminate these areas of inflow and/or infiltration.
2. Solids have begun to accumulate out from the inlet of the lagoon. Excess solids could reduce the treatment effectiveness of the lagoon by reducing the detention time. Efforts should be made to determine the extent of the accumulation and take proper actions if needed.
3. The No. 2 pump motor at the No. 3 lift station would not start. This pump motor must be made operational as soon as possible.

TN0062294 Gleason STP

Discharger rating: Minor
City: Gleason
County: Weakley
EFO Name: Jackson
Issuance Date: 11/01/05
Expiration Date: 9/30/10
Receiving Stream(s): Middle Fork of the Obion River Mile 21.3
HUC-12: 080102030303
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Lagoon

SEGMENT	TN08010203015_3000
Name	Middle Fork Obion River
Size	19.9
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Livestock Watering and Wildlife (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting)
Causes	Nitrates, Sedimentation/Siltation
Sources	Non-irrigated Crop Production, Channelization

Table 6-21. Stream Segment Information for Gleason STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD % removal	All Year	65	Percent	MAvg % Removal	Monthly	Calculated	%Removal
BOD5	All Year	65	mg/L	DMax Conc	Weekly	Composite	Effluent
BOD5	All Year	108	lb/day	DMax Load	Weekly	Composite	Effluent
BOD5	All Year	41	mg/L	MAvg Conc	Weekly	Composite	Effluent
BOD5	All Year	50	mg/L	WAvg Conc	Weekly	Composite	Effluent
BOD5	All Year	83.4	lb/day	WAvg Load	Weekly	Composite	Effluent
BOD5	All Year	68	lb/day	MAvg Load	Weekly	Composite	Effluent
BOD5	All Year		mg/L	MAvg Conc	Monthly	Composite	Influent (Raw Sewage)
BOD5	All Year		mg/L	DMax Conc	Daily	Composite	Influent (Raw Sewage)
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	Weekly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Flow	All Year		MGD	DMax Load	Weekly	Continuous	Effluent
Flow	All Year		MGD	MAvg Load	Monthly	Calculated	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Monthly	Calculated	Effluent
Flow	All Year		MGD	DMax 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	2	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Composite	Effluent
TSS	All Year	183	lb/day	WAvg Load	Weekly	Composite	Effluent
TSS	All Year	100	mg/L	MAvg Conc	Weekly	Composite	Effluent
TSS	All Year	167	lb/day	MAvg Load	Weekly	Composite	Effluent
TSS	All Year	200	lb/day	DMax Load	Weekly	Composite	Effluent
TSS	All Year	110	mg/L	WAvg Conc	Weekly	Composite	Effluent
TSS % Removal	All Year	65	Percent	MAvg % Removal	Monthly	Calculated	Percent Removal
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-22. Permit Limits for Gleason STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 4 Biological Oxygen Demand (BOD)
- 4 Total Chlorine
- 4 pH
- 25 Overflows
- 7 Bypasses

Comments:
Inflow and infiltration problems. The facility is addressing these as funding becomes available.

TN0062286 Dresden Lagoon

Discharger rating: Minor
City: Dresden
County: Weakley
EFO Name: Jackson
Issuance Date: 1/1/06
Expiration Date: 4/30/10
Receiving Stream(s): Middle Fork of the Obion River Mile 14.6
HUC-12: 080102030501
Effluent Summary: Treated municipal wastewater from Outfall 001
Treatment system: Lagoon

NAME	MIDDLE FORK OBION RIVER
Size	7
Unit	Miles
First Year on 303(d) List	2002
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Nitrates, Sedimentation/Siltation
Sources	Non-irrigated Crop Production, Channelization

Table 6-23. Stream Segment Information for Dresden Lagoon.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ammonia as N (Total)	All Year		mg/L	DMax Conc	Semi-annually	Grab	Effluent
BOD % removal	All Year	65	Percent	MAvg % Removal	Weekly	Calculated	% Removal
BOD5	All Year	65	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	319	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	245	lb/day	WAvg Load	Weekly	Grab	Effluent
BOD5	All Year	221	lb/day	MAvg Load	Weekly	Grab	Effluent
BOD5	All Year	50	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	45	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	941	#/100mL	DMax Conc	Weekly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Geo Mean	Weekly	Grab	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Daily	Instantaneous	Influent (Raw Sewage)
Flow	All Year		MGD	MAvg Load	Daily	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Instantaneous	Influent (Raw Sewage)
Nitrite + Nitrate Total (as N)	All Year		mg/L	DMax Conc	Semi-annually	Grab	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	
Phosphorus, Total	All Year		mg/L	DMax Conc	Semi-annually	Grab	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	2/Week	Grab	Effluent
TKN: Total Kjeldahl Nitrogen	All Year		mg/L	DMax Conc	Semi-annually	Grab	Effluent
TRC	All Year	1	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	491	lb/day	MAvg Load	Weekly	Grab	Effluent
TSS	All Year	589	lb/day	DMax Load	Weekly	Grab	Effluent
TSS	All Year	540	lb/day	WAvg Load	Weekly	Grab	Effluent
TSS	All Year	100	mg/L	MAvg Conc	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 6-24. Permit Limits for Dresden Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 10 Biological Oxygen Demand (BOD)
- 5 pH
- 6 Suspended Solids % Removal
- 5 Total Suspended Solids
- 59 Overflows
- 9 Bypasses

Comments:
There are inflow and infiltration problems in collection system which the facility is actively trying to fix.

July 6, 2006 Compliance Evaluation Inspection: Inflow and/or infiltration major problem. City is on self-imposed moratorium. Dresden Industrial Lagoon underloaded due to loss of industrial facilities

TN0062065 Greenfield Wastewater Lagoon

Discharger rating: Minor
City: Greenfield
County: Weakley
EFO Name: Jackson
Issuance Date: 1/1/06
Expiration Date: 11/29/10
Receiving Stream(s): Middle Fork Obion River Mile 7.3
HUC-12: 080102030305
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Lagoon

SEGMENT	TN08010203015_2000
Name	Middle Fork Obion River
Size	7
Unit	Miles
First Year on 303(d) List	2002
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Nitrates, Sedimentation/Siltation
Sources	Non-irrigated Crop Production, Channelization

Table 6-25. Stream Segment Information for Greenfield Wastewater Lagoon.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD % removal	All Year	65	Percent	MAvg Conc	Monthly	Calculated	Effluent
BOD5	All Year	50	mg/L	WAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	45	mg/L	MAvg Conc	Weekly	Grab	Effluent
BOD5	All Year	184	lb/day	MAvg Load	Weekly	Grab	Effluent
BOD5	All Year	65	mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year		mg/L	MAvg Conc	Weekly	Composite	Intake
BOD5	All Year		mg/L	DMax Conc	Weekly	Grab	Effluent
BOD5	All Year	266	lb/day	DMax Load	Weekly	Grab	Effluent
BOD5	All Year	204	lb/day	WAvg Load	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	941	#/100mL	MAvg Ari Mean	Weekly	Grab	Effluent
E. coli	All Year	126	#/100mL	MAvg Conc	3/Week	Grab	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	Weekdays	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Weekdays	Instantaneous	Influent (Raw Sewage)
Nitrogen Total (as N)	Summer		mg/L	MAvg Conc	Bi-monthly	Composite	Effluent
Nitrogen Total (as N)	Summer		mg/L	DMax Conc	Bi-monthly	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
Phosphorus, Total	Summer		mg/L	MAvg Conc	Bi-monthly	Composite	Effluent
Phosphorus, Total	Summer		mg/L	DMax Conc	Bi-monthly	Composite	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	Weekdays	Grab	Effluent
TRC	All Year	1.6	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	409	lb/day	MAvg Load	Weekly	Grab	Effluent
TSS	All Year	100	mg/L	MAvg Conc	Weekly	Grab	Effluent
TSS	All Year	110	mg/L	WAvg Conc	Weekly	Grab	Effluent
TSS	All Year	120	mg/L	DMax Conc	Weekly	Grab	Effluent
TSS	All Year	490	lb/day	DMax Load	Weekly	Grab	Effluent
TSS	All Year	450	lb/day	WAvg Load	Weekly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Weekdays	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Weekdays	Grab	Effluent

Table 6-26. Permit Limits for Greenfield Wastewater Lagoon.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 6 Biological Oxygen Demand (BOD)
- 3 Total Suspended Solids
- 1 Settleable Solids
- 6 Overflows
- 1 Bypasses

Comments:
Facility not aggressively pursuing corrective action for inflow and infiltration problems in their collection system. Facility has made improvements to the lagoon. New influent and effluent flow meters were installed. Repaired and replaced some aerators and reattached curtain (goes across effluent structure).

December 8, 2006 Compliance Evaluation Inspection: Major problem inflow and/or infiltration. New influent and effluent pumps. Paddle type aerators proposed.

TN0062375 Milan STP

Discharger rating: Minor
City: Milan
County: Gibson
EFO Name: Jackson
Issuance Date: 2/28/05
Expiration Date: 2/28/10
Receiving Stream(s): Rutherford Fork of Obion River mile 29.2
HUC-12: 080102030603
Effluent Summary: Treated domestic wastewater from Outfall 001
Treatment system: Sludge to coil filter to landfill

SEGMENT	TN08010203032_2000
Name	Rutherford Fork Obion River
Size	10
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Fish and Aquatic Life (Non-Supporting), Recreation (Supporting), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Physical substrate habitat alterations, Sedimentation/Siltation
Sources	Channelization, Non-irrigated Crop Production

Table 6-27. Stream Segment Information for Milan STP.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Ag (T)	All Year	5E-04	mg/L	DMax Conc	Semi-annually	Composite	Effluent
Ammonia as N (Total)	Summer	5	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	4	mg/L	WAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	65	lb/day	MAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	Summer	85	lb/day	WAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	10	mg/L	DMax Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	160	lb/day	WAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	5	mg/L	MAvg Conc	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	106	lb/day	MAvg Load	3/Week	Composite	Effluent
Ammonia as N (Total)	Winter	7.5	mg/L	WAvg Conc	3/Week	Composite	Effluent
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	Summer	30	mg/L	DMax Conc	3/Week	Composite	Effluent
CBOD5	Summer	532	lb/day	WAvg Load	3/Week	Composite	Effluent
CBOD5	Summer	25	mg/L	WAvg Conc	3/Week	Composite	Effluent
CBOD5	Summer	425	lb/day	MAvg Load	3/Week	Composite	Effluent
CBOD5	Summer	20	mg/L	MAvg Conc	3/Week	Composite	Effluent
CBOD5	Winter	35	mg/L	DMax Conc	3/Week	Composite	Effluent
CBOD5	Winter	30	mg/L	WAvg Conc	3/Week	Composite	Effluent
CBOD5	Winter	638	lb/day	WAvg Load	3/Week	Composite	Effluent
CBOD5	Winter	532	lb/day	MAvg Load	3/Week	Composite	Effluent
CBOD5	Winter	25	mg/L	MAvg Conc	3/Week	Composite	Effluent
Cu (T)	All Year	0.03	mg/L	DMax Conc	Monthly	Composite	Effluent
D.O.	All Year	5	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	DMax Load	Daily	Continuous	Effluent
Flow	All Year		MGD	MAvg 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)
IC25 7day *Ceriodaphnia dubia*	All Year	25	Percent	DMin Conc	Quarterly	Composite	Effluent
IC25 7day Fathead Minnows	All Year	25	Percent	DMin Conc	Quarterly	Composite	Effluent
Settleable Solids	All Year	1	mL/L	DMax Conc	3/Week	Composite	Effluent
TRC	All Year	0.07	mg/L	DMax Conc	Weekdays	Grab	Effluent
TSS	All Year	45	mg/L	DMax Conc	3/Week	Composite	Effluent
TSS	All Year	30	mg/L	MAvg Conc	3/Week	Composite	Effluent
TSS	All Year	638	lb/day	MAvg Load	3/Week	Composite	Effluent
TSS	All Year	851	lb/day	WAvg 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 6-28. Permit Limits for Milan STP.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 11 Total Chlorine
- 4 Biological Oxygen Demand (BOD)
- 2 Ammonia
- 1 Total Suspended Solids (TSS)
- 1 pH
- 2 Overflows

Comments:
3/16/07 Pretreatment Inspection: It appears that Milan's pretreatment program is very well managed. Files are well maintained and easily accessible. Compliance with permit requirements is monitored by samples collected by the City and the companies. When violations of the permit limits have occurred, it appears that the appropriate enforcement action has been taken.

6/26/07 Compliance Evaluation Inspection. City is going to switch from chlorine to ultraviolet for disinfection. Design is for 5 MGD in order handle maximum flows. Reminded city on procedure to submit plans for construction. Inflow and infiltration problems.

6.4.B. Industrial Permits

TN0003221 Norandal USA, Inc.

Discharger rating: Minor
City: Huntington
County: Carroll
EFO Name: Jackson
Issuance Date: 8/31/05
Expiration Date: 8/31/10
Receiving Stream(s): Mile 2.2 of Northwood Branch (001) and mile 2.4 of Northwood Branch (002) and mile 2.6 of Northwood Branch (003) to mile 7.0 of Beaver Creek
HUC-12: 080102030101
Effluent Summary: Noncontact cooling water through Outfalls 001, 002, and 003
Treatment system: -

SEGMENT	TN08010203010_2000
Name	Beaver Creek
Size	3.4
Unit	Miles
First Year on 303(d) List	1990
Designated Uses	Industrial Water Supply (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting)
Causes	Sedimentation/Siltation, Oxygen, Dissolved, Phosphate
Sources	Municipal Point Source Discharges, Discharges from Municipal Separate Storm Sewer Systems (MS4), Non-irrigated Crop Production

Table 6-29. Stream Segment Information for Norandal USA, Inc.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Flow	All Year		MGD	MAvg Load	Daily	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	Daily	Instantaneous	Effluent
Hardness Total (as CaCO3)	All Year		mg/L	DMax Conc	Semi-annually	Grab	Effluent
IC25 7day *Ceriodaphnia dubia*	All Year	100	Percent	DMin Conc	Semi-annually	Composite	Effluent
IC25 7day Fathead Minnows	All Year	100	Percent	DMin Conc	Semi-annually	Composite	Effluent
Oil and Grease (Freon EM)	All Year	30	mg/L	DMax Conc	Monthly	Grab	Effluent
Temperature (°C)	All Year		°C	DMax Load	Monthly	Grab	Effluent
Zn (T)	All Year	0.2	mg/L	DMax Conc	Monthly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Monthly	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Monthly	Grab	Effluent

Table 6-30. Permit Limits for Norandal USA, Inc.

Comments:

Aluminum Sheet, Plate, and Foil. A Compliance Evaluation Inspection was conducted at this facility on 9/8/05 and it was found that their self monitoring program appeared to be in compliance. Outfall 001 had a large discharge of very clear cooling water. No oil or sheen was observed. Outfall 002 had a much smaller discharge of very clear water. There were some floating algae noted behind the baffle wall. However, none was apparently entering the discharge. Outfall 003 had a small discharge of clear water with algae behind the baffle wall, much like 002.

TN0064521 Associated Rubber Company

Discharger rating: Minor
City: Huntingdon
County: Carroll
EFO Name: Jackson
Issuance Date: 1/31/05
Expiration Date: 1/30/10
Receiving Stream(s): Northwood Branch at mile 2.4
HUC-12: 080102030101
Effluent Summary: Non-contact cooling water through Outfall 001
Treatment system: -

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Flow	All Year		MGD	DMax Load	Monthly	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Monthly	Instantaneous	Effluent
IC25 7day *Ceriodaphnia dubia*	All Year	100	Percent	DMin Conc	Annually	Composite	Effluent
IC25 7day Fathead Minnows	All Year	100	Percent	DMin Conc	Annually	Composite	Effluent
Oil and Grease (Freon EM)	All Year	15	mg/L	DMax Conc	Quarterly	Grab	Effluent
Oil and Grease (Freon EM)	All Year	10	mg/L	MAvg Conc	Quarterly	Grab	Effluent
TRC		0.011	mg/L	MAvg Conc	Monthly	Grab	Effluent
TRC		0.019	mg/L	DMax Conc	Monthly	Grab	Effluent
TSS	All Year	20	lb/day	DMax Load	Monthly	Composite	Effluent
TSS	All Year	10	lb/day	MAvg Load	Monthly	Composite	Effluent
Temperature (°C)	All Year		°C	DMax Conc	Monthly	Grab	Effluent
Temperature (°C)	All Year		°C	MAvg Conc	Monthly	Grab	Effluent
pH	All Year	9	SU	DMax Conc	Monthly	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Monthly	Grab	Effluent

Table 6-31. Permit Limits for Associated Rubber Company.

Compliance History:
The following numbers of exceedences were noted in PCS:

Comments:
Custom Mixing of Rubber Products for Industrial and Automotive Markets.

A Compliance Enforcement Inspection was conducted on 9/13/05. The non-contact cooling water discharge was very clear, with no oil or sheen observed. The bottom of the discharge ditch was orange with iron flow. The adjoining storm water outfalls were not discharging and no build-up of carbon black or other solids were noticed in the pool below the storm water culverts.

On 11/16/05, Jackson EFO personnel met with several representatives from the company, TEC Environmental Labs, and Dr. Larry Moore from the Univ. of Memphis concerning the continued failure of this company's effluent during toxicity testing. Several ideas were discussed as to the reason for their non-compliance. Then several possible solutions were discussed. One such solution was to construct a holding pond. Another was to adjust their hardness. Recirculation was also discussed.

TN0000060 Milan Army Ammunition Plant (MLAAP)

Discharger rating: Minor
City: Milan
County: Gibson
EFO Name: Jackson
Issuance Date: 1/31/05
Expiration Date: 1/30/10
Receiving Stream(s): Various tributaries to Rutherford Fork of the Obion River
HUC-12: 080102030603
Effluent Summary: Storm water runoff associated with industrial activities from Outfalls SW1, SW2, SW4, SW5, SW7, and SW8
Treatment system: -

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Flow	All Year		MGD	MAvg Load	Semi-annually	Estimate	Effluent
Nitrobodies Total	All Year		mg/L	DMax Conc	Semi-annually	Grab	Effluent

Table 6-32. Permit Limits for Outfall SW1 at MLAAP.

Enforcement:
Commissioner's Order #05-0181 MLAAP created sprayfield system (SOP-01005) to discontinue discharge through outfall 009 (NPDES permitted TN0000060). Had NPDES violations before sprayfield complete and 2 instances of bypass/overflow (violation of SOP).

Comments:
Loading, assembling, and packing military ammunition.

TN0074985 Replogle Enterprises, LLC

Discharger rating: Minor
City: Henry
County: Henry
EFO Name: Jackson
Issuance Date: 2/1/06
Expiration Date: 4/30/10
Receiving Stream(s): Mile 1.4 of unnamed tributary to mile 2.0 of an unnamed tributary to mile 3.0 of Trainer Creek
HUC-12: 080102030301
Effluent Summary: Mulch pile spraying wastewater from Outfall 001
Treatment system: Settling pond

SEGMENT	TN08010203015_1100
Name	Trainer Creek
Size	15.9
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Recreation (Not Assessed), Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Fish and Aquatic Life (Supporting)
Causes	N/A
Sources	N/A

Table 6-33. Stream Segment Information for Replogle Enterprises, LLC.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
BOD5	All Year	20	mg/L	DMax Conc	2/Month	Grab	Effluent
Bis (2-Ethylhexyl) Phthalate	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
Bis (2-Ethylhexyl) Phthalate	All Year	0.022	mg/L	DMax Conc	2/Month	Grab	Effluent
Cd (T)	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
Cd (T)	All Year	0.004	mg/L	DMax Conc	2/Month	Grab	Effluent
D.O.	All Year	6	mg/L	DMin Conc	2/Month	Grab	Effluent
Flow	All Year		MGD	MAvg Load	2/Month	Instantaneous	Effluent
Flow	All Year		MGD	DMax Load	2/Month	Instantaneous	Effluent
Pb (T)	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
Pb (T)	All Year		mg/L	DMax Conc	2/Month	Grab	Effluent
TSS	All Year	40	mg/L	DMax Conc	2/Month	Grab	Effluent
Zn (T)	All Year		mg/L	MAvg Conc	2/Month	Grab	Effluent
Zn (T)	All Year	0.226	mg/L	DMax 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 6-34. Permit Limits for Replogle Enterprises, LLC.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 3 Total Zinc
- 5 Total Suspended Solids
- 2 Biological Oxygen Demand (BOD)

Comments:
Sawmill. Issued a Notice of Violation - Company keeps adding height to levee rather than reduce storm water or treat the storm water.

TN0046337 Kentucky-Tennessee Clay Co. #1

Discharger rating: Minor
City: Gleason
County: Weakley
EFO Name: Jackson
Issuance Date: 7/1/05
Expiration Date: 5/31/10
Receiving Stream(s): Unnamed tributary at mile 0.8 to Middle Fork Obion River at mile 18.5
HUC-12: 080102030303
Effluent Summary: Treated storm water and process wastewater from Outfall 001
Treatment system: Equalization, coagulation, flocculation, sedimentation, neutralization and evaporation

SEGMENT	TN08010203015_3000
Name	Middle Fork Obion River
Size	19.9
Unit	Miles
First Year on 303(d) List	-
Designated Uses	Livestock Watering and Wildlife (Supporting), Fish and Aquatic Life (Non-Supporting), Recreation (Not Assessed), Irrigation (Supporting)
Causes	Nitrates, Sedimentation/Siltation
Sources	Non-irrigated Crop Production, Channelization

Table 6-35. Stream Segment Information for Kentucky-Tennessee Clay Co. #1.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Al (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Fe (T)	All Year		mg/L	DMax Conc	Annually	Grab	Effluent
Flow	All Year		MGD	DMax Load	2/Month	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	2/Month	Instantaneous	Effluent
Settleable Solids	All Year	0.5	mL/L	DMax Conc	Quarterly	Grab	Effluent
TSS	All Year	40	mg/L	DMax 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 6-36. Permit Limits for Kentucky-Tennessee Clay Co. #1.

Comments:
Mining and processing of ball clay. Compliance Evaluation Inspection on December 21, 2005: Needs to calibrate pH meter daily instead of weekly. Methods OK, but still not showing all method references on lab sheets. Corrections on DMRs were not initialed.

TN0058858 The University of Tennessee at Martin Maintenance Center

Discharger rating: Minor
City: Martin
County: Weakley
EFO Name: Jackson
Issuance Date: 12/1/05
Expiration Date: 10/30/10
Receiving Stream(s): Unnamed tributaries of Cane Creek at mile point 10.8
HUC-12: 080102030503
Effluent Summary: Swimming pool filter backwash water through Outfalls 020
Treatment system: -

SEGMENT	TN08010203020_0100
Name	Cane Creek
Size	16.7
Unit	Miles
First Year on 303(d) List	2004
Designated Uses	Irrigation (Supporting), Livestock Watering and Wildlife (Supporting), Recreation (Not Assessed), Fish and Aquatic Life (Non-Supporting)
Causes	Physical substrate habitat alterations
Sources	Discharges from Municipal Separate Storm Sewer Systems (MS4)

Table 6-37. Stream Segment Information for the University of Tennessee at Martin Maintenance Center.

PARAMETER	SEASON	LIMIT	UNITS	SAMPLE DESIGNATOR	MONITORING FREQUENCY	SAMPLE TYPE	MONITORING LOCATION
Flow	All Year		MGD	DMax Load	Monthly	Instantaneous	Effluent
Flow	All Year		MGD	MAvg Load	Monthly	Instantaneous	Effluent
TRC	All Year	0.011	mg/L	MAvg Conc	Monthly	Grab	Effluent
TRC	All Year	0.019	mg/L	DMax Conc	Monthly	Grab	Effluent
TSS	All Year	30	mg/L	MAvg Conc	Monthly	Composite	Effluent
TSS	All Year	40	mg/L	DMax Conc	Monthly	Composite	Effluent
pH	All Year	9	SU	DMax Conc	Monthly	Grab	Effluent
pH	All Year	6	SU	DMin Conc	Monthly	Grab	Effluent

Table 6-38. Permit Limits for the University of Tennessee at Martin Maintenance Center.

Compliance History:
The following numbers of exceedences were noted in PCS:

- 3 Total Chlorine

Comments:
Outfall 20 pool filter backwash is only remaining discharge.

APPENDIX II

ID	NAME	Hazard		ID	NAME	Hazard
97002	SHERRY	H		407012	MANSARD ISLAND RESORT	2
97003	VICKERS	2		407014	TAYLOR	L
927024	CYPRESS CREEK #9	0		927001	BLANKENSHIP	2
97005	MAPLE CREEK	B		927005	CYPRESS CREEK #5	3
97006	BEECH LAKE	L		927006	THOMPSON CREEK #3	3
97009	MOSS CREEK #4	2		927013	CYPRESS CREEK #6	2
97011	MOSS CREEK #3	3		927018	MUZZALL	0
97020	CALEDONIA CREEK #1	3		927019	RUSSELL	2
97021	BURROW CREEK	3		927020	MUD CREEK #5	1
97022	HOWLEY CREEK #5	3		927021	MUD CREEK #15	1
97023	HOWLEY CREEK #6	3		927022	MUD CREEK #17	2
277005	HANK	L		927023	MUD CREEK #9	3
277006	CRESWELL LAKE #21	L		927027	LITTLE CYPRESS CREEK	3
277007	CRESWELL LAKE #23	L		97004	SULLINS	L
277008	CRESWELL LAKE #24	L		97007	SHOAF	L
277009	CRESWELL LAKE #25	L		97012	PRESLEY	0
277011	NEW HOPE	L		97013	BIG BUCK	L
277012	CRESWELL LAKE #31	L		97018	HIGDON	L
277013	CRESWELL LAKE #32	L		97016	BELUE	0
277014	CRESWELL LAKE #33	L		407018	MORGAN'S	N
277015	CRESWELL LAKE #34	L		97014	PICKETT LAKE	L
277017	MOUNT OLIVE	L		667021	BROWN CREEK	3
277018	CRESWELL LAKE #17	0		97026	INNER MAN	2
277019	CRESWELL LAKE #18	0		407022	CLEAR CREEK #4	3
277020	CRESWELL LAKE #19	L		97025	MILL CREEK	L
277021	CRESWELL LAKE #20	0		407028	ANNA LAKE	2
277022	CRESWELL LAKE #27	0		97027	CENTRAL POINT	3
277023	CRESWELL LAKE #26	L		927028	KING-RIVERSIDE	3
277024	CRESWELL LAKE #22	L		407029	MARY'S CREEK #7	2
277026	NEW ENTERPRISE	L		97028	STEWARTS LAKE	3
277027	CRESWELL LAKE #38	2		407030	SIMMONS #2	L
407002	WEAKS LAKE	3		407031	SPINKS #2	3
407003	MIDDLE FORK OBION #7	2		407033	BIG BEND	L
407004	MIDDLE FORK OBION #2	3		407034	TOSH #1	L
407005	MIDDLE FORK OBION #4	2		97029	COUNTRY LAKE ESTATES	L
407006	MIDDLE FORK OBION #6	3		277043	PACE	L
407007	MIDDLE FORK OBION #3	2		407036	HUNTSVILLE	L
407008	MIDDLE FORK OBION #1	2		97030	JOHNSON LAKE	S
407009	MIDDLE FORK OBION #9	3		407040	BURKS	L

Table A2-1. Inventoried Dams in the South Fork Obion River 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	293243	39.6%
Deciduous Forest	233620	31.5%
Pasture/Hay	68055	9.2%
Wetlands	60687	8.2%
Low Intensity Residential	45871	6.2%
Evergreen Forest	17017	2.3%
Grassland/Herbaceous	8091	1.1%
High Intensity Residential	3596	0.5%
Open Water	3583	0.5%
Evergreen Shrubland	3453	0.5%
High Intensity Commercial	2053	0.3%
Emergent Herbaceous Wetlands	1537	0.2%
Total	740963	100%

Table A2-2. Land Use Distribution in Obion River (South 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
45	TDEC/DNH BIG CYPRESS TREE STATE NATURAL AREA SITE	TDEC/DNH	M.USTNHP 32
131	TDEC/DNH JARRELL BOTTOM GREAT BLUE HERON ROOKERY	TDEC/DNH	S.USTNHP 148
309	TDOT SR 43 MITIGATION SITE	TDOT	
333	TDOT SR 43 MITIGATION/PERMIT SITE	TDOT	
340	TDOT SR 43 MITIGATION/PERMIT SITE	TDOT	
351	TDOT SR 22 MITIGATION SITE	TDOT	
389	TDOT SR 43 PERMIT SITE	TDOT	
417	TDOT SR 77 PERMIT SITE	TDOT	
429	TDEC/WPC RUTHERFORD FORK OBION RIVER PERMIT SITE	TDEC/WPC	
462	TDOT SR 43 MITIGATION PERMIT SITE	TDOT	
526	TDOT PARKS LEVEE ROAD PERMIT SITE	TDOT	
851	USFWS LYNN GALLOWAY FMHA SITE	USFWS	
875	USFWS GEORGE BROUSSARD WRP SITE	USFWS	TRACT 1544
876	USFWS GEORGE WOFFORD WRP SITE	USFWS	TRACT 817
877	USFWS GEORGE WOFFORD WRP SITE	USFWS	TRACT 19989
883	USFWS BOB HENRY WRP SITE	USFWS	TRACT 4063
897	USFWS BAR M RANCH WRP SITE	USFWS	TRACT 3180
899	USFWS LARRY TIPPETT WRP SITE	USFWS	TRACT 2198
1045	BRAD BINGHAM THESIS: SITE 1 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.1
1046	BRAD BINGHAM THESIS: SITE 2 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.2
1047	BRAD BINGHAM THESIS: SITE 3 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.3
1048	BRAD BINGHAM THESIS: SITE 4 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.4
1049	BRAD BINGHAM THESIS: SITE 6 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.6
1050	BRAD BINGHAM THESIS: SITE 7 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.9
1051	BRAD BINGHAM THESIS: SITE 8 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.8
1052	BRAD BINGHAM THESIS: SITE 9 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.9
1053	BRAD BINGHAM THESIS: SITE 10 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.10
1054	BRAD BINGHAM THESIS: SITE 11 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.10
1055	BRAD BINGHAM THESIS: SITE 12 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.12
1056	BRAD BINGHAM THESIS: SITE 13 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.13
1057	BRAD BINGHAM THESIS: SITE 14 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.14
1058	BRAD BINGHAM THESIS: SITE 15 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.15
1059	BRAD BINGHAM THESIS: SITE 16 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.16
1060	BRAD BINGHAM THESIS: SITE 17 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.17
1061	BRAD BINGHAM THESIS: SITE 18 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.18
1062	BRAD BINGHAM THESIS: SITE 19 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.19
1063	BRAD BINGHAM THESIS: SITE 20 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.20
1064	BRAD BINGHAM THESIS: SITE 21 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.21
1065	BRAD BINGHAM THESIS: SITE 22 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.22
1066	BRAD BINGHAM THESIS: SITE 23 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.23
1067	BRAD BINGHAM THESIS: SITE 24 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.24
1068	BRAD BINGHAM THESIS: SITE 25 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.25
1069	BRAD BINGHAM THESIS: SITE 26 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.26
1070	BRAD BINGHAM THESIS: SITE 27 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.27
1071	BRAD BINGHAM THESIS: SITE 28 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.28
1072	BRAD BINGHAM THESIS: SITE 29 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.29

Table A2-4a.

CODE	NAME	AGENCY	AGENCY ID
1073	BRAD BINGHAM THESIS: SITE 30 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.30
1074	BRAD BINGHAM THESIS: SITE 31 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.31
1075	BRAD BINGHAM THESIS: SITE 32 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.32
1076	BRAD BINGHAM THESIS: SITE 33 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.33
1077	BRAD BINGHAM THESIS: SITE 34 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.34
1078	BRAD BINGHAM THESIS: SITE 35 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.35
1079	BRAD BINGHAM THESIS: SITE 36 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.36
1080	BRAD BINGHAM THESIS: SITE 37 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.37
1081	BRAD BINGHAM THESIS: SITE 38 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.38
1082	BRAD BINGHAM THESIS: SITE 39 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.39
1083	BRAD BINGHAM THESIS: SITE 40 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.40
1084	BRAD BINGHAM THESIS: SITE 41 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.41
1085	BRAD BINGHAM THESIS: SITE 42 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.42
1086	BRAD BINGHAM THESIS: SITE 43 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.43
1087	BRAD BINGHAM THESIS: SITE 44 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.44
1088	BRAD BINGHAM THESIS: SITE 45 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.45
1089	BRAD BINGHAM THESIS: SITE 46 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.46
1090	BRAD BINGHAM THESIS: SITE 47 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.47
1091	BRAD BINGHAM THESIS: SITE 48 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.48
1092	BRAD BINGHAM THESIS: SITE 49 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.49
1093	BRAD BINGHAM THESIS: SITE 50 RUTHERFORD QUAD	USFWS	BINGHAM-RUTHERFORD.50
1230	TWRA MANESS SWAMP SITE	TWRA	
1282	USACOE GUINS CREEK SITE	USACOE-MEMPHIS	
1335	USACOE MIDDLE FORK OBION RIVER-10 [TD] SITE	USACOE-MEMPHIS	
1337	USACOE MIDDLE FORK OBION RIVER 95-004 [TS] SITE	USACOE-MEMPHIS	
1383	USACOE OBION RIVER (TN) 95-013 [TD] SITE	USACOE-MEMPHIS	
1399	USACOE SOUTH FORK OBION RIVER-44 [TD] SITE	USACOE-MEMPHIS	
1400	USACOE SOUTH FORK OBION RIVER 95-022 [TS] SITE	USACOE-MEMPHIS	
1402	USACOE SPRING CREEK 96-002 [TD] SITE	USACOE-MEMPHIS	
1496	USACOE-LMM MIDDLE FORK OBION RIVER 95-005 SITE	USFWS	
1506	USACOE-LMM SOUTH FORK OBION RIVER 95-051 [TD] SITE	USFWS	
1610	USACOE SOUTH FORK OBION RIVER-1 SITE	USACOE-MEMPHIS	
1611	USACOE SOUTH FORK OBION RIVER/CROOKED CREEK-2-TD	USACOE-MEMPHIS	
1612	USACOE SOUTH FORK OBION RIVER/BEAVER CREEK-1 SITE	USACOE-MEMPHIS	
1613	USACOE SOUTH FORK OBION RIVER-3 SITE	USACOE-MEMPHIS	
1614	USACOE SOUTH FORK OBION RIVER-6 SITE	USACOE-MEMPHIS	
1615	USACOE SOUTH FORK OBION RIVER-2 SITE	USACOE-MEMPHIS	
1616	USACOE SOUTH FORK OBION RIVER-4 SITE	USACOE-MEMPHIS	
1617	USACOE SOUTH FORK OBION RIVER-5 SITE	USACOE-MEMPHIS	
1618	USACOE SOUTH FORK OBION RIVER-9 SITE	USACOE-MEMPHIS	
1619	USACOE SOUTH FORK OBION RIVER-41 SITE	USACOE-MEMPHIS	
1620	USACOE SOUTH FORK OBION RIVER 95-051 [TD] SITE	USACOE-MEMPHIS	
1625	USACOE RUTHERFORD FORK OBION RIVER-3 SITE	USACOE-MEMPHIS	
1626	USACOE RUTHERFORD FORK OBION RIVER-2 SITE	USACOE-MEMPHIS	
1627	USACOE RUTHERFORD FORK OBION RIVER-5 SITE	USACOE-MEMPHIS	
1628	USACOE RUTHERFORD FORK OBION RIVER-6 SITE	USACOE-MEMPHIS	
1629	USACOE RUTHERFORD FORK OBION RIVER/UNNAMED TRIB-12	USACOE-MEMPHIS	

Table A2-4b.

CODE	NAME	AGENCY	AGENCY ID
1649	USACOE MIDDLE FORK OBION RIVER/SPRING CREEK-2 (FL)	USACOE-MEMPHIS	
1652	USACOE SOUTH FORK OBION RIVER/BEAVER CREEK-2 (TF)	USACOE-MEMPHIS	
1675	USACOE CROOKED CREEK (TN) 95-002 [TD] SITE	USACOE-MEMPHIS	
1676	USACOE CROOKED CREEK (TN) 95-002 [TD] UNIT 2 SITE	USACOE-MEMPHIS	
1677	USACOE CROOKED CREEK (TN) 95-002 [TD] UNIT 3 SITE	USACOE-MEMPHIS	
1850	NRCS SITE	NRCS STATE OFFICE	
1851	NRCS SITE	NRCS STATE OFFICE	
1862	NRCS SITE	NRCS STATE OFFICE	
1863	NRCS SITE	NRCS STATE OFFICE	
1886	TWRA HARTS MILL SITE	TWRA	
1887	TWRA HARTS MILL SITE	TWRA	
1888	TWRA HARTS MILL SITE	TWRA	
1889	TWRA HARTS MILL SITE	TWRA	
1890	TWRA HARTS MILL SITE	TWRA	
1892	TWRA BEAN SWITCH REFUGE SITE	TWRA	
1893	TWRA BEAN SWITCH REFUGE SITE	TWRA	
1894	TWRA BEAN SWITCH REFUGE SITE	TWRA	
1895	TWRA BEAN SWITCH REFUGE SITE	TWRA	
2055	TWRA BEAN SWITCH SITE	TWRA	
2056	TWRA BEAN SWITCH SITE	TWRA	
2063	TWRA HARTS MILL SITE	TWRA	
2086	TWRA SITE	TWRA	
2248	TWRA FMHA SITE	TWRA	
2259	TWRA BEAN SWITCH INHOLDING SITE	TWRA	
2260	TWRA BEAN SWITCH INHOLDING SITE	TWRA	
2261	TWRA BEAN SWITCH SITE	TWRA	
2262	TWRA BEAN SWITCH SITE	TWRA	
2580	TWRA SITE	TWRA	
2594	TWRA HARTS MILL SITE	TWRA	
2619	TDOT SR 77 SITE	TDOT	
2681	NRCS SITE	NRCS STATE OFFICE	
2712	TWRA OBION RIVER WILDLIFE MANAGEMENT AREA SITE	TWRA	
2715	TWRA JARRELL SWITCH REFUGE SITE	TWRA	
2775	CROOKED CREEK MITIGATION BANK	USFWS	

Table A2-4c.

Tables A2-4a-c. Wetland Sites in Obion River (South Fork) Watershed in TDEC Database. *TDEC, Tennessee Department of Environment and Conservation; USACOE-Nashville, United States Army Corps of Engineers-Nashville District; TDOT, Tennessee Department of Transportation; 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)
Middle Fork Obion River	TN08010203015_1000	14.6
Rutherford Fork Obion River	TN08010203032_2000	10.0
Rutherford Fork Obion River	TN08010203032_3000	24.4
Slickup Creek	TN08010203011_0140	9.6
South Fork Obion River	TN08010203001_1000	26.0
South Fork Obion River	TN08010203001_2000	16.8

Table A3-1. Streams Fully Supporting the Designated Use of Recreation in the Obion River (South Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Clear Creek	TN08010203001_0700	3.6

Table A3-2. Streams Not Supporting the Designated Use of Recreation in the Obion River (South Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Adams Branch	TN08010203032_1600	10.3
Bear Creek	TN08010203001_0300	16.2
Bear Creek	TN08010203032_0100	9.1
Boaz Creek	TN08010203016_0300	5.8
Bond Branch	TN08010203016_0600	4.1
Booth Branch	TN08010203016_0700	6.2
Brassfield Branch	TN08010203020_0300	3.5
Browning Creek	TN08010203032_0200	6.4
Buckor Ditch	TN08010203015_1800	6.2
Caledonia Creek	TN08010203016_0200	9.2
Camp Creek	TN08010203032_1700	11.8
Cane Branch	TN08010203001_0200	5.2
Cane Creek	TN08010203015_1700	10.7
Cane Creek	TN08010203020_0100	16.7
Cane Creek	TN08010203032_0700	10.5
Chestnut Branch	TN08010203020_0200	15.5
Clear Creek	TN08010203001_0750	3.5
Cotton Creek	TN08010203016_0100	12.3
Crossville Creek	TN08010203032_0400	6.2

Table A3-3a.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
DeMoss Creek	TN08010203001_0900	24.2
Dolan Creek	TN08010203001_1200	7.7
Doland Branch	TN08010203016_1200	6.7
Dry Creek	TN08010203001_1300	4.7
Dry Creek	TN08010203015_1600	4.3
East Fork Wolf Creek	TN08010203032_1310	8.2
Edmundson Creek	TN08010203032_1900	14.7
Elender Creek	TN08010203001_0510	9.9
Flippen Creek	TN08010203032_1400	7.2
Gin Branch	TN08010203032_0600	4.1
Grassy Hollow Creek	TN08010203032_0900	9.5
Halley Creek	TN08010203007_0200	11.3
Halls Branch	TN08010203032_1210	11.4
Humble Branch	TN08010203010_0300	6.9
Johns Creek	TN08010203032_1200	21.7
Lawrence Creek	TN08010203015_0800	3.9
Lick Creek	TN08010203001_1600	6.6
Lick Creek	TN08010203007_0300	4.3
Lipscomb Ditch	TN08010203015_1900	3.5
Little Beaver Creek	TN08010203010_0200	11.9
Little Reedy Creek	TN08010203007_0100	5.4
Locust Grove Creek	TN08010203001_1500	8.3
Manns Creek	TN08010203016_0800	3.4
Mays Creek	TN08010203032_1500	4.9
Middle Fork Obion River	TN08010203015_2000	7.0
Middle Fork Obion River	TN08010203015_3000	19.9
Mill Creek	TN08010203032_0800	13.2
Misc Tribs to Beaver Creek	TN08010203010_0999	28.9
Misc Tribs to Cane Creek	TN08010203020_0199	25.8
Misc Tribs to Clear Creek	TN08010203001_0799	19.7
Misc Tribs to Guins Creek	TN08010203011_0199	24.6
Misc Tribs to Middle Fork Obion River	TN08010203015_0999	136.9
Misc Tribs to Mud Creek	TN08010203020_0999	69.0
Misc Tribs to Reedy Creek	TN08010203007_0999	40.6
Misc Tribs to Rutherford Fork Obion River	TN08010203032_0999	227.8
Misc Tribs to South Fork Obion River	TN08010203001_0999	141.6
Misc Tribs to Spring Creek	TN08010203016_0999	72.1
Misc Tribs to Thompson Creek	TN08010203015_0699	7.9
Misc. Tribs to Crooked Creek	TN08010203011_0999	43.9
Morris Branch	TN08010203015_1500	4.2
Mud Creek	TN08010203020_1000	10.8

Table A3-3b.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Mud Creek	TN08010203020_2000	11.6
Neil Ditch	TN08010203011_0130	3.4
Northwood Branch	TN08010203010_0100	2.6
Old Town Creek	TN08010203015_0700	24.7
Owen Branch	TN08010203032_1800	5.8
Pence Branch	TN08010203016_1100	3.0
Pettijohn Creek	TN08010203011_0120	3.3
Pittman Branch	TN08010203001_0100	3.0
Plum Creek	TN08010203001_0400	4.4
Reedy Creek	TN08010203007_1000	19.3
Roberson Creek	TN08010203032_0300	4.7
Rock Creek	TN08010203010_0800	9.1
Rutherford Fork Obion River	TN08010203032_1000	19.9
Sandy Branch	TN08010203032_0500	4.2
Short Branch	TN08010203001_0800	4.4
Spring Creek	TN08010203016_1000	3.5
Spring Creek	TN08010203016_2000	8.6
Spring Creek	TN08010203016_3000	10.3
Spring Creek Branch	TN08010203016_0400	7.5
Steel Branch	TN08010203015_0500	4.9
Steep Bank Branch	TN08010203032_1100	6.0
Summers Creek	TN08010203015_1400	3.7
Terrell Branch	TN08010203015_0100	4.6
Thompson Creek	TN08010203001_1100	20.2
Thompson Creek	TN08010203015_0600	6.2
Thompson Creek	TN08010203015_0650	1.8
Thompson Creek Branch	TN08010203015_0620	3.8
Todd Branch	TN08010203016_0900	2.3
Todd Creek	TN08010203001_0500	5.0
Trainer Creek	TN08010203015_1100	15.9
Tumbling Creek	TN08010203015_1200	12.2
Unnamed Trib to Cane Creek	TN08010203020_0110	5.8
Unnamed Trib to Cane Creek	TN08010203020_0120	4.9
Unnamed Trib to Lick Creek	TN08010203001_1610	4.4
Unnamed Trib to South Fork Obion River	TN08010203001_0600	8.3
Unnamed Trib to South Fork Obion River	TN08010203001_1400	8.8
Unnamed Trib to Unnamed Trib to Lick Creek	TN08010203001_1611	4.0
West Fork Wolf Creek	TN08010203032_1320	11.7
White Creek	TN08010203007_0210	12.7

Table A3-3c.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Wolf Creek	TN08010203032_1300	21.6
Wrinkley Branch	TN08010203016_0500	3.3

Table A3-3d.

Table A3-3a-d. Streams Not Assessed for the Designated Use of Recreation in the Obion River (South Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Beaver Creek	TN08010203010_1000	4.7
Cane Branch	TN08010203001_0200	5.2
Cane Creek	TN08010203015_1700	10.7
Crooked Creek	TN08010203011_2000	10.2
Dry Creek	TN08010203001_1300	4.7
Grassy Hollow Creek	TN08010203032_0900	9.5
Guins Creek	TN08010203011_0100	12.6
Lawrence Creek	TN08010203015_0800	3.9
Middle Fork Obion River	TN08010203015_1000	14.6
Mud Creek	TN08010203020_1000	10.8
Old Town Creek	TN08010203015_0700	24.7
Slickup Creek	TN08010203011_0140	9.6
Spring Creek	TN08010203016_1000	3.5
Spring Creek	TN08010203016_2000	8.6
Spring Creek	TN08010203016_3000	10.3
Steel Branch	TN08010203015_0500	4.9
Trainer Creek	TN08010203015_1100	15.9
Tumbling Creek	TN08010203015_1200	12.2
West Fork Wolf Creek	TN08010203032_1320	11.7

Table A3-4. Streams Fully Supporting the Designated Use of Fish & Aquatic life in the Obion River (South Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Beaver Creek	TN08010203010_2000	3.4
Beaver Creek	TN08010203010_3000	8.8
Buckor Ditch	TN08010203015_1800	6.2
Cane Creek	TN08010203020_0100	16.7
Clear Creek	TN08010203001_0700	3.6
Crooked Creek	TN08010203011_1000	4.7
DeMoss Creek	TN08010203001_0900	24.2
Dolan Creek	TN08010203001_1200	7.7
East Fork Wolf Creek	TN08010203032_1310	8.2
Edmundson Creek	TN08010203032_1900	14.7
Halls Branch	TN08010203032_1210	11.4
Johns Creek	TN08010203032_1200	21.7
Lick Creek	TN08010203001_1600	6.6
Middle Fork Obion River	TN08010203015_2000	7
Middle Fork Obion River	TN08010203015_3000	19.9
Morris Branch	TN08010203015_1500	4.2
Mud Creek	TN08010203020_2000	11.6
Reedy Creek	TN08010203007_1000	19.3
Rutherford Fork Obion River	TN08010203032_1000	19.9
Rutherford Fork Obion River	TN08010203032_2000	10.0
Rutherford Fork Obion River	TN08010203032_3000	24.4
South Fork Obion River	TN08010203001_1000	26.0
South Fork Obion River	TN08010203001_2000	16.8
Summers Creek	TN08010203015_1400	3.7
Terrell Branch	TN08010203015_0100	4.6
Thompson Creek	TN08010203001_1100	20.2
Thompson Creek	TN08010203015_0600	6.2
Unnamed Trib to Lick Creek	TN08010203001_1610	4.4
Wolf Creek	TN08010203032_1300	21.6

Table A3-5. Streams Not Supporting the Designated Use of Fish & Aquatic life in the Obion River (South Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Adams Branch	TN08010203032_1600	10.3
Arnold Branch	TN08010203015_1300	4.8
Atkinson Branch	TN08010203015_0300	4.9
Bear Creek	TN08010203001_0300	16.2
Bear Creek	TN08010203032_0100	9.1
Bee Branch	TN08010203010_0900	3.9
Boaz Creek	TN08010203016_0300	5.8
Bond Branch	TN08010203016_0600	4.1
Booth Branch	TN08010203016_0700	6.2
Brassfield Branch	TN08010203020_0300	3.5
Brewer Creek	TN08010203011_0150	6.4
Brier Creek	TN08010203010_0700	17.5
Brier Creek	TN08010203011_0300	6.1
Browning Creek	TN08010203032_0200	6.4
Buck Ditch	TN08010203010_0400	3.4
Burrow Creek	TN08010203011_0110	4.9
Caledonia Creek	TN08010203016_0200	9.2
Camp Creek	TN08010203032_1700	11.8
Cane Creek	TN08010203032_0700	10.5
Capps Branch	TN08010203015_0630	8.3
Carver Creek	TN08010203011_0200	4.4
Chestnut Branch	TN08010203020_0200	15.5
Clear Creek	TN08010203001_0750	3.5
Coley Branch	TN08010203015_0400	5.8
Cotton Creek	TN08010203016_0100	12.3
Crossville Creek	TN08010203032_0400	6.2
Deep Branch	TN08010203015_0200	3.5
Doland Branch	TN08010203016_1200	6.7
Dry Creek	TN08010203015_0610	4.5
Dry Creek	TN08010203015_1600	4.3
Elender Creek	TN08010203001_0510	9.9
Flippen Creek	TN08010203032_1400	7.2
Gin Branch	TN08010203032_0600	4.1
Glasgow Branch	TN08010203015_0640	2.7
Halley Creek	TN08010203007_0200	11.3
Hawkins Creek	TN08010203010_0500	7.0
Hill Creek	TN08010203015_0900	5.8
Hillard Branch	TN08010203010_0600	3.8
Humble Branch	TN08010203010_0300	6.9
Lick Creek	TN08010203007_0300	4.3

Table A3-6a.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Lipscomb Ditch	TN08010203015_1900	3.5
Little Beaver Creek	TN08010203010_0200	11.9
Little Reedy Creek	TN08010203007_0100	5.4
Locust Grove Creek	TN08010203001_1500	8.3
Manns Creek	TN08010203016_0800	3.4
Mays Creek	TN08010203032_1500	4.9
Mill Creek	TN08010203032_0800	13.2
Misc Tribs to Beaver Creek	TN08010203010_0999	28.9
Misc Tribs to Cane Creek	TN08010203020_0199	25.8
Misc Tribs to Clear Creek	TN08010203001_0799	19.7
Misc Tribs to Guins Creek	TN08010203011_0199	24.6
Misc Tribs to Middle Fork Obion River	TN08010203015_0999	136.9
Misc Tribs to Mud Creek	TN08010203020_0999	69.0
Misc Tribs to Reedy Creek	TN08010203007_0999	40.6
Misc Tribs to Rutherford Fork Obion River	TN08010203032_0999	227.8
Misc Tribs to South Fork Obion River	TN08010203001_0999	141.6
Misc Tribs to Spring Creek	TN08010203016_0999	72.1
Misc Tribs to Thompson Creek	TN08010203015_0699	7.9
Misc. Tribs to Crooked Creek	TN08010203011_0999	43.9
Neil Ditch	TN08010203011_0130	3.4
Northwood Branch	TN08010203010_0100	2.6
Owen Branch	TN08010203032_1800	5.8
Pence Branch	TN08010203016_1100	3.0
Pettijohn Creek	TN08010203011_0120	3.3
Pittman Branch	TN08010203001_0100	3.0
Plum Creek	TN08010203001_0400	4.4
Roberson Creek	TN08010203032_0300	4.7
Rock Creek	TN08010203010_0800	9.1
Sandy Branch	TN08010203032_0500	4.2
Short Branch	TN08010203001_0800	4.4
Spring Creek Branch	TN08010203016_0400	7.5
Steep Bank Branch	TN08010203032_1100	6.0
Thompson Creek	TN08010203015_0650	1.8
Thompson Creek Branch	TN08010203015_0620	3.8
Todd Branch	TN08010203016_0900	2.3
Todd Creek	TN08010203001_0500	5.0
Unnamed Trib to Cane Creek	TN08010203020_0110	5.8
Unnamed Trib to Cane Creek	TN08010203020_0120	4.9
Unnamed Trib to South Fork Obion River	TN08010203001_0600	8.3
Unnamed Trib to South Fork Obion River	TN08010203001_1400	8.8

Table A3-6b.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Unnamed Trib to Unnamed Trib to Lick Creek	TN08010203001_1611	4.0
White Creek	TN08010203007_0210	12.7
Wrinkley Branch	TN08010203016_0500	3.3

Table A3-6c.

Table A3-6a-c. Streams Not Assessed for the Designated Use of Fish & Aquatic Life in the Obion River (South Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Middle Fork Obion River	TN08010203015_2000	7.0
Middle Fork Obion River	TN08010203015_3000	19.9

Table A3-7. Stream Segments Impaired Due to Dissolved Oxygen in the Obion River (South Fork) Watershed.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
Beaver Creek	TN08010203010_2000	3.4
Beaver Creek	TN08010203010_3000	8.8
Buckor Ditch	TN08010203015_1800	6.2
Cane Creek	TN08010203020_0100	16.7
Clear Creek	TN08010203001_0700	3.6
Crooked Creek	TN08010203011_1000	4.7
DeMoss Creek	TN08010203001_0900	24.2
Dolan Creek	TN08010203001_1200	7.7
East Fork Wolf Creek	TN08010203032_1310	8.2
Edmundson Creek	TN08010203032_1900	14.7
Lick Creek	TN08010203001_1600	6.6
Middle Fork Obion River	TN08010203015_2000	7.0
Middle Fork Obion River	TN08010203015_3000	19.9
Morris Branch	TN08010203015_1500	4.2
Mud Creek	TN08010203020_2000	11.6
Reedy Creek	TN08010203007_1000	19.3
Rutherford Fork Obion River	TN08010203032_1000	19.9
Rutherford Fork Obion River	TN08010203032_2000	10.0
Rutherford Fork Obion River	TN08010203032_3000	24.4
South Fork Obion River	TN08010203001_1000	26.0

Table A3-8a.

SEGMENT NAME	WATERBODY SEGMENT ID	SEGMENT SIZE (MILES)
South Fork Obion River	TN08010203001_2000	16.8
Summers Creek	TN08010203015_1400	3.7
Terrell Branch	TN08010203015_0100	4.6
Thompson Creek	TN08010203001_1100	20.2
Thompson Creek	TN08010203015_0600	6.2
Unnamed Trib to Lick Creek	TN08010203001_1610	4.4
Wolf Creek	TN08010203032_1300	21.6

Table A3-8b.

Table A3-8a-b. Stream Segments Impaired Due to Siltation in the Obion River (South Fork) Watershed.

WATERBODY ID	WATERBODY NAME	TOTAL SEGMENT MILES IMPAIRED	HUC-12
TN08010203001_0910	Spring Creek	7.63	080102030102
TN08010203001_1600	UT to South Fork Obion River	8.80	080102030105
TN08010203015_0700	Old Town Creek	5.35	080102030302
TN08010203015_1300	Arnold Branch	4.80	080102030302
TN08010203016_0400	Boaz Creek	5.80	080102030401
TN08010203016_0200	Cotton Creek	12.30	080102030402
TN08010203032_1900	Camp Creek	11.80	080102030605
TN08010203032_2100	Owen Branch	5.80	080102030605
TN08010203032_2200	Cummings Creek	3.41	080102030606

Table A3-9. Streams Added to the 2008 303(d) List in the South Fork Obion River 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
TN08010203010_2000	Beaver Creek	3.40	Nutrients, Loss of Biological Integrity due to Siltation, Low Dissolved Oxygen	080102030101
TN08010203010_3000	Beaver Creek	8.80	Loss of Biological Integrity due to Siltation	080102030101
TN08010203011_1000	Crooked Creek	4.70	Physical Substrate Habitat Alterations	080102030101
TN08010203001_0900	Clear Creek	3.60	Loss of Biological Integrity due to Siltation, Low Dissolved Oxygen, Physical Substrate Habitat Alterations	080102030102
TN08010203001_1200	DeMoss Creek	24.20	Loss of Biological Integrity due to Siltation, Alteration in Stream-Side of Littoral Vegetative Cover	080102030103
TN08010203001_1300	Thompson Creek	20.20	Loss of Biological Integrity due to Siltation, Alteration in Stream-Side of Littoral Vegetative Cover	080102030103
TN08010203001_1400	Dolan Creek	7.70	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102030105
TN08010203001_1800	Lick Creek	6.60	Loss of Biological Integrity due to Siltation, Alteration in Stream-Side of Littoral Vegetative Cover	080102030106
TN08010203001_1810	UT to Lick Creek	4.40	Loss of Biological Integrity due to Siltation	080102030106
TN08010203011_1000	Crooked Creek	4.70	Physical Substrate Habitat Alterations	080102030201
TN08010203020_2000	Mud Creek	11.60	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102030501
TN08010203020_2000	Mud Creek	11.60	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102030502
TN08010203032_3000	Rutherford Fork Obion River	24.4	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102030601
TN08010203032_3000	Rutherford Fork Obion River	24.4	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102030602
TN08010203032_3000	Rutherford Fork Obion River	24.4	Loss of Biological Integrity due to Siltation, Physical Substrate Habitat Alterations	080102030603

Table A3-10. Streams (or pollutants) Delisted Since the 2006 303(d) List in the South Fork Obion River 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
South Fork Obion River	From Todd Creek to Clear Creek	State threatened Halberd-Leaf Tearthumb.	080102030102
Middle Fork Obion River	Portion in Maness Swamp Wildlife Refuge	Maness Swamp Wildlife Refuge	080102030106
Obion River UT	UT from Obion River at Hwy 54 to Cemetery	State endangered Burrowing Crayfish	080102030303
Spring Creek	Portion in Bean Switch Wildlife Refuge	Bean Switch Wildlife Refuge	080102030305
Middle Fork Obion River	Portion in Bean Switch Wildlife Refuge	Bean Switch Wildlife Refuge	080102030305
Middle Fork Obion River	Portion in Big Cypress Tree State Natural Area	Big Cypress Tree State Natural Area	080102030305
Middle Fork Obion River	Portion in Maness Swamp Wildlife Refuge	Maness Swamp Wildlife Refuge	080102030305
Spring Creek	Portion in Bean Switch Wildlife Refuge	Bean Switch Wildlife Refuge	080102030402
Bear Creek	From Obion River to Railroad	State endangered Hatchie Burrowing Crayfish	080102030603

Table A3-11. Known High Quality Waters in the South Fork Obion River Watershed as of September 2008. *The most recently published list is available at www.state.tn.us/environment/wpc/publications/hqwlist.mht. UT, Unnamed Tributary.*

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 A5-1. Land Treatment Conservation Practices (Conservation Buffers), in Partnership with NRCS in the Obion River (South 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 A5-2. Erosion Control Conservation Practices, in Partnership with NRCS in the Obion River (South 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	142	3361	3503
FY 2003	285	6131	6416
FY 2004	6551		6551
FY 2005	12159		12159
FY 2006	12947		12947

Table A5-3. Nutrient Management Conservation Practices in Partnership with NRCS in the Obion River (South 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	3303
FY 2003	5822
FY 2004	6409
FY 2005	12576
FY 2006	14406

Table A5-4. Pest Management Conservation Practices in Partnership with NRCS in the Obion River (South 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)	Heavy Use Area Protection (acres)	Pasture and Hay Planting (acres)
FY 2003	122			
FY 2004	576	8260		172
FY 2005	1408			473
FY 2006	133		4	322

Table A5-5. Grazing/Forages Conservation Practices in Partnership with NRCS in the Obion River (South 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		108	414		
FY 2003		270	120		
FY 2004	5	157		157	2017
FY 2005		1815	123	1938	1431
FY 2006		2110	94	2204	3181

Table A5-6. Tree and Shrub Conservation Practices in Partnership with in the Obion River (South 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	2723		2723			
FY 2003	6423		6423			
FY 2005	7450	188	7638	6023	12	31
FY 2006	8984	970	9954	2078		

Table A5-7. Land Treatment Conservation Practices (Tillage and Cropping), in Partnership with NRCS in the Obion River (South 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	238
FY 2003	296
FY 2006	24

Table A5-8. Wetland Conservation Practices in Partnership with NRCS in the Obion River (South 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	3083	119	3202
FY 2004	3494	46	3540
FY 2005	4768	69	4837
FY 2006	6289	156	6445

Table A5-9. Wildlife Habitat Management Conservation Practices in Partnership with NRCS in the Obion River (South 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)	Watering Facility (number)
FY 2004	1450	3
FY 2005	1,220	5
FY 2006	80	1

Table A5-10. Water Supply Conservation Practices in Partnership with NRCS in the in the Obion River (South 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
080102030101	327	Conservation Cover	22	Crop
	328	Conservation Crop Rotation	40	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	10	Crop
	344	Residue Management, Seasonal	9	Crop
	362	Diversion	1	Crop
	472	Use Exclusion	27	Crop (20) Wildlife (7)
	511	Forage Harvest Management	4	Crop (1) Hay (3)
	528	Prescribed Grazing	2	Pasture
	590	Nutrient Management	63	Crop (49) Hay (3) Pasture (11)
	595	Pest Management	79	Crop (65) Hay (3) Pasture (11)
	612	Tree/Shrub Establishment	4	Pasture
	620	Underground Outlet	2	Crop
	638	Water and Sediment Control Basin	3	Crop
	645	Upland Wildlife Habitat Management	34	Crop (19) Forest (8) Wildlife (7)
	647	Early Successional Habitat Development/Manage	7	Wildlife
	666	Forest Stand Improvement	8	Forest
080102030102	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	11	Crop (11)
	342	Critical Area Planting	1	Hay (1)
	344	Residue Management, Seasonal	1	Crop
	410	Grade Stabilization Structure	1	Crop
	484	Mulching	1	Hay
	590	Nutrient Management	25	Crop
	595	Pest Management	27	Crop (25) Natural Area (2)
	620	Underground Outlet	1	Crop
	638	Water and Sediment Control Basin	2	Crop
	645	Upland Wildlife Habitat Management	3	Forest
	666	Forest Stand Improvement	3	Forest

Table A5-11a.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030103	327	Conservation Cover	15	Crop (14) Wildlife (1)
	344	Residue Management, Seasonal	1	Crop
	472	Use Exclusion	12	Crop
	511	Forage Harvest Management	6	Crop (4) Hay (2)
	512	Pasture and Hay Planting	4	Crop
	528	Prescribed Grazing	33	Pasture
	590	Nutrient Management	63	Crop (23) Hay (2) Pasture (20) Wildlife (18)
	595	Pest Management	85	Crop (35) Hay (2) Headquarters (1) Pasture (20) Wildlife (27)
	620	Underground Outlet	1	Crop
	638	Water and Sediment Control Basin	1	Crop (1)
	645	Upland Wildlife Habitat Management	39	Crop (8) Forest (1) Wildlife (30)
	666	Forest Stand Improvement	5	Crop (4) Forest (1)
080102030104	327	Conservation Cover	4	Crop
	328	Conservation Crop Rotation	10	Crop
	344	Residue Management, Seasonal	10	Crop
	472	Use Exclusion	19	Crop (2) Wildlife (17)
	511	Forage Harvest Management	3	Hay
	590	Nutrient Management	76	Crop (60) Hay (3) Wildlife (13)
	595	Pest Management	81	Crop (62) Hay (3) Wildlife (16)
	645	Upland Wildlife Habitat Management	21	Crop (4) Wildlife (17)
	647	Early Successional Habitat Development/Management	1	Wildlife

Table A5-11b.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030105	327	Conservation Cover	39	Crop (27) Wildlife (12)
	328	Conservation Crop Rotation	9	Crop (5) Hay (4)
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	9	Crop
	340	Cover Crop	3	Crop
	344	Residue Management, Seasonal	9	Crop
	393	Filter Strip	8	Crop
	410	Grade Stabilization Structure	1	Crop
	472	Use Exclusion	13	Crop (9) Wildlife (4)
	511	Forage Harvest Management	7	Crop (4) Hay (3)
	512	Pasture and Hay Planting	3	Crop
	528	Prescribed Grazing	17	Pasture
	590	Nutrient Management	57	Crop (31) Hay (4) Pasture (18) Wildlife (4)
	595	Pest Management	58	Crop (31) Hay (4) Headquarters (1) Pasture (18) Wildlife (4)
	638	Water and Sediment Control Basin	1	Crop
	645	Upland Wildlife Habitat Management	28	Crop (19) Wildlife (9)
080102030106	328	Conservation Crop Rotation	19	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	8	Crop
	344	Residue Management, Seasonal	32	Crop
	512	Pasture and Hay Planting	1	Crop
	516	Pipeline	1	Crop
	528	Prescribed Grazing	10	Crop (6) Pasture (4)
	561	Heavy Use Area Protection	1	Crop
	590	Nutrient Management	50	Crop (46) Pasture (4)
	595	Pest Management	56	Crop (50) Headquarters (2) Pasture (4)
	614	Watering Facility	1	Crop
	644	Wetland Wildlife Habitat Management	4	Crop
	645	Upland Wildlife Habitat Management	6	Wildlife

Table A5-11c.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030201	327	Conservation Cover	15	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	2	Crop
	410	Grade Stabilization Structure	1	Crop
	472	Use Exclusion	6	Crop (5) Wildlife (1)
	511	Forage Harvest Management	14	Crop (7) Hay (7)
	512	Pasture and Hay Planting	7	Crop
	528	Prescribed Grazing	4	Pasture
	590	Nutrient Management	34	Crop (23) Hay (7) Pasture (4)
	595	Pest Management	39	Crop (28) Hay (7) Pasture (4)
	612	Tree/Shrub Establishment	11	Wildlife
	620	Underground Outlet	1	Crop
	638	Water and Sediment Control Basin	1	Crop
	644	Wetland Wildlife Habitat Management	11	Wildlife
	645	Upland Wildlife Habitat Management	8	Crop (7) Wildlife (1)
	647	Early Successional Habitat Development/Manage	1	Wildlife
	657	Wetland Restoration	11	Wildlife
080102030202	327	Conservation Cover	66	Crop (66)
	328	Conservation Crop Rotation	3	Crop (3)
	386	Field Border	37	Crop (37)
	472	Use Exclusion	1	Wildlife (1)
	511	Forage Harvest Management	1	Hay (1)
	512	Pasture and Hay Planting	2	Crop (2)
	528	Prescribed Grazing	3	Pasture (3)
	561	Heavy Use Area Protection	5	Grazed Forest (1) Pasture (4)
	590	Nutrient Management	62	Crop (58) Hay (1) Pasture (3)
	595	Pest Management	67	Crop (58) Forest (4) Hay (1) Pasture (3) Wildlife (1)

Table A5-11d.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030202	612	Tree/Shrub Establishment	4	Forest
	620	Underground Outlet	3	Crop
	638	Water and Sediment Control Basin	5	Crop
	645	Upland Wildlife Habitat Management	48	Crop (40) Forest (7) Wildlife (1)
	666	Forest Stand Improvement	3	Forest (2) Wildlife (1)
080102030301	328	Conservation Crop Rotation	3	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	34	Crop
	344	Residue Management, Seasonal	3	Crop
	511	Forage Harvest Management	3	Hay
	528	Prescribed Grazing	4	Pasture
	590	Nutrient Management	73	Crop (66) Hay (3) Pasture (4)
	595	Pest Management	78	Crop (67) Forest (4) Hay (3) Pasture (4)
	620	Underground Outlet	2	Crop
	638	Water and Sediment Control Basin	2	Crop
	645	Upland Wildlife Habitat Management	4	Forest
	646	Shallow Water Development and Management	1	Crop
	666	Forest Stand Improvement	4	Forest
080102030302	314	Brush Management	3	Natural Area
	327	Conservation Cover	20	Crop
	328	Conservation Crop Rotation	4	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	3	Crop
	342	Critical Area Planting	1	Crop
	344	Residue Management, Seasonal	3	Crop
	350	Sediment Basin	1	Crop
	511	Forage Harvest Management	17	Crop (12) Hay (5)
	528	Prescribed Grazing	1	Pasture

Table A5-11e.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030302	590	Nutrient Management	51	Crop (45) Hay (5) Pasture (1)
	595	Pest Management	58	Crop (45) Forest (4) Hay (5) Natural Area (3) Pasture (1)
	612	Tree/Shrub Establishment	1	Crop
	620	Underground Outlet	11	Crop
	638	Water and Sediment Control Basin	13	Crop
	644	Wetland Wildlife Habitat Management	1	Crop
	645	Upland Wildlife Habitat Management	35	Crop (19) Forest (13) Natural Area (3)
	657	Wetland Restoration	1	Crop
	666	Forest Stand Improvement	13	Forest
080102030303	327	Conservation Cover	55	Crop
	328	Conservation Crop Rotation	7	Crop (5) Hay (2)
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	5	Crop
	344	Residue Management, Seasonal	11	Crop (10) Pasture (1)
	386	Field Border	2	Crop
	410	Grade Stabilization Structure	1	Crop
	472	Use Exclusion	21	Crop
	511	Forage Harvest Management	6	Crop (3) Hay (3)
	512	Pasture and Hay Planting	2	Hay (1) Pasture (1)
	528	Prescribed Grazing	20	Pasture
	561	Heavy Use Area Protection	1	Pasture (1)
	590	Nutrient Management	55	Crop (34) Hay (3) Pasture (18)
	595	Pest Management	52	Crop (36) Hay (3) Pasture (10) Wildlife (3)
	620	Underground Outlet	1	Crop
	638	Water and Sediment Control Basin	2	Crop

Table A5-11f.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030303	644	Wetland Wildlife Habitat Management	1	Wildlife
	645	Upland Wildlife Habitat Management	32	Crop (28) Wildlife (4)
	657	Wetland Restoration	1	Wildlife
	666	Forest Stand Improvement	1	Forest
080102030304	327	Conservation Cover	49	Crop
	328	Conservation Crop Rotation	12	Crop
	344	Residue Management, Seasonal	18	Crop
	382	Fence	3	Pasture
	472	Use Exclusion	13	Crop
	511	Forage Harvest Management	6	Crop (4) Hay (2)
	512	Pasture and Hay Planting	9	Crop (1) Hay (2) Pasture (6)
	516	Pipeline	3	Crop (1) Pasture (2)
	528	Prescribed Grazing	6	Pasture
	561	Heavy Use Area Protection	3	Crop (1) Pasture (2)
	590	Nutrient Management	37	Crop (27) Hay (2) Pasture (8)
	595	Pest Management	35	Crop (27) Hay (2) Pasture (6)
	614	Watering Facility	3	Crop (1) Pasture (2)
	620	Underground Outlet	4	Crop
	638	Water and Sediment Control Basin	4	Crop
	645	Upland Wildlife Habitat Management	20	Crop
	646	Shallow Water Development and Management	3	Crop
080102030305	327	Conservation Cover	8	Crop (8)
	328	Conservation Crop Rotation	24	Crop (24)
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	7	Crop (7)
	344	Residue Management, Seasonal	27	Crop (27)
	410	Grade Stabilization Structure	5	Crop (5)
	472	Use Exclusion	2	Crop (2)

Table A5-11g.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030305	511	Forage Harvest Management	2	Crop (2)
	512	Pasture and Hay Planting	1	Pasture (1)
	528	Prescribed Grazing	10	Hay (3) Pasture (7)
	590	Nutrient Management	47	Crop (40) Hay (3) Pasture (4)
	595	Pest Management	47	Crop (40) Hay (3) Pasture (4)
	638	Water and Sediment Control Basin	2	Crop
	645	Upland Wildlife Habitat Management		Crop
080102030401	327	Conservation Cover	4	Crop
	328	Conservation Crop Rotation	16	Crop
	344	Residue Management, Seasonal	15	Crop
	410	Grade Stabilization Structure	3	Crop (1) Pasture (2)
	512	Pasture and Hay Planting	6	Crop
	516	Pipeline	2	Pasture
	528	Prescribed Grazing	8	Crop (3) Pasture (5)
	561	Heavy Use Area Protection	3	Pasture
	590	Nutrient Management	40	Crop (37) Pasture (3)
	595	Pest Management	39	Crop (37) Pasture (2)
	614	Watering Facility	2	Pasture
	620	Underground Outlet	1	Crop
	638	Water and Sediment Control Basin	2	Crop
	645	Upland Wildlife Habitat Management	4	Crop
080102030402	327	Conservation Cover	17	Crop
	328	Conservation Crop Rotation	4	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	4	Crop
	344	Residue Management, Seasonal	19	Crop
	410	Grade Stabilization Structure	2	Crop
	472	Use Exclusion	2	Crop
	511	Forage Harvest Management	13	Crop
	512	Pasture and Hay Planting	1	Hay
	528	Prescribed Grazing	5	Pasture

Table A5-11h.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030402	590	Nutrient Management	27	Crop (23) Hay (1) Pasture (3)
	595	Pest Management	27	Crop (23) Hay (1) Pasture (3)
	620	Underground Outlet	1	Crop
	645	Upland Wildlife Habitat Management	18	Crop (17) Wildlife (1)
080102030501	327	Conservation Cover	5	Crop
	328	Conservation Crop Rotation	7	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	7	Crop
	344	Residue Management, Seasonal	7	Crop
	472	Use Exclusion	2	Crop
	511	Forage Harvest Management	4	Crop (1) Hay (3)
	512	Pasture and Hay Planting	2	Crop (1) Hay (1)
	528	Prescribed Grazing	13	Pasture
	590	Nutrient Management	26	Crop (10) Hay (3) Pasture (13)
	595	Pest Management	26	Crop (10) Hay (3) Pasture (13)
	645	Upland Wildlife Habitat Management	2	Crop
080102030502	327	Conservation Cover	1	Crop
	328	Conservation Crop Rotation	13	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	4	Crop
	344	Residue Management, Seasonal	15	Crop
	512	Pasture and Hay Planting	1	Pasture
	528	Prescribed Grazing	17	Pasture
	590	Nutrient Management	42	Crop (24) Pasture (18)
	595	Pest Management	42	Crop (24) Pasture (18)
	638	Water and Sediment Control Basin	1	Crop
	666	Forest Stand Improvement	1	Forest

Table A5-11i.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030503	327	Conservation Cover	6	Crop (4) Wildlife (2)
	328	Conservation Crop Rotation	4	Crop
	344	Residue Management, Seasonal	4	Crop
	391	Riparian Forest Buffer	1	Wildlife
	393	Filter Strip	1	Wildlife
	410	Grade Stabilization Structure	4	Crop
	511	Forage Harvest Management	1	Crop
	516	Pipeline	1	Pasture
	528	Prescribed Grazing	2	Pasture
	561	Heavy Use Area Protection	2	Pasture
	590	Nutrient Management	23	Crop (19) Pasture (2) Wildlife (2)
	595	Pest Management	25	Crop (20) Headquarters (1) Pasture (2) Wildlife (2)
	614	Watering Facility	1	Pasture
	638	Water and Sediment Control Basin	2	Crop
	645	Upland Wildlife Habitat Management	5	Crop (3) Wildlife (2)
080102030601	327	Conservation Cover	7	Crop
	472	Use Exclusion	2	Crop (1) Wildlife (1)
	528	Prescribed Grazing	3	Pasture
	590	Nutrient Management	12	Crop (9) Pasture (3)
	595	Pest Management	12	Crop (9) Pasture (3)
	645	Upland Wildlife Habitat Management	8	Crop (6) Forest (1) Wildlife (1)
	647	Early Successional Habitat Development/Manage	1	Wildlife
	666	Forest Stand Improvement	1	Forest
080102030602	327	Conservation Cover	10	Crop
	328	Conservation Crop Rotation	4	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	7	Crop
	344	Residue Management, Seasonal	3	Crop
	386	Field Border	1	Wildlife

Table A5-11j.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030602	410	Grade Stabilization Structure	2	Crop (1) Hay (1)
	472	Use Exclusion	6	Crop (3) Wildlife (3)
	511	Forage Harvest Management	3	Hay
	590	Nutrient Management	48	Crop (43) Hay (3) Pasture (2)
	595	Pest Management	59	Crop (46) Forest (2) Hay (3) Natural Area (2) Pasture (6)
	612	Tree/Shrub Establishment	8	Pasture
	620	Underground Outlet	3	Crop
	638	Water and Sediment Control Basin	4	Crop
	645	Upland Wildlife Habitat Management	14	Crop (8) Natural Area (2) Wildlife (4)
	647	Early Successional Habitat Development/Manage	3	Wildlife
	666	Forest Stand Improvement	3	Crop
080102030603	327	Conservation Cover	4	Crop
	328	Conservation Crop Rotation	8	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	7	Crop
	344	Residue Management, Seasonal	11	Crop
	472	Use Exclusion	3	Crop
	511	Forage Harvest Management	2	Crop (1) Hay (1)
	528	Prescribed Grazing	36	Pasture
	590	Nutrient Management	57	Crop (17) Hay (1) Pasture (39)
	595	Pest Management	61	Crop (21) Hay (1) Pasture (39)
	645	Upland Wildlife Habitat Management	31	Crop (4) Wildlife (27)
080102030604	328	Conservation Crop Rotation	1	Crop
	344	Residue Management, Seasonal	1	Crop
	328	Conservation Crop Rotation	1	Crop

Table A5-11k.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030604	344	Residue Management, Seasonal	1	Crop
	590	Nutrient Management	1	Crop
	595	Pest Management	1	Crop
	645	Upland Wildlife Habitat Management	1	Wildlife
080102030605	410	Grade Stabilization Structure	2	Crop (1) Hay (1)
	327	Conservation Cover	1	Crop
	328	Conservation Crop Rotation	1	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	1	Crop
	344	Residue Management, Seasonal	19	Crop
	362	Diversion	2	Crop (1) Hay (1)
	472	Use Exclusion	1	Crop
	511	Forage Harvest Management	2	Hay
	512	Pasture and Hay Planting	2	Hay
	528	Prescribed Grazing	9	Pasture
	590	Nutrient Management	38	Crop (27) Hay (2) Pasture (9)
	595	Pest Management	41	Crop (28) Hay (2) Headquarters (2) Pasture (9)
	638	Water and Sediment Control Basin	3	Crop
	645	Upland Wildlife Habitat Management	20	Crop (1) Wildlife (19)
080102030606	327	Conservation Cover	1	Wildlife
	328	Conservation Crop Rotation	13	Crop
	329	Residue and Tillage Management, No-Till/Strip Till/Direct Seed	15	Crop
	344	Residue Management, Seasonal	41	Crop
	393	Filter Strip	1	Wildlife
	472	Use Exclusion	1	Wildlife
	528	Prescribed Grazing	5	Pasture
	590	Nutrient Management	55	Crop (49) Pasture (5) Wildlife (1)
	595	Pest Management	58	Crop (51) Headquarters (1) Pasture (5) Wildlife (1)

Table A5-11l.

HUC-12	NRCS PRACTICE CODE	NRCS PRACTICE NAME	NUMBER OF PRACTICES INSTALLED	LAND USE DISPLAY
080102030606	620	Underground Outlet	7	Crop
	638	Water and Sediment Control Basin	9	Crop
	644	Wetland Wildlife Habitat Management	4	Crop
	645	Upland Wildlife Habitat Management	2	Wildlife

Table A5-11m.

Tables A5-11a-m. Best Management Practices Installed in Partnership with NRCS (2006-2007) in the Obion River (South Fork) Watershed*. Information was provided as part of Conservation Technical Assistance Grant 060701T47.*

COMMUNITY	AWARD DATE	AWARD AMOUNT
Dresden	06/27/06	$ $1,000,000

Table A5-12. Communities in the Obion River (South Fork) Watershed that have received Clean Water State Revolving Fund Grants or Loans since the inception of the program.

PRACTICE	NRCS CODE	NUMBER OF BMPs
Critical Area Planting	342	4
Dike	356	5
Diversion	362	2
Fence	382	2
Grade Stabilization Structure	410	35
Pasture & Hayland Establishment	512	8
Heavy Use Area	561	11
Streambank/Shoreline Protection	580	1
Terrace	600	1
Trough or Tank	614	2
Water/Sediment Control Basin	638	21
Total BMPs		**92**

Table A5-13. Best Management Practices Installed by Tennessee Department of Agriculture and Partners in the Obion River South Fork Watershed.

SITE ID	WATER BODY	YEAR
119990601	Reedy Creek	1999
119990602	Reedy Creek	1999
120020801	Reedy Creek	2002
120020802	Reedy Creek	2002
120030201	Thompson Creek	2003
120030301	Spring Creek	2003
120030302	Spring Creek	2003
120030401	Mud Creek	2003

Table A5-14. TWRA TADS Sampling Sites in the Obion River (South Fork) Watershed.

APPENDIX IV

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0101	0102	0103	0104	0105
Bare Rock/Sand/Clay	1			56	2
Deciduous Forest	21,811	10,647	8,384	16,783	10,492
Developed Open Space	3,231	2,501	1,817	1,812	2,180
Emergent Herbaceous Wetlands	45	227	114	36	103
Evergreen Forest	2,287	698	1,063	1,347	750
Grassland/Herbaceous	729	209	209	961	366
High Intensity Development	92	46	8	2	17
Low Intensity Development	467	244	33	63	132
Medium Intensity Development	171	117	9	3	46
Mixed Forest	12			1	
Open Water	120	191	123	141	97
Pasture/Hay	3,732	5,440	4,696	3,249	3,679
Row Crops	11,664	9,113	12,907	10,742	14,888
Shrub/Scrub	444	141	172	169	158
Woody Wetlands	2,972	3,859	4000	864	5,923
Total	**47,778**	**33,433**	**33,535**	**36,229**	**38,833**

Table A4-1a.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0106	0201	0202	0301	0302
Bare Rock/Sand/Clay				4	
Deciduous Forest	3,454	11,086	17,745	12,123	11,671
Developed Open Space	1,607	1,516	1,211	1,255	1,788
Emergent Herbaceous Wetlands	133	104	9	23	27
Evergreen Forest	97	823	1,348	279	505
Grassland/Herbaceous	18	311	847	441	248
High Intensity Development			3	12	15
Low Intensity Development	32	107	27	108	61
Medium Intensity Development	1	8	4	24	30
Mixed Forest		3			
Open Water	172	64	74	304	230
Pasture/Hay	739	2,401	2,700	4,127	3,903
Row Crops	24,350	9,241	8,451	9,156	12,654
Shrub/Scrub	94	148	218	86	105
Woody Wetlands	9,243	1,973	644	691	2,731
Total	**39,940**	**27,785**	**33,281**	**28,633**	**33,968**

Table A4-1b.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0303	0304	0305	0401	0402
Bare Rock/Sand/Clay	10				29
Deciduous Forest	8,226	8,191	2,812	11,207	9,013
Developed Open Space	1,710	858	1,532	2077	1,983
Emergent Herbaceous Wetlands	128	6	88	14	97
Evergreen Forest	612	995	151	646	737
Grassland/Herbaceous	181	422	3	457	155
High Intensity Development	50	1	18	22	16
Low Intensity Development	139	8	116	141	45
Medium Intensity Development	64	4	43	28	25
Mixed Forest	1				
Open Water	202	297	59	176	151
Pasture/Hay	2,503	1,543	444	5,181	2,212
Row Crops	12,513	5,007	11,477	10,665	13,288
Shrub/Scrub	167	130	74	234	113
Woody Wetlands	4,950	666	4,933	759	3,919
Total	**31,456**	**18128**	**21,750**	**31,607**	**31,783**

Table A4-1c.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)				
	0501	0502	0503	0601	0602
Bare Rock/Sand/Clay				27	4
Deciduous Forest	5,301	4,248	2,221	23,528	15,149
Developed Open Space	991	2,291	2,995	1,064	2,458
Emergent Herbaceous Wetlands		53	35	5	26
Evergreen Forest	657	378	118	1,207	1,177
Grassland/Herbaceous	392	43	5	1,190	543
High Intensity Development	15	16	128		42
Low Intensity Development	134	140	704	12	103
Medium Intensity Development	41	20	219	1	56
Mixed Forest		1		2	2
Open Water	189	157	42	184	85
Pasture/Hay	2,674	3,043	1,303	1,018	4,055
Row Crops	2,406	21,936	17,071	4,236	13,537
Shrub/Scrub	62	105	35	181	225
Woody Wetlands	235	2,589	1,532	199	1,150
Total	**13,097**	**35,020**	**26,408**	**32,854**	**38,612**

Table A4-1d.

LAND USE/LAND COVER	AREAS IN HUC-12 SUBWATERSHEDS (ACRES)			
	0603	0604	0605	0606
Bare Rock/Sand/Clay		2		
Deciduous Forest	8,167	6,230	3,830	1,300
Developed Open Space	2,053	3,247	1,332	2,361
Emergent Herbaceous Wetlands	65	1	151	46
Evergreen Forest	473	473	164	31
Grassland/Herbaceous	227	103	30	2
High Intensity Development	28	154	2	39
Low Intensity Development	133	487	36	123
Medium Intensity Development	27	313	2	69
Mixed Forest				
Open Water	416	20	33	54
Pasture/Hay	4,420	2,531	2,221	240
Row Crops	15,318	3,495	14,752	24,379
Shrub/Scrub	167	75	112	34
Woody Wetlands	1,853	113	2,465	2,426
Total	**33,347**	**17,244**	**25,130**	**31,104**

Table A4-1e.

Tables A4-1a-e. Land Use Distribution in the Obion River (South 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
07024300	Beaver Creek	080102030101	55.50	21.0030	21.6510	20.1110
07024500	South Fork Obion River	080102030105	383.00	76.6970	79.5250	73.3350
07024900	Rutherford Fork Obion River	080102030602				
07025000	Rutherford Fork Obion River	080102030605	201.00		15.6000	13.5000

Table A4-3. United States Geological Survey Continuous Record Gaging Stations in the Obion River (South Fork) Watershed. *Additional information may be found at:* http://water.usgs.gov/osw/streamstats/

AGENCY	STATION	LOCATION	HUC 12
TDEC	BEAVE004.4CR	Beaver Creek @ RM 4.4	080102030101
TDEC	BEAVE004.5CR	Beaver Creek @ RM 4.5	080102030101
TDEC	BEAVE005.5CR	Beaver Creek @ RM 5.5	080102030101
TDEC	BEAVE006.1CR	Beaver Creek @ RM 6.1	080102030101
TDEC	BEAVE007.0CR	Beaver Creek @ RM 7.0	080102030101
TDEC	2648	South Fork Obion River @ RM 25.0	080102030102
TDEC	CLEAR001.0CR	Clear Creek @ RM 1.0	080102030102
TDEC	CLEAR003.5CR	Clear Creek @ RM 3.5	080102030102
USCOE	G	South Fork Obion River	080102030102
TDEC	SFOBI029.0CR	South Fork Obion River @ RM 29.0	080102030102
TDEC	SPRIN001.3CR	Spring Creek @ RM 1.3	080102030102
TDEC	DEMOS001.0CR	Demos Creek @ RM 1.0	080102030103
TDEC	2649	South Fork Obion River @ RM 9.7	080102030105
TDEC	BEAR002.0WY	Bear Creek @ RM 2.0	080102030105
TDEC	BEAR1T0.5WY	UT to Bear Creek	080102030105
TDEC	CANE000.4WY	Cane Branch @ 0.4	080102030105
TDEC	COTTN000.8WY	Cottnell Branch @ RM 0.8	080102030105
TDEC	DOLAN001.6GI	Dolan Creek @ RM 1.6	080102030105
TDEC	DRY000.7GI	Dry Creek @ RM 0.7	080102030105
TDEC	2650	South Fork Obion River @ RM 5.7	080102030106
TDEC	2655	South Fork Obion River @ RM 6.0	080102030106
TDEC	SFOBI017.4WY	South Fork Obion River @ RM 17.4	080102030106
TDEC	CROOK002.6CR	Crooked Creek @ RM 2.6	080102030201
TDEC	CROOK005.6CR	Crooked Creek @ RM 5.6	080102030201
TDEC	CROOK009.0CR	Crooked Creek @ RM 9.0	080102030201
TDEC	ARNOL001.4WY	Arnold Branch @ R M 1.4	080102030302
TDEC	MFOBI026.3HN	Middle Fork Obion River @ RM 26.3	080102030302
TDEC	MIDFKOBION22.5	Middle Fork Obion River @ RM 22.5	080102030302
TDEC	1855	Middle Fork Obion River @ RM 14.6	080102030303
TDEC	CANE001.0WY	Cane Creek @ RM 1.0	080102030303
TDEC	DRY000.4WY	Dry Creek @ RM 0.4	080102030303
TDEC	THOMP005.9WY	Thompson Creek @ RM 5.9	080102030304
TDEC	1856	Middle Fork Obion River @ RM 7.5	080102030305
TDEC	BUCKN000.6WY	Bucknor Ditch	080102030305
TDEC	MIDFKOBION04.5	Middle Fork Obion River @ RM 4.5	080102030305
TDEC	BOND1T0.1WY	UT to Bond Creek	080102030401
EPA National Aquatic Resource Survey	OWW04440-0718	UT to Spring Creek	080102030402
USCOE	H	Middle Fork Obion River	080102030502
EPA National Aquatic Resource Survey	OWW04440-0590	UT to Mud Creek	080102030502
TDEC	CANE001.5OB	Cane Creek @ RM 1.5	080102030503
TDEC	CANE008.5WY	Cane Creek @ RM 8.5	080102030503
TDEC	2371	Rutherford Fork Obion River @ RM 29.9	080102030602

Table A4-4a.

AGENCY	STATION	LOCATION	HUC 12
USCOE	F	Rutherford Fork Obion River	080102030602
TDEC	BEAR001.2GI	Bear Creek @ RM 1.2	080102030603
TDEC	2372	Rutherford Fork Obion River @ RM 17.9	080102030605
TDEC	RUTHFKOBION05.0	Rutherford Fork Obion River @ RM 5.0	080102030606

Table A4-4b.

Table A4-4a-b. STORET Water Quality Monitoring Stations in the Obion River (South Fork) Watershed*. TDEC, Tennessee Department of Environment and Conservation; USCOE, United States Army Corps of Engineers; USEPA, United States Environmental Protection Agency.*

PERMIT NUMBER	COUTY	DESCRIPTION	WATERBODY	HUC-12
NR0602.046	Carroll	Utility Line Crossings	Beaver Creek & UTs	080102030101
NRS04.377	Carroll	Debris Removal	Beaver Creek	080102030101
NR0602.111	Carroll	Culvert Replacement	UT to South Fork Obion River	080102030102
NRS03.100	Carroll	Road Crossings	Spring Branch	080102030102
NRS06.249	Carroll	Wetland Alterations	Wetlands	080102030102
NRS06.249B	Carroll	Stream Relocation and Encapsulation	UT to South Fork Obion River	080102030102
NRS06.249C	Carroll	Stream Relocation	UT to South Fork Obion	080102030102
NRS06.249D	Carroll	Stream Relocation and Encapsulation	UT to South Fork Obion River	080102030102
NRS06.249E	Carroll	Stream Encapsulation	UT to South Fork Obion River	080102030102
NRS03.331	Carroll	Bridge and Approaches	Reedy Creek	080102030104
NRS03.331B	Carroll	Bridge and Approaches	Reedy Creek	080102030104
NRS04.369	Carroll	Bridge and Approaches	Rutherford Obion River	080102030104
NRS04.369B	Carroll	Bridge and Approaches	Rutherford Obion River	080102030104
NRS04.369C	Carroll	Bridge and Approaches	Rutherford Obion River	080102030104
NRS04.369D	Carroll	Bridge and Approaches	Rutherford Obion River	080102030104
NRS07.036	Carroll	Lake Impoundment	Reedy Creek	080102030104
NR0502.048	Weakley	Gas Pipeline Crossing	UT to South Fork Obion River	080102030105
NRS02.233	Obion	Ditch Construction and Maintenance	Obion River	080102030106
NRS03.052	Obion	Bridge Replacement	Overflow Near the South Fork Obion River	080102030106
NRS03.052B	Obion	Bridge Replacement	Isolated Wetland	080102030106
NRS06.165	Gibson	Construction and Removal of Minor Road Crossings	Lick Creek	080102030106
NR0602.095	Carroll	Bank Stabilization	UT to Crooked Creek	080102030201
NRS05.221	Carroll	Stream Restoration and Habitat Enhancement	Beaver Creek	080102030201
NR0502.070	Henry	Channel Reroute	Neil Ditch	080102030202
NR0602.071	Henry	Culvert Installation	Guins Creek	080102030202
NR0602.021	Weakley	Bank Stabilization	Dry Creek	080102030303

Table A4-5a.

PERMIT NUMBER	COUTY	DESCRIPTION	WATERBODY	HUC-12
NRS06.240	Weakley	Bridge Replacement	Pritchett Branch	080102030303
NRS03.187	Henry	Bridge and Approaches	Spring Creek	080102030401
NRS04.391	Weakley	Bridge and Approaches	Unnamed Branch to Spring Creek	080102030401
NR0702.025	Weakley	Utility Line Crossings	UT to Spring Creek, & Spring Creek	080102030402
NRS03.058	Weakley	Bridge and Approaches	UT to Spring Creek	080102030402
NRS03.116	Weakley	Bridge and Approaches	Overflow at Log Mile 0.95	080102030402
NRS06.241	Weakley	Bridge Replacement	UT to Spring Creek	080102030402
NRS02.227	Weakley	Bridges and Approaches	Mud Creek	080102030501
NRS02.228	Weakley	Bridges and Approaches	Chestnut Branch	080102030501
NRS03.221	Weakley	Bridge and Approaches	Mud Creek	080102030501
NRS03.221B	Weakley	SR 217 Bridge and Approaches	Mud Creek	080102030501
NR0602.077	Weakley	Bridge Replacement	UT to Mud Creek	080102030502
NRS04.392	Weakley	Bridge and Approaches	Unnamed Branch to Mud Creek	080102030502
NRS06.173	Weakley	Bridge Replacement	UT to Mud Creek	080102030502
NRS06.173b	Weakley	Wetland Fill and Bridge Replacement	UT to Mud Creek	080102030502
NRS02.226	Weakley	Bridges and Approaches	Cane Creek	080102030503
NR0602.074	Carroll	Culvert Installation	UT to Indian Creek lake	080102030601
NR0602.075	Carroll	Culvert Installation	UT to Indian Creek Lake	080102030601
NR0602.081	Carroll	Construction and Removal of Minor Road Crossings	UT to Indian Creek lake	080102030601
NR0602.121	Carroll	Bridge and Approaches	Cane Creek	080102030601
NR0702.009	Carroll	Construction and Removal of Minor road Crossings	Indian Creek	080102030601
NR0702.019	Carroll	Minor Alterations to Wetlands	Wetlands	080102030601
NR0502.061	Carroll	Raod Grading	Rutherford Fork Obion River & Wetlands	080102030602
NR0602.030	Madison	Culvert Repair	UT to Wolf Creek	080102030602
NR0602.057	Gibson	Culvert Replacement	UT to Rutherford Fork Obion River	080102030602
NR0602.068	Carroll	Construction and Removal of Minor Road Crossings	UT to Rutherford Fork Obion River	080102030602
NR0702.011	Gibson	Utility Line Crossings	Rutherford Fork Obion River & Wolf Creek	080102030602
NRS06.170	Carroll	Construction and Removal of Minor Road Crossings	Rutherford Fork Obion River Overflow	080102030602
NR0502.047	Gibson	Gas Pipeline Crossing	UT to Rutherford Fork Obion River	080102030603
NR0602.010	Gibson	Construction and Removal of Minor Road Crossings	UT to Wolf Creek	080102030604
NR0602.017	Gibson	Road Repair	UT to Wolf Creek	080102030604
NR0602.061	Gibson	Alterations to Wet Weather Conveyances	UT to Wolf Creek	080102030604
NRS03.151	Carroll	Road Crossing	UT to Wolf Creek	080102030604
NR0602.123	Gibson	Utility Line Crossings	Rutherford Fork Obion River	080102030605

Table A4-5b.

PERMIT NUMBER	COUTY	DESCRIPTION	WATERBODY	HUC-12
NRS04.366	Gibson	Bridge and Approaches	Rutherford Fork Obion River	080102030605
NRS04.366B	Gibson	Bridge and Approaches	Rutherford Fork Obion River	080102030605
NRS06.259	Gibson	Construction and Removal of Minor Road Crossings	Rutherford Fork Obion River	080102030605
NRS03.261	Obion	Bridge and Approaches	Rutherford Fork Obion River	080102030606

Table A4-5c.

Tables 4-A5a-c. ARAPs (Aquatic Resource Alteration Permit) issued June 2002 through June 2007 in the Obion River (South Fork) Watershed. *UT, Unnamed Tributary.*

PERMIT NUMBER	PERMITTEE	COUNTY	LIVESTOCK	WATERBODY	HUC-12
TN0074934	RB Finishing	Gibson	Swine	Locust Grove Creek & South Fork Obion River	080102030105
TN0074888	Gilkey Farm - Tosh	Henry	Swine	Neil Ditch to Guins Creek	080102030202
TNA000208	Burcham Hog Farm	Carroll	Swine	UT to Guins Creek	080102030202
TN0074896	Yoder Finishers	Henry	Swine	Old Town Creek	080102030302
TN0074942	R. D. Robinson Farms	Weakley	Swine	Wright Branch to Cypress Creek	080102030303
TNA000093	Bryan Campbell Farm	Weakley	Poultry	Steel Branch	080102030303
TNA000094	Brandy Farm	Weakley	Poultry	Steel Branch	080102030303
TNA000096	Kenneth and Regina Williams Poultry Farm	Weakley	Poultry	Steel Branch	080102030303
TNA000097	Cheechako Farms	Weakley	Poultry	UT to Dry Creek	080102030304
TNA000210	Tosh McKenzie	Henry	Swine	UT to Caledonia Creek	080102030401
TNA000164	A & E Livestock	Weakley	Swine	Mud Creek	080102030501
TN0078484	Sleepy Hollow Farms	Weakley	Poultry	Mud Creek	080102030502
TNA000089	Sleepy Hollow Farms	Weakley	Poultry	UT to Mud Creek	080102030502
TNA000158	Doug Lowrance Hog Farm	Gibson	Swine	UT to Rutherford Fork Obion River	080102030606

Table A4-6. CAFO (Concentrated Animal Feed Operation) Permittees in the Obion River (South Fork) Watershed. *UT, Unnamed Tributary.*

PERMIT NUMBER	COUNTY	PERMITTEE: DESCRIPTION	AREA	WATERBODY	HUC-12
TNR120390	Carroll	Huntingdon Industrial Development: Grading	13.00	Not Identified	080102030101
TNR120563	Carroll	Dr. Mark Holifield: Dental Office and Parking Area	1.15	Beaver Creek	080102030101
TNR190530	Carroll	TDOT: SR 22	3.14	UT of Beaver Creek	080102030101
TNR190311	Carroll	TDOT: East Forrest Avenue Widening	1.13	Spring Creek	080102030102
TNR190708	Carroll	TDOT: SR 76	63.91	South Fork Obion River	080102030102
TNR120526	Carroll	Farmers & Merchants Bank: Demolition and New Construction	1.75	DeMoss Branch to DeMoss Creek to South Fork Obion River	080102030103
TNR190356	Carroll	TDOT: SR 77	8.72	UT to Reedy Creek	080102030104
TNR120677	Carroll	Dr. Paul Evans: Medical Office and Parking Area	2.40	Beaver Creek & Brier Creek	080102030201
TNR190219	Obion	TDOT: SR 89	3.40	South Fork Obion River Overflow	080102030201
TNR120750	Carroll	Jerry Burcham: Burcham Hog Farm	1.00	Guins Creek to Crooked Creek to South Fork Obion River	080102030202
TNR120800	Henry	Tosh Farms: Grain Storage Building	4.00	Neil Ditch to Guins Creek	080102030202
TNR120815	Henry	Jimmy Tosh: Pit Barns	1.75	Spring Creek to Middle Fork Obion River	080102030202
TNR120146	Henry	Regency Development Associates: Grove Park Apartments	8.90	Not Identified	080102030301
TNR120470	Henry	Town of Henry: STEP Sewer System	5.70	Not Identified	080102030301
TNR120774	Henry	Michael Turner: Turner's Landscaping	1.40	Not Identified	080102030301
TNR120775	Henry	Terry Crouch: Single Family Residence	6.00	Middle Fork Obion River	080102030301
TNR120374	Henry	Louis Kauffman: Kauffman Processing	5.67	Not Identified	080102030302
TNR120476	Weakley	Pedigo-Weakly Properties, LP: Tennessee Department of Children's Services	2.00	Not Identified	080102030303
TNR120477	Weakley	Pedigo-Weakly Properties, LP: Tennessee Department of Children's Services	2.00	Not Identified	080102030303
TNR120604	Weakley	City of Martin: Martin Industrial Site and Parking Area	27.50	Cane Creek	080102030303

Table A4-7a.

PERMIT NUMBER	COUNTY	PERMITTEE: DESCRIPTION	AREA	WATERBODY	HUC-12
TNR120622	Weakley	Keith Fryman: FedEx Freight	11.75	Coley Branch	080102030303
TNR190696	Weakley	TDOT: Summers Road	1.32	UT to Middle Fork Obion River	080102030303
TNR120629	Henry	Jimmie Tosh: Tosh Farms	1.25	UT to UT to Caledonia Creek	080102030401
TNR120680	Carroll	City of McKenzie: College Street Sidewalk Project	1.50	Boaz Creek	080102030401
TNR120794	Weakley	Mars Pet Care: Truck Staging Area	2.00	Spring Creek Branch	080102030401
TNR190306	Henry	TDOT: SR 140	3.70	Spring Creek	080102030401
TNR120456	Weakley	Weakley County Highway Department: Roberts Road Right Of Way	9.60	Not Identified	080102030402
TNR190264	Weakley	TDOT: Liberty Dean Grooms Road	1.68	UT to Spring Creek	080102030402
TNR190456	Weakley	TDOT: SR 124	2.06	Manus Creek	080102030402
TNR190692	Weakley	TDOT: Brawners Levee Road	1.98	UT to Spring Creek	080102030402
TNR120617	Weakley	Redd Realty Services: Dresden CVS	2.46	Deep Branch	080102030501
TNR190247	Weakley	TDOT: SR 217	1.96	UT to Mud Creek & Mud Creek	080102030501
TNR190695	Weakley	TDOT: Parkers Levee Road	1.55	UT to Mud Creek	080102030502
TNR120494	Weakley	James Tuck and Jesse Wade: Woodmont Residential Subdivision	7.32	UT to Cane Creek	080102030503
TNR120559	Weakley	Southside Baptist Church: Building and Parking Area	6.84	UT to Cane Creek	080102030503
TNR120598	Weakley	The University of Tennessee: McCord Hall Demolition and Rebuild	7.20	UT to Cane Creek to Mud Creek & South Fork Obion River	080102030503
TNR120610	Weakley	Murphy Oil USA, Inc.: Fuel Station	0.86	Cypress Creek	080102030503
TNR120633	Weakley	Room Masters, LLC: Hampton Inn Hotel and Parking Area	2.50	Cane Creek	080102030503
TNR120717	Weakley	Arnie Hicks: Jasper Hill Subdivision	10.00	UT to Cane Creek	080102030503
TNR120770	Weakley	Phil Dane: Hidden Hills Subdivision	12.57	Cane Creek	080102030503
TNR120665	Carroll	Tennessee Land Partners, LLC: Indian Creek Lake Resort	99.00	Indian Creek & Indian Creek Watershed Lake	080102030601
TNR190469	Carroll	TDOT: Water Tower Road	2.08	Rutherford Fork Obion River	080102030601

Table A4-7b.

PERMIT NUMBER	COUNTY	PERMITTEE: DESCRIPTION	AREA	WATERBODY	HUC-12
TNR120398	Gibson	U. S. Army: Milan Army Ammunition Plant	4.00	Not Identified	080102030602
TNR120715	Carroll	Ford Construction Company: Borrow Pit	1.00	UT to Sandy Branch	080102030602
TNR120744	Carroll	Tennessee Army National Guard: Milan Asphalt Plant Operations Training Facility	3.00	Halls Branch	080102030602
TNR190648	Carroll	TDOT: SR 220	9.59	Rutherford Fork Obion River	080102030602
TNR120118	Gibson	Milan Special School District: Milan Middle School	25.00	Not Identified	080102030603
TNR120316	Gibson	Bennett Knott	7.00	Not Identified	080102030603
TNR120506	Gibson	Clark Family Holdings, LLC: Creekside Subdivision	14.00	UT to Rutherford Fork Obion River	080102030603
TNR120508	Gibson	Dement Construction Company: Borrow Pit	0.50	Cressville Creek	080102030603
TNR120232	Gibson	City of Milan: Utility Line Relocations	11.60	Not Identified	080102030604
TNR120499	Gibson	City of Milan: Sewer Line Extensions	4.12	UT to Clear Creek & UT to North Fork Forked Deer River	080102030604
TNR120515	Carroll	Milan Army Ammunition Plant: Housing Demolition	25.00	Johns Creek, UT to Rutherford Fork Obion River	080102030604
TNR120521	Gibson	Murphy Oil USA, Inc.: Fuel Station	0.67	Clear Creek to Wolf Creek to Rutherford Fork Obion River.	080102030604
TNR120600	Gibson	Marketplace at Milan, LLC: Commercial Building	6.08	UT to Wolf Creek & Clear Creek to Wolf Creek	080102030604
TNR120635	Gibson	Lowe's Home Centers, Inc.: Building and Parking Area	16.50	UT to Clear Creek	080102030604
TNR190483	Gibson	TDOT: SR 425	2.30	Wolf Creek to Rutherford Fork Obion River	080102030604
TNR190465	Gibson	TDOT: Old Trenton-Dresden Road	2.38	Rutherford Fork Obion River	080102030605
TNR120177	Obion	Richard Davis: Land Leveling	9.90	Not Identified	080102030606
TNR190371	Obion	TDOT: SR 89	4.66	Rutherford Fork Obion River	080102030606

Table A4-7c.

Tables A4-7a-c. CGPs (Construction General Permit) issued June 2002 through June 2007 in the Obion River (South Fork) Watershed. *Area, acres of property associated with construction activity; UT, Unnamed Tributary.*

PERMIT NUMBER	PERMITTEE	SIC	SIC NAME	WATERBODY	HUC-12
TN0045497	Unimin Corporation (Mine #3)	1455	Kaolin and Ball Clay	Beaver Creek	080102030101
TN0071358	Kentucky-Tennessee Clay Company (Mine #22- Oglebay-Norton)	1455	Kaolin and Ball Clay	Reedy Creek & Roan Creek	080102030104
TN0046272	Kentucky-Tennessee Clay Company (Mine #12-Lowery)	1455	Kaolin and Ball Clay	South Fork Obion River	080102030105
TN0072851	Unimin Corporation (Mine #12-Gleason Facility)	1455	Kaolin and Ball Clay	UT to Bond Branch	080102030201
TN0076155	H. C. Spinks Clay Company, Inc. (Mine #31-Brown)	1455	Kaolin and Ball Clay	UT to Bear Creek	080102030201
TN0030520	H. C. Spinks Clay Company, Inc. (Mine #17-Young)	1455	Kaolin and Ball Clay	UT to Middle Fork Obion River	080102030302
TN0030490	H. C. Spinks Clay Company, Inc. (Mine #13-Bynum)	1455	Kaolin and Ball Clay	UT to Middle Fork Obion River	080102030303
TN0045489	Unimin Corporation (Mine #2)	1455	Kaolin and Ball Clay	UT to Middle Fork Obion River	080102030303
TN0045527	Unimin Corporation (Mine #10)	1455	Kaolin and Ball Clay	Unnamed Drainage way to Cane Creek	080102030303
TN0045845	Old Hickory Clay Company (Mine #1- Dunn)	1455	Kaolin and Ball Clay	Middle Fork Obion River	080102030303
TN0046329	Kentucky-Tennessee Clay Company (Mine #17-Stallcup)	1455	Kaolin and Ball Clay	Middle Fork Obion River	080102030303
TN0063029	Gleason Brick, Division Of Boral Bricks, Inc. (Mine #3-Rich)	1459	Clay, Ceramic, & Refractory Minerals, NEC	UT to Middle Fork Obion River	080102030303
TN0063037	Boral Bricks, Inc. (Mine #2-Collins)	1455	Kaolin and Ball Clay	UT to Middle Fork Obion River	080102030303
TN0071391	H. C. Spinks Clay Company, Inc. (Mine #26-Chappel)	1455	Kaolin and Ball Clay	UT to Middle Fork Obion River	080102030303
TN0030431	H. C. Spinks Clay Company, Inc. (Mine #7-Powers)	1455	Kaolin and Ball Clay	Capps Branch	080102030304
TN0071951	H. C. Spinks Clay Company, Inc. (Mine #28-Wilbanks)	1455	Kaolin and Ball Clay	UT to Capps Branch, Middle	080102030304
TN0072800	H. C. Spinks Clay Company, Inc. (Mine #30-Grable)	1455	Kaolin and Ball Clay	UT to Spring Creek	080102030401
TN0030503	H. C. Spinks Clay Company, Inc. (Mine #14-Parks)	1455	Kaolin and Ball Clay	UT to Cotton Creek	080102030402
TN0041581	Old Hickory Clay Company (Mine #2-McClain)	1455	Kaolin and Ball Clay	Spring Creek	080102030402
TN0045535	Unimin Corporation (Mine #11-Gleason Facility)	1455	Kaolin and Ball Clay	Spring Creek	080102030402
TN0045811	Old Hickory Clay Company (Volunteer Mine #1)	1455	Kaolin and Ball Clay	Cotton Creek	080102030402

Table A4-8a.

PERMIT NUMBER	PERMITTEE	SIC	SIC NAME	WATERBODY	HUC-12
TN0046264	Kentucky-Tennessee Clay Company (Mine #11-Jackson)	1455	Kaolin and Ball Clay	Cotton Creek	080102030402
TN0046311	Kentucky-Tennessee Clay Company (Mine #16-Bynum)	1455	Kaolin and Ball Clay	Spring Creek	080102030402
TN0047694	Kentucky-Tennessee Clay Company (Mine #18-Trentham)	1455	Kaolin and Ball Clay	Cotton Creek	080102030402
TN0054348	H. C. Spinks Clay Company, Inc. (Mine #21-Richmond)	1455	Kaolin and Ball Clay	UT to Spring Creek	080102030402
TN0062821	H. C. Spinks Clay Company, Inc. (Mine #22-Swaim)	1455	Kaolin and Ball Clay	UT to Cotton Creek	080102030402
TN0071102	H. C. Spinks Clay Company, Inc. (Mine #25-Roberts)	1455	Kaolin and Ball Clay	UT to Cotton Creek	080102030402
TN0072265	H. C. Spinks Clay Company, Inc. (Mine #29-Gearin)	1455	Kaolin and Ball Clay	UT to Spring Creek	080102030402
TN0045501	Unimin Corporation (Mine #7)	1455	Kaolin and Ball Clay	Unnamed Drainage way to Cane Creek	080102030601
TN0063541	H. C. Spinks Clay Company, Inc. (Mine #23-Perry)	1455	Kaolin and Ball Clay	UT to Cane Creek	080102030601
TN0072290	Kentucky-Tennessee Clay Company (Mine #23-Storey)	1455	Kaolin and Ball Clay	Cane Creek	080102030601

Table A4-8b.

Tables A4-8a-b. Permitted Mining Facilities in the Obion River (South Fork) Watershed. *SIC, Standard Industrial Code.*

PERMIT NUMBER	PERMITTEE	SIC	SIC NAME	MADI	WATERBODY	HUC-12
TN0003221	Norandal USA, Inc.	3353	Aluminum Sheet, Plate, and Foil	Minor	Northwood Branch @ RM 2.2, 2.4, & 2.6 to Beaver Creek @ RM 7.0	080102030101
TN0026166	Huntingdon- Hwy 22 Lagoon	4952	Sewerage Systems	Minor	Beaver Creek @ RM 4.2	080102030101
TN0026174	Huntingdon- Barnett Street Lagoon	4952	Sewerage Systems	Minor	Beaver Creek @ RM 6.8	080102030101
TN0064521	Associated Rubber Company	3069	Fabricated Rubber Products	Minor	Northwood Branch @ RM 2.4	080102030101
TN0020613	McKenzie STP	4952	Sewerage Systems	Major	UT @ RM 2.8 to Clear Creek @ RM 2.4	080102030102

Table A4-9a.

PERMIT NUMBER	PERMITTEE	SIC	SIC NAME	MADI	WATERBODY	HUC-12
TN0062201	Trezevant STP	4952	Sewerage Systems	Minor	Reedy Creek @ RM 4.4	080102030104
TN0062022	Bradford Lagoon	4952	Sewerage Systems	Minor	South Fork Obion River @ RM 9.7	080102030105
TN0074985	Replogle Enterprises, LLC	2421	Saw Mills, Planing Mills, General	Minor	UT @ RM 1.4 to UT @ RM 2.0 to Trainer Creek @ RM 3.0	080102030301
TN0062294	Gleason STP	4952	Sewerage Systems	Minor	Middle Fork Obion River @ RM 21.3	080102030302
TN0021717	Dresden- Printing Factory Lagoon	4952	Sewerage Systems	Minor	Middle Fork Obion River @ RM 18.3	080102030303
TN0046337	Kentucky-Tennessee Clay Company #1	1455	Kaolin and Ball Clay	Minor	UT @ RM 0.8 to Middle Fork Obion River @ RM 18.5	080102030303
TN0055794	Dresden High School	4952	Sewerage Systems	Minor	UT @ RM 0.4 to Atkinson Branch @ RM 1.4	080102030303
TN0062031	Sharon Lagoon	4952	Sewerage Systems	Minor	Middle Fork Obion River @ RM 6.5	080102030305
TN0062065	Greenfield Wastewater Lagoon	4952	Sewerage Systems	Minor	Middle Fork Obion River @ RM 7.3	080102030305
TN0062286	Dresden Lagoon	4952	Sewerage Systems	Minor	Middle Fork Obion River @ RM 14.6	080102030501
TN0058858	The University of Tennessee at Martin	8221	Colleges, Universities, and Professional Schools	Minor	UT to Cane Creek @ RM 10.8	080102030503
TN0062545	Martin STP	4952	Sewerage Systems	Major	UT @ RM 0.25 to Cane Creek @ RM 7.7	080102030503
TN0062375	Milan STP	4952	Sewerage Systems	Major	Rutherford Fork Obion River @ RM 29.2	080102030603
TN0062227	Rutherford Lagoon	4952	Sewerage Systems	Minor	Rutherford Fork Obion River @ RM 9.8	080102030606
TN0062359	Kenton Lagoon	4952	Sewerage Systems	Minor	Rutherford Fork Obion River @ RM 4.5	080102030606

Table A4-9b.

Tables A4-9a-b. Municipal and Industrial Permittees in Obion River (South Fork) Watershed. *SIC, Standard Industrial Code; MADI, Major Discharge Indicator; UT, Unnamed Tributary; WWC Wet Weather Conveyance.*

PERMIT NUMBER	PERMITTEE	WATERBODY	HUC-12
TNG110008	Mid-Way Materials, Inc.	WWC to Beaver Creek	080102030101
TNG110010	Mid-Way Materials, Inc.	WWC to South Fork Obion River	080102030102
TNG110322	The Federal Materials Company, Inc.	Cane Creek	080102030503
TNG110084	Southern Concrete Products, Inc.	(Clear Creek) Wolf Creek	080102030604

Table A4-10. RMCP (Ready Mix Concrete Plant) Permittees in the Obion River (South Fork) Watershed. *WWC, Wet Weather Conveyance.*

PERMIT NUMBER	PERMITTEE	WATERBODY	SECTOR	AREA	HUC-12
TNR051781	Associated Rubber Company	Northwood Branch	Y	14.50	080102030101
TNR053882	Norandal USA, Inc.	Northwood Branch to Beaver Creek	F	95.00	080102030101
TNR054073	Behlen Manufacturing Company	Little Beaver Creek	AA	57.08	080102030101
TNR056007	22 Auto Salvage	UT to Big Sandy River	M	7.00	080102030101
TNR051883	Murray, Inc. - Jackson	UT to Crooked Creek	AB	40.30	080102030102
TNR053656	McKenzie Valve and Machining Company	Unnamed Ditch to Clark Creek to South Fork Obion River to Rock Slough to Mississippi River	AA	8.60	080102030102
TNR053164	Bradford Truck Service, Inc.	City Drainage Ditch	P	1.08	080102030105
TNR054303	Ulseth Machining/Manufacturing	Not Identified	AB	5.00	080102030105
TNR050422	Manar, Inc.	UT to Guins Creek	Y	18.50	080102030202
TNR053090	Atlantic Homes	Trainer Creek to Middle Fork Obion River	A	50.00	080102030202
TNR056637	Rolling Frito-Lay Sales, LP Henry Bin	UT to Guins Creek	P	0.20	080102030202
TNR050102	Replogle Enterprises - 002	Trainer Creek	A	96.65	080102030301
TNR052012	Coastal Lumber Company	UT to Trainer Creek	A	9.00	080102030301
TNR054516	Automated Equipment, Inc.	Middle Fork Obion River	AB	5.00	080102030301
TNR054560	Universal Coatings Corporation	Trainer Creek	AA	3.00	080102030301
TNR056237	Outlaw Auto Salvage	Middle Fork Obion River	M	7.50	080102030301
TNR056335	Cutting Specialist, Inc.	UT to Middle Fork Obion River	AA	0.75	080102030301
TNR050710	Ford Construction Company Dresden	Pritchett Branch to Middle Fork Obion River	D	6.00	080102030303
TNR051004	World Color Press	Middle Fork Obion River	X	98.40	080102030303
TNR051084	Franklin Industries Inc. Gleason Plant	UT to Spring Creek	J	1.50	080102030303
TNR053128	UNIMIN Corporation Gleason Plant	Middle Fork Obion River	J	82.00	080102030303

Table A4-11a.

PERMIT NUMBER	PERMITTEE	WATERBODY	SECTOR	AREA	HUC-12
TNR053139	Boral Bricks - Gleason Plant	UT to Middle Fork Obion River	E	16.90	080102030303
TNR053384	Old Hickory Clay Company	UT to Middle Fork Obion River	J	30.00	080102030303
TNR053724	FedEx Freight East, Inc. Dresden	Middle Fork Obion River	P	2.00	080102030303
TNR053759	Old Hickory Clay Company	UT to Middle Fork Obion River	J	30.00	080102030303
TNR054033	Kentucky-Tennessee Clay Company. #1	UT to Middle Fork Obion River	J	1.00	080102030303
TNR056401	Doyle Sims & Sons Trucking, Inc.	UT to Middle Fork Obion River	P	3.00	080102030303
TNR050424	Republic Builders Products	Spring Creek to Caledonia Creek to Coldwater Creek	AA	32.00	080102030401
TNR051659	American Lantern Company	Ditch to Boaz Creek to Spring Creek	AC	32.20	080102030401
TNR052078	Doane Pet Care Company	Spring Creek	U	7.20	080102030401
TNR052102	Del-Met/Profile Metal Forming, Inc.	UT to Spring Creek to Middle Fork Obion River	AA	10.00	080102030401
TNR054252	Southern Star Lumber Company	Spring Creek	A	9.00	080102030401
TNR054304	Cutting Specialist, Inc.	Boaz Creek	AA	14.60	080102030401
TNR056746	Cutting Specialists, Inc.	Boaz Creek to Spring Creek	AA	23.89	080102030401
TNR056878	Shomaker Lumber Company, Inc.	UT to Boaz Creek	A	22.00	080102030401
TNR054282	K T & L Timber Company	Pence Creek	A	10.96	080102030402
TNR050517	Gatewood Autos & Used Cars	Settling Pond to Farm Field	M	4.87	080102030501
TNR051355	El Dorado Chemical Company - Sharon	Middle Fork Obion River	C	4.00	080102030502
TNR054406	MTD Products, Inc.	No Discharge to Stream	AB	8.03	080102030503
TNR056546	Esterline Defense Group, Armtec Countermeasures TNO	UT & UTs to Rutherford Fork Obion River	C	19.00	080102030602
TNR051595	Milan Box Corporation	UT to Clear Creek	A	10.00	080102030603
TNR053125	Foamex L.P.	Wolf Creek	Y	52.00	080102030603
TNR056011	45 Auto Salvage	Ditch to UT to Obion River	M	20.00	080102030603
TNR050212	Tower Automotive Products Company	UT to Clear Creek	AB	30.00	080102030604
TNR051184	Maytag Customer Service	Clear Creek	AC	12.00	080102030604
TNR051824	Allsteel, Inc. - Milan	Clear Creek to Wolf Creek to Rutherford Fork Obion River	W	14.50	080102030604
TNR053287	Jones Companies, Limited Milan	Not Identified	V	22.50	080102030604
TNR053576	Volunteer Leather Company	Wolf Creek	Z	16.00	080102030604
TNR053116	Dyer Fruit Box Manufacturing Company	Sand Creek	A	7.00	080102030605

Table A4-11b.

PERMIT NUMBER	PERMITTEE	WATERBODY	SECTOR	AREA	HUC-12
TNR050791	Wis-Con Total Power	Obion River & Sand Creek	AB	12.80	080102030606
TNR051110	Plastech Engineered Products	Carroll Creek	Y	5.10	080102030606
TNR055910	Wisconsin Motors, LLC	Obion River & Sand Creek	AB	13.00	080102030606

Table A4-11c.

Table A4-11a-c. TMSPs (Tennessee Multi Sector Permit) issued in the Obion River (South Fork) Watershed. *Area, acres of property associated with industrial activity; UT Unnamed Tributary. See Table A4-13 for Sector Details.*

PERMIT NUMBER	PERMITTEE	WATERBODY	HUC-12
TNG830020	UST Abandoned Gas Station Skulimowski Property	UT to Middle Fork Obion River	080102030303

Table A4-12. UST (Underground Storage Unit) Permittees in the Obion River (South Fork) Watershed. *UT, Unnamed Tributary.*

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 A4-13. TMSP Sectors and Descriptions.