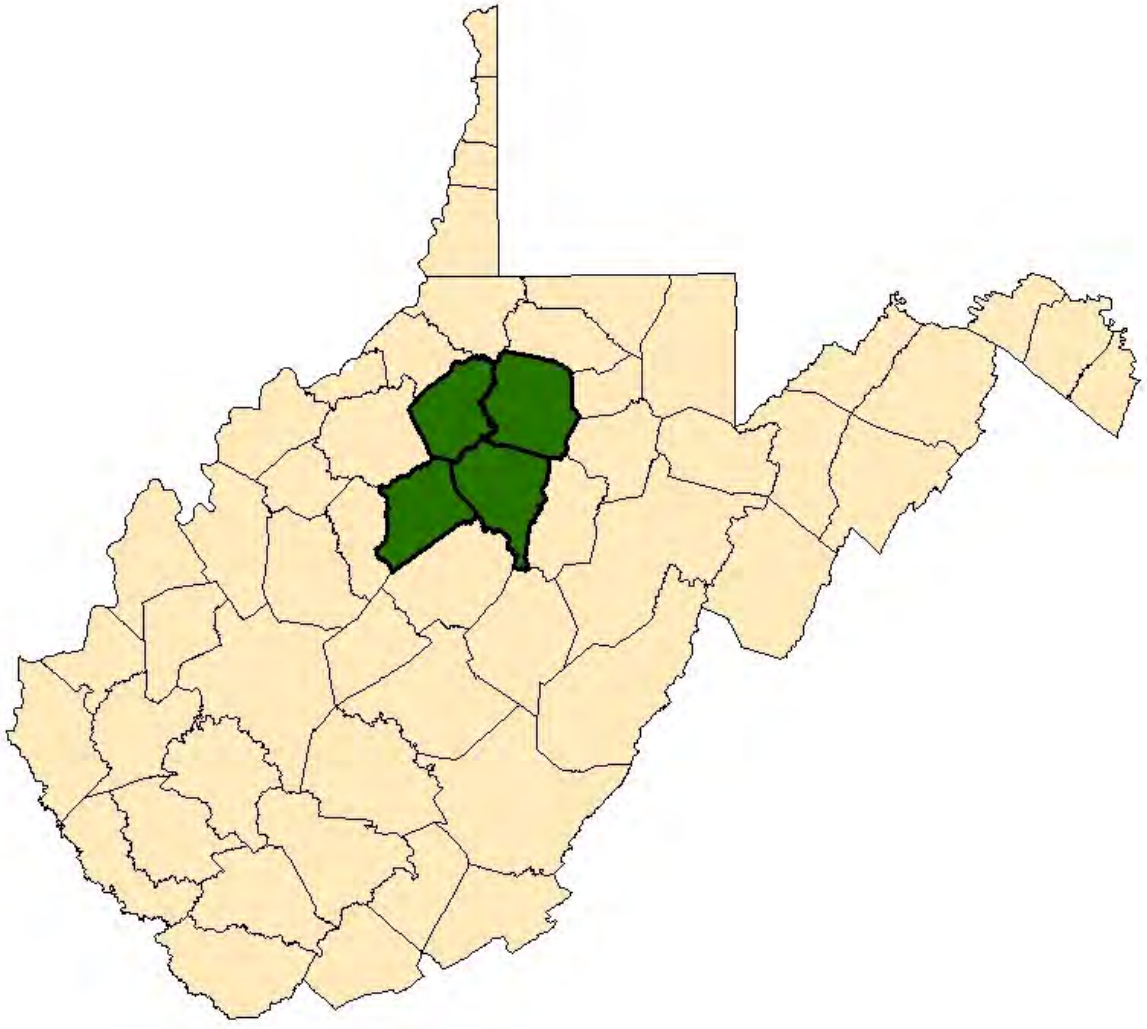
West Fork Conservation District
Long Range Plan
2016-2021



Doddridge, Gilmer, Harrison and Lewis Counties

Introduction

The purpose of this long range plan for the West Fork Conservation District is to describe the natural resources of the district, identify natural resource concerns and priorities and develop a framework for prioritizing projects in the future for NRCS conservation programs. This long range plan looks at priorities for the West Fork Conservation District over the next 5 years. However, it is noted that this plan should be reviewed annually and modified as necessary based on current natural resource concerns and/or partner involvement.

County Profiles

West Fork Conservation District Boundary

The West Fork Conservation District is comprised of four counties: Doddridge, Gilmer, Harrison and Lewis. Total land mass is 1,466 sq. miles or 938,240 acres with an estimated 73% of that acreage in forestland. A higher percentage of land in Doddridge, Gilmer, and Lewis is in forestland as compared to Harrison County. Other major land uses include pasture, hayland/cropland, and developed land. The topography of the District varies to some degree, but for the most part, the valley bottoms are relatively narrow and often side slopes are moderately sloping to very steep. The topography of Doddridge and Gilmer counties is somewhat steeper than Harrison and Lewis counties. The steeper slopes are one reason a larger percentage of the land is in forestland, because steeper land is better suited for forestland. According to the 2012 Census of Agriculture, there are 335,226 acres in farmland within the West Fork Conservation District. Harrison County has 117,029 acres, Lewis County has 82,460 acres, Gilmer County has 70,393 acres and Doddridge County has 65,344 acres.

In Harrison County, the urban hub of the district, the economy is shifting toward the development of technology and services. In Harrison County, the county seat is Clarksburg. Other cities within Harrison County include Bridgeport, Salem, Shinnston, and Stonewood. In Lewis County, the county seat is Weston. In Doddridge County, the County seat is West Union. In Gilmer County, the county seat is Glenville. A large percentage of the land mass in all four counties is privately owned, with a relatively small portion of the land being public owned or government owned.

Socio-Economic Information - West Fork Conservation District

Population and economic characteristics in the West Fork Conservation District (Doddridge, Harrison, Gilmer and Lewis counties) were derived from several references including the US Census and USDA National Agriculture Statistics Service.

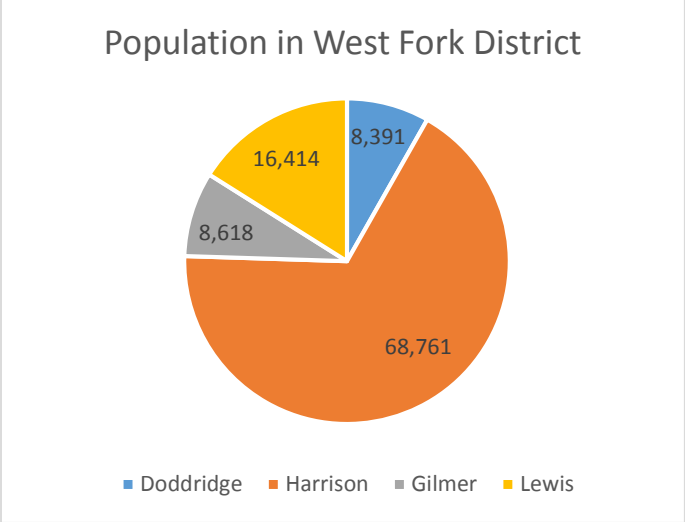


Figure 1, Population by County

Population: In 2014, there were approximately 102,184 people residing within the district. Harrison County has the largest population compared to Lewis, Gilmer, and Doddridge Counties as shown in figure 1. District wide, there has been a population increase of 0.3% since the 2010 Census.

Income: The average per capita income for the District in 2013 was $20,084 while median household income is estimated at $39,273. An estimated 21% of the district population is below the poverty rate. A comparison of West Fork Conservation District income statistics compared to statewide averages indicate slightly lower values for the District. Statewide, per capita income is $23,237, median household income is $41,576, and the poverty rate is 18.3%.

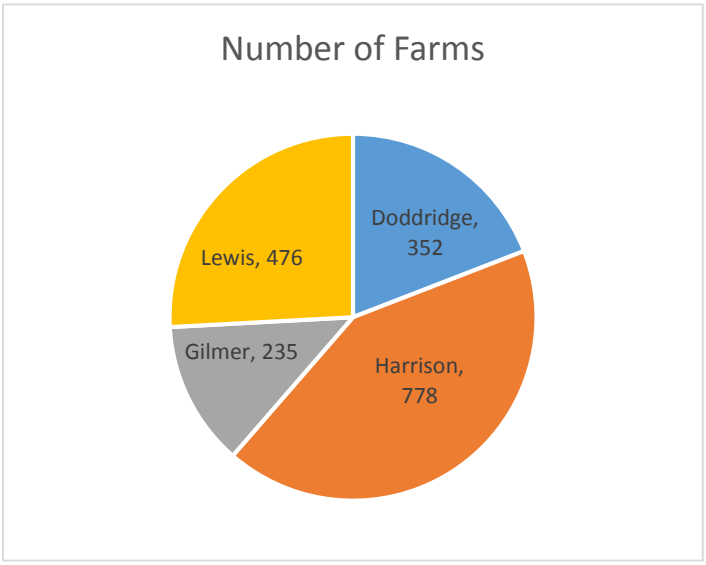


Figure 2, Number of Farms by County

Number of Farms: There are approximately 1,841 farms in the District. The farms span over 335,226 acres with the average farm size around 182 acres. According to figure 2, Harrison County has roughly 42% of the farms in the West Fork District. In addition, 40% of the farm acres for the District are located in Harrison County. The West Fork District contains about 9% of the total farmland in West Virginia.

Like most of WV, the majority of farmers in the District rely on off-farm income. The average age of farmers is 60 years old, which is slightly older than the national average of 56.

According to the 2012 Census of Agriculture, the market value of agricultural products sold in the district was $27,767,000 with 83% of the sales being from livestock as compared to crops. According to the 2012 Census of Agriculture, there are an estimated 113,000 acres of Pastureland within the district and 54,000 acres of hayland/cropland.

Watershed Information

The major waterways play a role in agriculture as well. The West Fork River, the Little Kanawha River, and the Middle Island River are major watersheds within the West Fork District. Harrison County and a large portion of Lewis County encompass the headwaters of the West Fork River drainage. Larger tributaries include Tenmile Creek, Simpson Creek, Elk Creek, Lost Creek, Hackers Creek, and Freemans Creek. The western part and southern tip of Lewis County, the south/southwestern portion of Doddridge County, and all of Gilmer County are part of the Little Kanawha River Watershed. The remainder of Doddridge County is part of the Middle Island Creek Watershed. These three watersheds provide level fertile bottom lands that are excellent for agricultural and are often used for crop production including hay. Refer to figure 3 and figure 4 for maps depicting 8 digit hydrologic units and 10 digit hydrologic units.

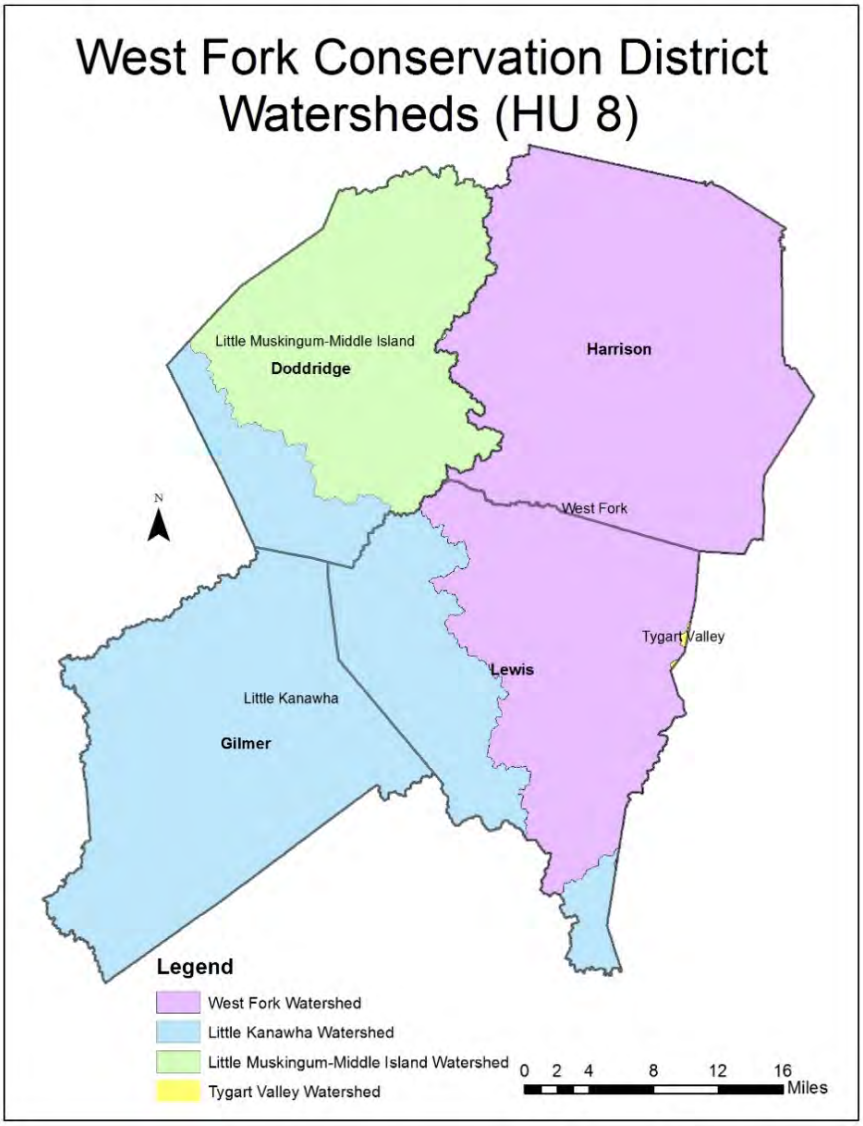


Figure 3, Hydrologic Units – 8 digit within the West Fork Conservation District

Figure 4, Hydrologic Units, 10 digit, within the West Fork Conservation District

Soils Information

The West Fork Conservation District is comprised of several different soil types with a wide range of slopes. Nearly all of the West Fork Conservation District is located within the Central Allegheny Plateau Major Land Resource Area (MLRA 126). A small portion of the District in southern Lewis County is part of the Eastern Allegheny Plateau and Mountains (MLRA 127). While some soils may be mapped in both MLRAs, others may be restricted to one MLRA or the other.

The soils of the district's MLRA 126 area developed from relatively level bedded shale, siltstone, sandstone, and some limestone. This area is dominated by Gilpin and Gilpin complexes with Peabody and Upshur soils and with slopes ranging from 3-70%. Other major soils are Westmoreland, Vandalia, and Chagrin soils with slopes ranging from 0-25%.

Using the Farm Service Agency's farm record data, the majority of pastureland in the West Fork Conservation District is located on hillsides with Gilpin-Upshur, Gilpin-Peabody, and Westmoreland soils and slopes ranging from 8%-70%. These soils are well drained, have moderate to high clay contents in the subsoil, and are often very stony and/or severely eroded on the steeper slopes.

The majority of cropland in this district is located on bottomlands and less sloping foot slopes, with the Sensabaugh, Chagrin, and Vandalia soils making up the most acreage. Slopes generally range from 0-15%. The bottomlands are generally loamy in texture, have low to moderate amounts of clay in the subsoil, and are very deep to bedrock. Occasional flooding can occur in most of these areas. Most areas are well drained, but some bottomlands may have areas of moderately well drained to poorly drained soils in areas away from the main stream channel. The non-flooding Vandalia soils on foot slopes are deep and very deep well drained soils with high clay content in the subsoil.

Strip-mined soils are somewhat common in Lewis and Harrison Counties, and are used for both pasture and hay production. The Jane Lew and Fairpoint soils consist of a mixture of soil, rock, and coal fragments, and contain enough bases to support grassland vegetation. However, they may suffer from drought during the summer months mainly due to lack of topsoil, low organic matter content, and low available water capacity. Often soil pH and fertility levels are high on these strip mined soils, but forage production is somewhat limited due to soil characteristics.

The southern part of Lewis County is in MLRA 127. Soils in this area developed from relatively level bedded to slightly tilted shale, siltstone, and sandstone, and dominantly consist of the Gilpin, Buchanan, and Dekalb soils. The topography is quite rugged, with narrow ridges and steep and very steep side slopes. Sandstone rock outcrops and surface stones are common. Most of this area is primarily used for timber production.

All of the area within the West Fork Conservation District have Soil Surveys and detailed soils information and reports available on line thru the NRCS Web Soil Survey at www.websoilsurvey.nrcs.usda.gov/.

Agricultural Enterprises

The predominant agricultural enterprise within the West Fork Conservation district is livestock operations consisting of beef cattle. As illustrated in Figure 5, there are an estimated 31,500 head of beef cattle within the West Fork Conservation District. Commercial cow/calf is the primary type of beef cattle operation, followed by stocker operations. Other important livestock types for the area include poultry layers with an estimated 7000 birds. There are 2,056 horses, 1,716 head of Goats and 1,428 head of sheep. All livestock numbers are based on data from the 2012 Census of Agriculture.

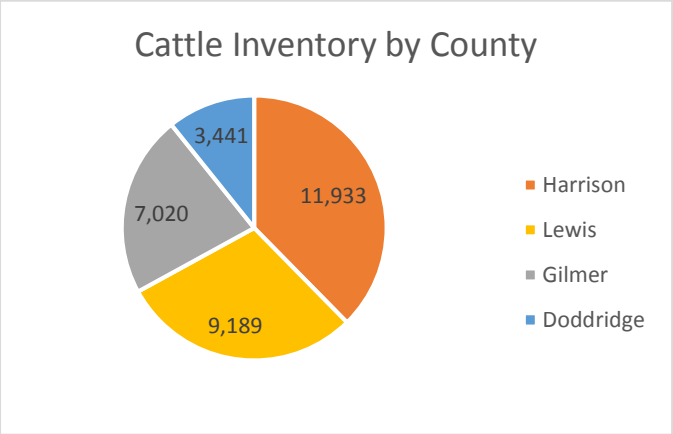


Figure 5, Cattle Inventory by County

Forage and hay production is also in important enterprise within the West Fork Conservation District as there are an estimated 53,787 acres of forage land used for hay production. Estimated value of sales for forages and hay annually is $2,875,000.

Vegetable and fruit production are also an important part of the local agricultural industry. Within the past 10 years, there has been more interest in locally grown produce and farmers markets. There has been an increased amount of interest in community gardens, specifically within the City of Shinnston and Town of Jane Lew. Historically, the West Fork Conservation District has had many small dairy farms. Currently, there are only two known dairy farms within the District.

Plants and Animals

An estimated 73% of the land within the West Fork Conservation District is forested covering 688,755 acres. The approximate forestland per county is: Doddridge 178,028 acres, Gilmer 189,969 acres, Harrison 156,338 acres, and Lewis 164,420 acres. Forests in West Virginia, as well as the West Fork District, are dominated by hardwood trees. Oak/hickory is the most abundant forest-type, occupying approximately 75% of forestland according to the *Forests of West Virginia, 2013* report prepared by the USDA Forest Service. Cove hardwoods is another forest type with tree species such as yellow poplar, sugar maple, basswood, beech, black cherry, white ash, red maple, hemlock, and northern red oak. Yellow poplar is the leading saw-timber tree by volume. Invasive species have become a threat to forest stands and regeneration. The following species are of concern in forests within the District: tree-of-heaven, garlic mustard, Japanese barberry, oriental bittersweet, autumn olive, multiflora rose, Japanese stiltgrass, Japanese knotweed, and kudzu.

The pastureland and hayland within the West Fork Conservation District is comprised of a variety of cool-season grasses, legumes, herbaceous weeds, and brush species. A large majority of the pastureland is unimproved pasture with moderate to low soil fertility. Common plant species in hayland and pasture fields include tall fescue, orchardgrass, bluegrass, timothy, red and white clover, and broomsedge. Often, unwanted plant species are present in pastures. Some of the more common unwanted plant species include ironweed, hemp dogbane, johnsongrass, Japanese stiltgrass, jointhead arthraxon, horsenettle, thistle, and multiflora rose. Most of which occur on pasture land with the exception of Johnsongrass which is often noticed on hayland fields that were conventionally tilled in prior years.

The West Fork Conservation District is habitat for a variety of wildlife species, including both large and small game as well as songbirds. Whitetail deer and wild turkey are the most common large game species and generate large amounts of interest from local residents, landowners, and out-of-state hunters. The watersheds within the District provide significant habitat for interior forest nesting birds, including a large percentage of the Cerulean Warblers in West Virginia.

The WV Department of Natural Resources (DNR) manages the State Wildlife Management Program, which is designed to conserve and manage high quality habitats for a variety of wildlife species and to improve public access to wildlife resources. Wildlife Management Areas (WMA's) are a critical component of the Wildlife Resources Section of the WV Department of Natural Resources. WMA's allow wildlife biologists to conserve and manage habitat to benefit all wildlife species. There are five Statewide Wildlife Management Areas (WMA's) within the district covering 24,176 acres. The WMA's are located in Gilmer County, Harrison County, and Lewis County. The Stumptown WMA covers land in Gilmer as well as Calhoun County and contains 1,675 acres. The Center Branch WMA covers 975 acres and is located near Stonewood in Harrison County. In Lewis County, the Smoke Camp WMA covers 252 acres and is located on the Right Fork of Freemans Creek. Also in Lewis County and neighboring Upshur County, the Stonecoal Lake WMA covers 2,985 acres. Finally, the Stonewall Jackson Lake WMA covers 18,289 acres and is located near Roanoke. All five WMA's are managed by the WV DNR Wildlife Resources Section.

Federally Listed Threatened and Endangered Species

There are two known federally listed endangered species within the District: the Snuffbox Mussel (Epioblasma triquetra) and Clubshell Mussel (Pleurobema clava). The aquatic habitats listed below represent the known and potential distribution of these federally listed endangered species listed above.

Snuffbox Mussel

- Hackers Creek, Harrison and Lewis Counties
- West Fork River, Harrison and Lewis Counties
- Cedar Creek, Gilmer County
- Leading Creek & lower ½ mile reach of Fink Creek, Gilmer and Lewis Counties

- McElroy Creek, Doddridge County
- Meathouse Fork of Middle Island Creek, including the lower ½ mile reach of Toms Fork, Doddridge County
- Middle Island Creek, including the lower ½ mile reaches of Arnold Creek, Bluestone Creek, Buckeye Creek, and Indian Creek, Doddridge County
- Steer Creek, Gilmer County

Clubshell Mussel

- Hackers Creek, Harrison and Lewis Counties
- Meathouse Fork of Middle Island Creek, including the lower ½ mile reach of Toms Fork, Doddridge County
- Middle Island Creek, including the lower ½ mile reaches of Arnold Creek, Bluestone Creek, Buckeye Creek, and Indian Creek, Doddridge County

Historical Conservation Work

USDA Farm Bill programs have often been used to provide technical and financial assistance to local program participants. Although many practices have been installed/implemented under Farm Bill programs, much more conservation work is needed. Over the past 10 years, NRCS has obligated 463 contracts covering over 67,000 acres through CSP, EQIP, WHIP, and AMA Farm Bill programs. Incentive payments have exceeded $5.3 million through these contracts and have resulted in substantial conservation benefits including 12,000 acres of prescribed grazing applied, 1,900 acres of nutrient management applied, 62 miles of fencing for pasture division, woodland exclusion and stream exclusion, 34 waste storage facilities, 350 livestock water developments, 1,300 acres of brush management on pastureland and forestland, 100 acres of forest stand improvement, 450 acres of Upland Wildlife Habitat Improvement, and 11 Micro-Irrigation Systems.

Since 2010, NRCS has provided technical and financial assistance on seasonal high tunnel systems through the EQIP – Seasonal High Tunnel Initiative. Further, micro-irrigation related conservation practices have typically been funded under the AMA Program. Interest in seasonal high tunnel systems has grown annually. Doddridge, Lewis, and Gilmer Counties are designated USDA–Strikeforce Counties.

Two watershed projects have been completed in the West Fork Conservation District for the primary purpose of flood control. Both projects were planned and designed by the USDA –Soil Conservation Service (SCS), now called the USDA Natural Resources Conservation Service. The Salem Fork Watershed project was a pilot project and was one of the first watershed projects in the United States. Seven flood control dams were constructed in the 1950's for the purpose of flood protection for the Town of Salem. The Salem Fork watershed encompasses 5,325 acres. In the 1960's, eight flood control dams and 1000 feet of channel improvement were constructed for the Polk Creek Watershed Project for flood control for the City of Weston. The Polk Creek watershed contains 7,280 acres.

Annual inspections are held each spring for both projects. Representatives of the West Fork Conservation District Board of Supervisors, WV Conservation Agency, USDA Natural Resources Conservation Service, and City of Salem normally participate during the inspections.

Partnerships

Various partnerships have been established within the West Fork Conservation District among local, state and federal agencies and groups for the education and implementation of natural resource conservation.

- The *West Fork Conservation District* has been a major contributor for sponsoring educational workshops for district cooperators and providing funding for the implementation of conservation practices thru the WV Agricultural Enhancement Program (AEP). Locally, NRCS staff provide technical assistance as a partnering agency for AEP participants.

- The *West Virginia Conservation Agency* has provided staff to assist the West Fork Conservation District with the AEP program and to provide technical assistance to local cooperators.

- The USDA - Farm Service Agency (FSA) is a close partner and offers financial assistance thru the Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP). FSA works closely with Farm Bill applicants on establishing and maintaining farm and business records, and subsidiary eligibility. FSA establishes and maintains official farm, tract, and field boundaries using FSA software. Also, FSA offers a farm loan program for producers to consider.

- *WVU Cooperative Extension Service* has also been a large contributor to the education of local cooperators by providing educational and technical support thru various workshops, field days, and on-farm visits.

- *The West Virginia Division of Forestry* (WV DOF) provides technical and financial assistance through the Forest Stewardship Program. Private landowners interested in managing their forestland, can have a Forest Stewardship Plan developed for their woodland acreage. WV DOF also offers technical assistance for the planning and implementation of forest management practices to cooperators. Historically, NRCS and the WV DOF have partnered closely through cooperative agreements to provide NRCS-WV DOF Foresters. These joint positions specifically work on forest management practices offered through the EQIP Program.

- The *US Fish and Wildlife Service* (US FWS) provides technical and financial assistance for conservation projects pertaining to threatened and endangered species as well as other species in decline. Through the Partners for Wildlife Program, the US FWS works with landowners, as well as other partners including Trout Unlimited and NRCS, on habitat restoration. Historically,

the US FWS and Trout Unlimited have partnered with several landowners on fish and wildlife habitat projects. Locally, the US FWS has placed an emphasis on the West Fork River and Hackers Creek, both of which contain endangered mussel species.

- *The Harrison and Lewis County Commissions* have historically supported the West Fork Conservation District and NRCS with operation and maintenance support on the Salem Fork watershed dams and Polk Creek watershed dams.

- *The National Wild Turkey Federation* has provided funding and personnel for conservation measures geared toward upland birds such as wild turkey and Cerulean Warbler.

- Other partners include WV Division of Natural Resources, WV Division of Environmental Protection, and the Wes-Mon-Ty RC & D Council.

Identification of Resource Concerns

At their most recent meeting, the West Fork Local Work Group identified the following natural resource concerns for the West Fork Conservation District.

- Soil Erosion
    - Grasslands – pasture, hayland/cropland
    - Streambank
    - Construction sites
    - Oil and gas locations, roads, pipeline right of ways
    - Forestland timbering operations
    - Road bank erosion from state and county roads
- Loss of farmland due to development, specifically in Harrison and Lewis County.
- Water Quality in Surface Waters
    - Fecal coliform & biologicals
    - Excessive nutrients and organics
    - Excessive suspended sediment and turbidity in surface water
    - Acid mine drainage
- Water Quality in Ground Water
    - Ground water pollution from oil & gas operations
- Invasive Species on Farmland and Forestland
- Riparian Buffer improvement to reduce sedimentation, specifically on streams and rivers that contain threatened and endangered species.
- Plant Productivity of Grasslands and Forestlands
- Forestland Stewardship, Timber Stand Improvement and Forest Regeneration

- Fish and Wildlife – Inadequate Cover/Shelter
    - Need for early successional habitat
- Soil Quality/Plant Productivity
    - Increased emphasis on locally grown fruits and vegetables
- Domestic Animals – Inadequate Quantities and Quality of Feed and Forages
    - Lack of well managed grazing systems
- Domestic Animals – Inadequate Livestock Water
- Plant Condition – Inadequate Structure and Composition
    - Forage quality on grassland farms
    - Forest stands
- Human – Risk
    - Typical farms cannot afford expensive conservation practices and infrastructure

Priority Natural Resource Concerns and Issues

Below is a summary of high priority resource concern areas based on the input received from the West Fork Local Work Group meeting held in February 2016. It should be noted that priority resource concerns can be edited, modified, or expanded by the local work group on an as needed basis.

1) Soil Erosion – Sheet & Rill. Sheet and rill is a resource concern present on pastureland as well as cultivated cropland. Sheet and rill erosion within the district is caused by water erosion, not wind. Sheet and Rill erosion removes the topsoil, reduces levels of soil organic matter, and contributes to the breakdown of soil structure, which in turn, creates a less favorable environment for plant or forage growth. Erosion removes soil surface which often has the highest biological activity and greatest amount of soil organic matter. Nutrients that are removed by erosion are no longer available to support plant growth on-site, and off-site impacts include nutrients that accumulate in water, algal blooms, and other associated water quality problems.

   Soil erosion may be avoided or reduced by maintaining or improving protective cover over the soil, including maintaining and improving perennial forage growth. The greatest concern within the district is overgrazed, improperly managed pastures on sloping or steep ground. Naturally low soil fertility and soil pH contribute to low forage production and when compounded with a lack of an adequate grazing system, this leads to excessive erosion and opportunity for invasive species and broadleaf weeds to encroach. Low forage height promotes water runoff and less infiltration which contributes significantly to sheet and rill erosion by water. Inadequate livestock water within pasture fields leads to spot grazing or grazing that is not uniform and leads to excessive erosion. Improved livestock water distribution will allow for implementation of rotational grazing systems which will reduce soil erosion. Soil erosion on pasture is a district wide concern.

There are an estimated 113,000 acres of pastureland within the district and an estimated 75% (84,750 acres) is eroding above tolerable soil levels (T) when measured by RUSLE 2 soil erosion prediction software.

Soil erosion is also present in other land uses in addition to pasture or cropland. Soil erosion from construction sites, county road banks and ditches, and logging operations are also noted resource concerns.

Oil and gas activity has greatly increased within the district over the past 5 years. Doddridge County has experienced the greatest impact, however, the activity has been district wide to some degree. Oil and gas activity including well sites and pipeline right-of-ways contribute to soil erosion from well sites and road development. Older gas well sites were often developed on steeper slopes and roads were not as well constructed, which has attributed to higher rates of erosion.

2) Water Quality Degradation – Surface Water. Water quality concerns are due to animal feeding operations of livestock, some of which are in low lying areas near small streams and rivers in the fall and winter months. Topography often limits access to upland areas during the winter months and as a result, winter feeding is often in areas with close proximity to surface water. There are approximately 15 un-roofed concrete feeding areas that exhibit runoff concerns. These structures were installed in the late 1990's through 2004, prior to the NRCS standard revision that required NRCS feeding pads to be roofed. Evaluations conducted after these systems were installed indicated that water quality issues were not fully addressed, initiating the change in the NRCS standard to require roofing of feeding areas. Application of organic and inorganic nutrients in close proximity to streams may also be contributors to these concerns, especially on fields which have high erosion rates due to lack of adequate vegetation. Also, lack of adequate livestock water sources results in water quality degradation as livestock drink water from streams and ponds.

   Water quality degradation is a problem district wide with the highest concentration in the West Fork River drainage area of Harrison and Lewis Counties. The WV Department of Environmental Protection (DEP) has determined impairment of streams throughout the state which are designated on the states 303d list of impaired streams. This list also notes the reasoning for impairment of each stream which includes pH, iron, fecal coliform, biological, aluminum, selenium, PCBs, dioxins, manganese, and CNA-algae. Of these impairments, fecal coliform is the impairment most attributed to agriculture. The WV DEP has developed Total Maximum Daily Load (TMDL) allocations for fecal coliform on the impaired streams within the West Fork Conservation District. The West Fork River watershed (Harrison and Lewis Counties) data was completed in 2014, the Little Kanawha River Watershed (Gilmer County) data was completed in 2008, and the Middle Ohio North (Doddridge County) was completed in 2012. This data, however, is not specific to agriculture as other sources of fecal coliform are present throughout the district including private septic system failures or the absence of adequate septic systems (straight pipes), wildlife, and urban/residential runoff, as well as Municipal

Separate Storm Sewer Systems (MS4), combined sewer overflows (CSO), and publicly owned treatment works (POTW). The WV DEP has separated allocations of fecal coliform to different sources including crop/pasture land, however, this data seems to be an educated guess based on visual assessment of the area. Comparing the data from all three 8 digit hydrologic unit watersheds in the West Fork Conservation District, the West Fork River watershed is in need of the most reduction of fecal coliform concentrations with a majority of the streams needing more than a 50% reduction in the total fecal coliform concentrations. The majority of the streams in the Middle Ohio North watershed of Doddridge County are in need of 25% or less reduction in total fecal coliform concentrations and all of the streams in the Little Kanawha watershed of Gilmer County are in need of less than 20% reduction in fecal coliform concentrations.

Using these TMDLs as a baseline, fecal coliform concentrations could be measured periodically to determine if conservation practices are having a positive impact to reduce the fecal coliform concentrations of the streams. A limiting factor to determining effectiveness of conservation on agricultural land would be the unknown factor on the extent of contributions by all sources. However, a reduction, though maybe small, should be found if conservation is observed on a majority of the agricultural lands within a watershed.

Erosion causes high levels of sedimentation in streams and rivers. Excessive bank erosion from streams due to geologic erosion and livestock access contributes to water quality concerns and sedimentation.

3) Plant Condition. Degraded plant condition, including undesirable plant productivity and health, inadequate structure and composition, and excessive plant pressure, are resource concerns that are found district wide. These concerns are due to many factors including low fertility, overstocking of grazing lands, and lack of proper management. Many of the agricultural lands in this district are located on very steep topography which cannot be managed and treated adequately with normal farm machinery and techniques. Overgrazed lands and soils with low fertility often do not contain adequate amounts of desirable plant species for the intended use causing undesirable species, including invasive species, to flourish in these areas due to the lack of competition which reduces the quality and availability of desired species.

   Plant condition is generally evaluated by NRCS staff using the Pasture Condition Scoring tool which identifies areas of grasslands with plant condition limitations. Soil test results are also used to identify fertility deficiencies for the intended production and can be used to identify limitations to plant condition. Conservation planner observation is used to determine the existence and extent of invasive species. Although the tools used to define degraded plant condition are site specific, the concepts of the tools could be used to evaluate the concern on a broader spectrum. Historically, degraded plant condition has been determined on more than 90% of farms evaluated by NRCS and has been one of the leading concerns addressed through financial and technical assistance programs in this district. The problems associate with degraded plant condition also play a major role in other resource concerns including soil

erosion, water quality, and inadequate feed and forage for livestock. The lack of adequate livestock water supply also affects plant condition. Forages are more prone to being overgrazed without adequate livestock water distribution. Adequate water distribution is the key to implementation of a rotational grazing system.

Excessive bank erosion of streams due to geologic erosion and livestock create inadequate plant condition and composition, and is a resource concern throughout the West Fork Conservation District. The cause of streambank erosion is due to factors such as normal geologic erosion, lack of vegetation including grasses and trees along streams, and livestock and equipment access to streams.

Forestry Management: High-grading of forest stands through harvests conducted without professional forestry assistance is a concern within the West Fork Conservation District. Proper harvesting techniques to promote forest management, plant productivity, and composition are all opportunities to help address the concern. Since the 2008 Farm Bill, there has been an increased emphasis on forest management within the District. Historically, NRCS and WV Division of Forestry personnel have worked very well together on the local level. There are approximately 688,755 acres of forestland within the district. Two priority goals for forestry management within the district are:

a) Continue to promote Forest Stewardship Plans for forest landowners. There are currently 110 Forest Stewardship Plans covering 20,336 acres within the West Fork Conservation District. Less than 3% of the forested acreage in the West Fork Conservation District is covered by a WV Forest Stewardship Plan. Forest stewardship plans are written by professional foresters to meet the forest management objectives for protecting and improving the forest resources on the planned acreage. The plan includes information on current forest stand conditions as well as recommendations for future management activities based on landowner and natural resource conservation goals.

b) Work with forest landowners to install forest management practices such as invasive species control. Invasive species such as tree of heaven, autumn olive, multiflora rose, oriental bittersweet, Japanese barberry, and Kudzu are species of concern within the district. Kudzu has appeared in our area within the past several years and has been observed in the West Milford area of Harrison County and along Route 33 between Linn and Glenville in Gilmer County.

Opportunities for Future Work

Multiple resource concerns were identified within the West Fork Conservation District based on local work group input. These resource concerns have been identified and summarized in this document. Below are five potential areas for future work by NRCS and partners within the West Fork Conservation District. The Environmental Quality Incentives Program (EQIP), which is under the 2014 Farm Bill could be used in project areas to address the resource issues listed below. USDA NRCS programs are voluntary in nature and it is estimated that not all producers would be willing to adopt conservation practices. Also, participation by watershed or geographic area may be variable. It is estimated that program participation on most watershed areas would be between 25-50%.

1) *Livestock Grazing Systems.* Approximately 90% of the pastureland in the West Fork Conservation District does not have a current prescribed grazing plan, or 101,700 acres. An estimated 75% of all pastureland in the District has soil erosion above tolerable soil loss levels (T), or 84,750 acres. A majority of farms without an adequate grazing system have improper livestock stocking rates. The opportunity exists for NRCS and partners to work with producers willing to implement grazing systems and address proper stocking rate and associated conservation practices in order to solve the resource concerns caused by improper grazing management. Improper grazing systems lead to various resource concerns including soil erosion, water quality, and plant productivity which are the top three resource concerns within the District. Invasive species control on pastureland could also be addressed in planned livestock grazing system. Education and financial assistance for conservation practices are needed to treat this resource problem. Acres of prescribed grazing applied, RUSLE II Soil loss calculations, and the NRCS Pasture Condition Score are methods to measure treatment of the resource issue on a local level. Partnering agencies such as West Fork Conservation District may have available Agricultural Enhancement Program funds to assist with soil fertility improvement on grazing operations. Historically, the West Fork Conservation District has hired a summer employee to assist with nutrient management and soil testing, which provides for an opportunity to focus work in a future project area.

2) *Livestock Winter Feeding Areas.* Improper or poorly managed livestock winter feeding areas lead to surface water quality concerns, specifically fecal coliform and sedimentation. The WV 303d list for fecal coliform, which is included at the end of this Long Range Plan, depicts specific watershed reaches within the four county area that have excessive levels of fecal coliform. Opportunities exist for NRCS and partners to work with cooperating producers to address livestock winter feeding by adopting various conservation practices including structural and/or management practices. The opportunity exists for livestock producers to adopt proper stocking rates for winter feeding areas and fields, improve grazing management, and to implement conservation practices that improve water quality that leaves the farm operation. Livestock winter feeding area improvement will also help reduce soil erosion and sedimentation in nearby streams and will improve plant productivity in the spring and summer months due to less soil disturbance during the winter feeding period.

3) Riparian Area Improvement. Opportunities exist for NRCS and partners such as FSA, US FWS, & WV DOF to work with land users on streambank erosion control and livestock access to riparian areas. Livestock have access to over 90% of streams that exist on farms. Opportunities exist to install conservation practices to improve riparian areas and increase habitat for wildlife species on farms. Riparian area work would benefit federally listed endangered species of mussels as well as state listed species.

4) Forest Health. There are approximately 688,755 acres of forestland within the district. Opportunities exist for NRCS and partners to work with forest landowners on addressing resource concerns on forestland. There is an opportunity for an increase in the amount of forest stewardship plans, which will lead to improved forestland management on private land. Timber stand improvement (TSI) practices such as brush management and forest stand improvement would be identified within the forest stewardship plans which would address resource concerns previously identified within this document.

5) Locally Grown Food. In the past few years, there has been an increased emphasis on locally grown fruits and vegetables within the West Fork Conservation District. There is an opportunity for NRCS and partners to work with urban and rural landowners on the development of seasonal high tunnels and associated conservation practices. Many residents within the West Fork Conservation District live in areas known as Food Deserts, which are areas where residents do not have access to fresh, affordable and nutritious foods. NRCS and partners have the opportunity to work with communities, and landowners to bring the tools and resources needed to grow food locally.

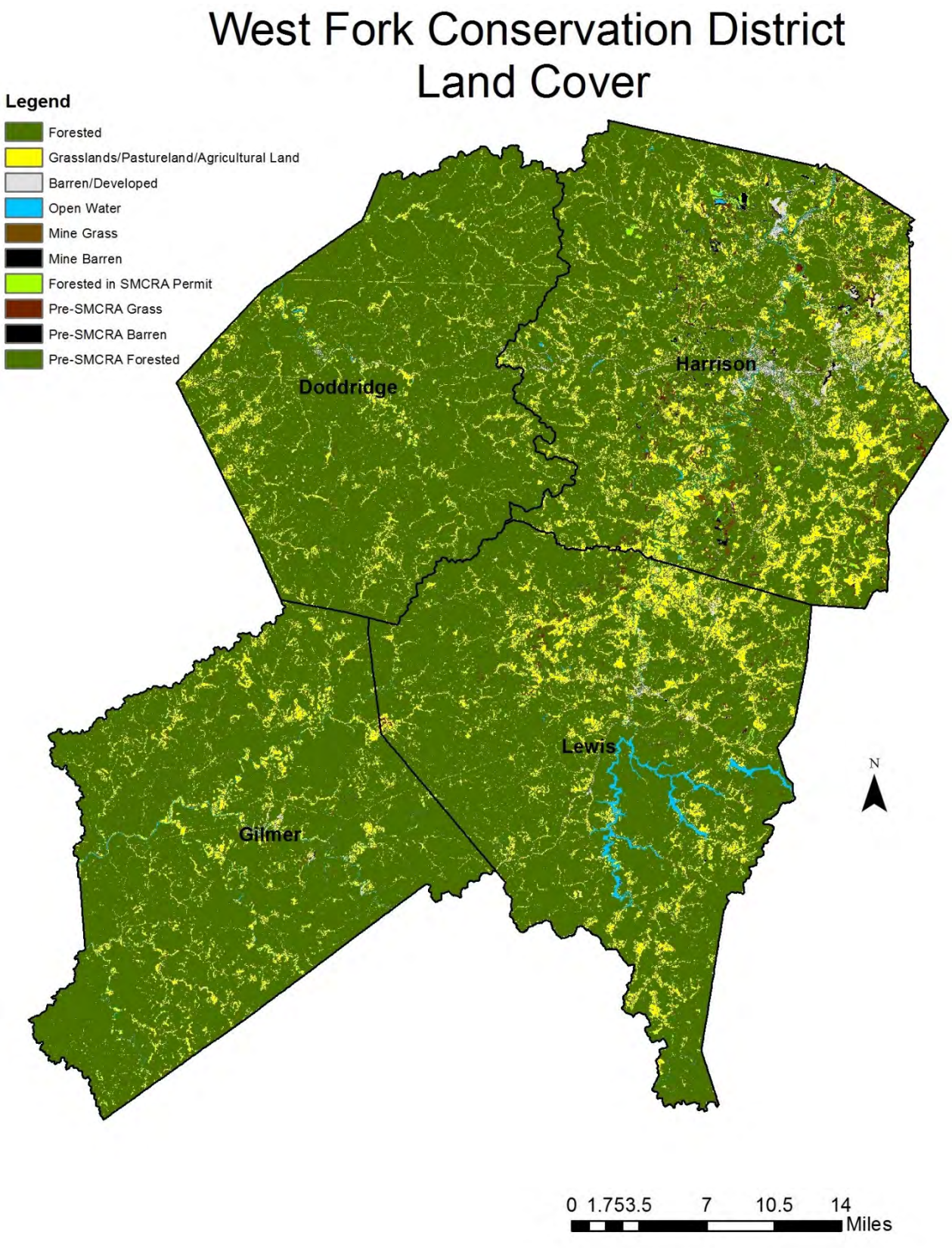


Figure 6, West Fork Conservation District Land Cover Map

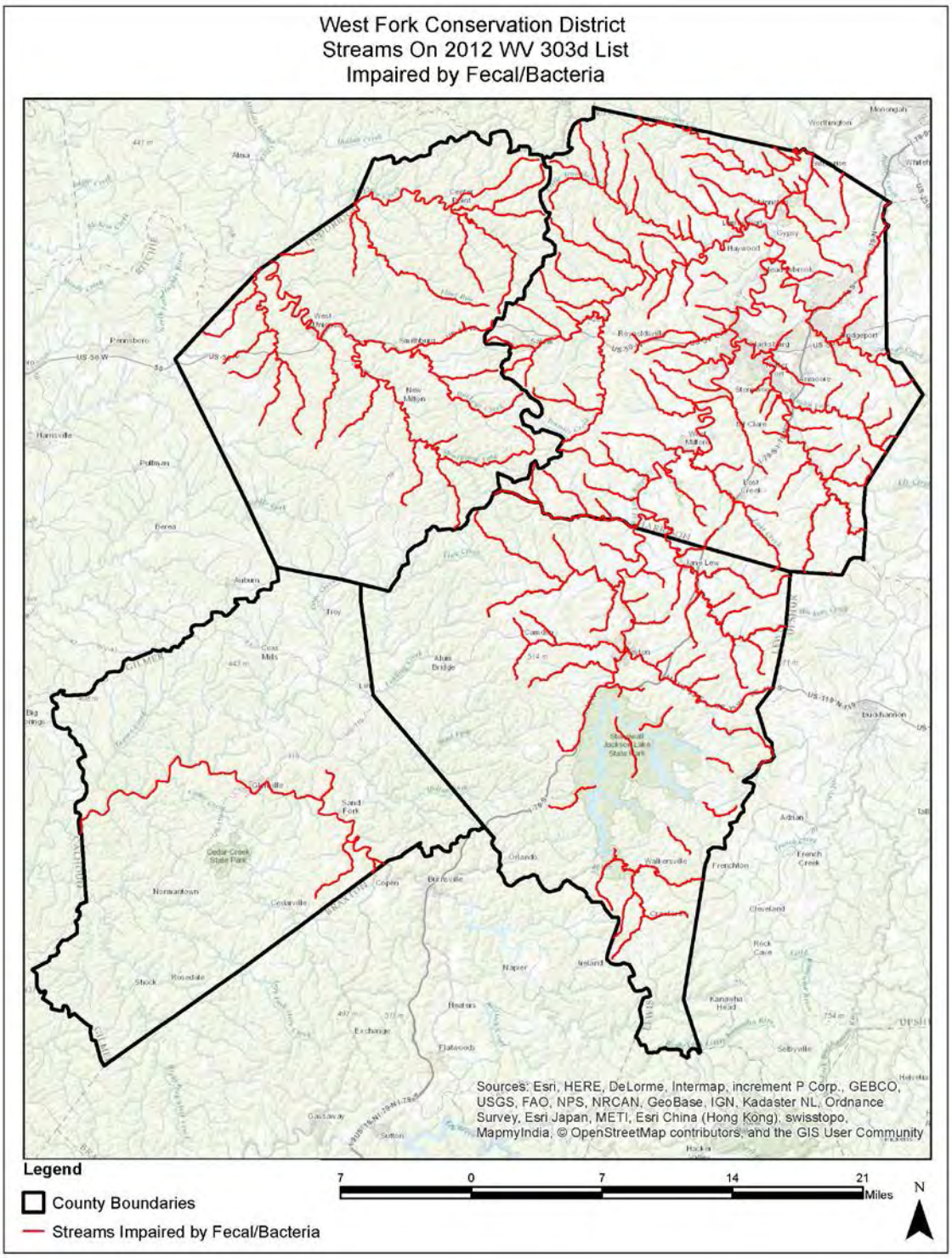


Figure 7, West Fork Conservation District 2012 303d Map of Streams Impaired by Fecal Coliform

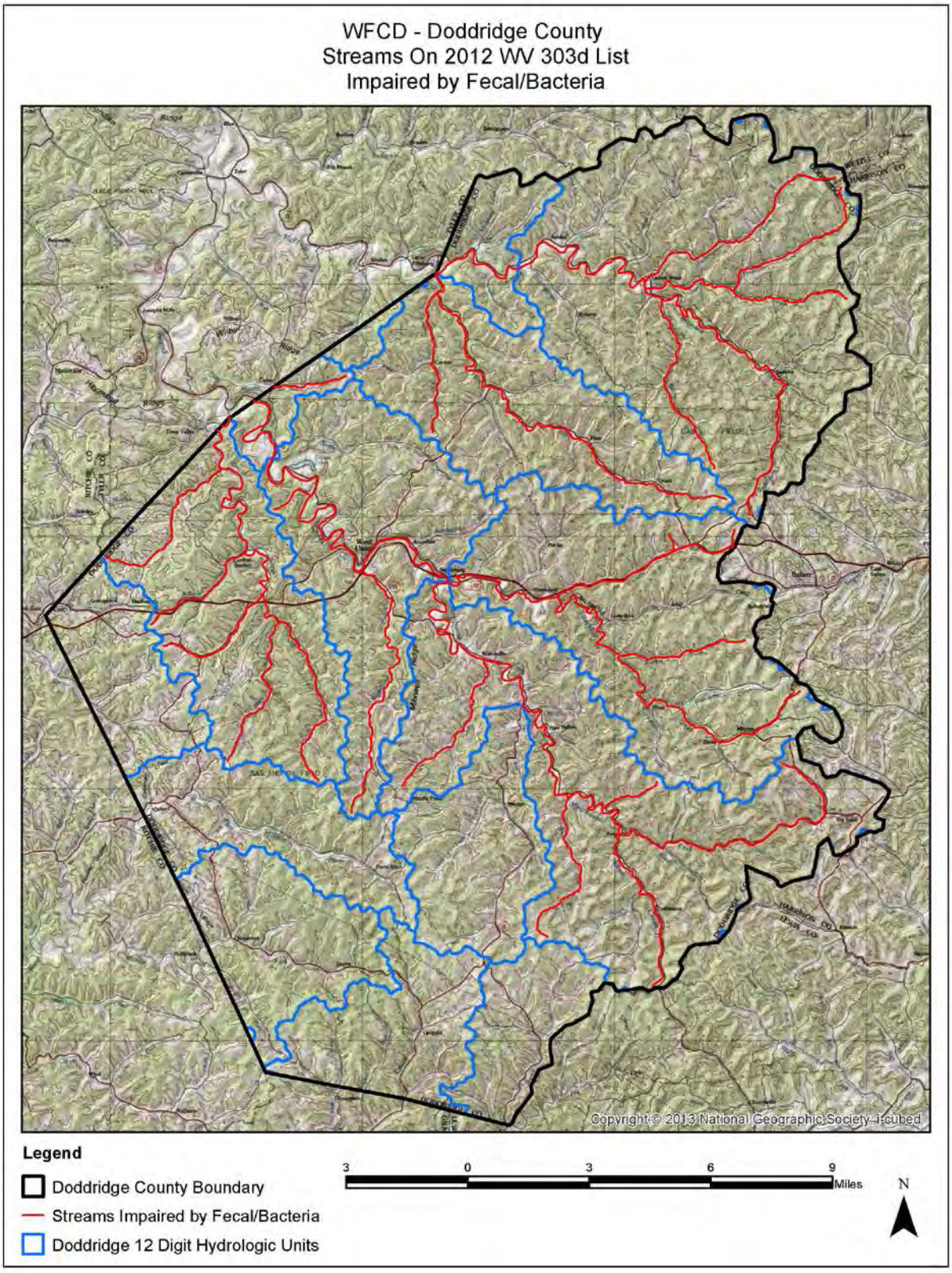


Figure 8, Doddridge County 2012 303d Map of Streams Impaired by Fecal Coliform

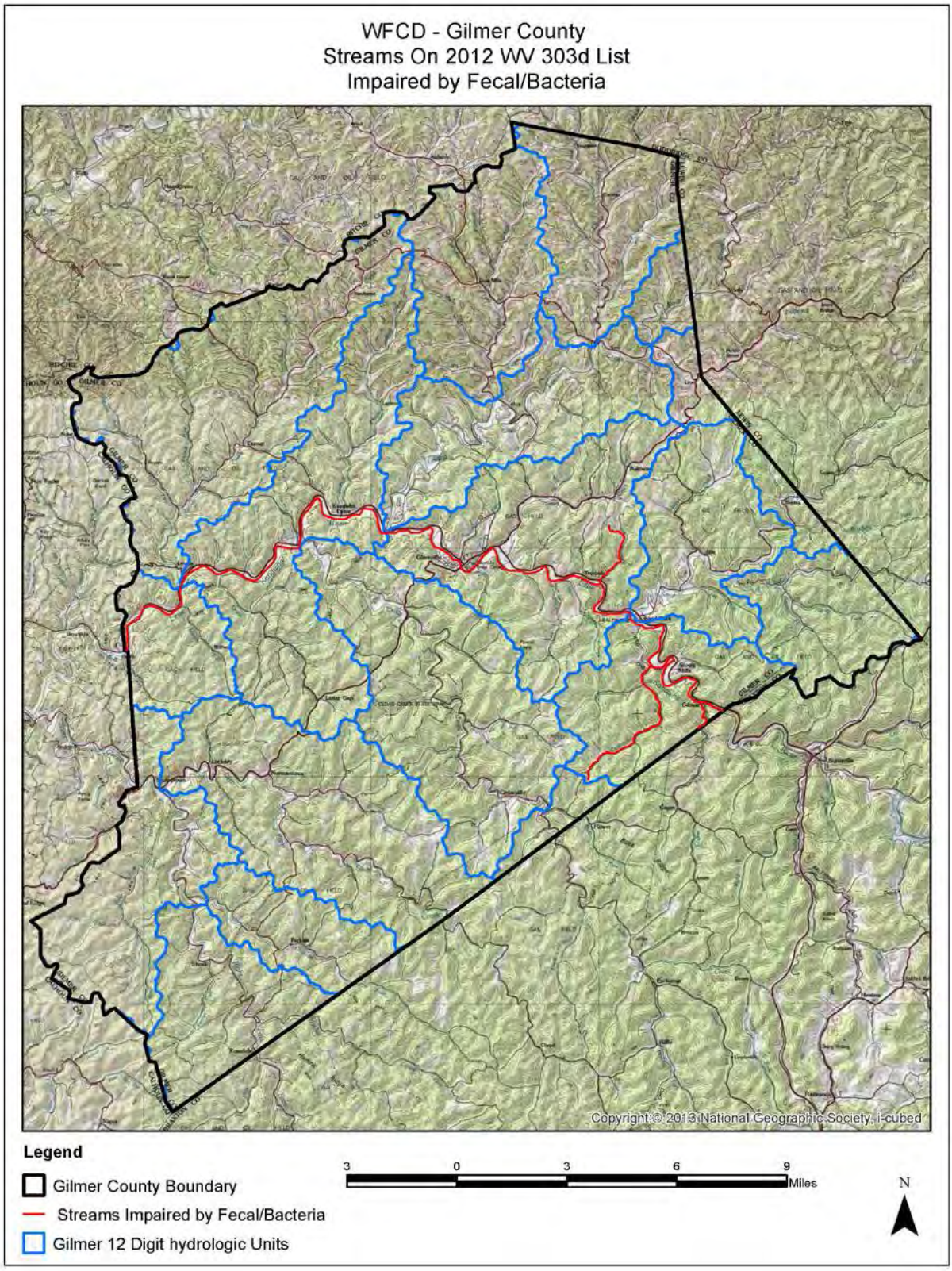


Figure 9, Gilmer County 2012 303d Map of Streams Impaired by Fecal Coliform

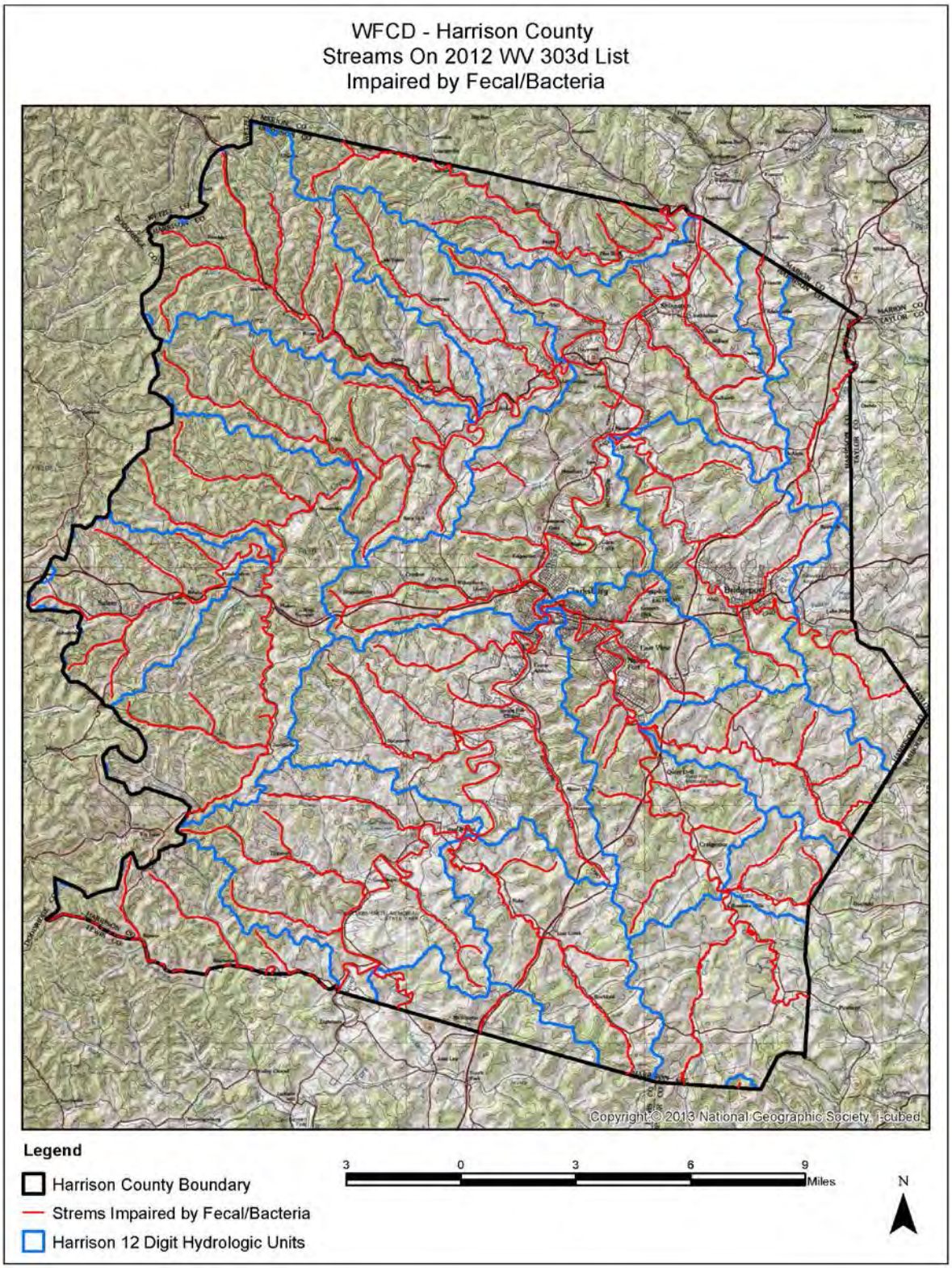


Figure 10, Harrison County 2012 303d Map of Streams Impaired by Fecal Coliform

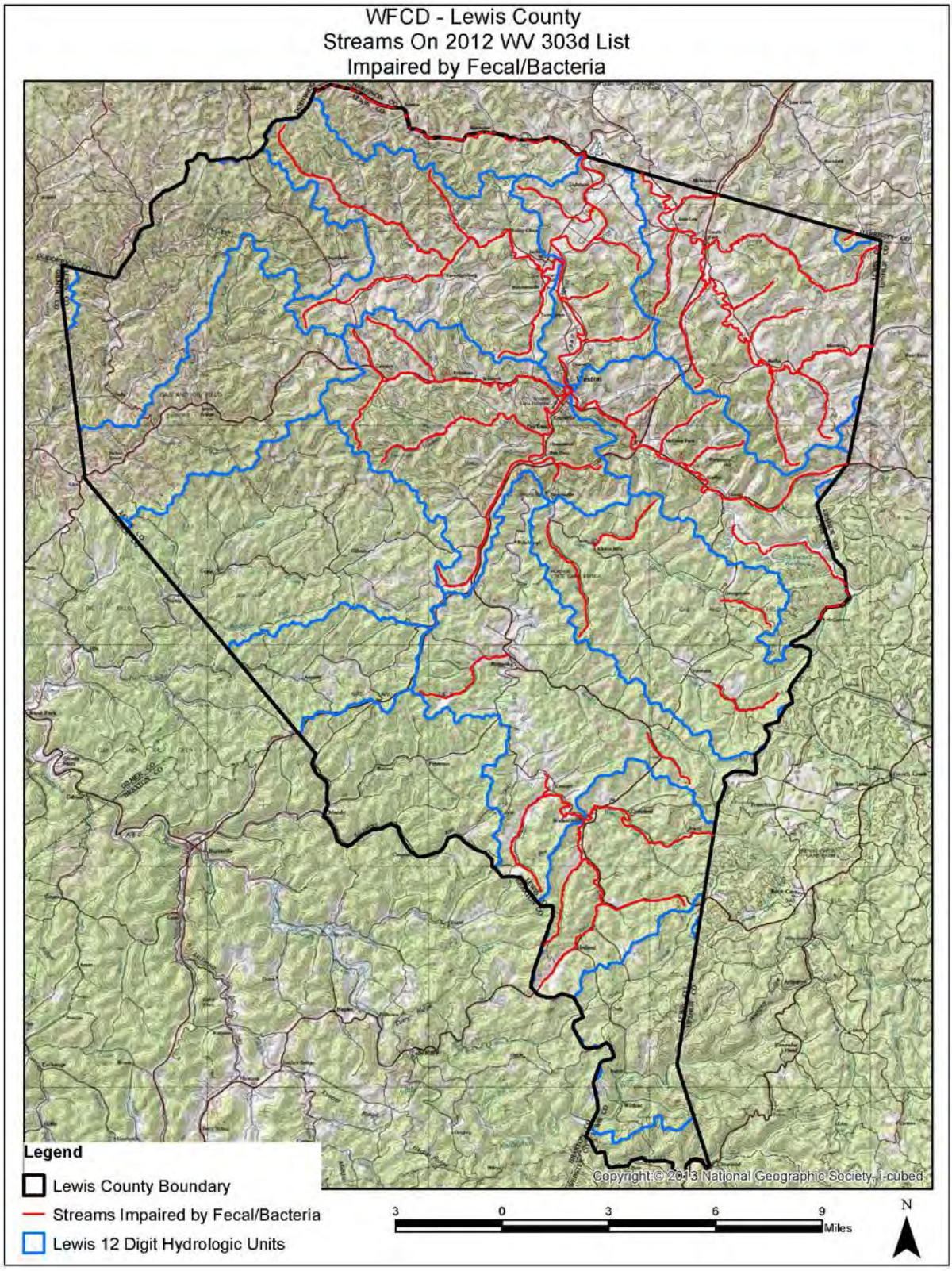


Figure 11, Lewis County 2012 303d Map of Streams Impaired by Fecal Coliform