NRCS West Virginia

Preliminary Investigation Feasibility Report (PIFR)

Headwaters of the Piney Creek Watershed

12-digit HUC (050500040102)

April 2, 2024

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Summary

On January 17, 2023, the Raleigh County Commission (RCC) submitted a formal request to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) for assistance addressing several resource concerns leading to poor water quality. Since this time, on April 9, 2024, RCC submitted a Sponsor Declaration form, outlining that significant flooding and property damage every year is the major resource concern. Because of the recent change in the commission's primary concern, flood prevention has been identified as the primary purpose for a Watershed Protection and Flood Prevention Act (PL83-566) project. RCC specifically requested an examination of current hydrology and hydraulics in the area and a determination on the feasibility of stream work and land treatment practices to implement in the watershed which would mitigate or resolve the flooding and or water quality impacts.

The project is located in Raleigh County, West Virginia in the Headwaters of the Piney Creek HUC 12 (050500040102), which is in the HUC 8 (05050004) Lower New Watershed and HUC 10 (0505000401) Piney Creek Watershed. This watershed spans from Soak Creek, Crab Orchard, Mabscott, to Willibet in District 1 of Raleigh County.

The resource concerns and opportunities in the Headwaters of the Piney Creek Watershed are eligible for a planning study according to the Watershed Protection and Flood Prevention Act (PL 83-566). The PL-566 project purposes would be flood prevention as the primary purpose, watershed protection, public recreation, public fish and wildlife, and water quality management as secondary purposes. A potential project would address resource concerns relating to sheet and rill erosion, flooding, sediment, and nutrient transportation to ground and surface water, wildlife habitat, and public health and safety through structural and/or non-structural measures including land treatment practices, possible construction of new infrastructure, natural stream restoration, or potential voluntary buyouts. Potential solutions to resource concerns could provide long-term relief with positive impacts to environmental, economic, and social aspects of living in the watershed. The baseline condition without federal investment is continued degradation to the continued flood damages, watershed, water quality, wildlife habitat, and public recreation. Alternatives would involve participation from private and commercial landowners if the project were to move to the implementation phase.

The Town of Sophia coordinated with the Soil Conservation Service (now NRCS) in 1988 on Soak Creek for two channel modifications where 1.1 miles were modified in Lower Reach and 1.4 miles in Upper Reach in Sophia with an existing operation and maintenance agreement between NRCS, West Virginia Conservation Agency, and the town.

The project is Program 566 compatible because it aims to prevent damage from flooding, further the utilization and disposal of water, and ensure proper utilization of land. The watershed is less than 250,000 acres, and, with a population of less than 50,000, Beckley is considered a rural community based on the USDA definition. In addition, the project has a local sponsor in the RCC.

Applicable Agency Authority and Authorized Purposes

The table below provides documentation that the project is eligible for federal assistance and will meet statutory requirements.

Describe the potential project watershed area; how does the area meet the requirements outlined in NRCS's National Watershed Program Manual (See 506.50 NWPM Glossary - TTT. Watershed).		
Response: The Raleigh County Commission (BSB) requested assistance with conducting a Preliminary Investigation and Feasibility Report (PIFR) for a potential watershed project in the Headwaters of the Piney Creek Watershed 12-digit HUC (050500040102). This assistance is authorized under the Watershed Protection and Flood Prevention Act (Public Law 83-566). The RCC is interested in being a sponsor for a watershed project in the watershed and meets the PL 83-566 criteria for a sponsor. Watershed protection, flood prevention, public recreation, public fish and wildlife management, and water quality management would be the likely purposes of a potential watershed project.		
Will the project area exceed 250,000 acres in size? [1,2]	☐ YES	☒ NO
If over 250,000 acres, will it be divided into sub-watersheds in one plan?	☐ YES	☒ NO
Potential Project Area Size: **33,972** acres		
Will any single structure provide more than 12,500 acre-feet of floodwater detention capacity, or have 25,000 acre-feet of total capacity?	☐ YES[3]	☒ NO
How many recreational developments will be included in the project area?		
• One development in a project area less than 75,000 acres	☒ YES	☐ NO
• Two developments in a project area between 75,000 and 150,000 acres	☐ YES	☒ NO
• Three developments in a project area greater than 150,000 acres	☐ YES	☒ NO
Which authorized purposes will the project address? (Indicate only one purpose as primary):		
	Primary	Other
• Flood prevention	☒	☐
• Watershed Protection	☐	☒
• Public Recreation	☐	☒
• Public Fish and Wildlife	☐	☒
• Agricultural Water Management	☐	☐
• Municipal or Industrial Water Supply	☐	☐
• Water Quality Management	☐	☒
Will the project produce substantial benefits to the general public, to communities, and to groups of landowners?	☒ YES	☐ NO[3]
Can the project be installed by individual or collective landowners under alternative cost-sharing assistance?	☐ YES[3]	☒ NO
Will the project have strong local citizen and sponsor support through agreements to obtain land rights, permits, contribute the local cost of construction, and carry out operation and maintenance.	☒ YES	☐ NO[3]
Will the project take place in a Special Designated Area? (if yes, check applicable area below.)	YES	☐ NO
Appalachia ☒ Delaware River Basin ☐ Susquehanna River Basin ☐ Tennessee Valley ☐		

1. For specific appropriations, the 250,000 acres is waived except for watershed projects with the flood prevention purpose.

2. Watersheds exceeding 250,000 acres can be broken up into smaller sub-watersheds.

3. The project will not meet the statutory requirements.

References:

16 USC 18 - §1004, Conditions for Federal assistance 7 CFR 611 - 11, Eligible Watershed Projects
Title 390, NWPM – 500.3 Eligible Purposes

Potential for 20% Agricultural (Rural) Benefits

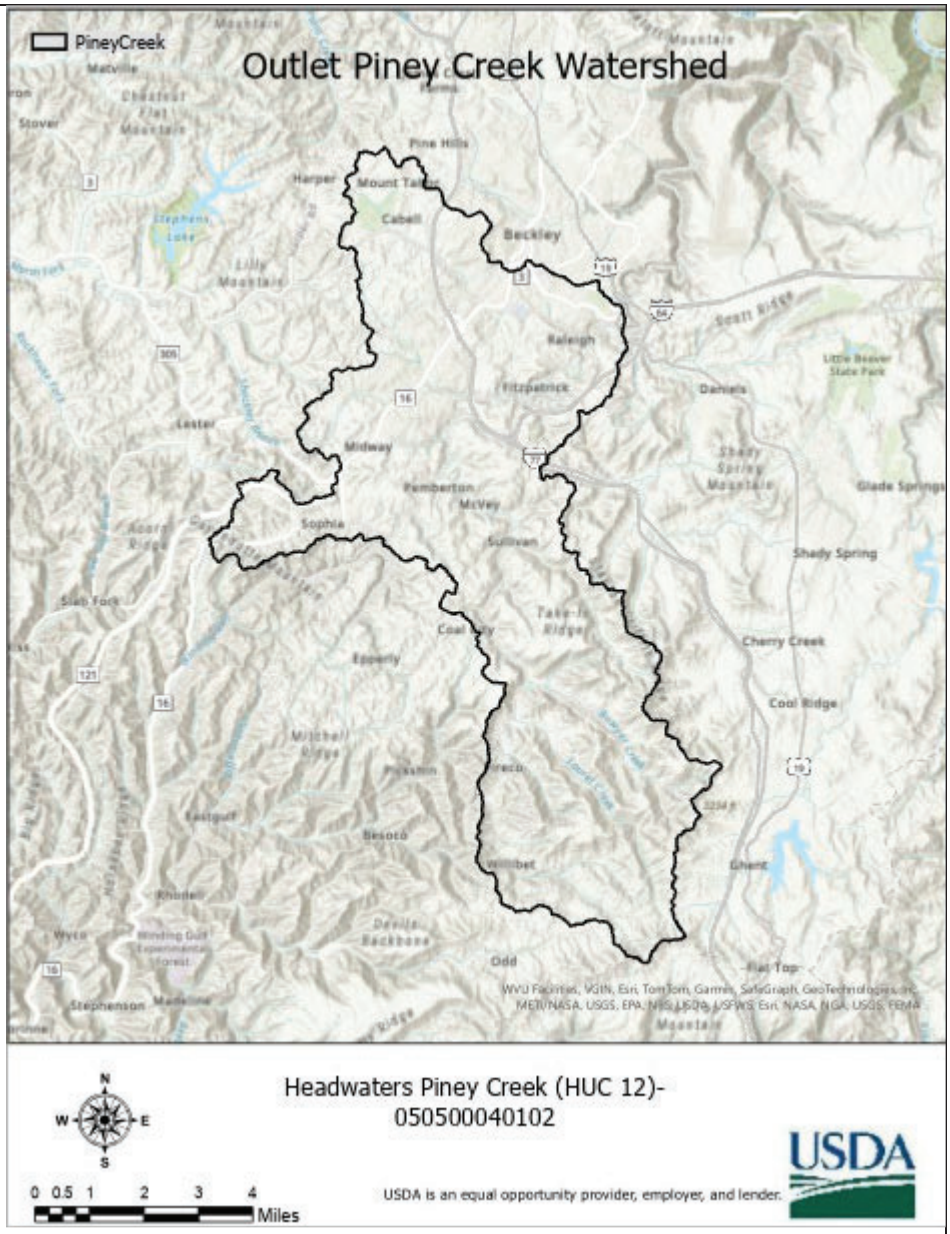
Raleigh County had a population of 74,591 people in the 2020 Census. The District 1 of Raleigh County has 22,557 people. As per the USDA definition, District 1 meets the definition of a rural community because it has fewer than 50,000 people. Because Raleigh County is a rural county and Beckley is a rural community, at least 20% of the benefits will meet the agricultural (rural) requirement. Populations potentially benefitting from a project would include agricultural producers, rural residents, renters, travelers and commuters, business owners, and the general public.

References:

16 USC 18 - §1002, Definitions
Title 390, NWPM – 506.50 Glossary, MMM. Rural or Rural Communities

Project Overview

Proposed Project Name	Headwaters of the Piney Creek Watershed 12-digit HUC (050500040102)
State	West Virginia
County	Raleigh County
Congressional District	1st Congressional District

USGS Hydrologic Unit Code (HUC) and Watershed Name	 Map of Headwaters of the Piney Creek Watershed, Raleigh County, WV Headwaters of the Piney Creek Watershed 12-digit HUC (050500040102) In 1988, NRCS assisted on 1.4 miles of channel modification on the upper reach Soak Creek in the Town of Sophia (shown in red). In 1988, NRCS assisted on 1.1 miles of channel modification on the lower reaches of Soak Creek in the Town of Sophia (shown in green). Total Watershed Drainage Area: 33,972 acres
General Coordinates of the Watershed	Latitude 37.710851°, Longitude -81.204898°

Project Setting	Piney Creek begins near Indian Grave Mountain and flows North along County Route 44. It is joined by Bowyer Creek near Shady and continue North where it meets with Soak Creek at Pemberton. Crab Orchard Creek joins Piney Creek at Cedar, Nort of County Route 1/8, where it begins to flow Northeast. Whitestick Creek joins Piney Creek at Raleigh, near 19th Street. Piney Creek joins into the New River at County Route 41/8 at McCreery, WV. The total watershed drainage area is 33,972 acres, entirely in Raleigh County. The topography in the watershed ranges from an elevation of 3,123' MSL on Thompson Ridge near Fireco to a low point of approximate elevation 2,122' MSL at Morgan. The watershed, which lies in MLRA 125 and MLRA 127, Cumberland Plateau and Mountains and Eastern Allegheny Plateau & Mountains geology, is characterized by mostly flat-lying sedimentary beds. The overall topography is that of a high but strongly dissected plateau sharply cut by the larger streams and less so by smaller tributaries. The rock strata have considerable thickness consisting of sandstone, limestone, and shale. MLRA 125 has a less apparent boundary with 127 (Eastern Allegheny Plateau and Mountains). The boundaries with MLRAs 127 is marked by gradual changes in geology and soil parent material. West Virginia has a humid continental climate. South central West Virginia, much like the rest of the state, experiences moderately cold winters and warm, humid summers. West Virginia has the highest average elevation east of the Mississippi River which helps moderate summer temperatures. The jet stream is located near or over the northeast during the winter bringing frequent storm systems to the watershed. Raleigh County, in an average year, receives 43 inches of rain and 46 inches of snow. The average summer high is 80 degrees Fahrenheit in July, and the average winter low is 21 degrees Fahrenheit in January.
Potential Project Area - Size	**33,972** acres

Resource Information

Soils	The project area lies within Major Land Resource Areas (MLRA) 127, all within the Allegheny Plateau region. The area is generally rough and mountainous. The valleys are narrow and have very steep sides. This area is roughly dissected by narrow ridges and valleys. Raleigh County soils are largely formed in residual material derived from interbedded acid shale, siltstone, and sandstone. These soils are mostly steep and very steep on side slopes, but are gently sloping to sloping on plateau ridges. Small acreages of soils throughout this county are formed in colluvial material and alluvial material making up stream terraces and valleys. The residual parent materials are mostly from interbedded acid shale, siltstone, and sandstone of the Pennsylvanian age, also containing coal seams of varying thickness. Colluvial materials occur on foot slopes below uplands and are underlain mostly by acid sandstone, siltstone, and shale. These materials are medium textured to moderately fine textured and commonly contain small fragments of stone throughout. The older alluvial materials washed from upland soils underlain by acid shale, siltstone, and sandstone are not as common in the area. The textures of these soils are commonly medium to moderately fine textured and are found as terraces along the larger streams. The more recent alluvium washed from upland soils underlain by acid shale, siltstone, and sandstone occurs on floodplains along the rivers, streams, and intermittent drainageways of the survey area.
Water	The quality of water making up the watershed is affected by nonpoint and point pollution sources. Examples of nonpoint pollution include over fertilization, nonfunctioning or nonexistent septic systems, and erosion from heavy rain and flood events. Point sources would be from industrial facilities, mining locations, larger construction sites, or stormwater runoff in more populated towns. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events. Piney Creek, Whitestick Creek, Soak Creek, Laurel Creek, and Bowyer Creek are all impaired fecal coliform. Piney Creek, Laurel Creek, and Bowyer Creek are impaired by iron contaminants. Whitestick Creek is impaired by biological impairments. Piney Creek is affected by acid mine land seeps. Source: PineyCreekWBP.pdf (wv.gov)

	Streams and Impairments in the Piney Creek Watershed  Notes: Fe is total iron impairment; Al is dissolved aluminum impairment; FC is fecal coliform bacteria impairment; BIO is a biological impairment; SED is sediment impairment
Air	The watershed is not in an area recognized for regularly having impaired air quality or any significant air quality issues. The project area is in an urban area with adjacent residential areas. Dust from project activity may temporarily adversely impact these areas.
Plants	The watershed provides for both agricultural crops as well as naturally vegetated forested areas utilized as wildlife habitat. The project area is urban, with many impervious surfaces and hardened stream banks that preclude vegetation. Some small areas of trees and shrubs exist along the streambanks, but lawns mowed to the waters edge are more common and are prevalent throughout the project area.
Animals	The watershed is largely forested and has animal resources consisting of game, non-game, and invasive species. The project area is urban, with domesticated household pets and urban wildlife relying on the waters of Piney Creek and its tributaries for their water supply.
Energy	This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state.

TMDL Watershed	WV Code	Trout	Stream Name	Fe	Al	pH	FC	BIO	SED
Piney Creek	WVKN-26		Piney Creek	X			X		
Piney Creek	WVKN-26-G		Whitestick Creek				X	X	
Piney Creek	WVKN-26-K		Soak Creek				X		
Piney Creek	WVKN-26-N		Laurel Creek	X			X		
Piney Creek	WVKN-26-M		Bowyer Creek	X			X		

Human	**Demographics**: The 2020 U.S. Census reports the population of Raleigh County at 74,591. The City of Beckley has 17,286 people. The area is experiencing a population decline of about 1.5% per year. In contrast, between the 2010 and 2020 census, the population of West Virginia decreased by 3.2%.

Raleigh County WV Data & Demographics (As of July 1, 2022)

POPULATION	
Total Population	73,659 (100%)
Population in Households	70,331 (95.5%)
Population in Families	56,744 (77.0%)
Population in Group Quarters[1]	3,328 (4.5%)
Population Density	122
Diversity Index[2]	28

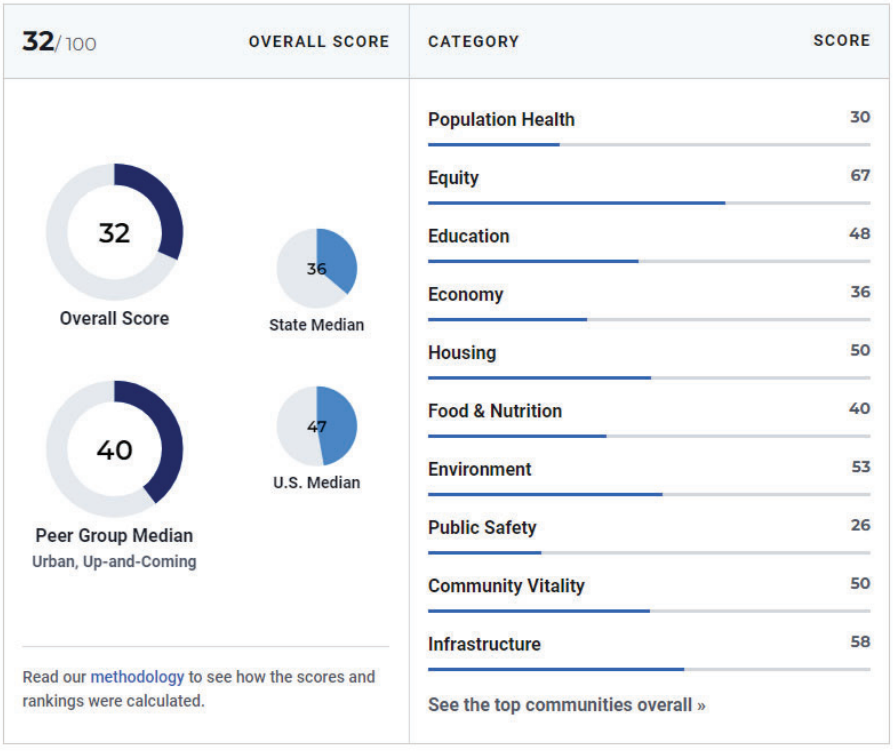
HOUSING	
Total HU (Housing Units)	34,523 (100%)
Owner Occupied HU	21,815 (63.2%)
Renter Occupied HU	8,172 (23.7%)
Vacant Housing Units	4,536 (13.1%)
Median Home Value	$142,426
Average Home Value	$187,668
Housing Affordability Index[3]	174

INCOME	
Median Household Income	$51,698
Average Household Income	$70,844
% of Income for Mortgage[4]	15%
Per Capita Income	$29,053
Wealth Index[5]	61

HOUSEHOLDS	
Total Households	29,987
Average Household Size	2.35
Family Households	19,391
Average Family Size	3.00

Reference: Raleigh County WV Data & Peer Group Rankings (hometownlocator.com)

Quality of Life: Raleigh County scores below the WV state average and the national average in quality-of-life indicators.



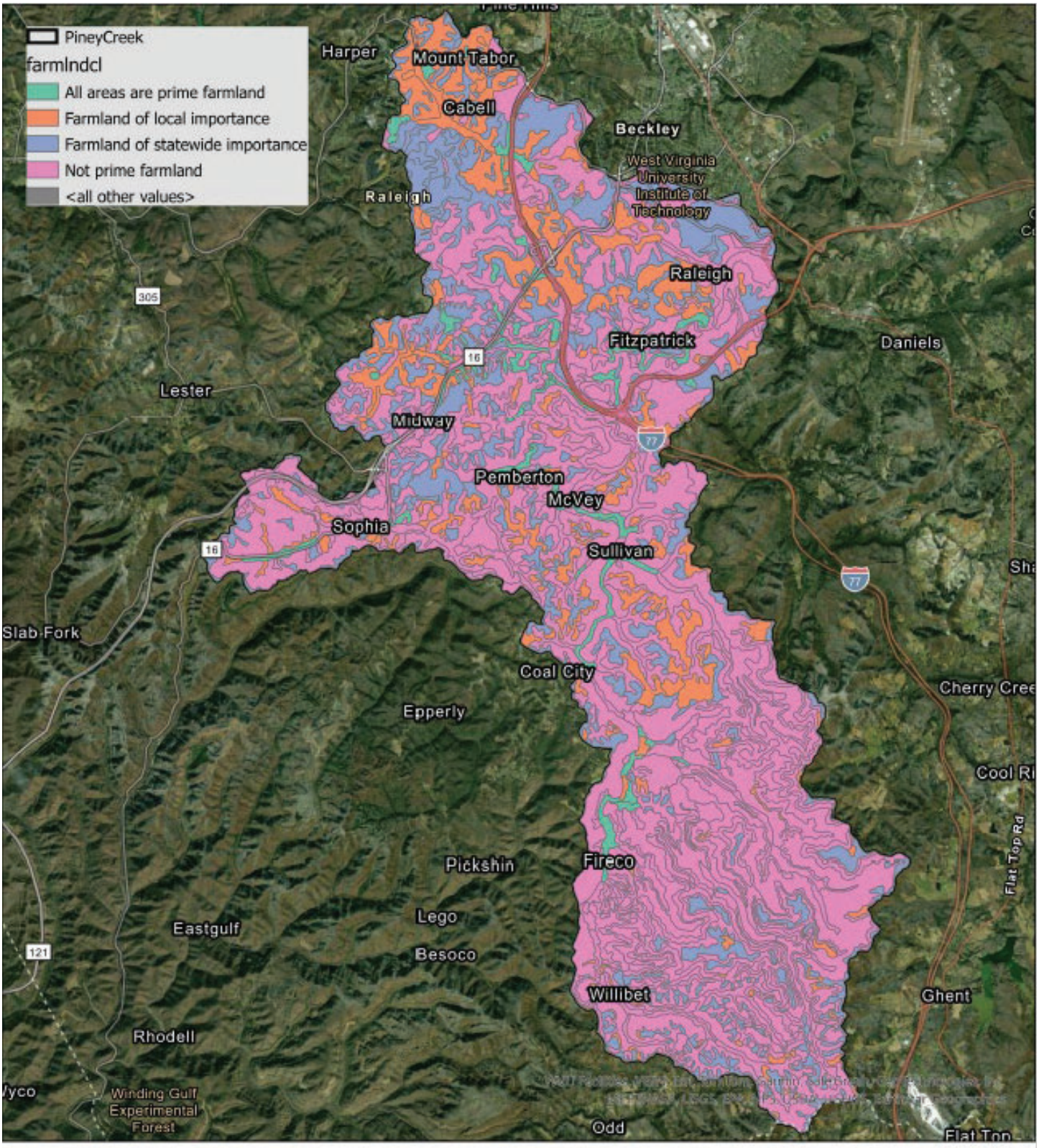
Reference: How Healthy Is Raleigh County, West Virginia? | US News Healthiest Communities

Resources of Special Concern

Clean Water Act	Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.
Clean Air Act	The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.
Coastal Zone Management	NA
Coral Reefs	NA
Cultural Resources	There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.
Endangered & Threatened Species	The US Fish and Wildlife Service identifies 10 Federally listed threatened, endangered, or candidate species potentially found in this watershed. According to West Virginia Department of Natural Resources, WV is a permanent home to 22 federally endangered species (17 animals, 4 plants) and 7 federally threatened species (5 animals, 2 plants). WVDNR's State Wildlife Action Plan (SWAP) recognizes 22 Conservation Focus Areas (CFA) throughout the state that includes Species of Greatest Conservation Need (SGCN). See Appendix E for a complete USFWS IPaC Species list, WVDNR state listings, a map of WV CFAs, and a list of SGCN for this watershed.
Environmental Justice	Environmental justice seeks fair treatment and meaningful involvement of all people and requires the identification of any disproportionately high and adverse effects from a proposed project on protected groups. Raleigh County is completely within the Appalachian Region. This county is not designated as a limited-resource county by USDA. However, it is designated as 'at risk' by the Appalachian Regional Commission, indicating that local economies are not strong. *Reference*: *https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/* Raleigh County is predominately white with 88.6% of the population designated as such. Slightly over 8% are black. The poverty rate is 21.8%, which is much higher compared to 11.6% nationally and 16.8% for WV. *Reference: https://www.census.gov/quickfacts/*
Essential Fish Habitat	NA

Floodplain Management	The purpose of floodplain management is to reduce flood damage. Floodplain management is the operation of community programs for preventative and corrective measures. These measures take a variety of forms and generally include zoning, division or building requirements, and special-purpose floodplain ordinances. Communities agree to adopt and enforce floodplain management ordinances to make flood insurance available to home and business owners. To date, 55 counties including Raleigh County, and 214 communities in West Virginia have voluntarily adopted and are enforcing local floodplain management ordinances that provide flood loss reduction building standards for new and existing development. Raleigh County has a major risk of flooding over the next few decades. In addition to damage to property, flooding can impact access to utilities, emergency services, transportation, damage agricultural lands and crops, and the overall well-being of both urban and rural communities located in the floodplain. For Raleigh County there is a: -major flooding risk to 6,205 of 32,820 residences -extreme flooding risk to 1,057 out of 2,804 miles of roads -severe risk of flooding to 575 out of 1,952 commercial properties -major risk of flooding to 27 out of 65 critical infrastructure facilities -moderate risk of flooding to 8 out of 78 social facilities *Reference: Raleigh County, West Virginia Flood Factor® Report | Risk Factor*
Invasive Species	Invasive species are found in the watershed. EDDMaps provides a web-based mapping system for documenting invasive species and pest distribution. According to USGS there is 1 nonindigenous aquatic species recorded in the watershed. See Appendix E for complete species lists. The lists are not specific to the watershed. However, they are based on a WV county level in which the watershed is located.
Migratory Birds/Bald & Golden Eagle Protection Act	Migratory birds and eagles utilize the Outlet of the Piney Creek Watershed habitats. There are a total of 10 federally listed birds in the area. The birds listed are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location. See Appendix E for complete list.

Natural Areas	**Federal**: The US Park Service manages the New River Gorge National Park and Preserve, which encompasses 70,000 acres of land along the New River, is 6.7 miles from the project area. **State**: Camp Creek State Park, composed of 5,308 acres, is managed by the WV Division of Forestry and is located 2.3 miles from the planning area. The WV Division of Natural Resources manages Little Beaver State Park 3.9 miles from the project area.
Prime and Unique Farmlands	Presently there are 1,124.9 acres of Prime Farmland, which accounts for 3.3% of land in the study area. Additionally, there are 4,477.4 acres of Farmland of Local Importance and 299 acres of Farmland of Statewide Importance. There are no farmland protection boards actively conserving land in the watershed.
Riparian Area	There are riparian areas present in or near the project area. Riparian areas found in this region are generally characterized as vegetated and un-vegetated. These areas are often forested or utilized as agricultural, urban, or residential purposes.
Scenic Beauty	The New River Gorge is a unique area of scenic beauty that lies near the Outlet of the Piney Creek Watershed. Other areas of the watershed are typical of the Appalachian Plateau physiographic province.
Wetlands	There are 508.64 acres of wetlands within the Outlet of the Piney Creek Watershed, consisting of 3.8 acres of Freshwater Emergent Wetlands, 29.2 acres of Freshwater Forested/Shrub Wetlands, 71.7 acres of Freshwater Pond, and 404 acres of Riverine. *Reference: US Fish and Wildlife Service National Wetlands Inventory.*
Wild and Scenic Rivers	All trout streams in Raleigh County are designated as "Waters of Special Concern." There are no Wild and Scenic Rivers within this watershed.



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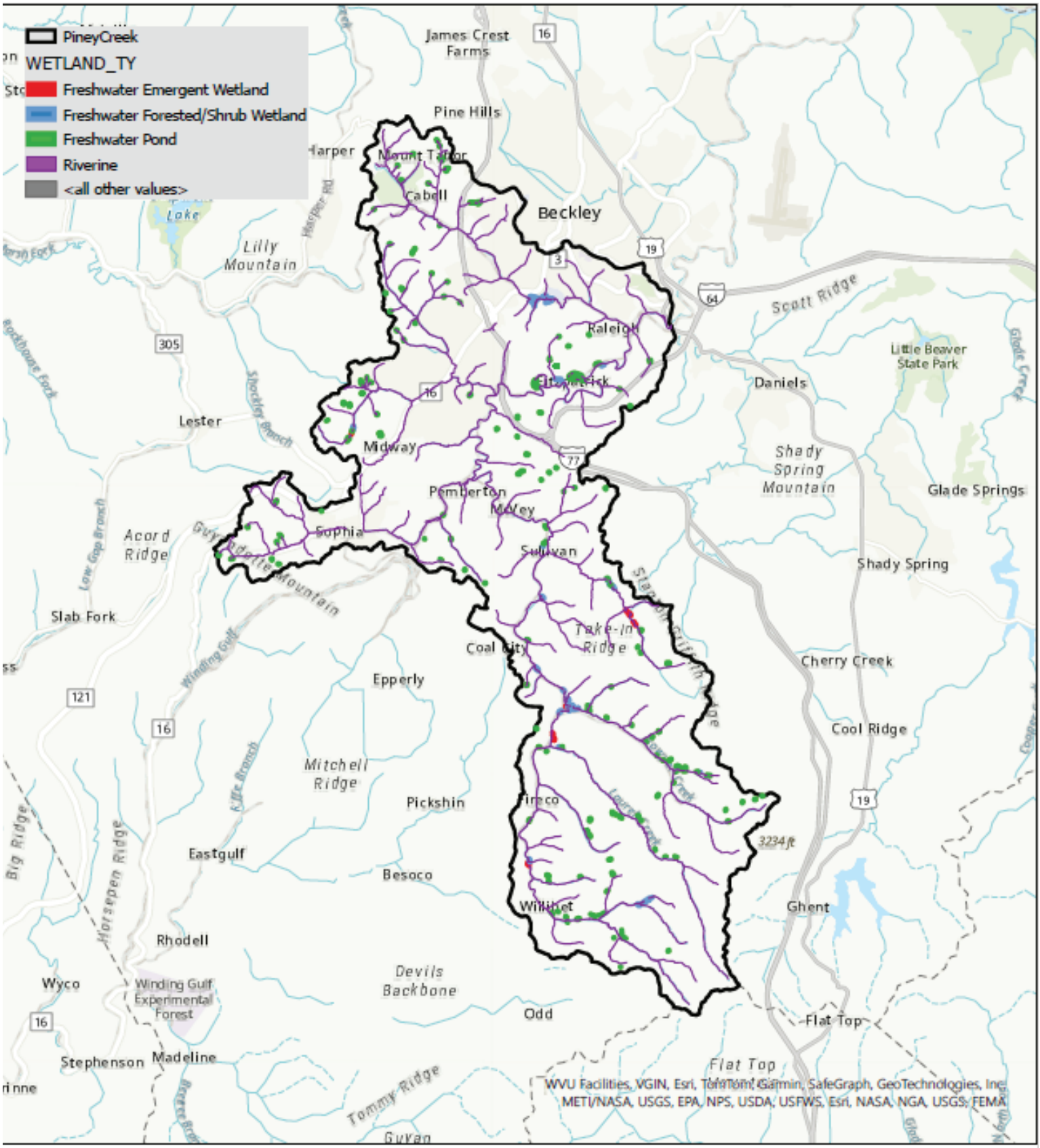
0 0.5 1 2 3 4 Miles

Farmland Classification Map of Headwaters of the Piney Creek Watershed (HUC 12) - 050500040102

USDA



Wetland Map of Headwaters of the Piney Creek Watershed (HUC 12) - 050500040102

N W E S

0 0.5 1 2 3 4 Miles

USDA is an equal opportunity provider, employer, and lender.

Proposed Project Purpose and Need Statement

The purpose of the proposed project is to address resource concerns in the Outlet of the Piney Creek Watershed where landowners and municipalities in flood prone areas are experiencing flooding. Areas within the watershed experience significant flooding every year and substantial property damage every few years. Areas in the watershed such as Mabscott was original constructed in 1904-1934 where rail lines, bridges, buildings, and other structures were placed in the floodplain. Development needs caused for construction over natural streams or the placement of streamflow through pipes, commonly 12-inch pipes, which cannot handle the flow during high intensity rain events. Expansion of urban areas that drain into this watershed have intensified the flooding and sediment loads within the stream banks. The flooding within the watershed poses a danger to the community with potential for loss of life and property. The communities within this watershed are rated as Moderate to High or Highest on the Social Vulnerability Index according to the West Virginia Flood Tool. It is anticipated that the PL 566 primary project purposes will be flood prevention, with watershed protection, public recreation, public fish and wildlife management, and water quality management as additional objectives.

There is a need for additional flood protection, watershed protection, public recreation, fish and wildlife habitat, and water quality management. The Outlet of the Piney Creek Watershed was the subject of a PL-83-566 project in the 1980s, which is still providing benefits to the watershed. There are opportunities to increase flood protection and improve other resource concerns in the watershed.

Resource Concerns and Opportunities

The Federal Objective or the goal for the planning study according to the Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies (PR&G) is a water resources project that reflects national priorities, protects the environment, and encourages economic development. The Outlet of the Piney Creek watershed contains water resources concerns and opportunities that offer the potential for a watershed project that achieves the Federal Objective.

Resources	**Concerns**	**Opportunities**
Water	• Flooding • Impact of excessive nutrients on surface waters • Impact of point and nonpoint pollutants on surface and ground water	• Reduce flood impacts • Protect, improve water quality • Reduce erosion and sediment • Improve farming profitability • Enhance recreation • Improve nutrient management at farming operations
Soil	• OM depletion is likely the cause of soil loss, compaction resulting in reduced infiltration on agricultural lands and urban lands, impervious surfaces. Erosion on farms is most likely from overgrazing and bare soil areas.	• Reduce impacts to soils and improve soil health
Air	• No air quality issues present	• Monitor state air data for potential

		issues
Plant	• Lack of plant species diversity and presence of invasive species.	• Increase of plant diversity with the establishment of native regionally appropriate species.
Animals	• Lack of game and non-game species diversity and habitat diversity	• Provide appropriate game and non-game habitat.
Energy	• Potential damage to energy infrastructure from flooding	• Efficiencies in energy use
Human	• Decreasing population due to diminishing living standards • Labor shortages and declining tax base	• Improvements to quality of life
Recreation	• Disparate recreational access • Underutilization of water-based recreation potential	• Increase accessibility to recreation for local residents • Increased water recreation opportunities that help overcome historical barriers to water-based recreation for aging and disabled populations • Continued stewardship of pristine trout streams. Improvement of trout streams that have streambank erosion or other impairments
Environmental Justice	• Flooding of low-income neighborhoods • Declining tax revenues for towns	• Overcome barriers to economic and human development
Cultural Resources / Historic Properties	• Full range of archaeological sites (Paleo-Indian to recent past) and historic properties eligible for listing on the National Registry of Historic Places	• Tribal and SHPO consultation

Opportunities

Opportunities exist to provide flood prevention that will protect the watershed, restore habitat, improve water quality, and enhance recreational access. The Raleigh County Commission is willing to participate in the PL-566 Watershed Program, allowing NRCS to potentially implement a combination of practices that are designed to address resource concerns, involving participation from private and commercial landowners if the project were to move to the implementation phase.

State, Tribal, Federal Stakeholder Engagement

Notification letters have been sent out to the West Virginia State Historic Preservation Office, the Conservation Agency, the Catawba Indian Nation, Cherokee Nation, Easter Band of Cherokee Indians, the West Virginia Governor's Office, Secretary of the Interior, Secretary of the Army, United States Fish and Wildlife Service, and United States Army Corps of Engineers if the project is requested to move into the planning phase on April 19, 2023. There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.

Potential Alternatives

During the PIFR process, broad categories of measures were identified to meet the stated purpose and need for the proposed project and alternatives were formulated according to PR&G criteria of completeness, effectiveness, efficiency, and acceptability. While all the potential alternatives listed may not be carried forward for full analysis during the planning process, this table documents that there are reasonable alternatives available to analyze and develop. The WV planning team also recognizes that during the planning process the NRCS team and local sponsors are likely to determine that the best alternative for the watershed is a combination of both nonstructural and structural measures.

Alternatives	Possible Positive Impacts and Effects	Possible Adverse Impacts and Effects
Alt 1 - No work	- No new costs to taxpayers or sponsors - No new maintenance requirements	- No flood protection - No public works project(s) - Structures remain out of compliance - Hazard to public and infrastructure increases - Maintenance becomes more expensive
Alt 2-New Flood Control Dams-Installation of additional flood control dams in the watershed to increase flood protection	- Increased flood protection - Recreation opportunities - Water supply, rural, ag, municipal, & industrial - Aquatic habitat - Short term construction jobs - Increased federal investment into local infrastructure - Increased public safety - Possible power generation capabilities included - Ag water management	- Loss of private land through condemnation/easements - Loss of local tax base - Loss of farmland and/or terrestrial habitat - Loss of stream habitat - Aquatic organism passage barrier - Long term maintenance burden on sponsors - Potential relocations of homes, roads, & utilities - May require some local cost share funds
Alt 3-New Flood Control Channel-Channelization work in heavier populated area of the watershed to increase flood protection	- Increased flood protection in more urban areas - Short term construction jobs - Increased federal investment into local infrastructure - Reduce significant risk to loss of life - Provide maintenance easements alongside the constructed channel	- Loss of private land through condemnation/easements - Long term maintenance burden on sponsors - Potential relocations of utilities - May require some local cost share funds - Loss of stream habitat & riparian

	thus prohibiting future development in these areas and protecting existing urban wildlife habitat	areas - May only reduce flooding from higher frequency storms
Alt 4 - Stream Restoration	- Restoring stream and riparian habitat - Reduced long term maintenance cost - Short term construction jobs - Majority or all federal funds - Reduction in sediment and nutrients - Increased outdoor recreation - Relatively low cost - Improved water quality - Increase in fish and wildlife populations	- No flood protection - Requires a fenced and maintained riparian area for cattle exclusion - Possible loss of pasture due to fencing
Alt 5 - Land Treatment	- Restoring forests and ag land to their production potential - No long-term maintenance cost - Majority or all federal funds - Reduction in sediment and nutrients - Increased outdoor recreation - Relatively low cost - Improved water quality - Increase in fish and wildlife populations - Typically voluntary programs	- No flood protection - No public works project(s)
Alt 6 - Green Infrastructure/Low Impact Development	- Decreased flash flood events - Aquatic habitat uplift - Aesthetic improvements - Reduction in sediment and nutrients - Improved water quality - Extend life of flood control structures	- Funds needed for maintenance - Minor loss of land - Maintenance burden on landowners/sponsors - Increased cost of development

	- Permanent jobs maintaining structures - Possible retrofitting existing structures for hydro power generation	
Alt 7 - Land Treatment, Stream Restoration, Rehab, Repair, Channelization, Green Infrastructure, New Structures	- Combination of all of the above - Huge amount of federal money provided - Several years of construction jobs - Improved flood protection, water quality, recreation, & water supply - Improved productivity on ag and forest land	- Combination of all of the above - Large amount of cost share required from local sponsors - Maintenance cost and burden increases
Alt 8 – Flood Prevention or Reduce Flood Damage with Nonstructural Measures- including but not limited to floodproofing building/facilities within the flood zone, acquisition of floodplain lands for recreation/fish and wildlife habitat, moving buildings and facilities from the flood zone, conversion of land use to natural setting	- Elimination of threat to life and property - Floodplain converted to natural state - Increased wildlife habitat - Enhancing learning and recreation opportunities - Flood recovery costs significantly reduced	- Relocation of cemeteries and utilities - Loss of cultural values in the community - Displacement of local businesses, schools, and public facilities - Increased resistance to relocation and property condemnation

Potential Effects of Proposed Alternatives

Potential Effects of Proposed Alternatives on SWAPA + E + H Resources and Resources of Special Concern Use:

+ - Positive Impact - - Negative Impact 0 - No Impact (*-effects for Alt 2 unknown at this stage)

Resource Concerns: SWAPA + Energy + Human		
	Alt 1 – No Federal Action Description: The sponsor does not implement measures using federal funds	**Alt 2 – Federal Action:** Description: Combination of measures using federal funds
Soil	-	*
Water	-	*
Air	0	*
Plants	-	*
Animals	-	*
Energy	0	*
Human	-	*
Clean Air Act	0	*
Clean Water Act/Waters of the U.S.	0	*
Coastal Zone Management	0	0
Coral Reefs	0	0
Cultural Resources/Historic Properties	0	*
Endangered & Threatened Species	0	*
Environmental Justice	0	*
Essential Fish Habitat	0	0
Floodplain Management	0	*
Invasive Species	0	*
Migratory Birds/Bald and Golden Eagle Protection Act	0	*
Natural Areas	0	*

*- Effects for Alt 2 unknown at this time

Facilitating Factors

- The RCC is willing to work with NRCS and each other to see the project through completion.
- RCC has a county engineer in their staff to help facilitate a project with technical assistance.
- The watershed has been an area of interest for many years as flooding is prominent concern in the region.

Obstructing Factors

Maintenance of the existing watershed projects have been the responsibility of the conservation district and local governmental entities, with assistance from the WV Conservation Agency. Local funding is dependent on state appropriations and local government budgets.

Environmental Document

Potentially viable alternatives to resource problems will be further defined in the next phase of planning. Additional needs such as recreation, watershed protection, or ag water management, will be assessed in more detail if planning is authorized. At this point in the planning process, the interdisciplinary team has determined that the Environmental Document for the project may be an Environmental Assessment. However, it is acknowledged that an Environmental Impact Statement could be required if significant or controversial issues arise during further planning.

Sponsors

The RCC is ready, willing, and able to be sponsors for a potential watershed project in the Outlet of the Piney Creek Watershed. They meet the PL 83-566 sponsorship criteria for this potential watershed project. All sponsors who take an active role in project will complete the WS-4, PIFR Sponsor Declaration form. A summary of the sponsor responses will be included in this section. Completed WS-4 - PIFR Sponsor Declaration is included in Appendix B.

Sponsor Will:	Assist in Planning	Land Rights / Eminent Domain	Local Cost Share	O/M Funds	Permits	Land Treatment
Raleigh County Commission	Yes	Yes	Yes	Yes	Yes	Yes

Sponsor will:

- Assist in the locally led planning effort.
- Obtain needed land rights including the use of power of eminent domain, if necessary.
- Provide local cost-share funds and/or in-kind services to provide the required portion of total project costs.
- Provide funds for continuing operation and maintenance actions.
- Obtain required permits and approvals at sponsor cost:
- Provide leadership to help ensure adequate conservation land treatment measures are maintained on at least 50% of the watershed area above retention reservoirs.

Potential Cooperating Agencies

Agency	Contact Information	Type of Involvement
US Army Corps of Engineers	USACE – Huntington District Planning Division Regulatory 502 8th Street Huntington, WV 25701 (304) 399-5211	Regulatory [X]
		Informed [X]
		Prepare permits or letters of permission document [X]
		Provide input [X]
US Fish and Wildlife Services	USFWS 6263 Appalachian Highway Davis, WV 26260 501-513-4470 FW5_WVFO@fws.gov	Regulatory [X]
		Informed [X]
		Prepare permits or letters of permission document [X]
		Provide input [X]
West Virginia Department of Environment Protection (WVDEP)	WVDEP 601 57th Street SE Charleston, WV 25304 (304) 926-0499	Regulatory [X]
		Informed [X]
		Prepare permits or letters of permission document [X]
		Provide input [X]
USDA Farm Service Agency	USDA-FSA 1550 Earl Core Road Morgantown, WV 26505 (304) 284-4800	Regulatory [ ]
		Informed [X]
		Prepare permits or letters of permission document [ ]
		Provide input [ ]
West Virginia Historic Preservation Office (WVSHPO)	WVSHPO Capitol Complex 1900 Kanawha Boulevard, East Charleston, WV 25305-0300 (304) 558-0220	Regulatory [X]
		Informed [X]
		Prepare permits or letters of permission document [X]
		Provide input [X]

Potential Stakeholders

Stakeholder	Role	Resources	Contribution
Raleigh County Commission	Co-Sponsor	Cost-share funds	For Plan/EA attain permits and assists with Public Scoping Meetings, Mailings, and overall administration of the project.
Southern Conservation District	Co-sponsor	Cost-share funds	For Plan/EA attain permits and assists with Public Scoping Meetings, Mailings, and overall administration of the project.
USDA-NRCS	Lead Agency for Plan- EA, FA/TA, Reviews	Funding assistance, Technical Reviews	Reviews for project location, inventory needs, Plan-EA supplement
Army Corps of Engineers (USACE)	Section 404 permit, Section 10 permit, and section 408 review	Technical Reviews, Wetlands-Waters of the U.S. Jurisdiction	Permitting, technical review
Catawba Indian Nation- Chief Bill Harris	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Catawba Indian Nation- Tribal Historic Preservation Officer and Catawba Cultural Center Executive Director Dr. Wenonah G. Haire	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Catawba Indian Nation- Cultural Division Program Manager Caitlin Rogers	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Cherokee Nation- Tribal Historic Preservation Officer Elizabeth Toombs	Permit- Cultural Review	Review of Project APE	Permit for Project APE

Eastern Band of Cherokee Indians- Principal Chief Richard Sneed	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Eastern Band of Cherokee Indians- Tribal Historic Preservation Specialist Russell Townsend	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Absentee Shawnee Tribe- Tribal Governor John Raymond	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Absentee Shawnee- Cultural Preservation Director (NAGPRA) Carol Butler	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Eastern Shawnee Tribe of Oklahoma- Tribal Historic Preservation Officer/Director of Culture Preservation Programs/NAGPRA Lora Nuckolls	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Eastern Shawnee Tribe of Oklahoma- Chief Glenna Wallace	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Shawnee Tribe- Chief Benjamin Joseph Barnes	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Shawnee Tribe- Tribal Historic Preservation Officer Tonya Tipton	Permit- Cultural Review	Review of Project APE	Permit for Project APE
West Virginia Historic Preservation Office (WVSHPO)	Permit- Cultural Review	Review of Project APE	Permit for Project APE
WVDEP	Permits	Review for Permits	Review for Permits

Notifications

Entity/Agency	Method and Date Notified
Governor (WV)	Email and Letter sent April 19, 2023
US Fish and Wildlife Service	Email and Letter sent April 19, 2023
US Army Corps of Engineers	Email and Letter sent April 19, 2023
WV State Historic Preservation Office	Letter sent August 1, 2023
Catawba Indian Nation	Letter sent August 1, 2023
Cherokee Nation	Letter sent August 1, 2023
Eastern Band of Cherokee Indians	Letter sent August 1, 2023
Absentee Shawnee Tribe	Letter sent August 1, 2023
Eastern Band of Cherokee Indians	Letter sent August 1, 2023
Shawnee Tribe	Letter sent August 1, 2023

Estimated Project Implementation Timeline

Alternative X (assumes 1 rehab site) funding dependent, multiple sites could be worked concurrently

Planning Start*	October	2025
Planning End*	October	2028 (36 months typically)
Design Start*	December	2028
Design End*	December	2030 (24 months typically)
Construction Start*	March	2031
Construction End*	November	2034 (~42 months typically)

**Dependent on funding*

Recommendation

This preliminary investigation and feasibility report has been completed and submitted for approval to:

Jon Bourdon, West Virginia State Conservationist.

By:

Name: Hannah Thacker Title: Resource Conservationist - Watershed Planner Date: April 18, 2024

Organization: Natural Resources Conservation Service (NRCS)

It has been determined that this potential PL-566 watershed operations project:

Does	Does Not	
☒	☐	meet the statutory acreage, volume/capacity of structure and recreational limit requirements;
☒	☐	meet the requirements of one or more Watershed Operations authorized purposes;
☒	☐	have the potential for a minimum of 20% agricultural, or rural, benefits;
☒	☐	have one or more viable alternatives;
☒	☐	have potential project sponsor(s) that meet and agree to all terms of responsibilities;
☐	☒	have apparent insurmountable obstacles.

Preparers Signature: Signature: HANNAH THACKER Digitally signed by HANNAH THACKER Date: 2024.08.16 13:14:06 -04'00' Date: _____

State Watershed Operations Program Manager: Signature: CHRISTI HICKS Digitally signed by CHRISTI HICKS Date: 2024.08.16 15:05:50 -04'00' Date: _____

State Technical Lead (SRC, SCE, Other): Signature: LEWTON DEICHERT Digitally signed by LEWTON DEICHERT Date: 2024.08.19 06:50:05 -04'00' Date: _____

	Not Recommended for Planning Funding
X	Accepted and Recommended for Planning Funding

State Conservationist: Signature: JON BOURDON Digitally signed by JON BOURDON Date: 2024.08.19 07:43:21 -04'00' Date: _____

Appendix

- Appendix A: Sponsor Letter of Request
- Appendix B: WS-4 – PIFR Sponsor Declaration Forms
- Appendix C: Preliminary Environmental Evaluation (CPA 52)
- Appendix D: Supporting Information Appendix (T&E and Invasive Species)

Appendix A.

Sponsor Letter of Request

County Commission of Raleigh County

116 ½ North Heber Street
Beckley, West Virginia 25801-4522

January 17, 2023

State Conservationist
Jon Bourdon
Natural Resources Conservation Service
1550 Earl Core Road, Suite 200
Morgantown, WV 26505

Dear State Conservationist Bourdon:

We request NRCS Watershed Program planning assistance for a potential Public Law (PL) 83- 566 project in Raleigh County in the headwaters of the Piney Creek Watershed, hydrologic unit code HUC # 050500040102. The headwaters of the Piney Creek Watershed (Soak Creek Sub-Basin) has several resource concerns leading to poor water quality and negative impacts. We would like for the NRCS to determine the feasibility of in stream work and land treatment practices to implement in the watershed which would mitigate or resolve these impacts.

We look forward to working with NRCS staff to complete a Preliminary Investigation Feasibility Report (PIFR) to provide reasonable assurance that a potential watershed project can be developed that addresses a PL 83-566 purpose and that there are no apparent insurmountable obstacles to the completion of that project.

Please use the following contacts for Raleigh County Commission:

Mr. Detlef Ulfers
County Engineer
(304) 255-9326
detlef2006@raleighcounty.com

Jay Quesenberry
County Administrator
(304) 255-9146
jayq@raleighcounty.com

Sincerely,

David L. Tolliver
President
Raleigh County Commission

Appendix B.

WS-4 - PIFR Sponsor Declaration Form

Watershed Programs Standard Memorandum
Preliminary Investigation – Feasibility Report
Sponsor Authority and Role Declaration

Form Number: WS-4
Version 2021-03-04

State: WV County: Raleigh Watershed: Headwaters of the Piney Creek Watershed

Project Name: Headwaters of the Piney Creek Watershed

Sponsor's Name:	Raleigh County Commission		
Sponsor's Mailing Address:	116 1/2 North Heber Street, Beckley, WV 25801		
Contact Name:	Detlef Ulfers	**Phone:**	(304) 255-9326
Title:	County Engineer	**Email:**	detlef2006@raleighcounty.com
Sponsor Website:	www.raleighcounty.com		

Description of the existing condition in the watershed that would be addressed through a Watershed Flood Prevention Operations program project.

Whitestick Creek in the vicinity of Mabscott experiences significant flooding every year, and substantial property damage every few years. Mabscott's municipal footprint and original contruction (1904-1934) placed rail lines, bridges, buildings, etc. within the floodplain. Expansion of urban areas draining into Mabscott have intensified this flooding and sediment/debris within the stream banks. Maintenance of these waterways is a challenge for local goverments, particularly the town of Mabscott.

This flooding is a danger to the community: high potential for loss of life and a high potential for property damages.

Potential benefits of a Watershed Flood Prevention Operations program project.

The program would address the flooding dangers to the community, high potential for loss of life and property.

Watershed Programs Standard Memorandum
Preliminary Investigation – Feasibility Report
Sponsor Authority and Role Declaration

Form Number: WS-4
Version 2021-03-04

State: WV County: Raleigh Watershed: Headwaters of the Piney Creek Watershed

Project Name: Headwaters of the Piney Creek Watershed

SPONSOR WILL:

- Assist in the locally led planning effort: YES ☑ NO ☐
- Obtain needed land rights including the use of power of eminent domain, if necessary: YES ☑ NO ☐
- Provide local cost-share funds and/or in-kind services to provide the required portion of total project costs: YES ☑ NO ☐
- Provide Funds for continuing Operation and Maintenance actions: YES ☑ NO ☐
- Obtain required permits and approvals at Sponsor cost: YES ☑ NO ☐
- Provide leadership to help ensure adequate conservation land treatment measures are maintained on at least 50% of the watershed area above retention reservoirs: N/A ☑ YES ☐ NO ☐
- Before being credited with the value of any in-kind contribution for any in-kind services and/or acquisition of land rights, Sponsor will sign a Memorandum of Understanding (MOU) with NRCS: YES ☑ NO ☐

Authorized Representative of Sponsor

Name (printed): David L. Tolliver **Title:** President, Raleigh County Commission

Signature: David L. Tolliver **Date:** April 9, 2024

Appendix C.

Preliminary Environmental Evaluation (CPA 52)

U.S. Department of Agriculture | NRCS-CPA-52
Natural Resources Conservation Service | 11/2019

ENVIRONMENTAL EVALUATION WORKSHEET

A. Client Name: Raleigh County Commission

B. Conservation Plan ID # (as applicable): Headwaters Piney Creek
Program Authority (optional): PL-566

D. Client's Objective(s) (purpose):
The purpose of this project is to provide watershed protection and agricultural water management by reducing flood water damages, erosion and sedimentation loading in the Headwaters Piney Creek Watershed.

C. Identification # (farm, tract, field #, etc. as required):
Headwaters Piney Creek, Raleigh County, WV
12-digit HUC (050500040102, Headwaters Piney Creek)

E. Need for Action:
The baseline condition without federal investment is a situation of deteriorating infrastructure and potential loss of flood protection, incidental recreation, rural water supply , and other amenities associated with existing impoundments. Previously completed watershed projects are either past their service life or have been reclassified as high hazard dams.

No Action √ if RMS ☐	*Alternative 1* √ if RMS ☐	*Alternative 2* √ if RMS ☐
Southern Conservation District would continue to provide general maintenance on existing structures, consisting only of mowing and brush clearing. Structures would continue to deteriorate and flood protection would be compromised. Water supply would still be a concern for local residents. There would be no additional federal funds expended with this alternative	New Flood Control Dams- Installation of additional flood control dams in the watershed to increase flood protection. Focused funding for technical and financial assistance through the Watershed Protection and Flood Prevention Act would result in reduced sedimentation, improved water quality, protection of prime farmland, and reduce flooding in the Piney Creek Watershed.	New Flood Control Channel- Channelization work in more heavily populated areas of the watershed to increase flood protection. Focused funding for technical and financial assistance through the Watershed Protection and Flood Prevention Act would result in reduced sedimentation, improved water quality, protection of prime farmland, and reduce significant loss of life in the Piney Creek Watershed.

Resource Concerns

In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process. (See FOTG Section III - Resource Planning Criteria for guidance).

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	**I. Effects of Alternatives**					
	No Action		***Alternative 1***		***Alternative 2***	
	Amount, Status, Description *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
SOIL						
Sheet and rill erosion Sedimentation caused by erosion in the uplands of the watershed negatively impact Piney Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	Continued degradation of the resource without any federal action.	☐ NOT meet PC	Increased flood control and holding capacity would decrease sediment loading within streams and reduce flooding impacts on stream bank erosion due to reduced flows.	☐ NOT meet PC	Channelization would reduce streambank erosion and sedimentation by protecting adjacent streambanks.	☐ NOT meet PC
WATER						
Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Flooding is a threat to property, access to utilities, emergency services, transportation, agricultural land, and crops.	Residences, businesses, and agricultural lands would continue to endure periodic flooding as storm frequency and intensity trends continue.	☐ NOT meet PC	Increased flood protection provided by additional flood retention dams would reduce impacts of flooding within the watershed.	☐ NOT meet PC	Channelization would reduce the risk of flooding in more urban areas.	☐ NOT meet PC

Sediment transported to surface water Sedimentation caused by erosion in the uplands of the watershed negatively impact Piney Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events.	Resources would continue to be degredated. Frequent flooding will continues to scour streambanks, increasing sedimentation within streams and reducing channel capacity.	☐ NOT meet PC	Increased flood control and holding capacity would decrease sediment loading within streams and reduce flooding impacts on stream bank erosion due to reduced flows.	☐ NOT meet PC	Channelization would reduce streambank erosion and sedimentation by protecting adjacent streambanks.	☐ NOT meet PC
Nutrients transported to surface water Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources.	Continued degradation of the resource without any federal action.	☐ NOT meet PC	Increased flood protection provided by additional flood retention dams would reduce impacts of flooding within the watershed. The risk of flood waters entering homes, businesses, and livestock feeding operations causing debris and other nutrients transported down the watershed would be reduced.	☐ NOT meet PC	The creation of the channel would likely result in the need for flood plain easements on properties adjacent to the streams that may not have functioning septic systems, thus reducing the fecal coliform in the stream.	☐ NOT meet PC

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	**I. (continued)**					
	No Action		***Alternative 1***		***Alternative 2***	
	Amount, Status, Description *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
AIR						
No resource concern identified Air quality is not a resource concern within the watershed	Air quality would not be impacted with no action.	☐ NOT meet PC	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	☐ NOT meet PC	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	☐ NOT meet PC
PLANTS						
Plant structure and composition The watershed provides for both agricultural crops as well as naturally vegetated areas that provide wildlife habitat. There is a lack of plant species diversity, specifically along streams in riparian areas, and a presence of invasive species.	Agricultural crops and wildlife habitat would continue to be impacted by flooding.	☐ NOT meet PC	Agricultural crops and wildlife habitat would be enhanced from a reduction in flooding and decrease in sedimentation.	☐ NOT meet PC	Agricultural crops and wildlife habitat would be enhanced from a reduction in flooding and decrease in sedimentation.	☐ NOT meet PC
ANIMALS						
Terrestrial habitat for wildlife and invertebrates Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 10 threatened, endangered, or candidate species found in the watershed.	Wildlife will continue to be temporarily displaced during flood events. Changing vegetation along stream banks due to flood damage will continue to support invasive species over native, thus reducing the quality of wildlife habitat, food and shelter.	☐ NOT meet PC	Displacement of wildlife due to excessive flooding within the watershed would likely decrease. Habitat that supports this wildlife would be less likely to be disturbed and thus reduce the spread of invasive species. Terrestrial habitat would be disturbed in the short term due to construction.	☐ NOT meet PC	Channelization could result in a loss of riparian areas in some locations, but provide wildlife habitat in more urban areas through the removal of structures along the stream and future protection of the areas through conservation easements.	☐ NOT meet PC

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat.	Continued degradation of the resources with continued sedimentation in the stream negatively impacting aquatic invertebrate habitat.	☐ NOT meet PC	Aquatic habitat would be improved downstream of structures due to reduced sedimentation. Dams could pose a threat to aquatic habitat by restricting passage, depending on location in the watershed.	☐ NOT meet PC	Potential to negatively impact stream structure and habitat for aquatic species. Riparian areas could be decrease in some areas but enhanced in others though the removal of structures along stream and future protection of the areas through conservation easements.	☐ NOT meet PC
ENERGY						
No resource concern identified This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state.	No effect	☐ NOT meet PC	Hydroelectric power generation could be included as an element in the design of the structures to provide clean energy to the region.	☐ NOT meet PC	No effect	☐ NOT meet PC
Human Economic and Social Considerations						
Public Health and Safety Damaging floods occur on an annual basis with increasing severity over the past few decades. Flooding impacts residents' access to emergency services, results in loss of land, and creates unsanitary conditions in effected residences and businesses.	Agricultural landowners, residents, local businesses, transportation systems, and emergency services will continued to be negatively affected by continued flooding.		Installation of additional structures would increase flood protection of the counties' residences and business. It would also provide the opportunity for rural water supply, recreation opportunities, and a short term creation of jobs during construction.		Channelization would increase flood protection in more urban areas, create short term jobs during construction, and reduce significant risk to loss of life, however it may only reduce flooding from higher frequency storm events.	

Special Environmental Concerns: Environmental Laws, Executive Orders, policies, etc.

In Section "G" complete and attach Environmental Procedures Guide Sheets for documentation as applicable. Items with a "•" may require a federal permit or consultation/coordination between the lead agency and another government agency. In these cases, effects may need to be determined in consultation with another agency. Planning and practice implementation may proceed for practices not involved in consultation.

G. Special Environmental Concerns (Document existing/ benchmark conditions)	**J. Impacts to Special Environmental Concerns**					
	No Action		***Alternative 1***		***Alternative 2***	
	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action
•Clean Air Act *Guide Sheet* The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.	No Effect	☐	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐
•Clean Water Act / Waters of the U.S. *Guide Sheet* Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered as waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.	No Effect	☐	May Affect Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may also be required.	☐	May Affect Installation of any structures within the stream that will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may also be required.	☐

●Coastal Zone Management *Guide Sheet* There are no costal zones present in or near the watershed.	No Effect	☐	No Effect	☐	No Effect	☐
Coral Reefs *Guide Sheet* There are no coral reefs present in or near the watershed.	No Effect	☐	No Effect	☐	No Effect	☐
●Cultural Resources / Historic Properties *Guide Sheet* There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	No Effect	☐	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐
●Endangered and Threatened Species *Guide Sheet* There is a total of 10 Federally listed threatened, endangered, or candidate species potentially found in this watershed listed by the US Fish and Wildlife Service (USFWS). According to West Virginia Department of Natural Resources (WVDNR), WV is a permanent home to 22 federally endangered species (17 animals, 4 plants) and 7 federally threatened species (5 animals, 2 plants). WVDNR's State Wildlife Action Plan (SWAP) recognizes 22 Conservation Focus Areas (CFA) throughout the state that includes Species of Greatest Conservation Need (SGCN). See Appendix E for a complete USFWS IPaC Species list, WVDNR state listings, map of WV CFAs, and a list of SGCN for this watershed.	No action may have the potential to negatively impact federally listed aquatic species through continued sedimentation and habitat destruction.	☐	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐
Environmental Justice *Guide Sheet* Raleigh County is completely within the Appalachian Region. This county is not designated as a limited-resource county by USDA. However, it is designated as 'at risk' by the Appalachian Regional Commission, indicating that local economies is not strong. Raleigh County is predominately white with 88.6% of the population designated as such. Slightly over 8% are black. The poverty rate is 21.8%, which is much higher compared to 11.6% nationally and 16.8% for WV.	No Effect	☐	No Effect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.	☐	No Effect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.	☐

●Essential Fish Habitat *Guide Sheet* This area is not designated as Essential Fish Habitat.	No Effect	☐	No Effect	☐	No Effect	☐
Floodplain Management *Guide Sheet* Raleigh county has a major risk of flooding over the next few decades.	No Effect Continued risk of flooding.	☐	May Affect This alternative will result in the protection of the floodplain due to decreased flooding impacts.	☐	May Affect This alternative will result in the protection of the floodplain due to decreased flooding impacts	☐
Invasive Species *Guide Sheet* Invasive species are found in the watershed.	No Effect Continued expansion on invasive species.	☐	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐
●Migratory Birds/Bald and Golden Eagle Protection Act *Guide Sheet* Migratory birds and eagles utilize the Piney Creek Watershed habitats. There is a total of 15 federally listed birds in the area. The birds listed are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location.	No Effect	☐	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐
Natural Areas *Guide Sheet* Federal: New River Gorge National Park covers portions of the watershed. State: Little Beaver State Park is located adjacent to the watershed.	No Effect	☐	No Effect	☐	No Effect	☐
Prime and Unique Farmlands *Guide Sheet* Presently there are 1,865 acres of Prime Farmland, which accounts for 7% of land in the study area. Additionally, there are 3,833 acres of Farmland of Local Importance and 7,697 acres of Farmland of Statewide Importance. There are no farmland protection boards actively conserving land in the watershed.	No Effect Continued potential threat to loss of prime farm land from streambank erosion.	☐	No Effect Alternative would provide protection of prime farmland through the reduction of streambank erosion.	☐	No Effect Alternative would provide protection of prime farmland through the reduction of streambank erosion.	☐
Riparian Area *Guide Sheet* There are riparian areas present in or near the project area. Riparian areas found in this region are generally characterized as vegetated and un-vegetated. These areas are often utilized for agricultural purposes.	No Effect Continued degradation of riparian land as streambanks erode and invasive species dominate regrowth.	☐	May Affect There are riparian areas present in or near the project area and may have the potential to be impacted.	☐	May Affect There are riparian areas present in or near the project area and may have the potential to be impacted.	☐
Scenic Beauty *Guide Sheet* The New River Gorge is a unique area of scenic beauty that lies partially within the adjacent Little White Stick Watershed. Other areas of the watershed are typical of the Appalachian Plateau physiographic province.	No Effect	☐	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.	☐	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.	☐

●Wetlands *Guide Sheet* There are 508.64 acres of wetlands within the Piney Creek Watershed which consist of the following: 4 acres of Freshwater Emergent Wetlands; 34 acres of Freshwater Forested/Shrub Wetlands; 74 acres of Freshwater Pond; and 3,252 acres of Riverine.	No Effect	☐	No Effect Action is not likely to negatively impact any wetlands in the watershed.	☐	No Effect Action is not likely to negatively impact any wetlands in the watershed.	☐	
●Wild and Scenic Rivers *Guide Sheet* All trout streams in Raleigh County are designated as "Waters of Special Concern." The New River is designated as a National River (National Parks and Recreation Act of 1978 as amended). In accordance with the WV Natural Stream Preservation Act (WVNSPA) the New River from its confluence with the Greenbrier River to the confluence with the Gauley River is protected from activities that would impound, divert, or flood the body of water.	No Effect	☐	No Effect	☐	No Effect	☐	
K. Other Agencies and Broad Public Concerns	***No Action***		***Alternative 1***		***Alternative 2***		
Easements, Permissions, Public Review, or Permits Required and Agencies Consulted.	None		Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation may also be required.		New Flood Control Channel-Channelization work in more heavily populated areas of the watershed to increase flood protection.		
Cumulative Effects Narrative (Describe the cumulative impacts considered, including past, present and known future actions regardless of who performed the actions)	Absent the proper and increased application of conservation practices, cumulative effects will likely lead to continued environmental degradation.		Installation of new flood control dams would increase flood protection for the community, provide recreational opportunities, and potentially supply water and energy. There would be increase burden on local sponsors for maintenance and cost share would be required from the sponsor.		Channelization of streams would increase flood protection for the more urban sections of the community. There would be increase burden on local sponsors for maintenance and cost share would be required from the sponsor.		
L. Mitigation (Record actions to avoid, minimize, and compensate)	None		Mitigation would likely be required for the length of streams impacted by construction of new impoundments. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.		Mitigation could be required for the length of streams impacted by the channel. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.		
M. Preferred Alternative	√ preferred alternative	☐		☐		☐	
	Supporting reason		Installation of additional flood control dams in the watershed to increase flood protection.		Installation of flood control channel in more heavily populated areas in the watershed to increase flood protection.		
N. Context (Record context of alternatives analysis)		local		local		local	
The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.							

U.S. Department of Agriculture — NRCS-CPA-52
Natural Resources Conservation Service — 11/2019

ENVIRONMENTAL EVALUATION WORKSHEET

A. Client Name: Raleigh County Commission

B. Conservation Plan ID # (as applicable): Headwaters Piney Creek
Program Authority (optional): PL-566

D. Client's Objective(s) (purpose):
The purpose of this project is to provide watershed protection and agricultural water management by reducing flood water damages, erosion and sedimentation loading in the Headwaters Piney Creek Watershed.

C. Identification # (farm, tract, field #, etc. as required):
Headwaters Piney Creek, Raleigh County, WV
12-digit HUC (050500040102, Headwaters Piney Creek)

E. Need for Action:
The baseline condition without federal investment is a situation of deteriorating infrastructure and potential loss of flood protection, incidental recreation, rural water supply , and other amenities associated with existing impoundments. Previously completed watershed projects are either past their service life or have been reclassified as high hazard dams.

H. Alternatives

Alternative 3 √ if RMS ☐	*Alternative 4* √ if RMS ☐	*Alternative 5* √ if RMS ☐
Natural Stream Restoration would restore the stream and riparian habitat to its natural function. Watershed Protection and Flood Prevention Act funding in conjunction with traditional Farm Bill programs, such as EQIP or NWQI, would focus technical and financial assistance to install practices typically associated with natural stream restoration.	Land Treatment- Conservation practice installation across all landuses to prevent soil loss, improve wildlife habitat, and improve water quality. Watershed Protection and Flood Prevention Act funding in conjunction with traditional Farm Bill programs, such as EQIP or NWQI, would focus technical and financial assistance to install practices typical for the region.	Green Infrastructure/Low Impact Development- Adaptation of practices such as wetland management/creation, rain gardens, pervious concrete, and tree plantings to assist the watershed in its capacity to handle flood waters. Technical and/or financial assistance could be available through Conservation Technical Assistance (CTA), traditional Farm Bill programs such as EQIP and NWQI, and local sponsors.

Resource Concerns

In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process. (See FOTG Section III - Resource Planning Criteria for guidance).

I. Effects of Alternatives

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	*Alternative 3* — **Amount, Status, Description** *(Document both short and long term impacts)*	√ if does NOT meet PC	*Alternative 4* — **Amount, Status, Description** *(Document both short and long term impacts)*	√ if does NOT meet PC	*Alternative 5* — **Amount, Status, Description** *(Document both short and long term impacts)*	√ if does NOT meet PC
SOIL						
Sheet and rill erosion Sedimentation caused by erosion in the uplands of the watershed negatively impact Piney Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further flood damages.	No effect to upland erosion. Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks.	☐ NOT meet PC	Forest stand improvement, prescribed grazing and associated practices, cover crop, reduced tillage, and other related land treatment practices typical for the region would decrease sheet and rill erosion on upland slopes and decrease sedimentation in the stream.	☐ NOT meet PC	Reduction in soil erosion from reduced velocities of water conveyance during high rain events.	☐ NOT meet PC
WATER						
Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Flooding is a threat to property, access to utilities, emergency services, transportation, agricultural land, and crops.	Natural stream restoration could increase the channel's capacity to hold flood waters.	☐ NOT meet PC	Proper management of upland slopes would reduce erosion and sedimentation in the stream. sedimentation. This would allow the stream to maintain its capacity and thus reduce flooding impacts.	☐ NOT meet PC	Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural functions of wetlands and installation of rain gardens. The infrastructure would reduce damages caused by flash flood events.	☐ NOT meet PC

Sediment transported to surface water Sedimentation caused by erosion in the uplands of the watershed negatively impact Piney Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events.	There would be a reduction in sediments entering the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities.	☐ NOT meet PC	There would be a reduction in sediments in the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities.	☐ NOT meet PC	Reduction in sediment entering the watershed due to reduced velocities of water conveyance during high rain events.	☐ NOT meet PC
Nutrients transported to surface water Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources.	There would be a reduction of nutrients in surface water with the exclusion of livestock from the stream in conjunction with natural stream and riparian area restoration.	☐ NOT meet PC	There would be a reduction of nutrients in surface water with the installation of conservation practices such as Nutrient Management, Prescribed Grazing, and Access Control.	☐ NOT meet PC	Enhancements and installation of wetlands and other green infrastructure can reduce nutrients transported to surface water within the local watershed	☐ NOT meet PC
F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	**I. (continued)**					
	Alternative 3		***Alternative 4***		***Alternative 5***	
	Amount, Status, Description *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
AIR						
No resource concern identified Air quality is not a resource concern within the watershed	No effect	☐ NOT meet PC	Localized odors and particulate matter concerns could be addressed through conservation practices such as Waste Storage Facilities or Windbreaks/Shelterbelts.	☐ NOT meet PC	No effect	☐ NOT meet PC
PLANTS						
Plant structure and composition The watershed provides for both agricultural crops as well as naturally vegetated areas that provide wildlife habitat. There is a lack of plant species diversity, specifically along streams in riparian areas, and a presence of invasive species.	Improved riparian areas will provide more naturally occurring plant species. Fencing streams and restoration of riparian areas could result in a loss of pasture or crop land.	☐ NOT meet PC	Plant structure and composition would benefit from properly managed grazing (Prescribed Grazing and associated practices) as well as through implementation of Forest Stand Improvement in the watershed.	☐ NOT meet PC	Plant structure and composition would be improved through the installation of green infrastructure- wetlands, rain gardens, tree plantings, etc.	☐ NOT meet PC
ANIMALS						
Terrestrial habitat for wildlife and invertebrates Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 10 threatened, endangered, or candidate species found in the watershed.	Terrestrial habitat would be improved through the creation of riparian areas.	☐ NOT meet PC	Terrestrial wildlife habitat would be improved through proper livestock grazing in pastures, invasive species control across all landuses, and implementation of forest stand improvement in woodlands.	☐ NOT meet PC	Terrestrial habitat would be improved through the installation of green infrastructure- wetlands, rain gardens, tree plantings, etc.	☐ NOT meet PC

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat.	Aquatic habitat would be improved by installing practices return the streambed to a more natural value and function.	☐ NOT meet PC	Aquatic habitat would be improved by the reduction in sedimentation of the stream caused by upland soil erosion through the installation of conservation practices typical of the region.	☐ NOT meet PC	Aquatic habitat would be improved by the reduction and sedimentation of stream caused by high velocities of water during storm events. Aquatic habitat would also benefit from enhancement and installation of wetlands.	☐ NOT meet PC
ENERGY						
No resource concern identified This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state.	No effect	☐ NOT meet PC	No effect	☐ NOT meet PC	Existing structures could be retrofitted for hydroelectricity production.	☐ NOT meet PC
Human Economic and Social Considerations						
Public Health and Safety Damaging floods occur on an annual basis with increasing severity over the past few decades. Flooding impacts residents' access to emergency services, results in loss of land, and creates unsanitary conditions in effected residences and businesses.	While this alternative does not provide substantial, additional protection from flooding and risk of loss of life, it would create opportunities for increased outdoor recreation that is associated with healthy streams. Implementation of this alternative would likely reduce erosion, sedimentation, and flooding of roads and bridges, resulting in increased safety for the public and reduction in maintenance activates. There would also be less disruptions to regular traffic, as well as emergency vehicles.		While this alternative does not provide substantial, additional protection from flooding and risk of loss of life, it would create opportunities for increased outdoor recreation that is associated with healthy streams. Implementation of this alternative would likely reduce erosion, sedimentation, and flooding of roads and bridges, resulting in increased safety for the public and reduction in maintenance activates. There would also be less disruptions to regular traffic, as well as emergency vehicles.		This alternative would provide a reduction of damages from flash flooding events resulting in loss of life and transportation disruptions.	

Special Environmental Concerns: Environmental Laws, Executive Orders, policies, etc.

In Section "G" complete and attach Environmental Procedures Guide Sheets for documentation as applicable. Items with a "●" may require a federal permit or consultation/coordination between the lead agency and another government agency. In these cases, effects may need to be determined in consultation with another agency. Planning and practice implementation may proceed for practices not involved in consultation.

G. Special Environmental Concerns (Document existing/ benchmark conditions)	**J. Impacts to Special Environmental Concerns**					
	Alternative 3		***Alternative 4***		***Alternative 5***	
	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action
●Clean Air Act *Guide Sheet* The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐	No Effect Land treatment practices are not likely to negatively effect air quality.	☐	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐
●Clean Water Act / Waters of the U.S. *Guide Sheet* Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered as waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.	May Affect Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may also be required.	☐	No Effect Land treatment practices are not likely to negatively effect Waters of the US.	☐	May Affect Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins.	☐

●Coastal Zone Management *Guide Sheet* There are no costal zones present in or near the watershed.	No Effect			No Effect			No Effect		
Coral Reefs *Guide Sheet* There are no coral reefs present in or near the watershed.	No Effect			No Effect			No Effect		
●Cultural Resources / Historic Properties *Guide Sheet* There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.			May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.			May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.		
●Endangered and Threatened Species *Guide Sheet* There is a total of 10 Federally listed threatened, endangered, or candidate species potentially found in this watershed listed by the US Fish and Wildlife Service (USFWS). According to West Virginia Department of Natural Resources (WVDNR), WV is a permanent home to 22 federally endangered species (17 animals, 4 plants) and 7 federally threatened species (5 animals, 2 plants). WVDNR's State Wildlife Action Plan (SWAP) recognizes 22 Conservation Focus Areas (CFA) throughout the state that includes Species of Greatest Conservation Need (SGCN). See Appendix E for a complete USFWS IPaC Species list, WVDNR state listings, map of WV CFAs, and a list of SGCN for this watershed.	May Affect This alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.			May Affect This alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Conservation practices will be evaluated on a plan by plan basis through the Interagency Coordinator Tool and all required avoidance strategies will be followed.			May Affect This alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.		
Environmental Justice *Guide Sheet* Raleigh County is completely within the Appalachian Region. This county is not designated as a limited-resource county by USDA. However, it is designated as 'at risk' by the Appalachian Regional Commission, indicating that local economies is not strong. Raleigh County is predominately white with 88.6% of the population designated as such. Slightly over 8% are black. The poverty rate is 21.8%, which is much higher compared to 11.6% nationally and 16.8% for WV.	May Affect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.			May Affect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.					

●Essential Fish Habitat *Guide Sheet* This area is not designated as Essential Fish Habitat.	No Effect			No Effect			No Effect	
Floodplain Management *Guide Sheet* Raleigh county has a major risk of flooding over the next few decades.	May Affect Floodplain management would be a consideration during the design process of natural stream restoration and would likely be benefited.			No Effect Land treatment practices are not likely to negatively effect flood plains. Annual flooding would likely be reduced to the decreased sedimentation of the stream.			No Effect Annual flooding would likely be reduced to the decreased sedimentation of the stream and increase water holding capacities in wetlands and rain gardens.	
Invasive Species *Guide Sheet* Invasive species are found in the watershed.	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.			May Affect Invasive species occur within the watershed and would be controlled through scheduled land treatment activates on privately owned or operated lands.			May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	
●Migratory Birds/Bald and Golden Eagle Protection Act *Guide Sheet* Migratory birds and eagles utilize the Piney Creek Watershed habitats. There is a total of 15 federally listed birds in the area. The birds listed are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location.	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.			No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.			No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	
Natural Areas *Guide Sheet* Federal: New River Gorge National Park covers portions of the adjoining watershed. State: Little Beaver State Park is located adjacent to the watershed.	No Effect			No Effect			No Effect	
Prime and Unique Farmlands *Guide Sheet* Presently there are 1,865 acres of Prime Farmland, which accounts for 7% of land in the study area. Additionally, there are 3,833 acres of Farmland of Local Importance and 7,697 acres of Farmland of Statewide Importance. There are no farmland protection boards actively conserving land in the watershed.	No Effect Conversion of prime and unique farmlands is not anticipated with this alternative.			No Effect Conversion of prime and unique farmlands is not anticipated with this alternative.			No Effect Conservation of prime and unique farmlands is not anticipated with this alternative.	
Riparian Area *Guide Sheet* There are riparian areas present in or near the project area. Riparian areas found in this region are generally characterized as vegetated and un-vegetated. These areas are often utilized for agricultural purposes.	May Affect Riparian areas will be enhanced as part of this alternative.			May Affect Riparian areas will be enhanced as part of this alternative.			May Affect Riparian areas will be enhanced as part of this alternative.	
Scenic Beauty *Guide Sheet* The New River Gorge is a unique area of scenic beauty that lies partially within the adjoining Little White Stick Watershed. Other areas of the watershed are typical of the Appalachian Plateau physiographic province.	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.			No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.			No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.	

●Wetlands *Guide Sheet* There are 508.64 acres of wetlands within the Piney Creek Watershed which consist of the following: 4 acres of Freshwater Emergent Wetlands; 34 acres of Freshwater Forested/Shrub Wetlands; 74 acres of Freshwater Pond; and 3,252 acres of Riverine.	No Effect Action is not likely to negatively impact any wetlands in the watershed.	☐	No Effect Action is not likely to negatively affect any wetlands in the watershed.	☐	May Affect Action is likely to have a positive impact on wetlands.	☐
●Wild and Scenic Rivers *Guide Sheet* All trout streams in Raleigh County are designated as "Waters of Special Concern." The New River is designated as a National River (National Parks and Recreation Act of 1978 as amended). In accordance with the WV Natural Stream Preservation Act (WVNSPA) the New River from its confluence with the Greenbrier River to the confluence with the Gauley River is protected from activities that would impound, divert, or flood the body of water.	No Effect	☐	No Effect	☐	No Effect	☐

K. Other Agencies and Broad Public Concerns	***Alternative 3***	***Alternative 4***	***Alternative 5***
Easements, Permissions, Public Review, or Permits Required and Agencies Consulted.	Implementation of natural stream restoration structures must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins.	No easements or permits are likely to be needed. Installation of all land treatment practices will comply with all applicable local, state, and federal laws. Any required permits will be obtained prior to construction.	Implementation of all infrastructure must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins.
Cumulative Effects Narrative (Describe the cumulative impacts considered, including past, present and known future actions regardless of who performed the actions)	Natural stream restoration would benefit the overall health of the stream and provide additional outdoor recreational opportunities. When applied through out the watershed, the cumulative effects would reduce the impacts of flooding.	Income stability for landowners and farmers in the area, water quality improvements, and improvements to overall environmental health when practices are applied within the same region on many farms. The implementation would cumulatively reduce the impacts of flooding.	Green Infrastructure would benefit the over health of the stream and reduce impacts of flash flooding.
L. Mitigation (Record actions to avoid, minimize, and compensate)	None	None	None
M. Preferred Alternative √ preferred alternative	☐	☐	☐
Supporting reason	Natural stream restoration would benefit the overall heath of the stream.	Implementation of conservation practices to prevent upland erosion causing sediment loading of the water ways.	Reduced impacts of flash flooding and improvement of stream health.
N. Context (Record context of alternatives analysis)	local	local	local

The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.

U.S. Department of Agriculture | NRCS-CPA-52
Natural Resources Conservation Service | 11/2019

ENVIRONMENTAL EVALUATION WORKSHEET

A. Client Name: Raleigh County Commission

B. Conservation Plan ID # (as applicable): Headwaters Piney Creek
Program Authority (optional): PL-566

D. Client's Objective(s) (purpose):
The purpose of this project is to provide watershed protection and agricultural water management by reducing flood water damages, erosion and sedimentation loading in the Headwaters Piney Creek Watershed.

C. Identification # (farm, tract, field #, etc. as required):
Headwaters Piney Creek, Raleigh County, WV
12-digit HUC (050500040102, Headwaters Piney Creek)

E. Need for Action:
The baseline condition without federal investment is a situation of deteriorating infrastructure and potential loss of flood protection, incidental recreation, rural water supply , and other amenities associated with existing impoundments. Previously completed watershed projects are either past their service life or have been reclassified as high hazard dams.

H. Alternatives

Alternative 6 √ if RMS ☐	*Alternative 7* √ if RMS ☐	√ if RMS ☐
Combination of all alternatives- Land Treatment, Stream Restoration, Rehab, Repair, Channelization, Green Infrastructure, and New Structures. Strategic installation of a combination of all practices and structures evaluated in other alternatives could more fully address concerns associated with flooding, erosion and sedimentation, water quality, recreation, and water supply. Technical and financial assistance would be focused in the area through the Watershed Protection and Flood Prevention Act as well as traditional Farm Bill programs such as CTA, EQIP and NWQI, along with funding and in kind services provided by local sponsors	Floodplain buyout, flood proofing affected homes, or relocation of homes- Address repetitve flood damage to properties by removing homes from the floodplain or add flood proofing measures. Homes removed from the floodplain would address resource concerns associated with flooding, erosion and sedimentation, water quality, recreation, and water supply. Homes removed would be replaced with conservation practices to reestablish natural habitat. Technical and financial assistance would be focused in the area through the Watershed Protection and Flood Prevention Act as well as traditional Farm Bill programs. Flood proofing would occur outside of agency assistance.	

Resource Concerns

In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process. (See FOTG Section III - Resource Planning Criteria for guidance).

I. Effects of Alternatives

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	*Alternative 6* **Amount, Status, Description** *(Document both short and long term impacts)*	√ if does NOT meet PC	**Amount, Status, Description** *(Document both short and long term impacts)*	√ if does NOT meet PC	**Amount, Status, Description** *(Document both short and long term impacts)*	√ if does NOT meet PC
SOIL						
Sheet and rill erosion Sedimentation caused by erosion in the uplands of the watershed negatively impact Piney Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways.	☐ NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce sediment loads in waterways.	☐ NOT meet PC		☐ NOT meet PC
WATER						
Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Flooding is a threat to property, access to utilities, emergency services, transportation, agricultural land, and crops.	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sedimentation of streams to allow more capacity during flood events and allow for more water retention and controlled flow from flood control dams and rain gardens/wetlands.	☐ NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce sedimentation of streams to allow more capacity during flood events and allow for more water retention and controlled flow from flood control dams and rain gardens/wetlands.	☐ NOT meet PC		☐ NOT meet PC

Sediment transported to surface water Sedimentation caused by erosion in the uplands of the watershed negatively impact Piney Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events.	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sediment loads in waterways.	☐ NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce sediment loads in waterways.	☐ NOT meet PC		☐ NOT meet PC
Nutrients transported to surface water Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources.	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure nutrient transportation to waterways	☐ NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce nutrient transportation to waterways.	☐ NOT meet PC		☐ NOT meet PC

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	**I. (continued)**					
	Alternative 6					
	Amount, Status, Description *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
AIR						
No resource concern identified Air quality is not a resource concern within the watershed.	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	☐ NOT meet PC	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	☐ NOT meet PC		☐ NOT meet PC
PLANTS						
Plant structure and composition The watershed provides for both agricultural crops as well as naturally vegetated areas that provide wildlife habitat. There is a lack of plant species diversity, specifically along streams in riparian areas, and a presence of invasive species.	Plant structure and composition would be improved on cropland and pasture land, riparian areas would be restored to natural, native vegetation, hydrophytic vegetation would benefit from wetland restoration and green infrastructure.	☐ NOT meet PC	Plant structure and composition would be improved on cropland and pasture land, riparian areas would be restored to natural, native vegetation, hydrophytic vegetation would benefit from wetland restoration and green infrastructure.	☐ NOT meet PC		☐ NOT meet PC
ANIMALS						
Terrestrial habitat for wildlife and invertebrates Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 10 threatened, endangered, or candidate species found in the watershed.	Terrestrial habitat would be improved through the implementation of wildlife oriented land treatment practices, riparian areas created as part of natural stream restoration and green infrastructure, and creation/enhancement of wetlands. Displacement of wildlife and destruction of habitat due to flooding would be significantly reduced.	☐ NOT meet PC	Terrestrial habitat would be improved through the implementation of wildlife oriented land treatment practices, riparian areas created as part of natural stream restoration and green infrastructure, and creation/enhancement of wetlands. Displacement of wildlife and destruction of habitat due to flooding would be significantly reduced.	☐ NOT meet PC		☐ NOT meet PC

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat.	The effects of sedimentation on aquatic wildlife would be significantly controlled with a strategic implementation of all alternatives previously evaluated.	☐ NOT meet PC	The effects of sedimentation on aquatic wildlife would be significantly controlled with a strategic installation of flood control structures on homes and land treatment practices on bought	☐ NOT meet PC		☐ NOT meet PC
ENERGY						
No resource concern identified This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state.	Hydroelectric power generation could be included as an element in the design of the structures to provide clean energy to the region.	☐ NOT meet PC	Applicants that would choose to participate in a floodplain buyout would decrease energy use in the area.	☐ NOT meet PC		☐ NOT meet PC
Human Economic and Social Considerations						
Public Health and Safety Damaging floods occur on an annual basis with increasing severity over the past few decades. Flooding impacts residents' access to emergency services, results in loss of land, and creates unsanitary conditions in effected residences and businesses.	Strategic planning and installation of all previously evaluated alternatives would increase flood protection of the counties' residences and business. It would also provide the opportunity for rural water supply, recreation opportunities, and a short term creation of jobs during construction. Over all watershed and stream health would be improved.		Installation of flood control structures on homes and land treatment practices on bought out lots would increase flood protection of the counties' residences and business. It would also provide recreation opportunities and a short term creation of jobs during construction. Over all watershed and stream health would be improved.			

Special Environmental Concerns: Environmental Laws, Executive Orders, policies, etc.

In Section "G" complete and attach Environmental Procedures Guide Sheets for documentation as applicable. Items with a "●" may require a federal permit or consultation/coordination between the lead agency and another government agency. In these cases, effects may need to be determined in consultation with another agency. Planning and practice implementation may proceed for practices not involved in consultation.

G. Special Environmental Concerns (Document existing/ benchmark conditions)	**J. Impacts to Special Environmental Concerns**					
	Alternative 6					
	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action
●Clean Air Act *Guide Sheet* The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐		☐
●Clean Water Act / Waters of the U.S. *Guide Sheet* Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered as waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.	May Affect Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may also be required.	☐	May Affect Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may also be required.	☐		☐

●Coastal Zone Management *Guide Sheet* There are no costal zones present in or near the watershed.	No Effect	☐	No Effect	☐		☐
Coral Reefs *Guide Sheet* There are no coral reefs present in or near the watershed.	No Effect	☐	No Effect	☐		☐
●Cultural Resources / Historic Properties *Guide Sheet* There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐		☐
●Endangered and Threatened Species *Guide Sheet* There is a total of 10 Federally listed threatened, endangered, or candidate species potentially found in this watershed listed by the US Fish and Wildlife Service (USFWS). According to West Virginia Department of Natural Resources (WVDNR), WV is a permanent home to 22 federally endangered species (17 animals, 4 plants) and 7 federally threatened species (5 animals, 2 plants). WVDNR's State Wildlife Action Plan (SWAP) recognizes 22 Conservation Focus Areas (CFA) throughout the state that includes Species of Greatest Conservation Need (SGCN). See Appendix E for a complete USFWS IPaC Species list, WVDNR state listings, map of WV CFAs, and a list of SGCN for this watershed.	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐		☐
Environmental Justice *Guide Sheet* Raleigh County is completely within the Appalachian Region. This county is not designated as a limited-resource county by USDA. However, it is designated as 'at risk' by the Appalachian Regional Commission, indicating that local economies is not strong. Raleigh County is predominately white with 88.6% of the population designated as such. Slightly over 8% are black. The poverty rate is 21.8%, which is much higher compared to 11.6% nationally and 16.8% for WV.	No Effect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.	☐	No Effect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.	☐		☐

●Essential Fish Habitat *Guide Sheet* This area is not designated as Essential Fish Habitat.	No Effect	☐	No Effect	☐		☐
Floodplain Management *Guide Sheet* Raleigh county has a major risk of flooding over the next few decades.	May Affect This alternative will result in the protection of floodplains due to the decreased impacts of flooding.	☐	May Affect This alternative will result in the protection of floodplains due to the decreased impacts of flooding.	☐		☐
Invasive Species *Guide Sheet* Invasive species are found in the watershed.	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐		☐
●Migratory Birds/Bald and Golden Eagle Protection Act *Guide Sheet* Migratory birds and eagles utilize the Piney Creek Watershed habitats. There is a total of 15 federally listed birds in the area. The birds listed are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location.	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐		☐
Natural Areas *Guide Sheet* Federal: New River Gorge National Park covers portions of the watershed. State: Little Beaver State Park is located adjacent to the watershed.	No Effect	☐	No Effect	☐		☐
Prime and Unique Farmlands *Guide Sheet* Presently there are 1,865 acres of Prime Farmland, which accounts for 7% of land in the study area. Additionally, there are 3,833 acres of Farmland of Local Importance and 7,697 acres of Farmland of Statewide Importance. There are no farmland protection boards actively conserving land in the watershed.	No Effect Alternative would provide protection of prime farmland through the reduction of streambank erosion, sheet and rill erosion, and sedimentation of streams.	☐	No Effect Alternative would provide protection of prime farmland through the reduction of streambank erosion, sheet and rill erosion, and sedimentation of streams.	☐		☐
Riparian Area *Guide Sheet* There are riparian areas present in or near the project area. Riparian areas found in this region are generally characterized as vegetated and un-vegetated. These areas are often utilized for agricultural purposes.	May Affect Riparian areas would be enhanced through the installation of natural stream restoration, land treatment programs, and green infrastructure.	☐	May Affect Riparian areas would be enhanced through the installation of natural stream restoration, land treatment programs, and green infrastructure.	☐		☐
Scenic Beauty *Guide Sheet* The New River Gorge is a unique area of scenic beauty that lies partially within the adjoining Little White Stick Watershed. Other areas of the watershed are typical of the Appalachian Plateau physiographic province.	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.	☐	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.	☐		☐

●Wetlands *Guide Sheet* There are 508.64 acres of wetlands within the Piney Creek Watershed which consist of the following: 4 acres of Freshwater Emergent Wetlands; 34 acres of Freshwater Forested/Shrub Wetlands; 74 acres of Freshwater Pond; and 3,252 acres of Riverine.	May Affect Alternative would enhance the values and functions of wetlands and surrounding ecosystems.	☐	May Affect Alternative would enhance the values and functions of wetlands and surrounding ecosystems.	☐	☐
●Wild and Scenic Rivers *Guide Sheet* All trout streams in Raleigh County are designated as "Waters of Special Concern." The New River is designated as a National River (National Parks and Recreation Act of 1978 as amended). In accordance with the WV Natural Stream Preservation Act (WVNSPA) the New River from its confluence with the Greenbrier River to the confluence with the Gauley River is protected from activities that would impound, divert, or flood the body of water.	No Effect	☑	No Effect	☐	☐

K. Other Agencies and Broad Public Concerns	***Alternative 6***	***Alternative 7***	
Easements, Permissions, Public Review, or Permits Required and Agencies Consulted.	Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation may also be required.	Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation may also be required.	
Cumulative Effects Narrative (Describe the cumulative impacts considered, including past, present and known future actions regardless of who performed the actions)	Strategic installation of all previously evaluated alternatives across the watershed will improve the areas overall resilience to flooding and improve quality of life for the ecosystems and the residents.	Strategic installation of flood control structures on homes and land treatment practices on bought out lots across the watershed will improve the areas overall resilience to flooding and improve quality of life for the ecosystems and the	
L. Mitigation (Record actions to avoid, minimize, and compensate)	Mitigation would likely be required for the length of streams impacted. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.	Mitigation would likely be required for the length of streams impacted. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.	
M. Preferred Alternative √ preferred alternative	☐	☐	☐
Supporting reason	Installation of various flood control and land treatment practices will provide a holistic approach to flood resiliency.	Installation of various flood control and land treatment practices will provide a holistic approach to flood resiliency.	

N. Context (Record context of alternatives analysis)	local	local	
The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.			

O. To the best of my knowledge, the data shown on this form is accurate and complete:

In the case where a non-NRCS person (e.g. a TSP) assists with planning they are to sign the first signature block and then NRCS is to sign the second block to verify the information's accuracy.

Signature (TSP if applicable)	Title	Date
JULIE STUTLER Digitally signed by JULIE STUTLER Date: 2022.10.11 14:36:04 -04'00'	Outreach Coordinator Level 3 Certified Planner	10/11/2022
Signature (NRCS)	**Title**	**Date**

If preferred alternative is not a federal action where NRCS has control or responsibility and this NRCS-CPA-52 is shared with someone other than the client then indicate to whom this is being provided.

The following sections are to be completed by the Responsible Federal Official (RFO)

NRCS is the RFO if the action is subject to NRCS control and responsibility (e.g., actions financed, funded, assisted, conducted, regulated, or approved by NRCS). These actions do not include situations in which NRCS is only providing technical assistance because NRCS cannot control what the client ultimately does with that assistance and situations where NRCS is making a technical determination (such as Farm Bill HEL or wetland determinations) not associated with the planning process.

P. Determination of Significance or Extraordinary Circumstances

To answer the questions below, consider the severity (intensity) of impacts in the contexts identified above. Impacts may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

If you answer ANY of the below questions "yes" then contact the State Environmental Liaison as there may be extraordinary circumstances and significance issues to consider and a site specific NEPA analysis may be required.

Yes	No	
☐	☒	• Is the preferred alternative expected to cause significant effects on public health or safety?
☐	☒	• Is the preferred alternative expected to significantly affect unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?
☐	☒	• Are the effects of the preferred alternative on the quality of the human environment likely to be highly controversial?
☐	☒	• Does the preferred alternative have highly uncertain effects or involve unique or unknown risks on the human environment?
☐	☒	• Does the preferred alternative establish a precedent for future actions with significant impacts or represent a decision in principle about a future consideration?
☐	☒	• Is the preferred alternative known or reasonably expected to have potentially significant environment impacts to the quality of the human environment either individually or cumulatively over time?
☒	☐	• Will the preferred alternative likely have a significant adverse effect on ANY of the special environmental concerns? Use the Evaluation Procedure Guide Sheets to assist in this determination. This includes, but is not limited to, concerns such as cultural or historical resources, endangered and threatened species, environmental justice, wetlands, floodplains, coastal zones, coral reefs, essential fish habitat, wild and scenic rivers, clean air, riparian areas, natural areas, and invasive species.
☐	☒	• Will the preferred alternative threaten a violation of Federal, State, or local law or requirements for the protection of the environment?

Q. NEPA Compliance Finding (check one) The preferred alternative:		Action required
☐	1) is **not a federal action** where the agency has control or responsibility.	Document in "R.1" below. No additional analysis is required
☐	2) is a federal action **ALL** of which is **categorically excluded** from further environmental analysis **AND** there are **no extraordinary circumstances as identified in Section "P".**	Document in "R.2" below. No additional analysis is required
☐	3) is a federal action that has been **sufficiently analyzed** in an existing Agency state, regional, or national NEPA document **and** there are no predicted significant adverse environmental effects or extraordinary circumstances.	Document in "R.1" below. No additional analysis is required.
☐	4) is a federal action that has been sufficiently analyzed in another Federal agency's NEPA document (EA or EIS) that addresses the proposed NRCS action and its' effects **and has been formally adopted by NRCS**. NRCS is required to prepare and publish its own Finding of No Significant Impact for an EA or Record of Decision for an EIS when adopting another agency's EA or EIS document. (**Note: This box is not applicable to FSA)**	Contact the State Environmental Liaison for list of NEPA documents formally adopted and available for tiering. Document in "R.1" below. No additional analysis is required
☒	5) is a federal action that has **NOT** been sufficiently analyzed or may involve predicted significant adverse environmental effects or extraordinary circumstances and may require an EA or EIS.	Contact the State Environmental Liaison. Further NEPA analysis required.

R. Rationale Supporting the Finding	
R.1 Findings Documentation	At this point in the planning process, the interdisciplinary team has determined that the Environmental Document for the project may be an Environmental Assessment. However, it is acknowledged that an Environmental Impact Statement could be required if significant or controversial issues arise during further planning.
R.2 Applicable Categorical Exclusion(s) **(more than one may apply)** 7 CFR Part 650 *Compliance With NEPA* , subpart 650.6 *Categorical Exclusions* states prior to determining that a proposed action is categorically excluded under paragraph (d) of this section, the proposed action must meet six sideboard criteria. See NECH 610.116.	

I have considered the effects of the alternatives on the Resource Concerns, Economic and Social Considerations, Special Environmental Concerns, and Extraordinary Circumstances as defined by Agency regulation and policy and based on that made the finding indicated above.

S. Signature of Responsible Federal Official:

JON BOURDON Digitally signed by JON BOURDON
Date: 2024.08.19 14:30:10 -04'00'

Signature	Title	Date

Additional notes

Appendix D.

Supporting Information Appendix (T&E and Invasive Species)

Endangered species

Listed species

and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries
).
Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

Additional information on endangered species data is provided below.

The following species are potentially affected by activities in this location:

Species Guidelines
Thumbnails List

Mammals

- NAME
  STATUS
- Gray BatMyotis grisescens
  Wherever found
  Endangered
- Indiana Bat CH Myotis sodalis
  Wherever found
  Endangered
- Northern Long-eared BatMyotis septentrionalis
  Wherever found
  Endangered
- Tricolored BatPerimyotis subflavus
  Wherever found
  Proposed Endangered

Clams

- NAME
  STATUS
- Green Floater CH Lasmigona subviridis

  Wherever found
  Proposed Threatened
- Northern RiffleshellEpioblasma rangiana

  Wherever found
  Endangered
- Spectaclecase (mussel)Cumberlandia monodonta

  Wherever found
  Endangered

Insects

- NAME
  STATUS
- Monarch ButterflyDanaus plexippus

  Wherever found
  Candidate

Crustaceans

- NAME
  STATUS
- Guyandotte River Crayfish CH Cambarus veteranus

  Wherever found
  Endangered

Flowering Plants

- NAME
  STATUS

- Virginia SpiraeaSpiraea virginiana

  Wherever found
  Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Federally Threatened and Endangered Species in West Virginia

Federally Endangered Species		Critical Habitat	Year Listed
Indiana bat	*Myotis sodalis*	Y	1967
gray bat (accidental)	*Myotis grisescens*		1976
Pink mucket pearlymussel	*Lampsilis abrupta*		1976
Virginia big-eared bat	*Corynorhinus townsendii virginianus*	Y	1979
running buffalo clover *	*Trifolium stoloniferum*		1987
harperella	*Ptilimnium nodosum*		1988
shale barren rockcress	*Arabis serotina*		1989
fanshell	*Cyprogenia stegaria*		1990
purple cat's paw pearlymussel	*Epioblasma obliquata obliquata*		1990
northeastern bulrush *	*Scirpus ancistrochaetus*		1991
northern rifffleshell	*Epioblasma torulosa rangiana*		1993
clubshell	*Pleurobema clava*		1993
James spinymussel	*Pleurobema collina*		1998
snuffbox	*Epioblasma triquetra*		2012
rayed bean	*Villosa fabalis*		2012
spectaclecase	*Cumberlandia monodonta*		2012
sheepnose	*Plethobasus cyphyus*		2012
Diamond Darter	*Crystallaria cincotta*	Y	2013
Guyandotte River crayfish	*Cambarus veteranus*	proposed	2016
rusty patched bumble bee	*Bombus affinis*		2017
Candy Darter	*Etheostoma osburni*	proposed	2018
tubercled-blossom pearly mussel	*Epioblasma torulosa torulosa*	extirpated	

Federally Threatened Species		Critical Habitat	4(d) rule	Year Listed
flat-spired three-toothed land snail	*Triodopsis platysayoides*			1978
Madison Cave isopod	*Antrolana lira*	Y		1982
small whorled pogonia	*Isotria medeoloides*			1982
Cheat Mountain salamander	*Plethodon nettingi*			1989
Virginia spiraea	*Spiraea virginiana*			1990
northern long-eared bat	*Myotis septentrionalis*		Y	2015
Big Sandy crayfish	*Cambarus callainus*	proposed		2016
eastern black rail (accidental)	*Laterallus jamaicensis jamaicensis*		Y	2020

Species Propopsed for Listing		Critical Habitat	Status	Year Listed
round hickorynut	*Obovaria subrotunda*	Y	Thr.	2020
longsolid	*Fusconaia subrotunda*	Y	Thr.	2020

* Proposed for delisting

Revised: 30 September 2020

Invasive species examples:

- **Garlic mustard, Japanese honeysuckle** and **kudzu**- invaders of moist forest edges, even those without disturbance.
- **Purple loosestrife**- an incredibly invasive exotic now blanketing emergent wetlands along the Ohio River, and increasing along other major rivers throughout the state. In some cases it replaces native vegetation, threatens rare plant species, and destroys small wetlands.
- **Mile-a-minute**- a spiny vine found climbing 10-20 feet into trees, often smothering native shrubs and shading out herbaceous plants along the Ohio River and rivers in the Eastern Panhandle.

Garlic mustard

Spotted knapweed

- **Japanese knotweed and sachaline knotweed**- two stout, perennial clonal herbs that can out-compete all other vegetation in certain areas.
- **Spotted knapweed, barren brome and tree of heaven-** invaders of shale barrens, limestone glades and barrens, and native grassland communities.

What can you do?

- Become aware of the differences between native and non-native plants and the potential for invasive species to damage native ecosystems. The following items are available from the WVDNR:
  - ❖*Checklist of the Vascular Flora of West Virginia*, a checklist of the native and naturalized vascular plants of the state.
  - ❖*Native Shrubs in Wildlife Landscaping*, a series of information sheets about the use of 50 native shrubs in wildlife planting, produced by the West Virginia Native Plant Society and the West Virginia Wildlife Diversity program.
  - ❖A list of companies within the mid-Atlantic region from which alternative native stock can be purchased.
- Evaluate in advance the wisdom of introducing non-native plants into our state.
- Minimize habitat disturbance in natural areas, reducing the chance for invasion by non-native aggressive plants.
- In extreme cases, consider the eradication of highly problematic non-native invasive plant species, but carefully consider the potential consequences on the entire ecosystem and the likelihood of success. In less severe cases, try to minimize the impact of the invasive plant on the natural area.
- Help educate individuals of the seriousness of the problem and explore the use of native plant species in the management of public lands.
- If you find an unfamiliar plant and it appears to be spreading, have it identified by your local extension agent. If it is a potential invader, members of the WV Invasive Species Working Group will conduct an assessment and make recommendations.

Who is helping?

- The ***West Virginia Invasive Species Working Group***, an inclusive statewide group whose mission is to facilitate communication and collaboration for the prevention or reduction of the negative impacts of invasive species.
- The ***West Virginia Native Plant Society*** encourages nurserymen to cultivate plants native to West Virginia that could be used in conservation and ornamental projects throughout the state as alternatives to non-native invasive plant species.
- The ***West Virginia Garden Club, Inc.***, the West Virginia Native Plant Society and the WV Division of Natural Resources jointly produced this brochure.
- The ***West Virginia Native Plant Society*** and the ***West Virginia Natural Heritage Program*** have developed informative presentations about invasive plants. Please contact the DNR Elkins office *(below)* to arrange a presentation.
- Several organizations sponsor workshops on identifying problematic plant species.

West Virginia Division of Natural Resources
in cooperation with:
West Virginia Garden Clubs, Inc.
West Virginia Native Plant Society

Cover photos: Background image of Japanese knotweed by Jil M. Swearingen, USDI National Park Service, www.forestryimages.org and Purple loosestrife (inset) by Linda Haugen, USDA Forest Service, www.forestryimages.org

Wildlife Diversity Program

Wildlife Resources
West Virginia Division of Natural Resources

P.O. Box 67
Elkins, WV 26241
(304) 637-0245
Fax: (304) 637-0250

10M 4/06

WVDNR WILDLIFE RESOURCES SECTION

Invasive Plants of West Virginia

www.wvdnr.gov

Kudzu

What are non-native invasive plants?

People have been moving Earth's plants from place to place for centuries. Many of the exotic plants we have introduced to our landscape by intention or accident have been beneficial to us and have had no unfortunate ecological impacts on natural communities. But a small percentage have spread from where they first became established, and have become serious threats to wetlands, shale barrens, prairies, glades and other rare ecosystems.

Invasive plants often get started in areas disturbed by such human activities as road and trail building, timbering, mining, and other activities that remove native vegetation, disturb the soil, or dramatically change the amount of sunlight or moisture that reaches the land. From such situations, a relatively small number of invasive species have moved into natural areas. These species have reproduced rapidly, forming stands that exclude nearly all other plant species. In the worst cases, they radically altered ecosystem processes and natural areas, and displaced native species.

Concerned citizens have long been sounding alarms about the effects of pollution and misuse of land on our native plant and animal communities.

Recently, increasing concern has been expressed that non-native plant species are invading and changing natural areas. These aggressive "weeds" are non-native invasive plants, sometimes referred to as exotic pest plants.

We value Natural Areas!

Natural areas are generally areas of limited development where naturally occurring, functioning ecosystems are supporting the greatest amount of natural biological diversity the nonliving resources (soil, sunlight, minerals, etc.) of that area can support.

- Healthy natural areas have seemingly endless interrelationships among the living and non-living parts of their ecosystems. Life thrives in such areas!
- Natural areas often support rare, threatened and endangered species of plants, animals, and fungi. The natural communities themselves are often rare enough or of such quality that society recognizes the value of conserving them.

Loosestrife infestation.

- Natural areas are valuable parts of the global landscape from which future generations can continue to learn about ecological processes. Areas such as Cranberry Glades, Cranesville Swamp, shale barrens, limestone glades and riverine marshes are a few West Virginia examples.

Non-native invasive plant species, in numerous examples around the world, have reduced available habitat for native species and/or eliminated associated native species altogether. This process has the potential to significantly reduce natural biological diversity.

How do they differ from native species?

Generally, the native plant species of West Virginia are those that were part of plant communities when North America was first settled by Europeans. Change in plant communities is a natural part of life. As Dr. John Randall (The Nature Conservancy) and Janet Marinelli (Brooklyn Botanic Garden), point out in their handbook, *Invasive Plants: Weeds of the Global Garden*:

"New species move in as the climate changes and as soils build up and become richer, or erode and become less fertile.

In the normal course of events, the arrival of new species may be the result of a single catastrophic event like a hurricane, or of gradual change over thousands of years. Humans have vastly accelerated the movement of plants, carrying thousands of species that could not have crossed natural barriers like oceans, mountain ranges and deserts, to new areas.

Stilt grass overtaking an interior mud-flat wetland at Ohio River Island.

Mile-a-minute

Species that have flourished and spread on their own, only after people transported them across barriers they could not otherwise surmount, are considered non-natives. In many areas these plants have overwhelmed the native plants and animals."

What challenges are there in controlling invasive plants?

The number of non-native invasive plant species in West Virginia is rising

Approximately 600 species, nearly 25% of vascular plants found in West Virginia outside of cultivation, are non-native. Each year, ecologists become more aware of the number of invasive plant species within the state and the threats they pose to natural communities.

Native stock plants are available

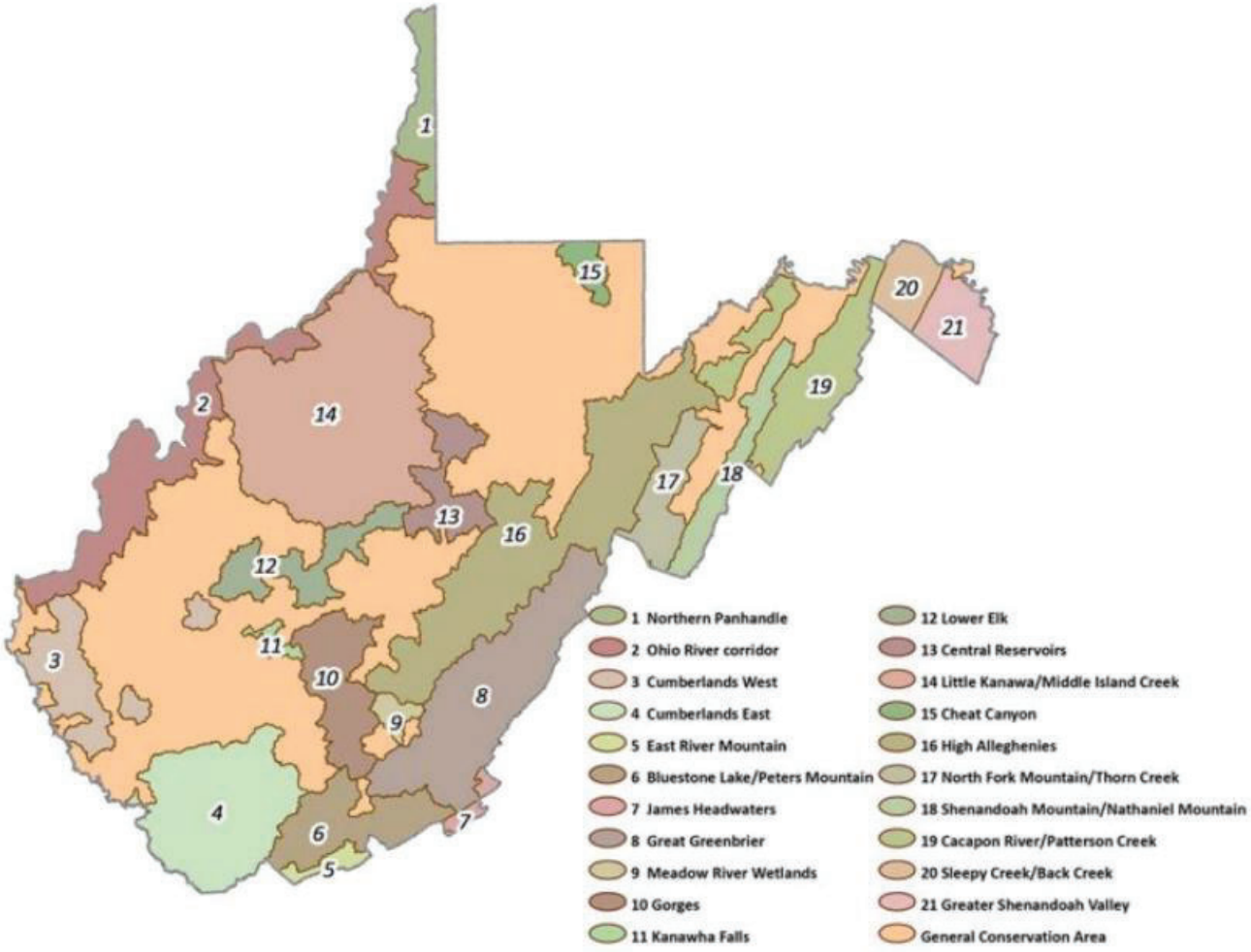
Many agencies and private landowners are using native alternatives for conservation purposes, and many West Virginia nurseries sell varieties derived from local communities to be sold as alternatives to exotic species.

Joe-Pye weed, a valuable native

[InvasivePlants.indd (wvdnr.gov)]

[listed species cheat sheet.xlsx (wvdnr.gov)]

WVDNR Conservation Focus Areas



[WV DNR Conservation Focus Areas]

Species of Greatest Conservation Need Found In Piney Creek Watershed

Common Name	Scientific Name	Name Category	G Rank	S Rank
A Hahniid Spider	*Calymmaria persica*	Invertebrate Animal	GNR	SH
Allegheny Mountain Dusky Salamander	*Desmognathus ochrophaeus*	Vertebrate Animal	G5	S4
Bald Eagle	*Haliaeetus leucocephalus*	Vertebrate Animal	G5	S3BS3N
Black-bellied Salamander	*Desmognathus quadramaculatus*	Vertebrate Animal	G5	S3
Black-billed Cuckoo	*Coccyzus erythropthalmus*	Vertebrate Animal	G5	S2B
Chimney Swift	*Chaetura pelagica*	Vertebrate Animal	G4G5	S3B
Cumberland Plateau Salamander	*Plethodon kentucki*	Vertebrate Animal	G4	S3
Diana Fritillary	*Speyeria diana*	Invertebrate Animal	G2	S2
Early Hairstreak	*Erora laeta*	Invertebrate Animal	G2G3	S2
Eastern Box Turtle	*Terrapene carolina carolina*	Vertebrate Animal	G5T5	S5
Eastern Meadowlark	*Sturnella magna*	Vertebrate Animal	G5	S3BS2N
Eastern Whip-poor-will	*Antrostomus vociferus*	Vertebrate Animal	G5	S3B
Field Sparrow	*Spizella pusilla*	Vertebrate Animal	G5	S3BS3N
Fowler's Toad	*Anaxyrus fowleri*	Vertebrate Animal	G5	S5
Grasshopper Sparrow	*Ammodramus savannarum*	Vertebrate Animal	G5	S3B
Green Salamander	*Aneides aeneus*	Vertebrate Animal	G3G4	S3
Horned Lark	*Eremophila alpestris*	Vertebrate Animal	G5	S2BS2N
Jefferson Salamander	*Ambystoma jeffersonianum*	Vertebrate Animal	G4	S2
Large-seed Forget-me-not	*Myosotis macrosperma*	Vascular Plant	G5	S3
Lovely Vallonia	*Vallonia pulchella*	Invertebrate Animal	G5	S3
Northern Black Racer	*Coluber constrictor constrictor*	Vertebrate Animal	G5T5	S5
Northern Dusky Salamander	*Desmognathus fuscus*	Vertebrate Animal	G5	S5
Northern Ring-neck Snake	*Diadophis punctatus edwardsii*	Vertebrate Animal	G5T5	S5
Northern Slimy Salamander	*Plethodon glutinosus*	Vertebrate Animal	G5	S5
Northern Spring Salamander	*Gyrinophilus porphyriticus porphyriticus*	Vertebrate Animal	G5T5	S5
Queen Snake	*Regina septemvittata*	Vertebrate Animal	G5	S4
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Vertebrate Animal	G5	S3BS3N
Reflexed Flatsedge	*Cyperus refractus*	Vascular Plant	G5	S2S3
Rock Skullcap	*Scutellaria saxatilis*	Vascular Plant	G3G4	S2
Rough Greensnake	*Opheodrys aestivus*	Vertebrate Animal	G5	S2
Sable Clubtail	*Gomphus rogersi*	Invertebrate Animal	G4	S1
Sculptured Dome	*Ventridens collisella*	Invertebrate Animal	G4	S3
Seal Salamander	*Desmognathus monticola*	Vertebrate Animal	G5	S5
Shining Willow	*Salix lucida ssp. lucida*	Vascular Plant	G5T5	S1
Smooth Greensnake	*Opheodrys vernalis*	Vertebrate Animal	G5	S5
Smooth Hedge-nettle	*Stachys tenuifolia*	Vascular Plant	G5	S3
Summer Sedge	*Carex aestivalis*	Vascular Plant	G4	S3S4
Tennessee Pondweed	*Potamogeton tennesseensis*	Vascular Plant	G2G3	S2
Thinleaf Mountainmint	*Pycnanthemum montanum*	Vascular Plant	G3G5	SH
Two-flower Melicgrass	*Melica mutica*	Vascular Plant	G5	S2
Virginia Mallow	*Sida hermaphrodita*	Vascular Plant	G3	S3
White-m Hairstreak	*Parrhasius m-album*	Invertebrate Animal	G5	S3
Winged-loosestrife	*Lythrum alatum var. alatum*	Vascular Plant	G5T5	S2
Wood Thrush	*Hylocichla mustelina*	Vertebrate Animal	G4	S3B

Definitions for interpreting NatureServe's global (range-wide) conservation status ranks can be found at the following: Statuses | NatureServe Explorer

Nonindigenous Aquatic Species

Specimen ID	Date Reported	Species	New Area
1680066	11/30/2021	monoecious hydrilla *Hydrilla verticillata* (monoecious)	County: Raleigh (WV) Drainage: Lower New (05050004)

Invasive Species

Animals:

Common Name	Scientific Name
pig (feral), wild boar at large	*Sus scrofa (feral type)*
wandering broadhead planarian	*Bipalium adventitium*

Diseases:

Common Name	Scientific Name
butternut canker	*Ophiognomonia clavigignenti-juglandacearum*
chestnut blight or canker	*Cryphonectria parasitica*
cucurbit downy mildew	*Pseudoperonospora cubensis*
dogwood anthracnose	*Discula destructive*
oak wilt	*Bretziella fagacearum*
rose rosette disease (RRD)	*Emaravirus RRD*
white pine blister rust	*Cronartium ribicola*

Insects:

Common Name	Scientific Name
brown marmorated stink bug	*Halyomorpha halys*
common pine shoot beetle, larger pine shoot beetle	*Tomicus piniperda*
emerald ash borer	*Agrilus planipennis*
hemlock woolly adelgid	*Adelges tsugae*
Japanese beetle	*Popillia japonica*
multicolored Asian lady beetle	*Harmonia axyridis*
southern pine beetle	*Dendroctonus frontalis*
spongy moth (formerly gypsy moth)	*Lymantria dispar*

Plants:

Common Name	Scientific Name
alfalfa	*Medicago sativa*
alfalfa	*Medicago sativa ssp. sativa*
alsike clover	*Trifolium hybridum*
American burnweed	*Erechtites hieraciifolius*
Amur honeysuckle	*Lonicera maackii*
annual bluegrass	*Poa annua*
annual sowthistle	*Sonchus oleraceus*
apple-of-Peru	*Nicandra physalodes*
Asiatic dayflower	*Commelina communis*

Common Name	Scientific Name
asparagus	*Asparagus officinalis*
autumn olive	*Elaeagnus umbellate*
bald brome	*Bromus racemosus*
barnyardgrass	*Echinochloa crus-galli*
big chickweed	*Cerastium fontanum ssp. vulgare*
bigroot morning-glory	*Ipomoea pandurata*
birdsfoot trefoil	*Lotus corniculatus*
birdsrape mustard	*Brassica rapa*
bittersweet nightshade	*Solanum dulcamara*
bittersweets	*Celastrus spp.*
black knapweed	*Centaurea nigra*
black locust	*Robinia pseudoacacia*
black medic	*Medicago lupulina*
black mustard	*Brassica nigra*
bouncingbet	*Saponaria officinalis*
bristlegrass	*Setaria spp.*
broadleaf dock	*Rumex obtusifolius*
broomsedge bluestem	*Andropogon virginicus*
brown knapweed	*Centaurea jacea*
buckhorn plantain	*Plantago lanceolata*
buckwheat	*Fagopyrum esculentum*
bull thistle	*Cirsium vulgare*
bush honeysuckles (exotic)	*Lonicera spp.*
butterflybush	*Buddleja davidii*
Callery pear (Bradford pear)	*Pyrus calleryana*
Canada bluegrass	*Poa compressa*
Canada thistle	*Cirsium arvense*
Canadian horseweed	*Erigeron canadensis*
chicory	*Cichorium intybus*
Chinese yam	*Dioscorea polystachya*
colonial bentgrass	*Agrostis capillaris*
coltsfoot	*Tussilago farfara*
common burdock, lesser burdock	*Arctium minus*
common chickweed	*Stellaria media*
common chickweed	*Stellaria pallida*
common cornsalad	*Valerianella locusta*
common crupina	*Crupina vulgaris*
common dandelion	*Taraxacum officinale ssp. officinale*
common mallow	*Malva neglecta*
common mouse-ear chickweed	*Cerastium fontanum*
common mullein	*Verbascum Thapsus*
common periwinkle	*Vinca minor*
common pokeweed	*Phytolacca americana*
common purslane	*Portulaca oleracea*
common selfheal	*Prunella vulgaris*

Common Name	Scientific Name
common speedwell	*Veronica officinalis*
common St. Johnswort	*Hypericum perforatum*
common teasel	*Dipsacus fullonum*
common velvetgrass	*Holcus lanatus*
common vetch	*Vicia sativa*
common viper's bugloss, blueweed	*Echium vulgare*
corn chamomile	*Anthemis arvensis*
corn cockle	*Agrostemma githago*
corn gromwell	*Buglossoides arvensis*
corn speedwell	*Veronica arvensis*
crack willow	*Salix fragilis*
creeping bentgrass	*Agrostis stolonifera*
creeping buttercup	*Ranunculus repens*
creeping yellow loosestrife, creeping Jenny	*Lysimachia nummularia*
curly dock	*Rumex crispus*
curly dock	*Rumex crispus ssp. crispus*
cutleaf evening-primrose	*Oenothera laciniata*
cutleaf teasel	*Dipsacus laciniatus*
dandelion	*Taraxacum officinale*
Deptford pink	*Dianthus armeria*
dog rose	*Rosa canina*
dotted smartweed	*Persicaria punctata*
eastern poison-ivy	*Toxicodendron radicans*
eastern redcedar	*Juniperus virginiana*
eastern white pine	*Pinus strobus*
elecampane	*Inula helenium*
English ivy	*Hedera helix*
European privet	*Ligustrum vulgare*
everlasting peavine	*Lathyrus latifolius*
field horsetail	*Equisetum arvense*
field pennycress	*Thlaspi arvense*
field pepperweed	*Lepidium campestre*
field thistle	*Cirsium discolor*
foxglove	*Digitalis purpurea*
fragrant waterlily	*Nymphaea odorata*
garden vetch	*Vicia sativa ssp. nigra*
garlic mustard	*Alliaria petiolate*
germander speedwell	*Veronica chamaedrys*
giant chickweed	*Myosoton aquaticum*
giant ragweed	*Ambrosia trifida*
goosegrass	*Eleusine indica*
greater celandine	*Chelidonium majus*
green bristlegrass	*Setaria viridis var. viridis*
green foxtail	*Setaria viridis*
ground ivy	*Glechoma hederacea*

Common Name	Scientific Name
hairy cat's ear	*Hypochaeris radicata*
hairy galinsoga	*Galinsoga quadriradiata*
hairy vetch	*Vicia villosa*
hedge bindweed	*Calystegia sepium*
hedge mustard	*Sisymbrium officinale*
hemp dogbane	*Apocynum cannabinum*
henbit	*Lamium amplexicaule*
hop clover	*Trifolium aureum*
horsenettle	*Solanum carolinense*
houndstongue	*Cynoglossum officinale*
ivyleaf morning-glory	*Ipomoea hederacea*
Japanese barberry	*Berberis thunbergia*
Japanese honeysuckle	*Lonicera japonica*
Japanese knotweed	*Reynoutria japonica*
Japanese stiltgrass	*Microstegium vimineum*
jimsonweed	*Datura stramonium*
johnsongrass	*Sorghum halepense*
Kentucky bluegrass	*Poa pratensis*
kudzu	*Pueraria montana var. lobata*
ladysthumb	*Persicaria maculosa*
lambsquarters	*Chenopodium album*
large crabgrass	*Digitaria sanguinalis*
large hop clover	*Trifolium campestre*
lesser swinecress	*Coronopus didymus*
little starwort	*Stellaria graminea*
Lombardy poplar	*Populus nigra*
longleaf groundcherry	*Physalis longifolia*
longstalk cranesbill	*Geranium columbinum*
marsh dayflower	*Murdannia keisak*
marsh-pepper smartweed	*Persicaria hydropiper*
meadow fescue	*Festuca pratensis*
meadow hawkweed	*Hieracium caespitosum*
Mexican fireweed	*Bassia scoparia*
mexicantea	*Dysphania ambrosioides*
mile-a-minute vine, Asiatic tearthumb	*Persicaria perfoliata*
mimosa	*Albizia julibrissin*
Morrow's honeysuckle	*Lonicera morrowii*
moth mullein	*Verbascum blattaria*
motherwort	*Leonurus cardiaca*
mouse-eared hawkweed	*Pilosella officinarum*
multiflora rose	*Rosa multiflora*
narrow-leaved cattail	*Typha angustifolia*
narrowleaf bittercress	*Cardamine impatiens*
nipplewort	*Lapsana communis*
northern white cedar	*Thuja occidentalis*

Common Name	Scientific Name
orchardgrass	*Dactylis glomerata*
oriental bittersweet	*Celastrus orbiculatus*
Oriental lady's thumb	*Persicaria longiseta*
Oriental lady's thumb	*Polygonum posumbu*
osage-orange	*Maclura pomifera*
oxeye daisy	*Leucanthemum vulgare*
pale yellow iris, yellow flag iris	*Iris pseudacorus*
paper-mulberry	*Broussonetia papyrifera*
perennial ryegrass	*Lolium perenne*
perennial ryegrass	*Lolium perenne ssp. perenne*
periwinkle	*Vinca spp.*
perilla mint	*Perilla frutescens*
periwinkle	*Vinca spp.*
pitted morning-glory	*Ipomoea lacunosa*
plumeless thistle	*Carduus spp.*
poison hemlock	*Conium maculatum*
prickly lettuce	*Lactuca serriola*
princesstree	*Paulownia tomentosa*
privet	*Ligustrum spp.*
prostrate knotweed	*Polygonum aviculare*
purple cudweed	*Gamochaeta purpurea*
purple deadnettle	*Lamium purpureum*
purple loosestrife	*Lythrum salicaria*
quackgrass	*Elymus repens*
Queen Anne's lace, wild carrot	*Daucus carota*
rabbitfoot clover	*Trifolium arvense*
red clover	*Trifolium pratense*
red fescue	*Festuca rubra*
red sorrel	*Rumex acetosella*
redtop	*Agrostis gigantea*
reed canarygrass	*Phalaris arundinacea*
rice flatsedge	*Cyperus iria*
rock dandelion	*Taraxacum erythrospermum*
roughstalk bluegrass	*Poa trivialis*
Scots pine	*Pinus sylvestris*
sensitive partridgepea	*Chamaecrista nictitans*
shepherd's-purse	*Capsella bursa-pastoris*
silvery cinquefoil	*Potentilla argentea*
small carpetgrass, joint-head grass	*Arthraxon hispidus*
small hop clover	*Trifolium dubium*
smallseed falseflax	*Camelina microcarpa*
smooth hawksbeard	*Crepis capillaris*
southern catalpa	*Catalpa bignonioides*
spanishneedles	*Bidens bipinnata*
sparrow vetch	*Vicia tetrasperma*

Common Name	Scientific Name
spiny amaranth	*Amaranthus spinosus*
spiny plumeless thistle	*Carduus acanthoides*
spiny sowthistle	*Sonchus asper*
spotted knapweed	*Centaurea stoebe ssp. micranthos*
spotted spurge	*Euphorbia maculate*
spotted waterhemlock	*Cicuta maculate*
spring whitlowgrass	*Draba verna*
star-of-Bethlehem	*Ornithogalum umbellatum*
sticky chickweed	*Cerastium glomeratum*
sulfur cinquefoil	*Potentilla recta*
sweet autumn virginsbower	*Clematis terniflora*
sweet cherry	*Prunus avium*
sweet vernalgrass	*Anthoxanthum odoratum*
sweetbriar	*Rosa rubiginosa*
tall buttercup	*Ranunculus acris*
tall fescue	*Festuca arundinacea*
tall lettuce	*Lactuca canadensis*
tall morning-glory	*Ipomoea purpurea*
tall oatgrass	*Arrhenatherum elatius*
tawny daylily	*Hemerocallis fulva*
thymeleaf sandwort	*Arenaria serpyllifolia*
thymeleaf speedwell	*Veronica serpyllifolia*
thymeleaf speedwell	*Veronica serpyllifolia ssp. serpyllifolia*
timothy	*Phleum pratense*
tree-of-heaven	*Ailanthus altissima*
true forget-me-not	*Myosotis scorpioides*
water speedwell	*Veronica anagallis-aquatica*
watercress	*Nasturtium officinale*
waterpurslane	*Ludwigia palustris*
weeping lovegrass	*Eragrostis curvula*
weeping willow	*Salix x sepulcralis*
white clover	*Trifolium repens*
white cockle	*Silene latifolia ssp. alba*
white mulberry	*Morus alba*
white mustard	*Sinapis alba*
white poplar	*Populus alba*
white willow	*Salix alba*
wild garlic	*Allium vineale*
wild onion	*Allium canadense*
willowleaf lettuce	*Lactuca saligna*
wine raspberry	*Rubus phoenicolasius*
woodland bittercress	*Cardamine flexuosa*
yellow bedstraw	*Galium verum*
yellow fieldcress	*Rorippa sylvestris*
yellow nutsedge	*Cyperus esculentus*

Common Name	Scientific Name
yellow rocket	*Barbarea vulgaris*
yellow sweet-clover	*Melilotus officinalis*
yellow toadflax	*Linaria vulgaris*
yellow woodsorrel	*Oxalis stricta*

Data taken from EDDMaps status of invasive species report on a county level.
(www.eddmaps.org/)

Essential Fish Habitat

None for WV

Data taken from National Oceanic and Atmospheric Administration (NOAA).
(https://habitat.noaa.gov/appa/efhmapper/?page=page_3)