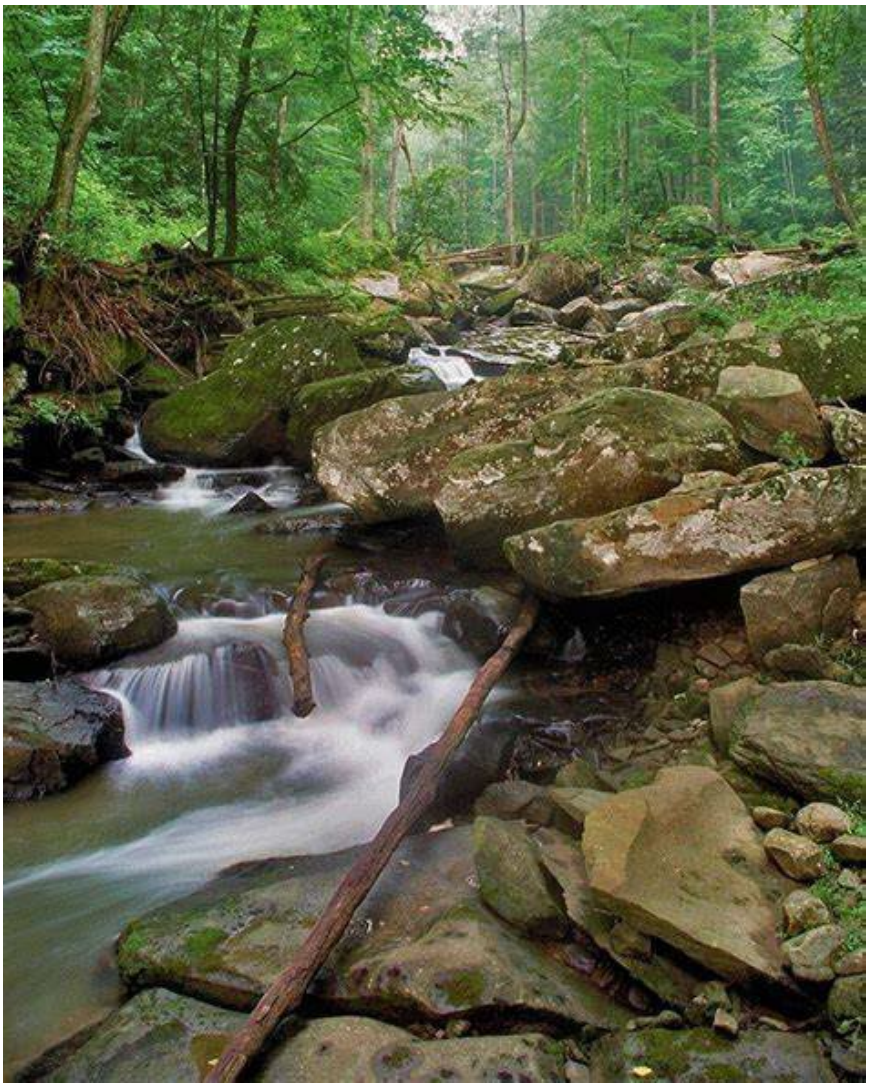
NRCS West Virginia

Preliminary Investigation Feasibility Report (PIFR)

Wolf Creek Watershed (HUC #050500040304)



December 2023

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Abbreviations

CFR – Code of Federal Regulations

NECH – National Environmental Compliance Handbook

NWPH – National Watershed Program Handbook

NWPM – National Watershed Program Manual

PIFR – Preliminary Investigation Feasibility Report

USC – United States Code

References

- NRCS National Environmental Compliance Handbook, Title 190, Part 610, May 2016
- NRCS National Watershed Program Manual, April 2014
- NRCS National Watershed Program Handbook, April 2014
- DM 9500-013 – Guidance For Conducting Analyses Under The Principles, Requirements, And Guidelines For Water And Land Related Resources Implementation Studies And Federal Water Resource Investments, January 2017
- Principles and Requirements for Federal Investments in Water Resources, March 2013
- NB 390-21-4 PDM - Watershed and Flood Prevention Operations Program Funding Guidance - Preliminary Investigation Feasibility Reports and Remedial Projects, July 2022

Summary

The following PIFR is a summary report of resource concerns and opportunities in the Wolf Creek Watershed that may be eligible for a planning study according to the Watershed Protection and Flood Prevention Act (PL 83-566). The watershed is in Fayette County in the New River basin in south central West Virginia. The Town of Fayetteville requested formal assistance from the NRCS Watershed Operations Program.

The watershed contains an outdated dam that is not NRCS assisted and no longer serves a purpose. There is a need to remove the dam to restore the stream to natural conditions. This action would also reduce liability. Potential solutions contained in this report 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 presence of an obsolete dam, posing a threat to human health and safety.

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 Town of Fayetteville requested assistance with conducting a Preliminary Investigation and Feasibility Report (PIFR) for a potential watershed project in the Wolf Creek Watershed (12-digit HUC (050500040304). This assistance is authorized under the Watershed Protection and Flood Prevention Act (Public Law 83-566). Fayetteville is interested in being a sponsor for a watershed plan project in the Wolf Creek Watershed and they meet the PL 83-566 criteria for a sponsor. Agricultural and forested lands compose the majority of the watershed. Watershed protection, specifically stream restoration, would be the likely purpose 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: 29,141 acres		
Will any single structure provide more than 12,500 acre-feet of floodwater detention capacity, or have a 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

Wolf Creek Watershed is in Fayette County. This County covers an area of 668 square miles and has a population of 45,932 with a population density of 68 persons per square mile. In comparison, the population density for the state of West Virginia is 77 people per square mile and nationally the population density is 94 people per square mile. As per the USDA definition, Fayette County is considered rural because there are no population centers with more than 50,000. Because it is a rural county, at least 20% of the benefits will meet the agricultural (rural) requirement. Populations potentially benefitting from a project would include rural residents, small businesses, and the general public.

References:

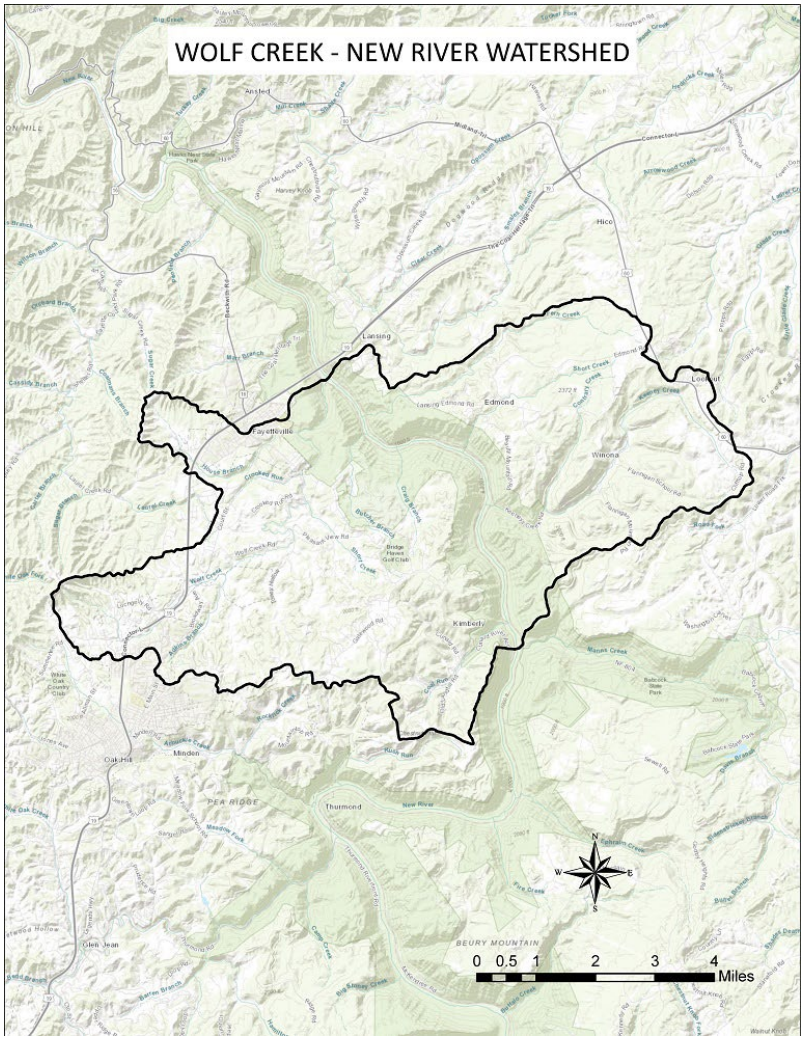
16 USC 18 - §1002, Definitions

Title 390, NWPM – 506.50 Glossary, MMM. Rural or Rural Communities

https://worldpopulationreview.com/states/west-virginia-population

https://statisticalatlas.com/county/West-Virginia

Project Overview	
Proposed Project Name	Wolf Creek Watershed (HUC #050500040304)
State	West Virginia
County	Fayette
Congressional District	1st Congressional District

USGS Hydrologic Unit Code (HUC) and Watershed Name	 **Map of Wolf Creek – New River Watershed, Fayette County, WV** 12-digit HUC (050500040304) **Total Watershed Drainage Area: 29,141 acres**
General Coordinates of the Watershed	Latitude 38.027778° , Longitude -81.062222°

Project Setting	***Reference:*** Title 190 – NECH 610.69 The Wolf Creek Subwatershed of the New River Watershed is located in MLRA 127, Eastern Allegheny Plateau & Mountains. The 12digit HUC for Wolf Creek includes areas north and south of the New River. Wolf Creek, located on the west side of the New River, flows in a northerly direction to its' confluence with the New River just upstream of the New River Gorge Bridge off the mountain from Fayetteville, West Virginia. The New River joins the Gauley River at Kanawha Falls, West Virginia to form the Kanawha River. The Kanawha River eventually joins the Ohio River at Pt. Pleasant, West Virginia. The Ohio River joins the Mississippi River at Cairo, Illinois. The Mississippi flows into the Gulf of Mexico. The total watershed drainage area is 29,141 acres. The entire watershed is in Fayette County West Virginia. The topography in the watershed ranges from an elevation of ~2,662 MSL on the watershed boundary above Winona on the eastern edge of the watershed to a low point of approximate elevation 844' MSL at the confluence of Wolf Creek with the New River at the northern end of the watershed. Fayetteville, West Virginia is the largest town in the Wolf Creek watershed. Other communities in the watershed include Fayette Heights, Harlem Heights, & Lochgelly on the west side of the river to Winona, Lansing, Edmond, & Lookout on the east side of the river. The watershed falls entirely in MLRA 127, Eastern Allegheny Plateau & Mountains. The 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 lower New River and less so by smaller tributaries. The rock strata have considerable thickness consisting of sandstone, limestone, and shale. West Virginia has a humid continental climate. West Virginia 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. Fayette County, in an average year, receives 46 inches of rain and 38 inches of snow. The average summer high is 82 degrees Fahrenheit in July, and the average winter low is 22 degrees Fahrenheit in January.

Potential Project Area - Size	Wolf Creek 12-digit HUC (050500040304) is 29,141 acres.
Resource Information	
Soils	The project area lies within Major Land Resource Areas (MLRA) 127. These MLRA's are characterized by sandstone or shale ridges in the dissected landscapes of the plateau. The soils in this watershed are primarily composed of silt with varying amounts of sand and clay depending on their parent materials. The ridges are mostly formed in residuum derived from interbedded sandstone or shale and are acid. Limestone is occasionally present. They are commonly shallow to moderately deep to bedrock and are moderately well to well drained. Backslopes are formed in colluvium from sandstone, shale, or limestone. These soils are deep to very deep and may have a fragipan that perches water for a portion of the year. These soils are somewhat poor to well drained. The foot slopes, where formed in the red clays are very clayey, deep to very deep, and are prone to slope failures and slope creep, especially when disturbed. Terraces may exist at varying heights above the streams. These soils formed from old alluvium and are typically very deep. They are poorly to moderately well drained and may contain high amounts of clay in the wettest soils. Finally, the floodplain soils formed in the most recent alluvial sediments. These soils are deep to very deep and well to poorly drained. They range from sandy and gravelly to clayey but are mostly loamy or silty. Hydric soils are most likely to occur on the floodplains and terraces but may be found in seeps and drains of higher lying landforms. Surface coverage of rock outcrops or loose stones and boulders may occur especially in areas influenced by sandstone.
Water	The quality of water making up the watershed is affected by non-point pollution in the urban areas. The upland areas of the watershed produce high sediment loads during runoff producing rains. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events. The watershed has areas with a surplus of water quantity and areas with depleted water quantity in normal conditions.
Air	The watershed is not in an area recognized for regularly having impaired air quality or any significant air quality issues.
Plants	The watershed provides for both agricultural crops as well as naturally vegetated areas utilized as wildlife habitat.

Animals	This area has animal resources consisting of game, non-game, and invasive species.
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.
Human	Demographics: The U.S. Census 2020 reports the population of Fayette County at 40,488, a decline of 8.6% since the 2010 Census. In contrast, between the 2010 and 2020 census, the population of West Virginia decreased by 3.2%.

PEOPLE

Population	
Population Estimates, July 1, 2022, (V2022)	39,487
Population Estimates, July 1, 2021, (V2021)	40,083
Population estimates base, April 1, 2020, (V2022)	40,485
Population estimates base, April 1, 2020, (V2021)	40,485
Population, percent change - April 1, 2020 (estimates base) to July 1, 2022, (V2022)	-2.5%
Population, percent change - April 1, 2020 (estimates base) to July 1, 2021, (V2021)	-1.0%
Population, Census, April 1, 2020	40,488
Population, Census, April 1, 2010	46,039

U.S. Census Bureau QuickFacts: Fayette County, West Virginia

Fayette County WV Data & Demographics (As of July 1, 2021)

POPULATION	
Total Population	47,378 (100%)
Population in Households	45,562 (96.2%)
Population in Families	36,379 (76.8%)
Population in Group Quarters[1]	1,816 (3.8%)
Population Density	72
Diversity Index[2]	16

HOUSING	
Total HU (Housing Units)	22,386 (100%)
Owner Occupied HU	15,236 (68.1%)
Renter Occupied HU	4,385 (19.6%)
Vacant Housing Units	2,765 (12.4%)
Median Home Value	$101,835
Average Home Value	$131,119
Housing Affordability Index[3]	243

INCOME	
Median Household Income	$43,028
Average Household Income	$56,295
% of Income for Mortgage[4]	10%
Per Capita Income	$23,387
Wealth Index[5]	50

HOUSEHOLDS	
Total Households	19,621
Average Household Size	2.32
Family Households	12,735
Average Family Size	3

Fayette County WV Data & Peer Group Rankings (hometownlocator.com)

Transportation:
The average commute time in Fayette County is 30.6 minutes according to Data USA website. Most workers in this county commute to and from work in a vehicle without other passengers.
Fayette County WV Data & Peer Group Rankings (hometownlocator.com)

Quality of Life: According to USNews, Fayette County scores below the WV and USA quality-of-life indicators.

Overview of Fayette County, WV

See COVID-19 Data for Fayette County, WV »

27/100 OVERALL SCORE

Overall Score

State Average

Peer Group Average
Urban, Up-and-Coming

U.S. Average

Read our methodology to see how the scores and rankings were calculated.

CATEGORY	SCORE
Population Health	23
Equity	68
Education	36
Economy	30
Housing	42
Food & Nutrition	32
Environment	58
Public Safety	43
Community Vitality	42
Infrastructure	41

See the top communities overall »

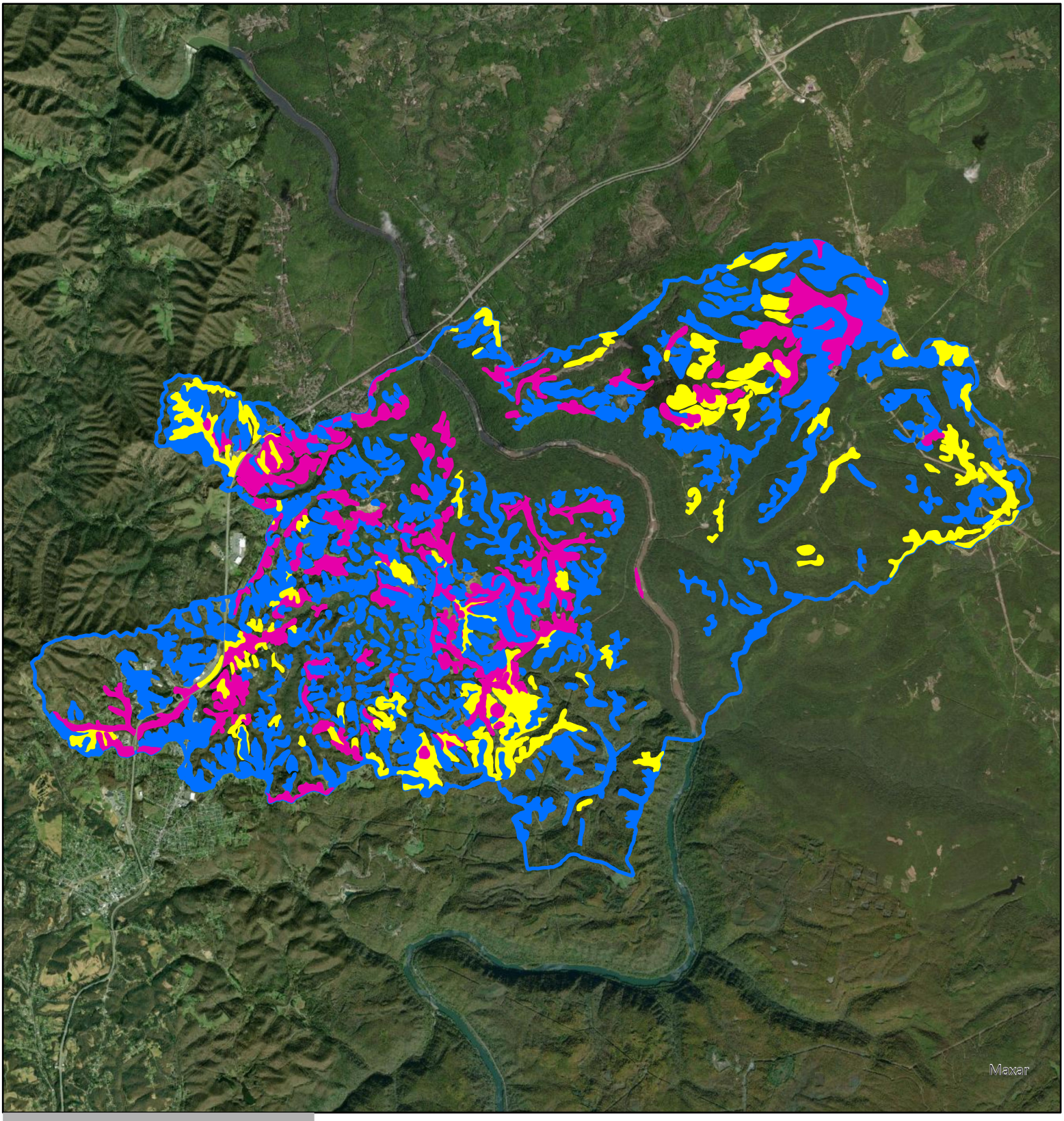
Resources of Special Concern	
Clean Water Act	Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered to be waters of the 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	There is a total of 12 Federally listed threatened, endangered, or candidate species potentially found in this watershed by the US Fish and Wildlife Service. 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	Fayette County, WV | Data USA 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. Fayette County is completely within the Appalachian Region. This county is not designated as limited resource counties by USDA. However, it is designated as 'at risk' by the Appalachian Regional Commission, indicating that the local economy is weak. Distressed Designation and County Economic Status Classification System - Appalachian Regional Commission (arc.gov) Fayette County is 93% white. Black or African American residents comprising less than 6% of the population. The poverty rate is 20.5%, well above the WV poverty rate of 15.8% and the national rate of 11.4%. https://datausa.io/profile/geo/fayette-county-wv#demographics
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 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 Fayette County has a major risk of flooding over the next few decades. In addition to damage on properties, flooding can impact access to utilities, emergency services, transportation, damage to agricultural lands and crops, and adversely impacts the overall well-being of both urban and rural communities located in the floodplain. Fayette County West Virginia has adopted a Floodplain Ordinance on 1/31/2018.

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 no 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 Wolf 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. See Appendix E for complete list.
Natural Areas	Federal: The US Park Service manages the New River Gorge National Park. A rugged, whitewater river flowing northward through deep canyons, the New River is among the oldest rivers on the continent. The park encompasses over 70,000 acres of land along the New River, is rich in cultural and natural history, and offers an abundance of scenic and recreational opportunities. Several thousand acres of the NRGNP lie within the watershed. State: The West Virginia Division of Natural Resources manages the 4,127-acre Babcock State Park which borders the watershed.
Prime and Unique Farmlands	Presently there are 2,456 acres of Prime Farmland, which accounts for 8% of land in the study area. Additionally, there are 1,788 acres of Farmland of Local Importance and 6,336 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land in the watershed. The threat of conversion, however, is not drastic.
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 within the Wolf Creek Watershed. Other areas of the watershed are typical of the Appalachian Plateau physiographic province.

Wetlands	There are 635 acres of wetlands within the Wolf Creek Watershed which consist of the following: 17 acres of Freshwater Emergent Wetlands; 27 acres of Freshwater Forested/Shrub Wetlands; 66 acres of Freshwater Pond; and 525 acres of Riverine. Data collected from the US Fish and Wildlife Service National Wetlands Inventory.
Wild and Scenic Rivers	All trout streams in Fayette 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.



Legend

FARMLNDCL

- All areas are prime farmland
- Farmland of local importance
- Farmland of statewide importance

Wolf Creek Watershed Farmland Classification

N

W E

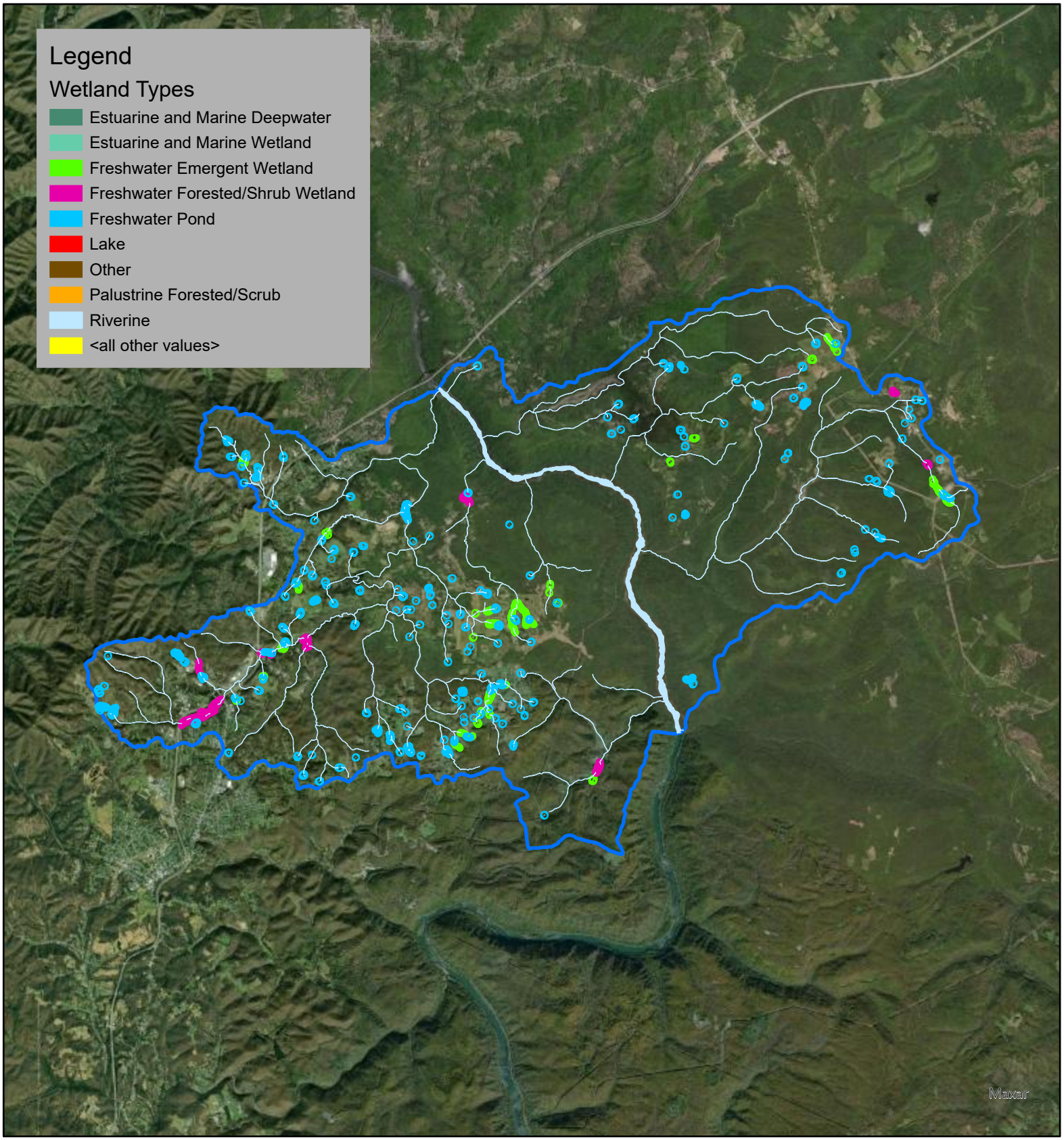
S

0 1 2 3 5 6

Kilometers

USDA is an equal provider, employer, and leader

USDA



Wolf Creek Watershed
National Wetlands Inventory

N
W E
S

USDA is an equal provider, employer, and leader

USDA

0 1 2 4 6 8
Kilometers

Proposed Project Purpose and Need Statement

The purpose of the proposed project is to address an obsolete dam in the Wolf Creek Watershed. The dam is an impediment to natural stream flow and poses a hazard to the public. It is anticipated that the PL 566 project purposes will be watershed protection.

The town of Fayetteville is interested in removing the hazard and improving the habitat of Wolf Creek. There may be other resource concerns in the watershed that can benefit from a watershed project.

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 Wolf 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	• Obsolete dam poses health hazard to general public. • Aquatic passage is blocked by obsolete dam, impairing habitat.	• Remove public hazard • Restore natural stream conditions • Improve aquatic organism passage
Soil	• Soil loss is likely due to OM depletion, 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 • Reported water pumping issues during flood operations	• Efficiencies in energy use • Improvements to air quality
Human	• Public hazard created by obsolete dam	• Remove public hazard, improve public safety
Recreation	• Impaired recreational potential on Wolf Creek	• Improve recreational experience for local residents

Environmental Justice	• County economy is 'at risk', unable to fully capitalize on natural resources that could support local economy • Declining tax revenues for towns	• Remove obsolete dam to improve local environment for all residents
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

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

Use: ***+ - Positive Impact*** ***- - Negative Impact*** ***0 - No Impact***

Resource Concerns: SWAPA + Energy + Human		
	Alt 1 – No Federal Action: Description: The sponsor does not implement any watershed measures using Federal funds	**Alt 2 – All other alternatives:** Description: Combination of structural and nonstructural 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 are unknown at this time

Opportunities

Opportunities exist to provide habitat restoration, improve water quality, and enhance recreational access. The sponsor is willing to participate in the PL-566 Watershed Program, allowing NRCS to potentially remove the dam to address resource concerns.

State, Tribal, Federal Stakeholder Engagement

Notification letters were sent out to the Catawba Indian Nation, Cherokee Nation, Eastern Band of Cherokee Indians, and the Eastern Shawnee Tribe of Oklahoma. 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.

Wolf Creek List of Alternatives

Alternatives	Possible Positive Impacts & Effects	Possible Adverse Impacts & Effects
Alt 1 – No Action	-No expenditure of federal or local funds -No new maintenance requirements -No change in recreational experience -No change in aquatic habitat	- No reduction in liability associated with obsolete dam - No improvement in watershed conditions
Alt 2 – Remove dam, (structural alternative)	-Restore stream and riparian habitat -No long-term maintenance cost -Short term construction jobs -Majority or all federal funds -Improve recreation experience -Relatively low cost -Improve water quality -Increase in fish and wildlife populations	-Local funding may be required -Change in recreation experience -Change in aquatic habitat Re-introduction of natural occurring sediments back into the stream system
Alt 3 – Remove dam, restore stream, and apply land treatment (structural and nonstructural alternative)	-Restore forests and ag land to their production potential -No long-term maintenance cost -Majority or all federal funds -Increase outdoor recreation -Relatively low cost -Improved water quality -Increase in fish and wildlife populations -Voluntary programs -Aquatic habitat uplift	-Local funding may be required -Change in recreation experience -Change in aquatic habitat -Maintenance burden on landowners/sponsors
Alt 4 - Complete Watershed Restoration	- Restore forests and ag land to full production potential - No limit to federal and local funding - Full combination of alternatives available from all agencies - No limit to the sponsors' funding or abilities to address watershed concerns	-lack of fiscal constraints may result in over spending - no limits on planning and implementation may complicate project opportunities

Facilitating Factors

- The local sponsor is willing to work with NRCS to see the project through completion.

Obstructing Factors

Local funding is dependent on state appropriations and local government budgets.

Environmental Document

A potentially viable alternative for a proposed watershed project involves the removal of an obsolete dam on Wolf Creek, improving the watershed conditions. Additional purposes 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 Town of Fayetteville is ready, willing, and able to be a sponsor for a potential watershed project in the Wolf Creek Watershed and 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 Doman	Local Cost Share	O/M Funds	Permits	Land Treatment	In-Kind MOU
Town of Fayetteville	Yes	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.
- 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.

Potential Cooperating Agencies

Agency	Contact Information	Type of Involvement
US Army Corps of Engineers	USACE – Huntington District 502 8th Street Huntington, WV (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]
		Office Informed [X]
		Prepare permits or letters of permission document [X]
		Provide input [X]

Potential Stakeholders

Stakeholder	Role	Resources	Contribution
Town of Fayetteville	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	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
Cherokee Nation- Principal Chief Chuck Hoskin	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
Eastern Shawnee Tribe of Oklahoma- Chief Glenna Wallace	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Eastern Shawnee Tribe of Oklahoma- Tribal Historic Preservation Specialist Paul Parton	Permit- Cultural Review	Review of Project APE	Permit for Project APE
West Virginia Historic Preservation Office	Permit- Cultural Review	Review of Project APE	Permit for Project APE
WVDEP	Permits	Review for Permits	Review for Permits
WVDNR	Partner	Review of Plan – ED	Review of Plan - ED
West Virginia Conservation Agency	Partner	Review of Plan – ED	Review of Plan - ED

Notifications

If a watershed plan – environmental assessment is undertaken, the NRCS must notify publish a notice of intent to the public and notify key federal and state agencies as described in the National Watershed Manual. (Executive Order 10584 Section 3).

Estimated Project Implementation Timeline

**Dependent on funding

Planning Start	October	2024
Planning End	October	2027 (36 months typically)
Design Start	December	2027
Design End	December	2029 (24 months typically)
Construction Start	March	2030
Construction End	November	2033 (42 months typically)

Recommendation

This preliminary investigation and feasibility report has been completed and submitted for approval to: Steven Baker, West Virginia State Conservationist (Acting).

By:

Name: Pam Yost_____ Title: Economist Date: : December 1, 2023 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: PAMELA YOST Digitally signed by PAMELA YOST Date: 2023.12.01 10:08:03 -05'00' Date: _____

State Watershed Operations Program Manager Signature: CHRISTI HICKS Digitally signed by CHRISTI HICKS Date: 2023.12.15 11:47:32 -05'00' Date: _____

State Technical Lead (SRC, SCE, Other) Signature: LEWTON DEICHERT Digitally signed by LEWTON DEICHERT Date: 2023.12.14 12:54:54 -05'00' Date: _____

	Not recommended for planning funding
X	Accepted and recommended for Planning Funding

State Conservationist Signature: STEVEN BAKER Digitally signed by STEVEN BAKER Date: 2023.12.18 12:59:54 -05'00' Date: _____

Glossary

Rural – All territories of a State that are not within the outer boundary of any city or town that has a population of 50,000 or more according to the latest decennial census of the United States (2010 Census Urban and Rural Classification and Urban Area Criteria). [Source Title 390 – NWPM Part 506.50 Glossary, MMM]

Appendix

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

Appendix A.

Sponsor Letter of Request

TOWN OF FAYETTEVILLE

ONE OF AMERICA'S COOLEST SMALL TOWNS

125 NORTH COURT STREET
P.O. BOX 298
FAYETTEVILLE, WEST VIRGINIA 25840
(304) 574-0101
(304) 574-3765 Fax
www.fayettevillewv.gov

January 10, 2022

At a regularly scheduled Town Council meeting for the Town of Fayetteville, on Thursday, January 6, 2022, Town Council voted unanimously 6-0 to sponsor the Preliminary Investigation Feasibility Report (PIFR) for the Wolf Creek Dam removal. The motion was made by Mr. Brian Good and seconded by Mrs. Lori Tabit.

While agreeing to this first step, the Town realizes that there is still a long process ahead before the actual removal of the dam can occur. The Town is aware it can withdraw from being a sponsor at anytime. At this time, the Town is fully committed to assisting this project in any way possible. If you need further assistance, Matt Diederich, Town Superintendent, will be your point of contact, (304) 574-0101 or matt@fayettevillewv.gov.

Sincerely,

Mayor Sharon Cruikshank

Appendix B.

PIFR Sponsor Declaration Forms

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

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

State: WV County: Fayette Watershed: Wolf Creek

Project Name: WOLF CREEK WATERSHED

Sponsor's Name:	**TOWN OF FAYETTEVILLE**		
Sponsor's Mailing Address:	**PO Box 298, Fayetteville, WV 25840**		
Contact Name:	**Matt Diederich**	**Phone:**	**304-640-2635**
Title:	**Town Superintendent**	**Email:**	**matt@fayettevillewv.gov**
Sponsor Website:	**https://fayettevillewv.gov/**		

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

The watershed contains an outdated dam that no longer serves a purpose. The dam was not constructed by NRCS. There is a need to remove the dam to restore the stream to natural conditions. This action would also reduce liability. Potential solutions contained in this report 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 presence of an obsolete dam, posing a threat to human health and safety and degrading aquatic habitat and watershed conditions.

Potential benefits of a Watershed Flood Prevention Operations program project.

Benefits of a project could improve watershed conditions, improve aquatic habitat, reduce human health and safety, and reduce liability for the local sponsor.

SPONSOR WIL

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

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

State: WV County: Fayette Watershed: Wolf Creek

Project Name: WOLF CREEK WATERSHED

- 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): MATT DIEDERICH **Title:** TOWN SUPERINTENDENT

Signature: Matt D **Date:** 1/4/23

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: Town of Fayetteville

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

C. Identification # (farm, tract, field #, etc. as required):
Wolf Creek Watershed, Fayette County, WV (HUC 050500040304)

D. Client's Objective(s) (purpose):
The purpose of this project is to improve the watershed by removing an obsolete dam on Wolf Creek. Client's objective is to improve Wolf Creek aquatic habitat, remove a safety hazard, and restore Wolf Creek.

E. Need for Action:
The existing water impoundment in Wolf Creek is no longer functioning as its intended purpose and poses human safety concerns as well as concerns related to fish passage and general aquatic habitat. Water quality within the watershed is also negatively impacted by agricultural and residential contaminants as well as soil erosion and sedimentation.

H. Alternatives

No Action √ if RMS ☐	*Alternative 1* √ if RMS ☐	*Alternative 2* √ if RMS ☐
Fish passage and stream habitat would continue to be negatively impacted by the dam on Wolf Creek. The dam would continue to pose a threat to human health and safety. Water quality issues and soil erosion would persist without focused implementation of land based conservation practices.	Removal of existing dam through focused technical and financial assistance through the Watershed Protection and Flood Prevention Act would result in restoration of the stream and riparian habitat.	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.

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)	*No Action* — **Amount, Status, Description** *(Document both short and long term impacts)*	*No Action* — √ if does NOT meet PC	*Alternative 1* — **Amount, Status, Description** *(Document both short and long term impacts)*	*Alternative 1* — √ if does NOT meet PC	*Alternative 2* — **Amount, Status, Description** *(Document both short and long term impacts)*	*Alternative 2* — √ if does NOT meet PC
SOIL						
Sheet and rill erosion Sedimentation caused by erosion in the uplands of the watershed negatively impact Wolf Creek and its tributaries. Sediment loading contributes to reduced channel capacity.	Continued degradation of the resource without any federal action.	☐ NOT meet PC	Decommissioning structures could potentially increase the amount of soil erosion in the short term as disturbed areas are revegetated. There would be a transition back to naturally occurring in the streambed.	☐ NOT meet PC	No effect to upland erosion. Sedimentation caused by stream bank erosion would be decreased by the stabilization of 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	Removal of obsolete dam on Wolf Creek is not expected to have any effect on flooding concerns within the watershed.	☐ NOT meet PC	Natural stream restoration could increase the channel's capacity to hold flood waters.	☐ NOT meet PC

Sediment transported to surface water Sedimentation caused by erosion in the uplands of the watershed negatively impact Wolf 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. The dam would not allow for the stream flow to function as normal, causing unnatural scouring and sediment deposits	☐ NOT meet PC	Removal of the dam would allow for the stream to return to its natural conditions, allowing for typical movement of sediment within the waterway during high flow events.	☐ NOT meet PC	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
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. Upland contaminants from agricultural operations and residences would continue to negatively effect water quality.	☐ NOT meet PC	Water quality for aquatic habitat would increase due to increased flow and oxygenation of water. Water quality issues related to agricultural and residential contaminants would persist.	☐ NOT meet PC	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
F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	**I. (continued)** ***No Action*** **Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	***Alternative 1*** **Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	***Alternative 2*** **Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
AIR						
No resource concern identified Air quality is not currently a resource concern in 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	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.	Riparian area composition would continue to be impacted by invasive species.	☐ NOT meet PC	Removal of dam would likely have minimal effects on plant structure and composition. Without control measures implemented, invasive species would persist to the detriment of the riparian area.	☐ NOT meet PC	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
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 12 threatened, endangered, or candidate species found in the watershed.	Wildlife would continue to be impacted by invasive species competition with native species that provide habitat, food, and cover.	☐ NOT meet PC	Terrestrial habitat may be adversely effected in the short term during construction. Once structures are removed, early successional habitat would provide a benefit to wildlife.	☐ NOT meet PC	Terrestrial habitat would be improved through the creation of riparian areas.	☐ 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 and fish passage	☐ NOT meet PC	Aquatic habitat would be improved for invertebrates with natural flows restored. Fish passage would be possible with the removal of the dam.	☐ NOT meet PC	Aquatic habitat would be improved by installing practices return the streambed to a more natural value and function.	☐ 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	No effect	☐ NOT meet PC
Human Economic and Social Considerations						
Public Health and Safety The presence of the dam poses a threat to public health and safety as it creates abnormal and dangerous flow conditions and currents.	There would continue to be a threat to public safety as well as missed recreation opportunity due to the overall health and structure of the stream.		Removal of dam would result in increase public safety. It would also restore the stream to more natural conditions, allowing for increased recreational opportunities such as fishing, hiking, bird watching, etc within the watershed		Removal of dam would result in increase public safety. It would also restore the stream to more natural conditions, allowing for increased recreational opportunities such as fishing, hiking, bird watching, etc within the watershed. Conservation practices will improve the aesthetics and resilience of the natural environment.	

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 Construction involved with the removal of the dams could result in 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 12 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 and lack of fish passage across dam.	☐	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. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐
Environmental Justice *Guide Sheet* Fayette County is completely within the Appalachian Region. This county is not designated as limited resource counties by USDA. However, it is designated as 'at risk' by the Appalachian Regional Commission, indicating that the local economy is weak. Fayette County is 93% white. Black or African American residents comprising less than 6% of the population. The poverty rate is 20.5%, well above the WV poverty rate of 15.8% and the national rate of 11.4%.	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* Fayette County has a major risk of flooding over the next few decades.	No Effect	☐	May Affect Floodplain management would be a consideration during the dam removal and design to bring stream back to its natural state.	☐	May Affect Floodplain management would be a consideration during the design process of natural stream restoration and would likely be benefited.	☐

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 Wolf 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 Bids 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: The US Park Service manages the New River Gorge National Park. A rugged, whitewater river flowing northward through deep canyons, the New River is among the oldest rivers on the continent. The park encompasses over 70,000 acres of land along the New River, is rich in cultural and natural history, and offers an abundance of scenic and recreational opportunities. Several thousand acres of the NRGNP lie within the watershed. State: The West Virginia Division of Natural Resources manages the 4,127-acre Babcock State Park which borders the watershed.	No Effect	☐	No Effect	☐	No Effect	☐
Prime and Unique Farmlands *Guide Sheet* Presently there are 2,456 acres of Prime Farmland, which accounts for 8% of land in the study area. Additionally, there are 1,788 acres of Farmland of Local Importance and 6,336 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land in the watershed. The threat of conversion, however, is not drastic.	No Effect	☐	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.	☐
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 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 within the Wolf Creek 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 635 acres of wetlands within the Wolf Creek Watershed which consist of the following: 17 acres of Freshwater Emergent Wetlands; 27 acres of Freshwater Forested/Shrub Wetlands; 66 acres of Freshwater Pond; and 525 acres of Riverine, according to the US Fish and Wildlife Service National Wetlands Inventory.	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 Fayette 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		Construction related to the removal of dam could 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.		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.	
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.		Removal of structure would help restore the function of the stream and riparian area, provide short term job creation, and return the local tax base with land usage.		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.	
L. Mitigation (Record actions to avoid, minimize, and compensate)		None		None		None	
M. Preferred Alternative	√ preferred alternative	☐		☐		☐	
	Supporting reason			Removal of structures within the watershed would result in stream and riparian area restoration.		Natural stream restoration would benefit the overall heath of the stream.	
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: Town of Fayetteville

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

C. Identification # (farm, tract, field #, etc. as required):
Wolf Creek Watershed, Fayette County, WV (HUC 050500040304)

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 Wolf Creek Watershed.

E. Need for Action:
The existing water impoundment in Wolf Creek is no longer functioning as its intended purpose and poses human safety concerns as well as concerns related to fish passage and general aquatic habitat. Water quality within the watershed is also negatively impacted by agricultural and residential contaminants as well as soil erosion and sedimentation. Flooding is of localized concern within the watershed.

H. Alternatives

Alternative 3	√ if RMS ☐	√ if RMS ☐	√ if RMS ☐
Removal of Existing Dam, Land Treatment, and Stream Restoration. Strategic installation of a combination of practices and structures evaluated in other alternatives could more fully address concerns associated with watershed protection, recreation, and wildlife. 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.			

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**	**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 Wolf Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	Removal of structures could potentially increase the amount of soil erosion in the short term as disturbed areas are revegetated. Strategic installation of land treatment practices and natural stream restoration would reduce soil erosion across all land uses and reduce sediment loads in waterways.	☐ NOT meet PC		☐ 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 land treatment practices and natural stream restoration 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		☐ NOT meet PC

Sediment transported to surface water Sedimentation caused by erosion in the uplands of the watershed negatively impact Wolf 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 land treatment practices and natural stream restoration would reduce sediment loads in waterways. Removal of the dam would allow for the stream to return to its natural conditions, allowing for typical movement of sediment within the waterway during high flow events.	☐ NOT meet PC		☐ 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 land treatment practices and natural stream restoration would reduce nutrients transported to surface water. Water quality for aquatic habitat would increase due to increased flow and oxygenation of water. Water quality issues related to agricultural and residential contaminants would persist.	☐ NOT meet PC		☐ 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 3					
	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 currently a resource concern in 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		☐ 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. Removal of dam would likely have minimal effects on plant structure and composition. Without control measures implemented, invasive species would persist to the detriment of the riparian area.	☐ NOT meet PC		☐ 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 12 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 creation/enhancement of wetlands. Displacement of wildlife and destruction of habitat due to flooding would be significantly reduced.	☐ NOT meet PC		☐ 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		☐ 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.	No effect	☐ NOT meet PC		☐ NOT meet PC		☐ NOT meet PC
Human Economic and Social Considerations						
Public Health and Safety The presence of the dam poses a threat to public health and safety as it creates abnormal and dangerous flow conditions and currents.	Strategic planning and installation of all previously evaluated alternatives would provide the opportunity for recreation opportunities and a short term creation of jobs during deconstruction of dam. 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 3					
	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.	☐		☐		☐
●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 Construction involved with the removal of the dams could result in 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	☐		☐		☐
Coral Reefs *Guide Sheet* There are no coral reefs present in or near the watershed.	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.	☐		☐		☐
●Endangered and Threatened Species *Guide Sheet* There is a total of 12 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.	☐		☐		☐
Environmental Justice *Guide Sheet* Fayette County is completely within the Appalachian Region. This county is not designated as limited resource counties by USDA. However, it is designated as 'at risk' by the Appalachian Regional Commission, indicating that the local economy is weak. Fayette County is 93% white. Black or African American residents comprising less than 6% of the population. The poverty rate is 20.5%, well above the WV poverty rate of 15.8% and the national rate of 11.4%.	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	☐		☐		☐
Floodplain Management *Guide Sheet* Both Fayette County have a major risk of flooding over the next few decades.	May Affect Floodplain management would be a consideration during the dam removal and design and the design process of natural stream restoration to bring the stream back to its natural state.	☐		☐		☐

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.	☐		☐		☐
●Migratory Birds/Bald and Golden Eagle Protection Act *Guide Sheet* Migratory birds and eagles utilize the Wolf 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 Bids 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.	☐		☐		☐
Natural Areas *Guide Sheet* Federal: The US Park Service manages the New River Gorge National Park. A rugged, whitewater river flowing northward through deep canyons, the New River is among the oldest rivers on the continent. The park encompasses over 70,000 acres of land along the New River, is rich in cultural and natural history, and offers an abundance of scenic and recreational opportunities. Several thousand acres of the NRGNP lie within the watershed. State: The West Virginia Division of Natural Resources manages the 4,127-acre Babcock State Park which borders the watershed.	No Effect	☐		☐		☐
Prime and Unique Farmlands *Guide Sheet* Presently there are 2,456 acres of Prime Farmland, which accounts for 8% of land in the study area. Additionally, there are 1,788 acres of Farmland of Local Importance and 6,336 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land in the watershed. The threat of conversion, however, is not drastic.	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 and land treatment programs.	☐		☐		☐
Scenic Beauty *Guide Sheet* The New River Gorge is a unique area of scenic beauty that lies within the Wolf Creek 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.	☐		☐		☐

●Wetlands *Guide Sheet* There are 635 acres of wetlands within the Wolf Creek Watershed which consist of the following: 17 acres of Freshwater Emergent Wetlands; 27 acres of Freshwater Forested/Shrub Wetlands; 66 acres of Freshwater Pond; and 525 acres of Riverine, according to the US Fish and Wildlife Service National Wetlands Inventory.	May Affect Alternative would enhance the values and functions of wetlands and surrounding ecosystems.	☐		☐		☐
●Wild and Scenic Rivers *Guide Sheet* All trout streams in Fayette 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	No Effect	☐		☐		☐
K. Other Agencies and Broad Public Concerns	***Alternative 3***					
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.					
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 quality of life for the ecosystems and the residents. Removal of structure would help restore the function of the stream and riparian area, provide short term job creation, and return the local tax base with land usage					
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.					
M. Preferred Alternative	√ preferred alternative	☐		☐		☐
	Supporting reason	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				
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.

PAMELA YOST Digitally signed by PAMELA YOST Date: 2023.12.01 15:30:37 -05'00'	Economist	12/1/2023
Signature (TSP if applicable)	**Title**	**Date**
CHRISTI HICKS Digitally signed by CHRISTI HICKS Date: 2023.12.02 06:06:12 -05'00'	ASTC-Water Resources	12/1/2023
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	
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:

STEVEN BAKER Digitally signed by STEVEN BAKER Date: 2023.12.15 12:37:04 -05'00'	Acting State Conservationist	
Signature	**Title**	**Date**

Additional notes

Appendix D.

Forecasted NRCS Staffing Needs

Wolf Creek Staffing Needs

	Planner	Engineer	Engineer	Biologist	Economist	Admin Asst
Phase 1 -Identify Problems, Opportunities, & Concerns						
Final plan of work	30	16	16	16	16	6
Public Participation plan	20	12	12	12	12	2
Gather Data	50	50	50	50	50	20
Consultation List	6				12	2
Final assessment	18	18	18	18	18	6
Total	**124**	**96**	**96**	**96**	**108**	**36**
Phase 2 -Determine Objectives						
Document Sponsor Objectives	6	6	6	6	6	2
Write purpose & Need statement	10	6	6	6	6	4
Agency consultation/coordination	12	12	12	12	12	4
Tribal consultation	20				20	4
Scoping public meeting	12	10	10	10	10	4
Write scope of plan	10	10	10	10	10	8
Total	**70**	**44**	**44**	**44**	**64**	**26**
Phase 3 -Inventory Resources						
Resource Inventories & watershed assessment						
Economic & Social Assessment						
Collect Population Demographics					15	2
Identify effcts to public health & safety					16	2
Identify effcts to homes, businesses & ag operations					80	6
Identify visual concerns					15	2
Collect economic data					40	4
Identify non-NEPA laws related to project	4	4	4	4	6	2
Identify approved regional water resource plans in project	2	2	2	2	2	2
Final economic and social assessment					60	6
Archaeological & Historic Assessment						
Literature review				240		10
Coordination with State Historic Preservation Officer				80		6
Final archaeologcial and historic assessment				350		10
Geologic Assessment & Engineering Assessment						
Review existing geologic investigations		20	20			
Enigneering Surveys		80	80			
Evaluate condition of existing structures		30	30			
Final geologic assessment and engineering assessment		100	100			
Total	**6**	**236**	**236**	**676**	**234**	**52**

Wolf Creek Staffing Needs

	Planner	Engineer	Engineer	Biologist	Economist	Admin Asst
Phase 4 -Analyze Resource Data						
Develop resource existing conditions	20	20	20	20	20	6
Economic & Social Assessment						
Quantify onsite/offsite damages					100	6
Economics and social effects (future without project condition)					40	6
Archaeological & Historic Assessment				16		
Geologic Assessment & Engineering Assessment						
Determine geologic investigation needs		40	40			
Review existing hydrology /hydraulic models		40	40			
Determine watershed conditions (CN, Tc, rainfall)		80	80			
Run preliminary hydraulics		40	40			
Develop hydrologic model for watershed		60	60			
Run hydrologic models		60	60			
Total	**20**	**340**	**340**	**36**	**160**	**18**
Phase 5 -Formulate Alternatives						
Analysis of initial alternatives						
Document alternatives eliminated from detailed study	10	12	12	8	8	10
Document reasonable alternatives	10	12	12	10	10	10
Identify permits, licenses, other entitlements required	4	4	4	4	4	2
Define mitigation strategies	8	6	6	10	10	4
Determine project costs for each alternative		22	22			4
Final plan of work	8	4	4	4	4	2
Final initial alternatives report	50	50	50	50	50	10
Total	**90**	**110**	**110**	**86**	**86**	**42**

Wolf Creek Staffing Needs

Phase 6 -Evaluate Alternatives	**Planner**	**Engineer**	**Engineer**	**Biologist**	**Economist**	**Admin Asst**
Summary & comparison of alternatives	12	12	12	12	12	4
Evaluate environmental resources	30			30		2
Geology		20	20			4
Foundation & slope stability		40	40			8
Sedimentation						
Hydrology & Hydraulics		110	110			20
Run hydrologic models		150	150			20
Breach inundation study		120	120			20
Develop floodplain maps						
Economics						
Determine economic benefits for each alternative					80	10
Trend analysis for alternatives					10	2
Claculate average annual damages					20	2
Calculate benefit cost ratio					6	
Detremine National Economic Efficiency plan					6	
Final summary & comparison of alternative table					180	20
Final environmental consequences narrative	100			100		20
Total	**142**	**452**	**452**	**142**	**314**	**132**

Phase 7 -Make Decisions						
Compare & review alternatives with sponsor	30	10	10	10	10	2
Evaluate environmental resources	440	110	110	110	110	40
Total	**470**	**120**	**120**	**120**	**120**	**42**

Phase 8 -Review & Draft Environmental Document						
Response to agencies and other interseted parties' comments	24	20	20	20	20	4
Repsonse NWMC and SLO review	100	40	40	40	40	10
Repsonse to HQ National Programmatic review	20	10	10	10	10	2
Complete plan	30	30	30	30	30	4
Total	**174**	**100**	**100**	**100**	**100**	**20**

Appendix E.

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:

THUMBNAILS | LIST

SPECIES GUIDELINES

Mammals

NAME	STATUS
Gray Bat Myotis grisescens Wherever found	Endangered
Indiana Bat CH Myotis sodalis Wherever found	Endangered
Northern Long-eared Bat Myotis septentrionalis Wherever found	Threatened
Virginia Big-eared Bat CH Corynorhinus (=Plecotus) townsendii virginianus Wherever found	Endangered

Clams

NAME	STATUS
Fanshell Cyprogenia stegaria Wherever found	Endangered
Northern Riffleshell Epioblasma rangiana Wherever found	Endangered
Pink Mucket (pearlymussel) Lampsilis abrupta Wherever found	Endangered
Snuffbox Mussel Epioblasma triquetra Wherever found	Endangered
Spectaclecase (mussel) Cumberlandia monodonta Wherever found	Endangered
Tubercled Blossom (pearlymussel) Epioblasma torulosa torulosa	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found	Candidate

Flowering Plants

NAME	STATUS
Virginia Spiraea Spiraea 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.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

RELATED LINKS

Birds of Conservation Concern

Measures for avoiding and minimizing impacts to birds

Nationwide conservation measures for birds

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

THUMBNAILS | LIST

PROBABILITY OF PRESENCE SUMMARY

NAME / LEVEL OF CONCERN	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* Non-BCC Vulnerable	Breeds Sep 1 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* BCC Rangewide (CON)	Breeds May 15 to Oct 10
Black-capped Chickadee *Poecile atricapillus practicus* BCC - BCR	Breeds Apr 10 to Jul 31
Bobolink *Dolichonyx oryzivorus* BCC Rangewide (CON)	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* BCC Rangewide (CON)	Breeds May 20 to Aug 10

Cerulean Warbler Dendroica cerulea BCC Rangewide (CON)	Breeds Apr 27 to Jul 20
Chimney Swift Chaetura pelagica BCC Rangewide (CON)	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will Antrostomus vociferus BCC Rangewide (CON)	Breeds May 1 to Aug 20
Golden-winged Warbler Vermivora chrysoptera BCC Rangewide (CON)	Breeds May 1 to Jul 20
Kentucky Warbler Oporornis formosus BCC Rangewide (CON)	Breeds Apr 20 to Aug 20
Prairie Warbler Dendroica discolor BCC Rangewide (CON)	Breeds May 1 to Jul 31
Prothonotary Warbler Protonotaria citrea BCC Rangewide (CON)	Breeds Apr 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus BCC Rangewide (CON)	Breeds May 10 to Sep 10
Rusty Blackbird Euphagus carolinus BCC - BCR	Breeds elsewhere
Wood Thrush Hylocichla mustelina BCC Rangewide (CON)	Breeds May 10 to Aug 31

Listing status

The Endangered Species Act (ESA) and the guidance and policies of the U.S. Fish and Wildlife Service (Service) define many categories of listing statuses for species. As a general rule, IPaC uses the term "listed species" to generically refer to species that may belong to any of the categories.

Endangered (E)

Any species which is in danger of extinction throughout all or a significant portion of its range. Endangered species are protected by the take prohibitions of section 9 under the ESA.

Threatened (T)

Any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Threatened species are protected by the take prohibitions of section 9, consistent with any protective regulations finalized under section 4(d) of the ESA.

Candidate (C)

Any species for which the Service has sufficient information on its biological status and threats to propose it as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate species are not protected by the take prohibitions of section 9 of the ESA.

Proposed endangered (PE)

Any species the Service has determined is in danger of extinction throughout all or a significant portion of its range and the Service has proposed a draft rule to list as endangered. Proposed endangered species are not protected by the take prohibitions of section 9 of the ESA until the rule to list is finalized. Under section 7(a)(4) of the ESA, federal agencies must confer with the Service if their action will jeopardize the continued existence of a proposed species.

Proposed threatened (PT)

Any species the Service has determined is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and the Service has proposed a draft rule to list as threatened. Proposed threatened species are not protected by the take prohibitions of section 9, consistent with any protective regulations finalized under section 4(d) of the ESA, until the rule to list is finalized. Under section 7(a)(4) of the ESA, federal agencies must confer with the Service if their action will jeopardize the continued existence of a proposed species.

Similarity of Appearance, Endangered (SAE)

Any species listed as endangered due to similarity of appearance with another species that is listed as endangered. Species listed under a similarity of appearance are not biologically endangered and are not subject to section 7 consultation. Listing by similarity of appearance depends on the degree of difficulty law enforcement personnel would have in distinguishing the species from an endangered species and where the additional threat posed to the endangered species by the similarity of appearance. Species listed under a similarity of appearance may be protected by the take prohibitions of section 9 under the ESA, where they overlap with the listed entity they were listed to protect.

Similarity of Appearance, Threatened (SAT)

Any species listed as threatened due to similarity of appearance with another species that is listed as threatened. Species listed under a similarity of appearance are not biologically endangered and are not subject to section 7 consultation. Listing by similarity of appearance depends on the degree of difficulty law enforcement personnel would have in distinguishing the species from a threatened species and where the additional threat posed to the threatened species by the similarity of appearance. Species listed under a similarity of appearance may be protected by the take prohibitions of section 9 under the ESA, where they overlap with the listed entity they were listed to protect.

Proposed Similarity of Appearance, Endangered (PSAE)

Any species proposed for listing as endangered due to similarity of appearance with another species that is listed as endangered, but a final rule to list has not yet been published. Species proposed for listing under a similarity of appearance are not biologically endangered and are not subject to section 7 consultation. Listing by similarity of appearance depends on the degree of difficulty law enforcement personnel would have in distinguishing the species from an endangered species and where the additional threat posed to the endangered species by the similarity of appearance. Proposed similarity of appearance are not protected by the take prohibitions of section 9 of the ESA until the rule is finalized.

Proposed Similarity of Appearance, Threatened (PSAT)

Any species proposed for listing as threatened due to similarity of appearance with another species that is listed as threatened, but a final rule to list has not yet been published. Species proposed for listing under a similarity of appearance are not biologically threatened and are not subject to section 7 consultation. Listing by similarity of appearance depends on the degree of difficulty law enforcement personnel would have in distinguishing the species from a threatened species and where the additional threat posed to the threatened species by the similarity of appearance. Proposed threatened species are not protected by the take prohibitions of section 9 of the ESA until the rule is finalized.

Emergency listing, Endangered (EmE)

Any species for which the Secretary of the Department of the Interior (Secretary) has determined it is at significant immediate risk of survival and publishes an emergency listing as endangered. The emergency listing is temporary (240 days). During this time the Service evaluates the species under standard listing protocols. Emergency-listed endangered species are afforded all the protections afforded by the ESA.

Emergency listing, Threatened (EmT)

Any species for which the Secretary has determined it is at significant immediate risk of survival and publishes an emergency listing as threatened. The emergency listing is temporary (240 days). During this time the Service evaluates the species under standard listing protocols. Emergency-listed threatened species are protected by the take prohibitions of section 9, consistent with any protective regulations finalized under section 4(d) of the ESA.

Experimental population, Essential (EXPE)

A population that has been established within its historical range under section 10(j) of the ESA to aid recovery of the species. The Service has determined an essential population is necessary for the continued existence of the species. Essential experimental populations are treated as threatened species and afforded all the protections afforded to threatened species by the ESA.

Experimental population, Non-essential (EXPN)

A population that has been established within its historical range under section 10(j) of the ESA to aid recovery of the species. The Service has determined a non-essential population is not necessary for the continued existence of the species. For the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under 7(a)(2) of the ESA) and as a proposed species on private land (no section 7(a)(2) requirements, but Federal agencies must not jeopardize their existence (section 7(a)(4))).

Proposed experimental population, Essential (PEXPE)

A population that has been proposed for establishment within its historical range under section 10(j) of the ESA to aid recovery of the species. The Service has proposed an essential population is necessary for the continued existence of the species. Proposed essential experimental populations will be treated as threatened species and afforded all the protections afforded to threatened species by the ESA when finalized. Prior to a final designation under section 10(j) of the ESA, proposed experimental populations do not require consultation under section 7(a)(2) of the ESA and are not protected by the take prohibitions of section 9. Federal agencies must confer with the Service for any actions that may jeopardize the continued existence of proposed species.

Proposed experimental population, Non-essential (PEXPN)

A population that has been proposed for establishment within its historical range under section 10(j) of the ESA to aid recovery of the species. The Service has determined a non-essential population is not necessary for the continued existence of the species. Once finalized, for the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under 7(a)(2) of the ESA) and as a proposed species on private land (no section 7(a)(2) requirements, but Federal agencies must not jeopardize their existence (section 7(a)(4))). Federal agencies must confer with the Service for any actions that may jeopardize the continued existence of proposed species.

Birds of Conservation Concern (BBC)

Bird Conservation Region (BBR)

Continental United States and Alaska (CON)

USFWS Information for Planning and Consultation tool (IPac)

(https://ipac.ecosphere.fws.gov/location and upload shapefile of watershed)

(https://ipac.ecosphere.fws.gov/status/list)

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. Swearinger, 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.

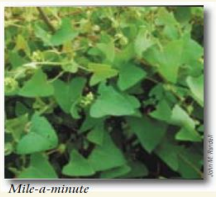
How do they differ from native species?

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

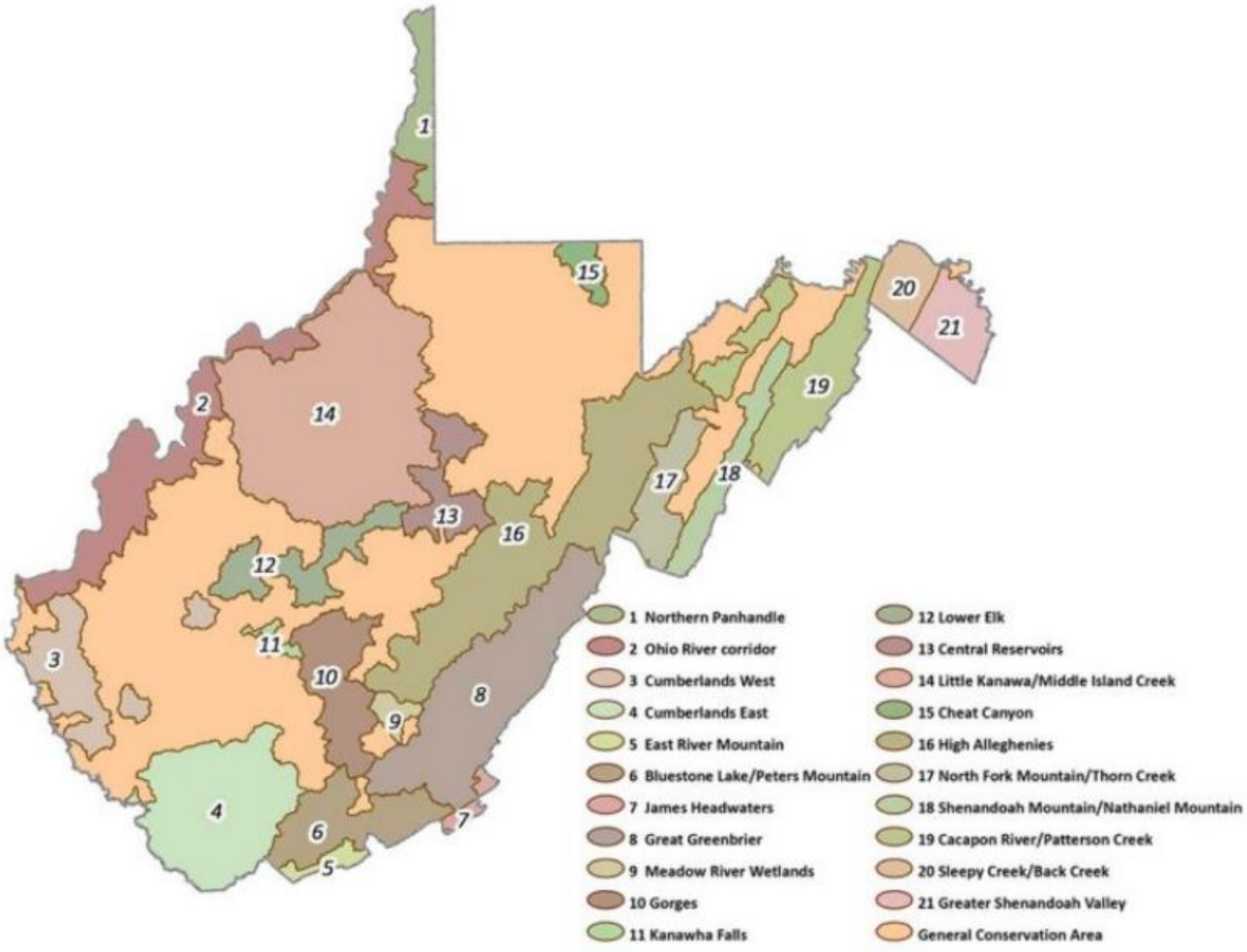
Many agencies and private landowners are using native alternatives for conservation purposes, and many West Virginia nurseries sell varieties derived from local communities to be sold as alternatives to exotic species.

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 Wolf Creek Watershed

Common Name	Scientific Name	Name Category	G Rank	S Rank
Allegheny Mountain Dusky Salamander	*Desmognathus ochrophaeus*	Vertebrate Animal	G5	S4
Allegheny Woodrat	*Neotoma magister*	Vertebrate Animal	G3G4	S3
Appalachian-Cumberland Sycamore - Birch Riverscour Woodland	*Platanus occidentalis - Betula nigra / Cornus amomum / (Andropogon gerardii, Chasmanthium latifolium) Floodplain Forest*	International Vegetation Classification - Natural	G3	S3
Big Bluestem - Blue Wild Indigo Riverscour Prairie	*Andropogon gerardii - Panicum virgatum - Baptisia australis Riverscour Prairie*	International Vegetation Classification - Natural	G3	S1
Black Bullhead	*Ameiurus melas*	Vertebrate Animal	G5	S1
Black Striate Snail	*Striatura ferrea*	Invertebrate Animal	G5	S3
Black-edge Sedge	*Carex nigromarginata*	Vascular Plant	G5	S3
Blackseed Needlegrass	*Piptochaetium avenaceum*	Vascular Plant	G5	S2
Blue Ridge Bittercress	*Cardamine flagellifera*	Vascular Plant	G3	S2
Blue Wild Indigo	*Baptisia australis var. australis*	Vascular Plant	G5T3T4	S3
Blue-winged Warbler	*Vermivora cyanoptera*	Vertebrate Animal	G5	S3B
Broad-headed Skink	*Eumeces (Plestiodon) laticeps*	Vertebrate Animal	G5	S2
Bronze Pinecone Snail	*Strobilops aeneus*	Invertebrate Animal	G5	SNR
Butternut	*Juglans cinerea*	Vascular Plant	G3	S2
Canada Frostweed	*Helianthemum canadense*	Vascular Plant	G5	S2
Cave Salamander	*Eurycea lucifuga*	Vertebrate Animal	G5	S3
Cerulean Warbler	*Setophaga cerulea*	Vertebrate Animal	G4	S2B
Chestnut Oak (- Hemlock) / Catawba Rosebay Forest	*Quercus prinus - (Tsuga canadensis) / Oxydendrum arboreum / Rhododendron catawbiense - Rhododendron maximum Forest*	International Vegetation Classification - Natural	G4	S2
Cliff Top Virginia Pine Forest	*Pinus virginiana - Nyssa sylvatica / Smilax rotundifolia - Vaccinium pallidum Forest*	International Vegetation Classification - Natural	G3	S2
Climbing Fumitory	*Adlumia fungosa*	Vascular Plant	G4	S2
Common Black-bellied Salamander	*Desmognathus quadramaculatus*	Vertebrate Animal	G5	S3
Common Rocktripe Acidic Rock Outcrop	*Umbilicaria mammulata Cliff Nonvascular Vegetation*	International Vegetation Classification - Natural	G4	S3
Common Wormsnake	*Carphophis amoenus amoenus*	Vertebrate Animal	G5	S3
Cow Path Tiger Beetle	*Cicindela purpurea*	Invertebrate Animal	G5	S3
Cumberland Plateau Salamander	*Plethodon kentucki*	Vertebrate Animal	G4	S3
Cup-plant	*Silphium perfoliatum var. perfoliatum*	Vascular Plant	G5T5	S2
Curtiss' Milkwort	*Polygala curtissii*	Vascular Plant	G5	S2
Diana Fritillary	*Argynnis diana*	Invertebrate Animal	G2	S2
Dwarf Anemone	*Anemone quinquefolia var. minima*	Vascular Plant	G5T3	S2
Eastern Copperhead	*Agkistrodon contortrix mokasen*	Vertebrate Animal	G5	S5
Eastern Small-footed Myotis	*Myotis leibii*	Vertebrate Animal	G4	S1
Eastern Spotted Skunk	*Spilogale putorius*	Vertebrate Animal	G4	S2
Field Sparrow	*Spizella pusilla*	Vertebrate Animal	G5	S3BS3N
Flat-stem Spikerush	*Eleocharis compressa*	Vascular Plant	G4	S2
Globe Beakrush	*Rhynchospora recognita*	Vascular Plant	G5	S2
Godfrey's Boneset	*Eupatorium godfreyanum*	Vascular Plant	G4	S2S3
Gray Petaltail	*Tachopteryx thoreyi*	Invertebrate Animal	G4	S3
Green Salamander	*Aneides aeneus*	Vertebrate Animal	G3G4	S3
Hemlock - Hardwood / Great Laurel Acidic Cove Forest	Tsuga canadensis - Liriodendron tulipifera - Betula lenta / Rhododendron maximum Forest	International Vegetation Classification - Natural	G5	S4

Common Name	Scientific Name	Name Category	G Rank	S Rank
Hemlock Witchgrass	*Dichanthelium sabulorum var. thinium*	Vascular Plant	G5T5	S1
Indiana Myotis	*Myotis sodalis*	Vertebrate Animal	G2	S1
Jefferson Salamander	*Ambystoma jeffersonianum*	Vertebrate Animal	G4	S2
Kentucky Warbler	*Geothlypis formosa*	Vertebrate Animal	G5	S3B
Large-seed Forget-me-not	*Myosotis macrosperma*	Vascular Plant	G5	S3
Little Brown Myotis	*Myotis lucifugus*	Vertebrate Animal	G3G4	S2
Longtail Salamander	*Eurycea longicauda*	Vertebrate Animal	G5	S5
Long-tailed Shrew	*Sorex dispar*	Vertebrate Animal	G4	S2S3
Mcdowell's Sunflower	*Helianthus occidentalis ssp. occidentalis*	Vascular Plant	G5T5	S2
Midland Mud Salamander	*Pseudotriton montanus diastictus*	Vertebrate Animal	G5T5	S1
Mountain Chorus Frog	*Pseudacris brachyphona*	Vertebrate Animal	GNR	S4
Mountain Meadowrue	*Thalictrum clavatum*	Vascular Plant	G4	S2
Narrow Melicgrass	*Melica mutica*	Vascular Plant	G5	S2
New River Sycamore - Ash Floodplain Forest	*Platanus occidentalis - Fraxinus pennsylvanica / Carpinus caroliniana / Verbesina alternifolia Floodplain Forest*	International Vegetation Classification - Natural	G3Q	S2
Nodding Pogonia	*Triphora trianthophora*	Vascular Plant	G4	S2
Northern Black Racer	*Coluber constrictor constrictor*	Vertebrate Animal	G5T5	S5
Northern Croton	*Croton glandulosus var. septentrionalis*	Vascular Plant	G5T5	S2
Northern Dusky Salamander	*Desmognathus fuscus*	Vertebrate Animal	G5	S5
Northern Long-eared Bat	*Myotis septentrionalis*	Vertebrate Animal	G2G3	S1S2
Northern Red Salamander	*Pseudotriton ruber ruber*	Vertebrate Animal	G5T5	S3
Northern Ring-necked Snake	*Diadophis punctatus edwardsii*	Vertebrate Animal	G5T5	S5
Northern Spring Salamander	*Gyrinophilus porphyriticus porphyriticus*	Vertebrate Animal	G5T5	S5
Northern Two-lined Salamander	*Eurycea bislineata*	Vertebrate Animal	G5	S5
One-spotted Tiger Beetle	*Cylindera unipunctata*	Invertebrate Animal	G4G5	S3
Prairie Straw Sedge	*Carex suberecta*	Vascular Plant	G4	S1
Purple Needlegrass	*Aristida purpurascens*	Vascular Plant	G5	S1
Queensnake	*Regina septemvittata*	Vertebrate Animal	G5	S4
Red Maple - White Oak Forest Seep	*Acer rubrum - Nyssa sylvatica - Quercus alba / Osmunda cinnamomea - Thelypteris noveboracensis Forest Seep*	International Vegetation Classification - Natural	G2	S2
Rock Grape	*Vitis rupestris*	Vascular Plant	G3	S2
Rock Skullcap	*Scutellaria saxatilis*	Vascular Plant	G3G4	S2
Rough Greensnake	*Opheodrys aestivus*	Vertebrate Animal	G5	S2
Sculptured Dome	*Ventridens collisella*	Invertebrate Animal	G4	S3
Seal Salamander	*Desmognathus monticola*	Vertebrate Animal	G5	S5
Silky Oatgrass	*Danthonia sericea*	Vascular Plant	G5	S1
Slender Dayflower	*Commelina erecta*	Vascular Plant	G5	S2
Slimy Salamander	*Plethodon glutinosus*	Vertebrate Animal	G5	S5
Small Purple Fringed Orchid	*Platanthera psycodes*	Vascular Plant	G5	S1
Smooth Blue Aster	*Symphyotrichum laeve var. laeve*	Vascular Plant	G5T5	S3
Smooth Hedge-nettle	*Stachys tenuifolia*	Vascular Plant	G5	S3
Smyth's Green Comma	*Polygonia faunus smythi*	Invertebrate Animal	G5T3	S1
Southern Appalachian Oak / Heath Forest	*Quercus prinus - Quercus (velutina, coccinea) / Oxydendron arboreum / Kalmia latifolia / (Galax urceolata) Forest*	International Vegetation Classification - Natural	G5	S4
Southern Pygmy Shrew	*Sorex hoyi winnemana*	Vertebrate Animal	G5T4	S2S3
Southern Two-lined Salamander	*Eurycea cirrigera*	Vertebrate Animal	G5	S5
Swainson's Warbler	*Limnothlypis swainsonii*	Vertebrate Animal	G4	S3B
Thinleaf Sedge	*Carex cephaloidea*	Vascular Plant	G5	S1
Thread-like Naiad	*Najas gracillima*	Vascular Plant	G5	S2

Common Name	Scientific Name	Name Category	G Rank	S Rank
Torrey's Mountainmint	*Pycnanthemum torrei*	Vascular Plant	G2	S1
Tricolored Bat	*Perimyotis subflavus*	Vertebrate Animal	G3G4	S2
Umbel-like Sedge	*Carex tonsa var. rugosperma*	Vascular Plant	G5T5	S2S3
Virginia Big-eared Bat	*Corynorhinus townsendii virginianus*	Vertebrate Animal	G4T4	S2
Virginia Mallow	*Ripariosida hermaphrodita*	Vascular Plant	G3	S3
Water Smartweed	*Polygonum amphibium*	Vascular Plant	G5	S3S4
Wehrle's Salamander	*Plethodon wehrlei*	Vertebrate Animal	G4	S4
Western Hairy Rockcress	*Arabis hirsuta var. pycnocarpa*	Vascular Plant	G5T5	S2
Western Plateaus Dry Sandstone Cliff	*Lepraria (normandinioides, finkii, cryophila) - Phlyctis petraea - Porpidia albocaerulescens Dry Sandstone Cliff*	International Vegetation Classification - Natural	G4Q	S2
Wood Thrush	*Hylocichla mustelina*	Vertebrate Animal	G4	S3B
Woodland Box Turtle	*Terrapene carolina carolina*	Vertebrate Animal	G5T5	S5
Worm-eating Warbler	*Helmitheros vermivorum*	Vertebrate Animal	G5	S3B
Yellow Fringed Orchid	*Platanthera ciliaris*	Vascular Plant	G5	S3
Dichanthelium acuminatum ssp. columbianum	*hairy rosette-panicgrass*	Vascular Plant	G5	S1

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

Nonindigenous Aquatic Species

None

Invasive Species

Animals:

Common Name	Scientific Name
pig (feral), wild boar at large	*Sus scrofa (feral type)*

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
Asian gypsy moth	*Lymantria dispar asiatica*
Asiatic oak weevil	*Cyrtepistomus castaneus*
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*
large aspen tortrix	*Choristoneura conflictana*
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 honesty	*Lunaria annua*
annual ragweed	*Ambrosia artemisiifolia var. elatior*

Common Name	Scientific Name
annual sowthistle	*Sonchus oleraceus*
apple-of-Peru	*Nicandra physalodes*
Asiatic dayflower	*Commelina communis*
asparagus	*Asparagus officinalis*
autumn olive	*Elaeagnus umbellate*
bald brome	*Bromus racemosus*
barnyardgrass	*Echinochloa crus-galli*
bermudagrass	*Cynodon dactylon*
big chickweed	*Cerastium fontanum ssp. vulgare*
bigroot morning-glory	*Ipomoea pandurate*
birdsrape mustard	*Brassica rapa*
bittersweets	*Celastrus spp.*
black locust	*Robinia pseudoacacia*
black medic	*Medicago lupulina*
bladder senna	*Colutea arborescens*
bluebuttons, field scabious	*Knautia arvensis*
bouncingbet	*Saponaria officinalis*
bristlegrass	*Setaria spp.*
bristly locust	*Robinia hispida*
brittleleaf naiad	*Najas minor*
broadleaf dock	*Rumex obtusifolius*
broadleaf plantain	*Plantago major*
broomsedge bluestem	*Andropogon virginicus*
buckhorn plantain	*Plantago lanceolata*
buckwheat	*Fagopyrum esculentum*
bulbous buttercup	*Ranunculus bulbosus*
bull thistle	*Cirsium vulgare*
bush honeysuckles (exotic)	*Lonicera spp.*
bushy wallflower	*Erysimum repandum*
butterflybush	*Buddleja davidii*
California privet	*Ligustrum ovalifolium*
Callery pear (Bradford pear)	*Pyrus calleryana*
Canada bluegrass	*Poa compressa*
Canada thistle	*Cirsium arvense*
Canadian horseweed	*Erigeron canadensis*
carpet bugle	*Ajuga reptans*
catnip	*Nepeta cataria*
cheatgrass, downy brome	*Bromus tectorum*
chicory	*Cichorium intybus*
Chinese catalpa	*Catalpa ovata*
Chinese silvergrass	*Miscanthus sinensis*
Chinese wisteria	*Wisteria sinensis*

Common Name	Scientific Name
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 cocklebur	*Xanthium strumarium*
common cornsalad	*Valerianella locusta*
common dandelion	*Taraxacum officinale ssp. officinale*
common duckweed	*Lemna minor*
common flax	*Linum usitatissimum*
common groundsel	*Senecio vulgaris*
common mallow	*Malva neglecta*
common mouse-ear chickweed	*Cerastium fontanum*
common mullein	*Verbascum Thapsus*
common pear	*Pyrus communis*
common periwinkle	*Vinca minor*
common pokeweed	*Phytolacca americana*
common ragweed	*Ambrosia artemisiifolia*
common selfheal	*Prunella vulgaris*
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*
corn spurry	*Spergula arvensis*
crack willow	*Salix fragilis*
cranberry viburnum, European highbush cranberry	*Viburnum opulus ssp. opulus*
creeping bellflower	*Campanula rapunculoides*
creeping bentgrass	*Agrostis stolonifera*
creeping buttercup	*Ranunculus repens*
creeping yellow loosestrife, creeping Jenny	*Lysimachia nummularia*
crested latesummer mint	*Elsholtzia ciliate*
cup rosinweed	*Silphium perfoliatum*
curly dock	*Rumex crispus*
curly dock	*Rumex crispus ssp. crispus*
curly leaf pondweed	*Potamogeton crispus*

Common Name	Scientific Name
cutleaf blackberry	*Rubus laciniatus*
cutleaf evening-primrose	*Oenothera laciniata*
cutleaf teasel	*Dipsacus laciniatus*
cypress spurge	*Euphorbia cyparissias*
dallisgrass	*Paspalum dilatatum*
dames rocket	*Hesperis matronalis*
dandelion	*Taraxacum officinale*
Deptford pink	*Dianthus armeria*
dog mustard	*Erucastrum gallicum*
dog rose	*Rosa canina*
dotted smartweed	*Persicaria punctata*
dwarf snapdragon	*Chaenorhinum minus*
eastern poison-ivy	*Toxicodendron radicans*
eastern redcedar	*Juniperus virginiana*
eastern white pine	*Pinus strobus*
eclipta	*Eclipta prostrata*
English daisy	*Bellis perennis*
English ivy	*Hedera helix*
European columbine	*Aquilegia vulgaris*
European common reed, Phragmites	*Phragmites australis ssp. australis*
European cranberrybush	*Viburnum opulus*
European privet	*Ligustrum vulgare*
European red raspberry	*Rubus idaeus*
everlasting peavine	*Lathyrus latifolius*
fall panicum	*Panicum dichotomiflorum*
false strawberry	*Potentilla indica*
field bindweed	*Convolvulus arvensis*
field brome	*Bromus arvensis*
field dodder	*Cuscuta pentagona*
field horsetail	*Equisetum arvense*
field madder	*Sherardia arvensis*
field pepperweed	*Lepidium campestre*
field thistle	*Cirsium discolor*
fiveangled dodder	*Cuscuta pentagona var. pentagona*
fortune meadowsweet	*Spiraea japonica var. fortune*
foxglove	*Digitalis purpurea*
foxtail millet	*Setaria italica*
garden loosestrife	*Lysimachia vulgaris*
garlic mustard	*Alliaria petiolate*
giant foxtail	*Setaria faberi*
giant knotweed	*Reynoutria sachalinensis*
giant ragweed	*Ambrosia trifida*

Common Name	Scientific Name
giantseed goosefoot	*Chenopodium simplex*
glossy buckthorn	*Frangula alnus*
goosegrass	*Eleusine indica*
goutweed	*Aegopodium podagraria*
greater celandine	*Chelidonium majus*
green bristlegrass	*Setaria viridis var. viridis*
green foxtail	*Setaria viridis*
ground ivy	*Glechoma hederacea*
hairy cat's ear	*Hypochaeris radicata*
hairy galinsoga	*Galinsoga quadriradiata*
hairy vetch	*Vicia villosa*
hedge bindweed	*Calystegia sepium*
hedge maple	*Acer campestre*
hedge mustard	*Sisymbrium officinale*
hemp dogbane	*Apocynum cannabinum*
hemp/marijuana (sativa)	*Cannabis sativa*
henbit	*Lamium amplexicaule*
highbush blackberry	*Rubus argutus*
hop clover	*Trifolium aureum*
horsenettle	*Solanum carolinense*
hydrilla	*Hydrilla verticillate*
ivyleaf morning-glory	*Ipomoea hederacea*
ivyleaf speedwell	*Veronica hederifolia*
Japanese barberry	*Berberis thunbergia*
Japanese hedge-parsley, erect hedgeparsley	*Torilis japonica*
Japanese honeysuckle	*Lonicera japonica*
Japanese hop	*Humulus japonicus*
Japanese knotweed	*Reynoutria japonica*
Japanese snowball	*Viburnum plicatum*
Japanese spiraea	*Spiraea japonica*
Japanese stiltgrass	*Microstegium vimineum*
jimsonweed	*Datura stramonium*
johnsongrass	*Sorghum halepense*
Kentucky bluegrass	*Poa pratensis*
knotroot foxtail	*Setaria parviflora*
knotweed species (nonnative)	*Reynoutria spp.*
Korean lespedeza	*Kummerowia stipulacea*
kudzu	*Pueraria montana var. lobata*
Kummerowia	*Kummerowia spp.*
ladysthumb	*Persicaria maculosa*
lambsquarters	*Chenopodium album*
large crabgrass	*Digitaria sanguinalis*

Common Name	Scientific Name
large hop clover	*Trifolium campestre*
largeseed falseflax	*Camelina sativa*
lemon balm	*Melissa officinalis*
little starwort	*Stellaria graminea*
Lombardy poplar	*Populus nigra*
longleaf groundcherry	*Physalis longifolia*
longspine sandbur	*Cenchrus longispinus*
longstalk cranesbill	*Geranium columbinum*
marsh-pepper smartweed	*Persicaria hydropiper*
meadow fescue	*Festuca pratensis*
meadow hawkweed	*Hieracium caespitosum*
meadow salsify	*Tragopogon lamottei*
memorial rose	*Rosa lucieae*
mexicantea	*Dysphania ambrosioides*
mimosa	*Albizia julibrissin*
moist sowthistle	*Sonchus arvensis ssp. uliginosus*
Morrow's honeysuckle	*Lonicera morrowii*
moth mullein	*Verbascum blattaria*
motherwort	*Leonurus cardiaca*
mouse-eared hawkweed	*Pilosella officinarum*
mugwort	*Artemisia vulgaris*
multiflora rose	*Rosa multiflora*
musk thistle, nodding thistle	*Carduus nutans*
narrow-leaved cattail	*Typha angustifolia*
narrowleaf bittercress	*Cardamine impatiens*
nimblewill	*Muhlenbergia schreberi*
nipplewort	*Lapsana communis*
northern catalpa	*Catalpa speciosa*
northern white cedar	*Thuja occidentalis*
Norway maple	*Acer platanoides*
Norway spruce	*Picea abies*
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*
paradise apple	*Malus pumila*
peach	*Prunus persica*
peppermint	*Mentha x piperita*

Common Name	Scientific Name
perennial ryegrass	*Lolium perenne*
perennial ryegrass	*Lolium perenne ssp. perenne*
perennial sowthistle	*Sonchus arvensis*
perilla mint	*Perilla frutescens*
periwinkle	*Vinca spp.*
pineapple-weed	*Matricaria discoidea*
pitted morning-glory	*Ipomoea lacunose*
poison hemlock	*Conium maculatum*
poverty brome	*Bromus sterilis*
prickly lettuce	*Lactuca serriola*
princess-feather	*Persicaria orientalis*
princesstree	*Paulownia tomentosa*
privet	*Ligustrum spp.*
prostrate knotweed	*Polygonum aviculare*
purple crown-vetch	*Securigera varia*
purple cudweed	*Gamochaeta purpurea*
purple deadnettle	*Lamium purpureum*
purple loosestrife	*Lythrum salicaria*
purpleosier willow	*Salix purpurea*
quackgrass	*Elymus repens*
Queen Anne's lace, wild carrot	*Daucus carota*
rabbitfoot clover	*Trifolium arvense*
red clover	*Trifolium pratense*
red morning-glory	*Ipomoea coccinea*
red sorrel	*Rumex acetosella*
redstem filaree	*Erodium cicutarium*
redstem stork's bill	*Erodium cicutarium ssp. cicutarium*
redtop	*Agrostis gigantea*
reed canarygrass	*Phalaris arundinacea*
rock dandelion	*Taraxacum erythrospermum*
rose of Sharon	*Hibiscus syriacus*
Hibiscus syriacus	*Poa trivialis*
rye brome	*Bromus secalinus*
Scotch broom	*Cytisus scoparius*
Scots pine	*Pinus sylvestris*
Seaside rose	*Rosa rugosa*
sensitive partridgepea	*Chamaecrista nictitans*
sericea lespedeza	*Lespedeza cuneata*
shepherd's-purse	*Capsella bursa-pastoris*
showy fly honeysuckle, Bell's honeysuckle	*Lonicera x bella*
shrubby lespedeza	*Lespedeza bicolor*
Siberian elm	*Ulmus pumila*

Common Name	Scientific Name
Siebold's arrowwood	*Viburnum sieboldii*
silvery cinquefoil	*Potentilla argentea*
small carpetgrass, joint-head grass	*Arthraxon hispidus*
smallseed falseflax	*Camelina microcarpa*
smooth brome	*Bromus inermis*
smooth hawksbeard	*Crepis capillaris*
sour cherry	*Prunus cerasus*
southern catalpa	*Catalpa bignonioides*
spanishneedles	*Bidens bipinnata*
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*
spreading hedgeparsley	*Torilis arvensis*
spreading hedgeparsley	*Torilis arvensis ssp. arvensis*
spring whitlowgrass	*Draba verna*
star-of-Bethlehem	*Ornithogalum umbellatum*
sticky chickweed	*Cerastium glomeratum*
stinkgrass	*Eragrostis cilianensis*
stinking chamomile	*Anthemis cotula*
sulfur cinquefoil	*Potentilla recta*
sweet autumn virginsbower	*Clematis terniflora*
sweet cherry	*Prunus avium*
sweet vernalgrass	*Anthoxanthum odoratum*
tall buttercup	*Ranunculus acris*
tall fescue	*Festuca arundinacea*
tall lettuce	*Lactuca canadensis*
tall morning-glory	*Ipomoea purpurea*
tall oatgrass	*Arrhenatherum elatius*
tall thistle	*Cirsium altissimum*
Tatarian honeysuckle	*Lonicera tatarica*
tawny daylily	*Hemerocallis fulva*
thymeleaf sandwort	*Arenaria serpyllifolia*
thymeleaf speedwell	*Veronica serpyllifolia*
thymeleaf speedwell	*Veronica serpyllifolia ssp. serpyllifolia*
timothy	*Phleum pratense*
toothed spurge	*Euphorbia dentata*
tree-of-heaven	*Ailanthus altissima*
true forget-me-not	*Myosotis scorpioides*
tumble mustard	*Sisymbrium altissimum*

Common Name	Scientific Name
twoleaf watermilfoil	*Myriophyllum heterophyllum*
velvetleaf	*Abutilon theophrasti*
Virginia pepperweed	*Lepidium virginicum*
water speedwell	*Veronica anagallis-aquatica*
watercress	*Nasturtium officinale*
waterpurslane	*Ludwigia palustris*
weeping lovegrass	*Eragrostis curvula*
western salsify	*Tragopogon dubius*
white clover	*Trifolium repens*
white mulberry	*Morus alba*
white mustard	*Sinapis alba*
white poplar	*Populus alba*
white willow	*Salix alba*
wild buckwheat	*Fallopia convolvulus*
wild garlic	*Allium vineale*
wild mustard	*Sinapis arvensis*
wild onion	*Allium canadense*
wild parsnip	*Pastinaca sativa*
willowleaf lettuce	*Lactuca saligna*
wine raspberry	*Rubus phoenicolasius*
winged burning bush	*Euonymus alatus*
Wisconsin weeping willow	*Salix x penduline*
wisterias	*Wisteria spp.*
woodland strawberry	*Fragaria vesca*
woodland strawberry	*Fragaria vesca ssp. vesca*
yellow foxtail	*Setaria pumila*
yellow nutsedge	*Cyperus esculentus*
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)