NRCS West Virginia

Preliminary Investigation Findings Report (PIFR)

Cheat River Watershed (HUC #05020004)

January 2023

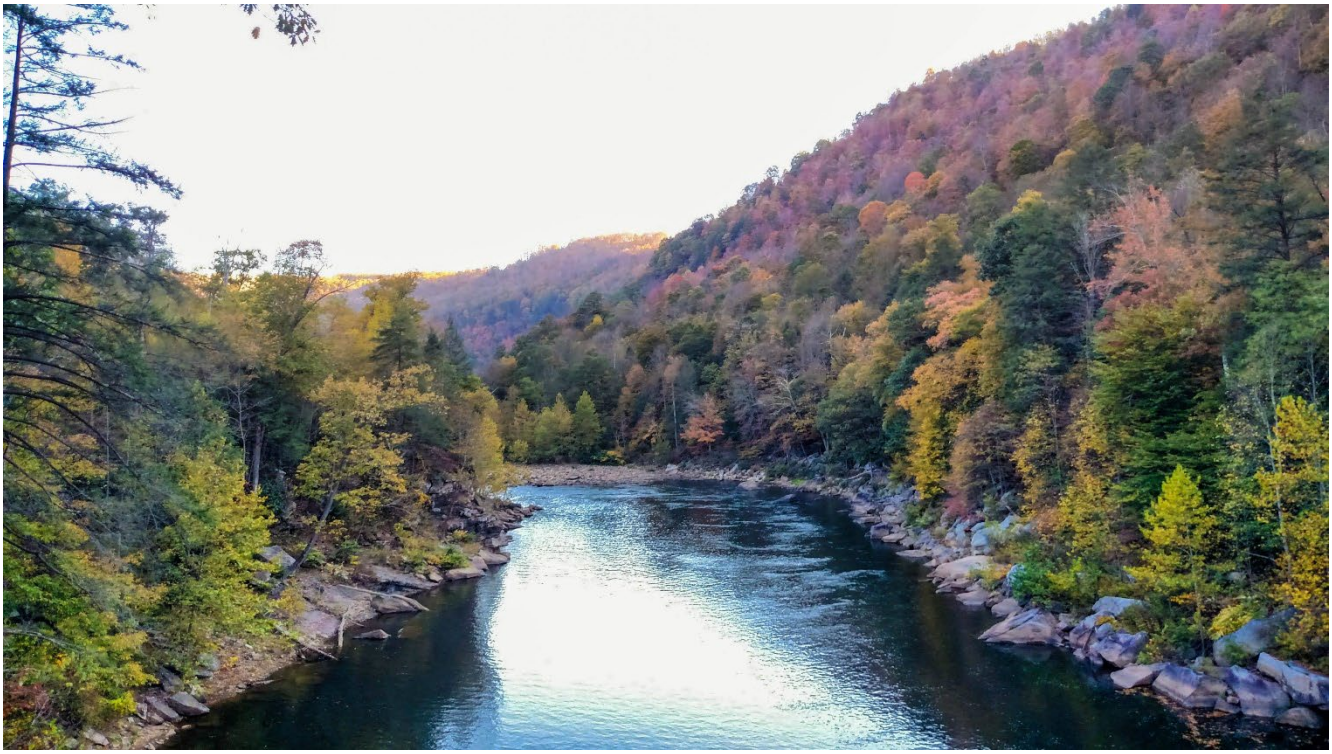


Table of Contents

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 Cheat River Watershed that may be eligible for a planning study according to the Watershed Protection and Flood Prevention Act (PL 83-566). The watershed spans several counties, including parts of Monongalia, Preston, Tucker, Randolph, and Pocahontas Counties. The Monongahela Conservation District (MCD), acting on behalf of the Friends of Cheat Watershed organization, requested formal assistance from the NRCS Watershed Operations Program.

The study area is located within Cheat River Watershed HUC 8 (05020004) within the West Virginia state boundary, which includes parts of five counties in West Virginia, and covers an area of 847,969 acres. The watershed will be divided into subwatersheds for more detailed study should the sponsors request more planning. The area is primarily forested, with small farms, small communities, and small towns. The Cheat River Watershed has several towns designated as 'mountain forest towns' by the US Forest Service. It is an area rich with recreational opportunities, including fishing, hunting, hiking, white water rafting, camping, scenic beauty, and public enjoyment.

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

The project is PL 83-566 compatible because it aims to prevent damage from flooding, further the utilization and disposal of water, and ensure proper utilization of land. The watershed would be narrowed down to less than 250,000 acres for the planning phase. The local sponsor is the Monongahela Conservation District.

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 Monongahela Conservation District (MCD) requested assistance with conducting a Preliminary Investigation and Feasibility Report (PIFR) for a potential watershed project in the Cheat River Watershed (8 - digit HUC (05020004)). This assistance is authorized under the Watershed Protection and Flood Prevention Act (Public Law 83-566). The MCD is interested in being a sponsor for a watershed plan in the Cheat River Watershed and they meet the PL 83-566 criteria for a sponsor. Agricultural and forested lands compose most of the watershed. Flood prevention 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: **847,969** 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

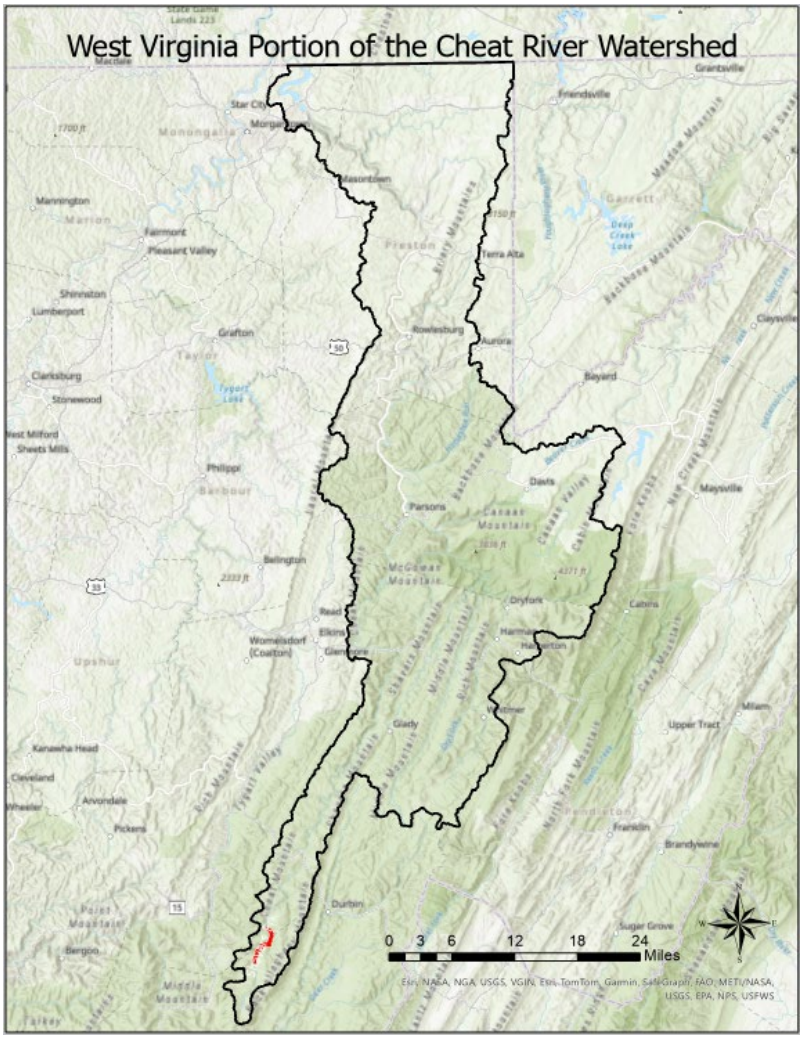
Potential for 20% Agricultural (Rural) Benefits

Several subwatersheds in the Cheat River Watershed are rural with fewer than 50,000 people. Agriculture, forestry, resource extraction (coal and limestone), recreation-based small businesses and service industries make up the majority of economic activity in the watershed. Populations potentially benefitting from a project would include rural landowners, farmers, homeowners and renters, road users, business owners, and the general public.

References:

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

Project Overview	
Proposed Project Name	Cheat River Watershed 8 - digit HUC (05020004)
State	West Virginia
County	Monongalia, Preston, Tucker, Randolph, Pocahontas Counties
Congressional District	1st and 2nd Congressional Districts

USGS Hydrologic Unit Code (HUC) and Watershed Name	 **Map of Cheat River Watershed** **Monongalia, Preston, Tucker, Randolph and Pocahontas Counties, WV** 8 - digit HUC (05020004) NRCS assisted on 4.5 miles of Natural Stream Restoration on the Shavers Fork River in Randolph and Pocahontas County which is delineated in red. **Total Watershed Drainage Area: 847,969 acres**
General Coordinates of the Watershed	Latitude 39.013789° , Longitude -79.590431°

Project Setting	***Reference:*** Title 190 – NECH 610.69 The Cheat River Subwatershed of the Monongahela River Watershed is located mostly in MLRA 127, Eastern Allegheny Plateau & Mountains, and a very small portion near its' confluence with the Monongahela lies in MLRS 126, Central Allegheny Plateau. The Cheat River flows in a northwest direction to its confluence with the Monongahela River at Pt. Marion, Pennsylvania. The Monongahela River joins the Allegheny River at Pittsburgh to form the Ohio River. The Ohio River eventually joins the Mississippi River at Cairo, Illinois. The Mississippi flows into the Gulf of Mexico. The focus of this preliminary study is the portion of the watershed within West Virginia. The total watershed drainage area for this focus area in West Virginia is 847,969 Acres. This breaks down to 17,833 Acres in Pocahontas County, 263,059 Acres in Randolph County, 269,362 Acres in Tucker County, 273,953 Acres in Preston County, and 28,593 Acres in Monongalia County. The topography in the watershed includes several mountain peaks over 4,500' MSL. An unnamed peak on Thorny Flat of Cheat Mountain reaches an elevation of 4,849' MSL which is the second highest mountain in the Allegheny Range and in West Virginia. It is located in the southern end of the watershed in the headwaters of Shavers Fork. The low point in the watershed is 778' MSL at the confluence of the Cheat River with the Monongahela River at Pt. Marion, Pennsylvania. The upper reaches of Shavers Fork, a tributary of the Cheat, constitute the highest river in the eastern United States. Communities in the watershed include Whitmer, Harman, Thomas, Davis, Rowlesburg, Albright, Kingwood, Bruceton Mills, Cheat Lake, St. George, Bemis, Glady, Hambleton, Hendricks & Parsons, West Virginia. In general, the small portion of the Cheat River Watershed in MLRA 126, Central Allegheny Plateau, is a highly dissected plateau with a dendritic drainage pattern. The plateau is underlain mainly by horizontal bedded sandstone, coal seams, siltstone, and shale and a few layers of limestone. The narrow, level valleys and narrow, sloping ridgetops are separated by long, steep to very steep side slopes. The ridge tops average about 15 to 30 percent in slope and about 1/8 mile to 1/4 mile in width. The ridges have steep side slopes that average 30 to 45 percent in slope. The stream heads have worked up the slopes so that the ridgetops are usually a series of knobs and saddles. Because of the steep topography that dominates the watershed, hillside creep and geologic erosion have been active. The portion of the watershed in MLRA 127, Eastern Allegheny Plateau & Mountains geology is characterized by mostly flat-lying sedimentary beds. The overall topography is that of a high but strongly dissected plateau sharply cut by the Cheat River Gorge 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. North central West Virginia, much like the rest of the state, experiences moderately cold winters and warm, humid summers. West Virginia has the highest average elevation east of the Mississippi River which helps moderate summer temperatures. The jet stream is located near or over the northeast during the winter bringing frequent storm systems to the watershed Monongalia County, in an average year, receives 43 inches of rain and 28 inches of snow. The average summer high is 84 degrees Fahrenheit in July, and the average winter low is 21 degrees Fahrenheit in January. Preston County, in an average year, receives 50 inches of rain and 75 inches of snow. The average summer high is 81 degrees Fahrenheit in July, and the average winter low is 19 degrees Fahrenheit in January. Tucker County, in an average year, receives 52 inches of rain and 86 inches of snow. The average summer high is 79 degrees Fahrenheit in July, and the average winter low is 18 degrees Fahrenheit in January. Randolph County, in an average year, receives 51 inches of rain and 81 inches of snow. The average summer high is 79 degrees Fahrenheit in July, and the average winter low is 18 degrees Fahrenheit in January. Pocahontas County, in an average year, receives 47 inches of rain and 60 inches of snow. The average summer high is 79 degrees Fahrenheit in July, and the average winter low is 16 degrees Fahrenheit in January.
Potential Project Area - Size	Cheat River Watershed 8 - digit HUC (05020004) 847,969 acres

Resource Information	
Soils	The project area lies within Major Land Resource Areas (MLRA) 126 and 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 sedimentation, failing septic systems, nutrients, mining, abandoned mines, barren lands, oil and gas production, and runoff from rural landscapes. 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. There are other public service districts in the watershed that use rivers, which get low in the summer months.

Landuse Type	Area of Watershed		
	Acres	Square Miles	Percentage
Water	8188.6	12.8	0.9%
Wetland	7671.3	12.0	0.8%
Barren	6362.0	9.9	0.7%
Forest	772277.9	1206.7	84.9%
Grassland	43540.2	68.0	4.8%
Cropland	14557.4	22.7	1.6%
Pasture	4917.3	7.7	0.5%
Urban/Residential	44235.1	69.1	4.9%
Mining	5454.5	8.5	0.6%
AML	2809.9	4.4	0.3%
Total Area	910014.1	1421.9	100.0%

The two sub-watersheds considered the headwaters, Dry Fork and Shavers Fork, are not considered to be impaired by the TMDL. All other sub-watersheds are considered to have water quality impairments. Overall, a fecal coliform load reduction of 6.55E+14 counts/year is required to bring the watershed into state standards. 5.11E+14 counts/year is required from pasture/cropland sources, 2.58E+13 counts/year is required from failing onsite sewer systems, 7.01E+12 counts/year from residential stormwater sources, and 5.29E+13 counts/year are from various sources in Pennsylvania. The watershed also has significant metal loads. The TMDL indicates that to bring the watershed into compliance with state standards, 3100069 lbs./year of iron will need to be reduced from the overall load on the streams. 2739581 lbs./year from abandoned mines, 108324 lbs./year from forest harvesting, 482 lbs./year from oil and gas, 10193 lbs./year from barren lands, 165126 lbs./year from urban and residential stormwater, and 76362 lbs./year from streambank erosion. Aluminum load reductions of 1546379 lbs./year and Manganese load reductions of 9101 lbs./year are also required from streams associated with abandoned mines.

Water Quality Impairments

Stream Name	NHD Code	Trout	pH	Fe	Al	Mn	FC	Bio
Cheat River	WV-MC			x				
UNT/Cheat River RM 7.70	WV-MC-10		x	x	x			
UNT/Cheat River RM 8.39	WV-MC-11		x	x	x			
Blackwater River	WV-MC-124-K	Yes		x	x			
Tub Run	WV-MC-124-K-11		x		x			
Finley Run	WV-MC-124-K-14		x	x	x			
North Fork/Blackwater River	WV-MC-124-K-15		x	x	x			
Long Run	WV-MC-124-K-15-C		x	x	x			x
Middle Run	WV-MC-124-K-15-D		x					
Snyder Run	WV-MC-124-K-15-E		x					
Sand Run	WV-MC-124-K-15-H	Yes		x	x		x	x
Beaver Creek	WV-MC-124-K-23		x					
Hawkins Run	WV-MC-124-K-23-C		x		x			
UNT/Beaver Creek RM 8.81	WV-MC-124-K-23-H		x					
UNT/Beaver Creek RM 11.36	WV-MC-124-K-23-J	Yes	x	x	x			
UNT/Beaver Creek RM 11.91	WV-MC-124-K-23-K		x					
Big Run	WV-MC-124-K-8		x					
Coles Run	WV-MC-13						x	x
Kelly Run	WV-MC-13-A			x			x	x
Birch Hollow	WV-MC-13-D						x	
Crammeys Run	WV-MC-14						x	
Whites Run	WV-MC-15						x	x
Maple Run	WV-MC-16		x		x			
UNT/Cheat River RM 1.85	WV-MC-2		x	x	x			
Bull Run	WV-MC-25		x	x	x			x
UNT/Bull Run RM 1.64	WV-MC-25-A		x		x			
Middle Run	WV-MC-25-B		x	x	x			
Mountain Run	WV-MC-25-C		x		x			
Lick Run	WV-MC-25-C-1		x	x	x			
UNT/Bull Run RM 3.73	WV-MC-25-D		x	x	x			
Right Fork Bull Run	WV-MC-25-E		x		x			x

Water Quality Impairments Continued								
Stream Name	NHD Code	Trout	pH	Fe	Al	Mn	FC	Bio
Left Fork Bull Run	WV-MC-25-F		x					
Big Sandy Creek	WV-MC-27		x	x			x	x
UNT/Big Sandy Creek RM 2.91	WV-MC-27-B		x	x	x			
Sovern Run	WV-MC-27-F		x		x		x	x
Parker Run	WV-MC-27-H			x			x	
Little Laurel Run	WV-MC-27-I-4	Yes	x		x			
Little Sandy Creek	WV-MC-27-J	Yes		x			x	
Elk Run	WV-MC-27-J-10		x					
Piney Run	WV-MC-27-J-11	Yes	x	x			x	
Cherry Run	WV-MC-27-J-12	Yes		x	x		x	
UNT/Cherry Run RM 1.96	WV-MC-27-J-12-D		x	x				
Mill Run	WV-MC-27-J-13	Yes		x	x			
Webster Run	WV-MC-27-J-2						x	
UNT/Webster Run RM 1.25	WV-MC-27-J-2-B		x		x			x
UNT/Little Sandy Creek RM 2.80	WV-MC-27-J-3						x	
UNT/Little Sandy Creek RM 5.04	WV-MC-27-J-5						x	
Beaver Creek	WV-MC-27-J-6	Yes	x	x	x			
Glade Run	WV-MC-27-J-6-B						x	
UNT/Beaver Creek RM 1.25	WV-MC-27-J-6-C		x					
UNT/Beaver Creek RM 1.68	WV-MC-27-J-6-D		x		x			
Barnes Run	WV-MC-27-J-7						x	
Hog Run	WV-MC-27-J-9	Yes		x				
Hazel Run	WV-MC-27-K	Yes	x	x	x		x	x
Glade Run	WV-MC-27-M			x			x	
UNT/Big Sandy Creek RM 10.23	WV-MC-27-N						x	
Glade Run	WV-MC-27-T			x			x	
Conner Run	WV-MC-30		x	x	x			
Greens Run	WV-MC-38		x	x	x			x
South Fork/Greens Run	WV-MC-38-C		x	x	x			x
UNT/South Fork RM 0.63/Greens Run	WV-MC-38-C-1		x	x	x			x

Water Quality Impairments Continued								
Stream Name	**NHD Code**	**Trout**	**pH**	**Fe**	**Al**	**Mn**	**FC**	**Bio**
Muddy Creek	WV-MC-39	Yes	x	x	x		x	x
Sypolt Run	WV-MC-39-B		x	x				
Crab Orchard Run	WV-MC-39-D			x				
Martin Creek	WV-MC-39-E		x	x	x			x
Fickey Run	WV-MC-39-E-1		x	x	x		x	x
Glade Run	WV-MC-39-E-2		x	x	x			x
UNT/Glade Run RM 1.06	WV-MC-39-E-2-A		x	x	x			
UNT/Glade Run RM 1.36	WV-MC-39-E-2-B		x	x	x			
UNT/Muddy Creek RM 9.80	WV-MC-39-I			x			x	
UNT/UNT RM 0.12/Muddy Creek RM 9.80	WV-MC-39-I-1		x		x			
Jump Rock Run	WV-MC-39-J	Yes	x	x	x			
Sugarcamp Run	WV-MC-39-L	Yes	x		x			
Roaring Creek	WV-MC-40	Yes			x			
UNT/Roaring Creek RM 0.34	WV-MC-40-A						x	
Lick Run	WV-MC-40-C		x					
Little Lick Run	WV-MC-40-C-1						x	
UNT/Ragtavern Run RM 0.81	WV-MC-44-A-1						x	
Buffalo Run	WV-MC-47		x		x			
UNT/Cheat River RM 4.07	WV-MC-5		x	x	x			
Morgan Run	WV-MC-50		x	x	x			x
UNT/Morgan Run RM 1.03	WV-MC-50-A			x			x	x
UNT/UNT RM 0.34/Morgan Run RM 1.03	WV-MC-50-A-1						x	
Church Creek	WV-MC-50-B		x	x	x			x
UNT/Church Creek RM 1.26	WV-MC-50-B-1		x	x	x			
UNT/UNT RM 0.12/Church Creek RM 1.26	WV-MC-50-B-1-A		x	x	x			
Heather Run	WV-MC-52		x	x	x	x		x
UNT/Heather Run RM 1.47	WV-MC-52-A						x	
Lick Run	WV-MC-54		x	x	x	x		x
UNT/Lick Run RM 1.04	WV-MC-54-A		x	x	x	x		
Joes Run	WV-MC-55		x		x	x		x

Pringle Run	WV-MC-56		x	x	x	x		x
Water Quality Impairments Continued								
Stream Name	**NHD Code**	**Trout**	**pH**	**Fe**	**Al**	**Mn**	**FC**	**Bio**
UNT/Pringle Run RM 3.17	WV-MC-56-C		x	x	x			
UNT/Pringle Run RM 3.33	WV-MC-56-D		x	x	x			
UNT/Pringle Run RM 3.60	WV-MC-56-E		x	x	x			
Buckhorn Run	WV-MC-61		x					
Spruce Run	WV-MC-67-D	Yes		x				
Bucklick Run	WV-MC-67-J	Yes					x	
Birchroot Run	WV-MC-68-I						x	
Blackwater River	WV-MC-124-K	Yes	x					
Tub Run	WV-MC-124-K-11			x				
Middle Run	WV-MC-124-K-15-D			x	x			
Beaver Creek	WV-MC-124-K-23			x	x			
Coles Run	WV-MC-13			x				
Crammeys Run	WV-MC-14			x				
Whites Run	WV-MC-15			x				
UNT/Bull Run RM 1.64	WV-MC-25-A			x				
Mountain Run	WV-MC-25-C			x				
Right Fork Bull Run	WV-MC-25-E			x				
Left Fork Bull Run	WV-MC-25-F			x	x			
Sovern Run	WV-MC-27-F			x				
Parker Run	WV-MC-27-H		x					
Little Laurel Run	WV-MC-27-I-4	Yes		x				
Little Sandy Creek	WV-MC-27-J	Yes	x		x			
Piney Run	WV-MC-27-J-11	Yes			x			
Cherry Run	WV-MC-27-J-12	Yes	x					
Mill Run	WV-MC-27-J-13	Yes	x					
Webster Run	WV-MC-27-J-2		x	x				
UNT/Webster Run RM 1.25	WV-MC-27-J-2-B			x				
Glade Run	WV-MC-27-J-6-B		x	x	x			
UNT/Beaver Creek RM 1.68	WV-MC-27-J-6-D			x				
Barnes Run	WV-MC-27-J-7		x					
Hog Run	WV-MC-27-J-9	Yes	x		x			
UNT/Muddy Creek RM 9.80	WV-MC-39-I		x					
Sugarcamp Run	WV-MC-39-L	Yes		x				
Roaring Creek	WV-MC-40	Yes	x	x				
Lick Run	WV-MC-40-C				x			

Little Lick Run	WV-MC-40-C-1		x		x				

Water Quality Impairments Continued

Stream Name	NHD Code	Trout	pH	Fe	Al	Mn	FC	Bio
Buffalo Run	WV-MC-47			x				
UNT/Morgan Run RM 1.03	WV-MC-50-A		x		x			
UNT/UNT RM 0.34/Morgan Run RM 1.03	WV-MC-50-A-1			x				
Joes Run	WV-MC-55			x				
Bucklick Run	WV-MC-67-J	Yes		x				

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 including surface, abandoned, and deep mines; oil and gas; and windmills are abundant in this part of the state.

Human

Demographics:

Census information is provided for all the counties that contain all or part of the Cheat River Watershed. For reference, the WV population in 2020 was about 1.7 million and the state has decreased in population by 3% since the 2010 Census.

County	2020 Census Population	Population Change 2010 to 2020	Population Density Persons/square mile
Monongalia	105,822	+10%	293.9
Preston	34,216	+2%	52.7
Tucker	6,762	-5%	16.1
Randolph	27,932	-5%	26.9
Pocahontas	7,869	-10%	8.4

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

POPULATION	
Total Population	107,492 (100%)
Population in Households	99,352 (92.4%)
Population in Families	62,719 (58.3%)
Population in Group Quarters[1]	8,140 (7.6%)
Population Density	299
Diversity Index[2]	32

HOUSING	
Total HU (Housing Units)	51,074 (100%)
Owner Occupied HU	26,208 (51.3%)
Renter Occupied HU	19,067 (37.3%)
Vacant Housing Units	5,799 (11.4%)
Median Home Value	$245,735
Average Home Value	$291,253
Housing Affordability Index[3]	124

INCOME	
Median Household Income	$62,871
Average Household Income	$98,436
% of Income for Mortgage[4]	21%
Per Capita Income	$41,806
Wealth Index[5]	91

HOUSEHOLDS	
Total Households	45,275
Average Household Size	2.19
Family Households	21,641
Average Family Size	3.00

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

POPULATION	
Total Population	34,122 (100%)
Population in Households	30,763 (90.2%)
Population in Families	25,115 (73.6%)
Population in Group Quarters[1]	3,359 (9.8%)
Population Density	53
Diversity Index[2]	22

HOUSING	
Total HU (Housing Units)	15,266 (100%)
Owner Occupied HU	10,795 (70.7%)
Renter Occupied HU	2,120 (13.9%)
Vacant Housing Units	2,351 (15.4%)
Median Home Value	$148,500
Average Home Value	$190,623
Housing Affordability Index[3]	173

INCOME	
Median Household Income	$52,785
Average Household Income	$72,612
% of Income for Mortgage[4]	15%
Per Capita Income	$27,923
Wealth Index[5]	60

HOUSEHOLDS	
Total Households	12,915
Average Household Size	2.38
Family Households	8,769
Average Family Size	3.00

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

POPULATION	
Total Population	6,653 (100%)
Population in Households	6,534 (98.2%)
Population in Families	5,244 (78.8%)
Population in Group Quarters[1]	119 (1.8%)
Population Density	16
Diversity Index[2]	11

HOUSING	
Total HU (Housing Units)	4,616 (100%)
Owner Occupied HU	2,327 (50.4%)
Renter Occupied HU	631 (13.7%)
Vacant Housing Units	1,658 (35.9%)
Median Home Value	$132,679
Average Home Value	$201,321
Housing Affordability Index[3]	194

INCOME	
Median Household Income	$51,759
Average Household Income	$61,261
% of Income for Mortgage[4]	14%
Per Capita Income	$27,262
Wealth Index[5]	44

HOUSEHOLDS	
Total Households	2,958
Average Household Size	2.21
Family Households	1,918
Average Family Size	3.00

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

POPULATION	
Total Population	27,555 (100%)
Population in Households	25,107 (91.1%)
Population in Families	19,880 (72.1%)
Population in Group Quarters[1]	2,448 (8.9%)
Population Density	27
Diversity Index[2]	15

HOUSING	
Total HU (Housing Units)	13,032 (100%)
Owner Occupied HU	7,644 (58.7%)
Renter Occupied HU	3,175 (24.4%)
Vacant Housing Units	2,213 (17.0%)
Median Home Value	$132,363
Average Home Value	$168,377
Housing Affordability Index[3]	196

INCOME	
Median Household Income	$52,815
Average Household Income	$73,344
% of Income for Mortgage[4]	13%
Per Capita Income	$28,833
Wealth Index[5]	60

HOUSEHOLDS	
Total Households	10,819
Average Household Size	2.32
Family Households	6,920
Average Family Size	3.00

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

POPULATION	
Total Population	7,650 (100%)
Population in Households	7,359 (96.2%)
Population in Families	5,640 (73.7%)
Population in Group Quarters[1]	291 (3.8%)
Population Density	8
Diversity Index[2]	12

HOUSING	
Total HU (Housing Units)	6,633 (100%)
Owner Occupied HU	2,774 (41.8%)
Renter Occupied HU	598 (9.0%)
Vacant Housing Units	3,261 (49.2%)
Median Home Value	$122,343
Average Home Value	$153,172
Housing Affordability Index[3]	179

INCOME	
Median Household Income	$43,670
Average Household Income	$61,158
% of Income for Mortgage[4]	15%
Per Capita Income	$27,009
Wealth Index[5]	49

HOUSEHOLDS	
Total Households	3,372
Average Household Size	2.18
Family Households	2,048
Average Family Size	3.00

https://westvirginia.hometownlocator.com/counties/

Quality of Life: According to USNews, quality of life indicators vary among the counties in the watershed. The table below summarizes the composite scores

Location	*Score*
United States	*47*
West Virginia	*36*
Monongalia	*54*
Preston	*36*
Tucker	*44*
Randolph	*36*
Pocahontas	*36*

How Healthy Are West Virginia Counties? | US News Healthiest Communities

Resources of Special Concern	
Clean Water Act	Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered 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 16 Federally listed threatened, endangered, or candidate species and 2 critical habitats 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.

<table>
<tr><td>Environmental Justice</td><td>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.

All of the counties in the watershed are completely within the Appalachian Region. These counties are not designated as limited resource counties by USDA. However, Monongalia, Preston, and Tucker are are designated as ‘transitional’ by the Appalachian Regional Commission, indicating that local economies still need improvement. Randolph and Pocahontas Counties are designation as ‘at risk’ indicating their economies are weak.

https://www.arc.gov/

Race and poverty statistics in the watershed are as follows:

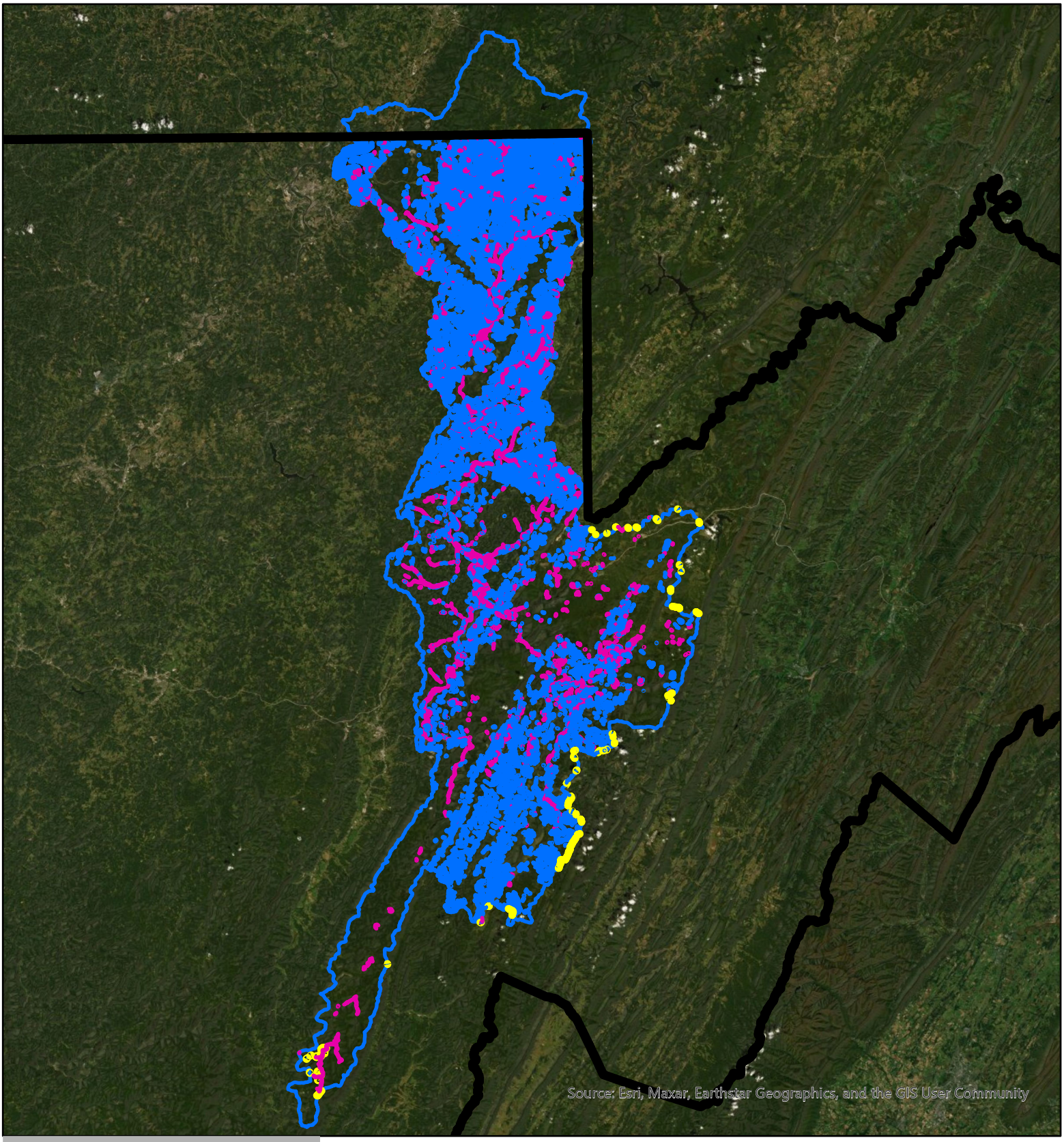
<table>
<tr><th>Location</th><th>% White</th><th>Poverty Rate</th></tr>
<tr><td>United States</td><td>75.8%</td><td>11.6%</td></tr>
<tr><td>West Virginia</td><td>93.1%</td><td>16.8%</td></tr>
<tr><td>Monongalia County</td><td>89.9%</td><td>15.2%</td></tr>
<tr><td>Preston County</td><td>97.2%</td><td>15.7%</td></tr>
<tr><td>Tucker County</td><td>97.9%</td><td>13.8%</td></tr>
<tr><td>Randolph County</td><td>96.1%</td><td>15.2%</td></tr>
<tr><td>Pocahontas County</td><td>96.1%</td><td>18.1%</td></tr>
</table>

https://www.census.gov/quickfacts/fact/table/</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Essential Fish Habitat</td><td>NA</td></tr>
</table>

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. The Cheat River Watershed 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. Monongalia County has a Floodplain Coordinator. For Monongalia County there is a: -major flooding risk to 3,747 of 29,296 residences -extreme flooding risk to 904 out of 2,467 miles of roads -extreme risk of flooding to 542 out of 1,813 commercial properties -major risk of flooding to 34 out of 75 infrastructure facilities -moderate risk of flooding to 19 out of 119 social facilities Data obtained from Monongalia County, West Virginia Flood Factor® Report | Risk Factor Preston county has a Floodplain ordinance but no record of a Floodplain Coordinator can be found. For Preston County there is a: -major flooding risk to 1,993 of 13,216 residences -severe flooding risk to 951 out of 3,317 miles of roads -severe risk of flooding to 125 out of 542 commercial properties -major risk of flooding to 26 out of 58 infrastructure facilities -major risk of flooding to 14 out of 50 social facilities. Data obtained from Preston County, West Virginia Flood Factor® Report | Risk Factor No similar information is available for Pocahontas, Randolph, & Tucker Counties. Pocahontas County West Virginia has adopted a Floodplain Ordinance on 11-3-2010. The county also has a Floodplain Coordinator. Tucker County West Virginia has adopted a Floodplain Ordinance on 9/10/2014. The County also has a Floodplain Coordinator. No information could be found concerning adoption of a Floodplain Ordinance or a Floodplain Coordinator for Randolph County.

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 are 3 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 Cheat River Watershed habitats. There is a total of 18 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 Fish and Wildlife Service manages the Canaan Valley National Wildlife Refuge area in Tucker County; the US Forest Service manages the Monongahela National Forest in Preston, Tucker, Randolph, and Pocahontas Counties. State: The West Virginia Division of Natural Resources manages the 382 acre Cass Scenic Railroad State Park, the 6,015 acre Canaan Valley Resort State Park, the 2,358 acre Blackwater Falls State Park, the 9,482 acre Calvin Price State Forest, the 12,747 acre Coopers Rock State Forest, the 79,526 acre Cheat Wildlife Management Area, the 121,552 Little River Wildlife Management Area, the 40,622 acre Beaver Dam Wildlife Management Area, the 145,942 acre Potomac Wildlife Management Area, the 67,588 acre Otter Creek Wildlife Management Area, the 61,289 acre Blackwater Wildlife Management Area, and the 3,071 acre Little Canaan Wildlife Management Area, the 2,854 acre Cheat Canyon Wildlife Management Area, 2,957 acre Snake Hill Wildlife Management Area. Solly Sods, Laurel Fork North and Laurel Fork South Wilderness Areas, and Cathedral State Park. These areas are within the watershed. Brooklyn Heights Preserve, Bear Rocks Preserve, Mt Porte Crayon Preserve, and Upper Shavers Fork Preserve is owned by the Nature Conservancy. Upper Cheat Mountain and Thunderstruck Rock are owned by private landowners but are in an easement with the Nature Conservancy.
Prime and Unique Farmlands	Presently there are 25,296 acres of Prime Farmland, which accounts for 3% of land in the study area. Additionally, there are 204 acres of Farmland of Local Importance and 128,545 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land in a portion of the watershed. The threat of conversion in the entire watershed, 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 utilized for agricultural purposes.

Scenic Beauty	Areas of potential scenic beauty in this watershed are typical of the Allegheny Mountain physiographic province and common to the area.
Wetlands	There are 34,230 acres of wetlands within the Cheat River Watershed which consist of the following: 7,633 acres of Freshwater Emergent Wetlands; 12,042 acres of Freshwater Forested/Shrub Wetlands; 1,136 acres of Freshwater Pond; 1,748 acres of Lake, and 11,671 acres of Riverine. Data collected from the US Fish and Wildlife Service National Wetlands Inventory.
Wild and Scenic Rivers	All trout streams in Pocahontas, Randolph, Preston, and Tucker Counties; waters in the Spruce Knob Recreation Areas in Randolph County; rivers within the Monongahela National Forest designated as National Wild and Scenic Study Rivers in Tucker, Randolph, Preston, and Pocahontas Counties; all streams and tributaries as contained within the boundaries of designated National Wilderness Areas or the headwaters of the Cranberry River in Pocahontas County, Red Creek in Tucker County, and Laurel Fork and Otter Creek in Randolph and Tucker Counties are designated as "Waters of Special Concern."



Legend

WV State Boundary

FARMLNDCL

All areas are prime farmland

Farmland of local importance

Farmland of statewide importance

Cheat River Watershed Farmland Classification

N

W E

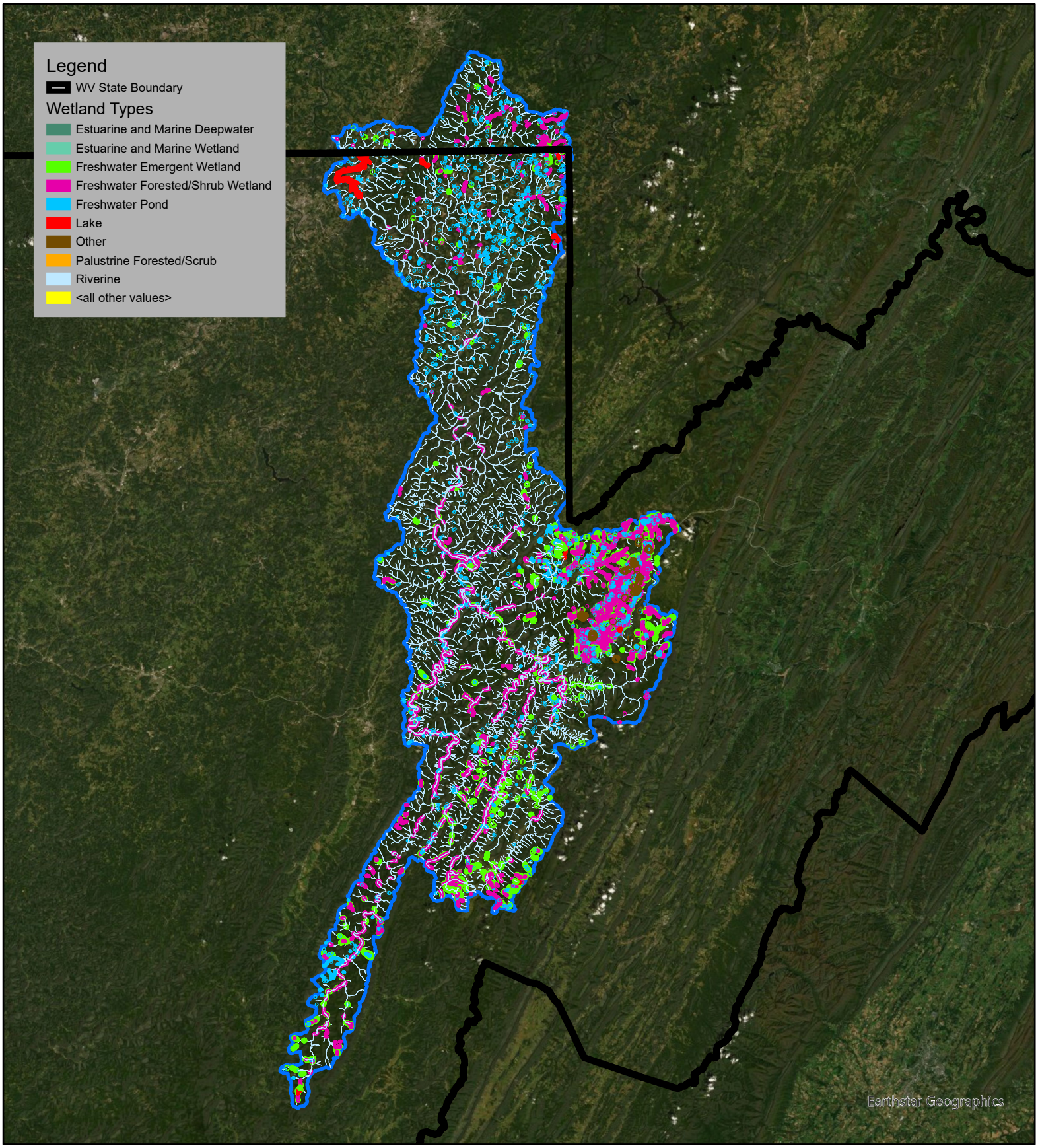
S

0 5 10 19 29 38

Kilometers

USDA is an equal opportunity provider, employer, and leader

USDA



Cheat River Watershed
National Wetlands Inventory

N
W E
S

0 5 10 20 30 40
Kilometers

USDA is an equal opportunity provider, employer, and leader

USDA

Proposed Project Purpose and Need Statement

The purpose of the proposed project is to address resource concerns in the Cheat River Watershed where landowners and municipalities are experiencing flooding, poor water quality, diminished recreational opportunities, limited rural water, erosion, sedimentation, habitat impairment and other resource problems. It is anticipated that the primary PL 566 project purpose will be flood prevention, with watershed protection, public recreation, public fish and wildlife management, water quality management, and industrial and municipal water supply as additional objectives. NRCS assisted on 4.5 miles of Natural Stream Restoration on the Shavers Fork River in Randolph and Pocahontas County within the Cheat River Watershed, which is still providing benefits to the watershed. There are opportunities to increase flood protection and improve other resource concerns in the watershed.

Resource Concerns and Opportunities

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

Resources	**Concerns**	**Opportunities**
Water	• Non-point source pollution of surface water and groundwater • Non-attainment of drinking water standards in some communities • Flooding	• Improve farming profitability • Enhance recreation • Address flood risk management concerns
Soil	• Organic matter depletion is likely due to soil loss, compaction resulting in reduced infiltration on agricultural lands and urban lands, impervious surfaces. Erosion on farms is most likely from overgrazing and bare soil areas.	• Reduce impacts to soils and improve soil health
Air	• No air quality issues present	• Monitor state air data for potential issues

Plant	• Lack of plant species diversity and presence of invasive species.	• Increase of plant diversity with the establishment of native regionally appropriate species.

Animals	• Lack of game and non-game species diversity and habitat diversity	• Provide appropriate game and non- game habitat.
Energy	• Potential damage to energy infrastructure from flooding	• Efficiencies in energy use • Improvements to air quality
Human	• Decreasing population • Labor shortages and declining tax base	• Improvements to quality of life
Recreation	• Disparate recreational access • Underutilization of water-based recreation potential	• Increase accessibility to recreation for local residents • Increased water recreation opportunities
Environmental Justice	• Persistent poverty • Flooding • Declining tax revenues for towns	• Overcome barriers to economic and human development
Cultural Resources / Historic Properties	• Full range of archaeological sites (Paleo- Indian to recent past) and historic properties eligible for listing on the National Registry of Historic Places	• Tribal and SHPO consultation

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 – Federal Action** 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**	**+**

Opportunities

Opportunities exist to provide reduce flooding, watershed protection, improve soil and plant health, manage excessive nutrients, restore stream and upland habitat, enhance recreational access, and improve water quality. The sponsors are willing to participate in the PL-566 Watershed Program, allowing NRCS to potentially implement a combination of structural practices, non-structural practices, and land treatment measures that are designed to address resource concerns.

State, Tribal, Federal Stakeholder Engagement

Notification letters were sent out to the West Virginia State Historic Preservation Office; the Conservation Agency; the Catawba Indian Nation; Delaware Nation, Oklahoma; Monacan Indian Nation, and the Osage Nation. There are known cultural, archaeological, 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, measures were identified to meet the stated purpose and need for the proposed project and alternatives were formulated according to PR&G criteria of completeness, effectiveness, efficiency, and acceptability. While all the potential alternatives listed may not be carried forward for full analysis during the planning process, this table documents that there are reasonable alternatives available to analyze and develop. The WV planning team also recognizes that during the planning process the NRCS team and local sponsors are likely to determine that the best alternative for the watershed is a combination of both nonstructural and structural measures.

Alternatives	**Possible Positive Impacts and Effects**	**Possible Adverse Impacts and Effects**
Alt 1 - No work	- No new costs to taxpayers or sponsors - No new maintenance requirements	- No flood protection - No public works project(s) - Structures remain out of compliance - Hazard to public and infrastructure increases - Maintenance becomes more expensive
Alt 2-New Flood Control Dams-	- Increased flood protection	- Loss of private land through

Installation of additional flood control dams in the watershed to increase flood protection	- Recreation opportunities - Water supply, rural, ag, municipal, & industrial - Aquatic habitat - Short term construction jobs - Increased federal investment into local infrastructure - Increased public safety - Possible power generation capabilities included - Ag water management	condemnation/easements - Loss of local tax base - Loss of farmland and/or terrestrial habitat - Loss of stream habitat - Aquatic organism passage barrier - Long term maintenance burden on sponsors - Potential relocations of homes, roads, & utilities - May require some local cost share funds
Alt 3-New Flood Control Channel- Channelization work in heavier populated area of the watershed to increase flood protection	- Increased flood protection in more urban areas - Short term construction jobs - Increased federal investment into local infrastructure - Reduce significant risk to loss of life - Provide maintenance easements alongside the constructed channel thus prohibiting future development in these areas and protecting existing urban wildlife habitat	- Loss of private land through condemnation/easements - Long term maintenance burden on sponsors - Potential relocations of utilities - May require some local cost share funds - Loss of stream habitat & riparian areas - May only reduce flooding from higher frequency storms
Alt 4 - Stream Restoration	- Restoring stream and riparian habitat - Reduced long term maintenance cost - Short term construction jobs - Majority or all federal funds - Reduction in sediment and nutrients - Increased outdoor recreation - Relatively low cost - Improved water quality - Increase in fish and wildlife populations	- No flood protection - Requires a fenced and maintained riparian area for cattle exclusion - Possible loss of pasture due to fencing
Alt 5 - Land Treatment	- Restoring forests and ag land to their production potential - No long-term maintenance cost - Majority or all federal funds - Reduction in sediment and nutrients	- No flood protection - No public works project(s)

	- Increased outdoor recreation - Relatively low cost - Improved water quality - Increase in fish and wildlife populations - Typically voluntary programs	
Alt 6 - Green Infrastructure/Low Impact Development	- Decreased flash flood events - Aquatic habitat uplift - Aesthetic improvements - Reduction in sediment and nutrients - Improved water quality - Extend life of flood control structures - Permanent jobs maintaining structures - Possible retrofitting existing structures for hydro power generation	- Funds needed for maintenance - Minor loss of land - Maintenance burden on landowners/sponsors - Increased cost of development
Alt 7 - Land Treatment, Stream Restoration, Rehab, Repair, Channelization, Green Infrastructure, New Structures	- Combination of all of the above - Huge amount of federal money provided - Several years of construction jobs - Improved flood protection, water quality, recreation, & water supply - Improved productivity on ag and forest land	- Combination of all of the above - Large amount of cost share required from local sponsors - Maintenance cost and burden increases
Alt 8 – Flood Prevention or Reduce Flood Damage with Nonstructural Measures- including but not limited to floodproofing building/facilities within the flood zone, acquisition of floodplain lands for recreation/fish and wildlife habitat, moving buildings and facilities from the flood zone, conversion of land use to natural setting	- Elimination of threat to life and property - Floodplain converted to natural state - Increased wildlife habitat - Enhancing learning and recreation opportunities - Flood recovery costs significantly reduced	- Relocation of cemeteries and utilities - Loss of cultural values in the community - Displacement of local businesses, schools, and public facilities - Increased resistance to relocation and property condemnation

Facilitating Factors

The Monongalia Conservation District (MCD) is willing to work with NRCS to see projects through to completion.

Obstructing Factors

The watershed will have to be evaluated on a subwatershed basis. This may increase the time and expense. Local funding is dependent on state appropriations and local government budgets.

Environmental Document

Potentially viable alternatives to resource problems will be further defined in the next phase of planning. Additional needs such as flooding prevention, watershed protection, public recreation, public fish and wildlife, municipal or industrial water supply, and water quality 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 MCD is ready, willing, and able to be a sponsor for a potential watershed project in the Cheat River Watershed. The MCD meets the PL 83-566 sponsorship criteria for this potential watershed project and has demonstrated success on past projects. 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
Monongahela Conservation District	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. In-kind contributions are applicable only to Rehabilitation projects as outlined in 390 NWPM Part 505, Subpart D.

Potential Cooperating Agencies

Agency	Contact Information	Type of Involvement
US Army Corps of Engineers	USACE – Pittsburgh District 1000 Liberty Avenue Pittsburgh, PA 15349 412-395-7100	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
Monongahela Conservation District	Co-Sponsor	Cost-share funds	For Plan/EA attain permits and assists with Public Scoping Meetings, Mailings, and overall administration of the project.
USDA-NRCS	Lead Agency for Plan-EA, FA/TA, Reviews	Funding assistance, Technical Reviews	Reviews for project location, inventory needs, Plan-EA supplement
Army Corps of Engineers (USACE)	Section 404 permit	Technical Reviews, Wetlands-Waters of the U.S. Jurisdiction	Permitting, technical review
Catawba Indian Nation- Chief Bill Harris	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Catawba Indian Nation- Tribal Historic Preservation Officer and Catawba Cultural Center Executive Director Dr. Wenonah G. Haire	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Catawba Indian Nation- Cultural Division Program Manager Caitlin Rogers	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Delaware Nation, Oklahoma- President Deborah Dotson	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Delaware Nation, Oklahoma- Director of Historic Preservation Erin Paden	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Monacan Indian Nation- Chief Diane Shields	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Osage Nation- Director and Tribal Historic Preservation Officer Andrea A. Hunter	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Osage Nation- Principal Chief Geoffrey Standing Bear	Permit- Cultural Review	Review of Project APE	Permit for Project APE

Absentee Shawnee Tribe- Tribal Governor John Raymond	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Absentee Shawnee Tribe- Cultural Preservation Director (NAGPRA) Carol Butler	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Eastern Shawnee Tribe of Oklahoma- Tribal Historic Preservation Officer/Director of Culture Preservation Programs/NAGPRA Lora Nuckolls	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Eastern Shawnee Tribe of Oklahoma- Chief Glenna Wallace	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Shawnee Tribe- Chief Benjamin Joseph Barnes	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Shawnee Tribe- Tribal Historic Preservation Officer Tonya Tipton	Permit- Cultural Review	Review of Project APE	Permit for Project APE
West Virginia Historic Preservation Office	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

Notifications

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

Estimated Project Implementation Timeline

**Dependent on funding
Multiple sites could be worked concurrently.

Planning Start	October	2026
Planning End	October	2029 (36 months typically)
Design Start	December	2029
Design End	December	2031 (24 months typically)
Construction Start	March	2032
Construction End	November	2036 (~42 months typically)

Recommendation

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

Jon Bourdon, West Virginia State Conservationist.

By:

Name: Hannah Thacker Title: Resource Conservationist – Watershed Planner Date: 9-13-2024

Organization: Natural Resources Conservation Service (NRCS)

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

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

Preparer's Signature Signature: HANNAH THACKER Digitally signed by HANNAH THACKER Date: 2024.09.17 09:36:14 -04'00' Date: _____

State Watershed Operations Program Manager Signature: CHRISTI HICKS Digitally signed by CHRISTI HICKS Date: 2024.09.17 08:16:33 -04'00' Date: _____

State Technical Lead (SRC, SCE, Other) Signature: LEWTON DEICHERT Digitally signed by LEWTON DEICHERT Date: 2024.09.17 15:31:53 -04'00' Date: _____

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

State Conservationist Signature: JON BOURDON Digitally signed by JON BOURDON Date: 2024.09.23 15:19:46 -04'00' 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
- Appendix E: Supporting Information Appendix (T&E and Invasive Species)
- Appendix F: Cost Estimate

Appendix A.

Sponsor Letter of Request

March 23, 2022

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

Dear Mr. Bourdon:

We request NRCS Watershed Program planning assistance for a potential Public Law (PL) 566 project in Monongalia, Preston, and Tucker Counties, hydrologic unit code 05020004. A watershed project could potentially improve the water quality and address other resource concerns in the Cheat River Watershed.

The Monongahela Conservation District is a local unit of government with an interest in this watershed. By request from the Friends of Cheat, a non-profit organization that has been working to improve the watershed for nearly three decades, the District will serve as a local sponsor for this request. We understand that there is no cost to us during the preliminary feasibility phase and there is no obligation to continue with the project if feasibility is not likely. We also understand that additional local sponsors may join with us in the future. Should the study evolve into a formal PL566 watershed plan, we understand, as sponsors, that our responsibilities will include:

· Assisting in the locally led planning effort,

· Contributing a share of the project costs, as determined by NRCS, by providing funds or eligible services necessary to undertake the activity,

· Before being credited with the value of any in-kind contributions for in-kind services and/or acquisition of land rights, Sponsor will sign a Memorandum of Understanding (MOU) with NRCS,

· Obtaining any necessary real property rights, by eminent domain, if necessary,

· Obtaining any needed water rights, and regulatory permits at the Sponsor's cost,

· Agreeing to provide for any required operation and maintenance of the completed measures.

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

The names, addresses, and telephone numbers of the administrative and technical contact persons in our organization are as follows:

Richard Abel, chair of the Monongahela Conservation District Board of Supervisors

Please contact them for any additional information that you might need in assessing our request.

Sincerely,

Richard E. Abel

Richard Abel, Chair
Board of Supervisors
Monongahela Conservation District
201 Scott Avenue
Morgantown, West Virginia 26508

Phones: (O) 304-296-0081
(C) 304-751-6262

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: Monongalia, Preston, Tucker, Randolph, and Pocahontas Watershed: CHEAT RIVER

Project Name: CHEAT RIVER WATERSHED

Sponsor's Name:	**MONONGAHELA CONSERVATION DISTRICT**		
Sponsor's Mailing Address:	**201 SCOTT AVENUE MORGANTOWN WV 26508**		
Contact Name:	Mark Teets	**Phone:**	304-698-7197
Title:	Chairman MCD	**Email:**	
Sponsor Website:			

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

Frequent flooding occurs in the Cheat River Watershed. The flooding causes severe damages to neighborhood areas, crops. and infrastructure located in the floodplain. Sediment laden runoff on the surrounding areas is reducing the capacity of the creeks and drainage ditches to carry flood flows. Previously completed watershed projects are past their service life and O&M obligations and aren't functioning to full design capabilities. There is a need to provide reduction in floodwater damages and sediment being delivered into the Cheat River Watershed.

Potential benefits of a Watershed Flood Prevention Operations program project.

Benefits of a project could provide watershed protection and agricultural water management by reducing floodwater damages, erosion and sediment loading to intensified agricultural areas, residential, and infrastructure in the Cheat RiverWatershed located in Monongalia, Preston, Tucker, Randolph, and Pocahontas County.

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: Monongalia, Preston, Tucker, Randolph, and Pocahontas Watershed: CHEAT RIVERk

Project Name: CHEAT RIVER 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): Mark Teets **Title:** Chairman MCD

Signature: Mark Teets **Date:** 8/12/24

Specific Watershed Programs information can be found at: https://usdagcc.sharepoint.com/sites/nrcs_programs/watershed/

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: Monongahela Conservation District

B. Conservation Plan ID # (as applicable): Cheat River Watershed PIFR
Program Authority (optional): PL-566

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

C. Identification # (farm, tract, field #, etc. as required):
Cheat River Watershed
Monongalia, Preston, Tucker, Randolph, Pocahontas Counties, WV
(HUC #05020004)

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

No Action √ if RMS ☐	*Alternative 1* √ if RMS ☐	*Alternative 2* √ if RMS ☐
Flooding, sedimentation, and erosion would continue to be an issue for residents. As problems persist, land values, decreasing popluation, and land degradation would continue. Water supply would still be a concern for local residents. There would be no additional federal funds expended with this alternative	New Flood Control Dams- Installation of flood control dams in the watershed to increase flood protection. Focused funding for technical and financial assistance through the Watershed Protection and Flood Prevention Act would result in reduced sedimentation, improved water quality, protection of prime farmland, and reduce flooding in the Cheat River Watershed.	New Flood Control Channel- Channelization work in more heavily populated areas of the watershed to increase flood protection. Focused funding for technical and financial assistance through the Watershed Protection and Flood Prevention Act would result in reduced sedimentation, improved water quality, protection of prime farmland, and reduce significant loss of life in the Cheat River Watershed.

Resource Concerns

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

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)

I. Effects of Alternatives

	No Action		*Alternative 1*		*Alternative 2*	
	Amount, Status, Description *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
SOIL						
Sheet and rill erosion Sedimentation caused by erosion in the uplands of the watershed negatively impact Cheat River and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	Continued degradation of the resource without any federal action.	☐ NOT meet PC	Increased flood control and holding capacity would decrease sediment loading within streams and reduce flooding impacts on stream bank erosion due to reduced flows.	☐ NOT meet PC	Channelization would reduce streambank erosion and sedimentation by protecting adjacent streambanks.	☐ NOT meet PC

WATER						
Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Approximately 13% and 15% of residences are at major flooding risk in Monongalia and Preston Counties respectively. Flooding is a threat to property, 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. No similar information is available for Pocahontas, Randolph, & Tucker Counties.	Residences, businesses, and agricultural lands would continue to endure periodic flooding as storm frequency and intensity trends continue.	☐ NOT meet PC	Increased flood protection provided by flood retention dams would reduce impacts of flooding within the watershed.	☐ NOT meet PC	Channelization would reduce the risk of flooding in more urban areas.	☐ NOT meet PC
Sediment transported to surface water 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.	Resources would continue to be degredated. Frequent flooding will continues to scour streambanks, increasing sedimentation within streams and reducing channel capacity.	☐ NOT meet PC	Increased flood control and holding capacity would decrease sediment loading within streams and reduce flooding impacts on stream bank erosion due to reduced flows.	☐ NOT meet PC	Channelization would reduce streambank erosion and sedimentation by protecting adjacent streambanks.	☐ NOT meet PC
Nutrients transported to surface water Water quality is negatively affected by sedimentation, failing septic systems, nutrients, mining, abandoned mines, barren lands, oil and gas production, 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, residential stormwater sources, and various sources in Pennsylvania. The watershed also has significant metal loads of iron, aluminum, and manganese from abandoned mines, forest harvesting, oil and gas production, barren lands, urban and residential stormwater, and streambank erosion.	Continued degradation of the resource without any federal action.	☐ NOT meet PC	Increased flood protection provided by flood retention dams would reduce impacts of flooding within the watershed. The risk of flood waters entering homes, businesses, and livestock feeding operations causing debris and other nutrients transported down the watershed would be reduced.	☐ NOT meet PC	The creation of the channel would likely result in the need for flood plain easements on properties adjacent to the streams that may not have functioning septic systems, thus reducing the fecal coliform in the stream.	☐ NOT meet PC

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	I. (continued)					
	No Action		*Alternative 1*		*Alternative 2*	
	Amount, Status, Description *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
AIR						
No resource concern identified The watershed is not in an area recognized for regularly having impaired air quality or any significant air quality issues.	Air quality would not be impacted with no action.	☐ NOT meet PC	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	☐ NOT meet PC	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	☐ NOT meet PC
PLANTS						
Plant structure and composition The watershed provides for both agricultural crops as well as naturally vegetated areas that provide wildlife habitat. There is a lack of plant species diversity, specifically along streams in riparian areas, and a presence of invasive species.	Agricultural crops and wildlife habitat would continue to be impacted by flooding.	☐ NOT meet PC	Agricultural crops and wildlife habitat would be enhanced from a reduction in flooding and decrease in sedimentation.	☐ NOT meet PC	Agricultural crops and wildlife habitat would be enhanced from a reduction in flooding and decrease in sedimentation.	☐ NOT meet PC
ANIMALS						
Terrestrial habitat for wildlife and invertebrates Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 16 threatened, endangered, or candidate species found in the watershed.	Wildlife will continue to be temporarily displaced during flood events. Changing vegetation along stream banks due to flood damage will continue to support invasive species over native, thus reducing the quality of wildlife habitat, food and shelter.	☐ NOT meet PC	Displacement of wildlife due to excessive flooding within the watershed would likely decrease. Habitat that supports this wildlife would be less likely to be disturbed and thus reduce the spread of invasive species. Terrestrial habitat would be disturbed in the short term due to construction.	☐ NOT meet PC	Channelization could result in a loss of riparian areas in some locations, but provide wildlife habitat in more urban areas through the removal of structures along the stream and future protection of the areas through conservation easements.	☐ NOT meet PC
Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat.	Continued degradation of the resources with continued sedimentation in the stream negatively impacting aquatic invertebrate habitat.	☐ NOT meet PC	Aquatic habitat would be improved downstream of structures due to reduced sedimentation. Dams could pose a threat to aquatic habitat by restricting passage, depending on location in the watershed.	☐ NOT meet PC	Potential to negatively impact stream structure and habitat for aquatic species. Riparian areas could be decrease in some areas but enhanced in others though the removal of structures along stream and future protection of the areas through conservation easements.	☐ NOT meet PC
ENERGY						
No resource concern identified This area has various electrical, oil, and gas transmission facilities. The Albright Power Station, a coal-fired power generation facility, was closed in 2012, but the plant and supporting infrastructure remain. Active and legacy coal mining is widespread in the watershed.	No effect	☐ NOT meet PC	Hydroelectric power generation could be included as an element in the design of the structures to provide clean energy to the region.	☐ NOT meet PC	No effect	☐ NOT meet PC

Human Economic and Social Considerations			
Public Health and Safety Damaging floods occur on an annual basis with increasing severity over the past few decades. Flooding impacts residents' access to emergency services, results in loss of land, and creates unsanitary conditions in effected residences and businesses.	Agricultural landowners, residents, local businesses, transportation systems, and emergency services will continued to be negatively affected by continued flooding.	Installation of additional structures would increase flood protection of the counties' residences and business. It would also provide the opportunity for rural water supply, recreation opportunities, and a short term creation of jobs during construction.	Channelization would increase flood protection in more urban areas, create short term jobs during construction, and reduce significant risk to loss of life, however it may only reduce flooding from higher frequency storm events.

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

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

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

●Cultural Resources / Historic Properties *Guide Sheet* There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	No Effect	☐	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐
●Endangered and Threatened Species *Guide Sheet* There is a total of 16 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	No action may have the potential to negatively impact federally listed aquatic species through continued sedimentation and habitat destruction.	☐	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐
Environmental Justice *Guide Sheet* All of the counties in the	No Effect	☐	No Effect No negative impacts are anticipated. The project would	☐	No Effect No negative impacts are anticipated. The project would	☐

watershed are completely within the Appalachian Region. These counties are not designated as limited resource counties by USDA. However, Monongalia, Preston, and Tucker are are designated as 'transitional' by the Appalachian Regional Commission, indicating that local economies still need improvement. Randolph and Pocahontas Counties are designation as 'at risk' indicating their economies are weak.Monongalia County is 89.9% white and 3.9% Black or African American. Asians comprise 3.5% of the population. The diversity is likely attributed to the presence of West Virginia University in Morgantown, Monongalia County. Preston County is less diverse, with whites comprising 97.2% of the population. Tucker county is 97.9% white. Randolph County is 96.1% white. Pocahontas County is 96.1% white. The poverty rates in Monongalia, Preston, and Randolph Counties are about 15%, on par with the WV poverty rate of 15.8%. The poverty rate in Tucker County is 13.8%, below the WV poverty rate and Pocahontas is 18.1%, above the WV poverty rate. The National poverty rate is 11.4%.			benefit historically underserved residents, landowners, and communities.		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* The Cheat River Watershed has a major risk of flooding over the next few decades.	No Effect Continued risk of flooding.	☐	May Affect This alternative will result in the protection of the floodplain due to decreased flooding impacts.	☐	May Affect This alternative will result in the protection of the floodplain due to decreased flooding impacts	☐
Invasive Species *Guide Sheet* Invasive species are found in the watershed.	No Effect Continued expansion on invasive species.	☐	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐
●Migratory Birds/Bald and Golden Eagle Protection Act *Guide Sheet* Migratory birds and eagles utilize the Cheat River Watershed habitats. There is a total of 18 federally listed birds in the area. The birds listed are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location.	No Effect	☐	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐
Natural Areas *Guide Sheet* Federal: The US Fish and Wildlife Service manages the Canaan Valley National Wildlife Refugee area in Tucker County; the US Forest Service manages the Monongahela National Forest in Preston, Tucker, Randolph, and Pocahontas Counties. State: The West Virginia Division of Natural Resources manages the 382 acre Cass Scenic Railroad State Park, the 6,015 acre Canaan Valley Resort State Park, the 2,358 acre Blackwater Falls State Park, the 9,482 acre Calvin Price State Forest, the 12,747 acre Coopers Rock State Forest. These areas are within the watershed. Brooklyn Heights Preserve, Bear Rocks Preserve, Mt Porte Crayon Preserve, and Upper Shavers Fork Preserve is owned by the Nature Conservancy. Upper Cheat Mountain and Thunderstruck Rock are owned by private landowners but are in an easement with the Nature Conservancy.	No Effect	☐	No Effect	☐	No Effect	☐

Prime and Unique Farmlands *Guide Sheet* Presently there are 25,296 acres of Prime Farmland, which accounts for 3% of land in the study area. Additionally, there are 204 acres of Farmland of Local Importance and 128,545 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land in a portion of the watershed. The threat of conversion in the entire watershed, however, is not drastic.	No Effect Continued potential threat to loss of prime farm land from streambank erosion.	☐	No Effect Alternative would provide protection of prime farmland through the reduction of streambank erosion.	☐	No Effect Alternative would provide protection of prime farmland through the reduction of streambank erosion.	☐
Riparian Area *Guide Sheet* There are riparian areas present in or near the project area. Riparian areas found in this region are generally characterized as vegetated and un-vegetated. These areas are often utilized for agricultural purposes.	No Effect Continued degradation of riparian land as streambanks erode and invasive species dominate regrowth.	☐	May Affect There are riparian areas present in or near the project area and may have the potential to be impacted.	☐	May Affect There are riparian areas present in or near the project area and may have the potential to be impacted.	☐
Scenic Beauty *Guide Sheet* Areas of potential scenic beauty in this watershed are typical of the Allegheny Mountain physiographic province and common to the area.	No Effect	☐	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Allegheny Mountain physiographic province.	☐	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Allegheny Mountain physiographic province.	☐
●Wetlands *Guide Sheet* There are 34,230 acres of wetlands within the Cheat River Watershed which consist of the following: 7,633 acres of Freshwater Emergent Wetlands; 12,042 acres of Freshwater Forested/Shrub Wetlands; 1,136 acres of Freshwater Pond; 1,748 acres of Lake, and 11,671 acres of Riverine. Data collected from 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 Pocahontas, Randolph, Preston, and Tucker Counties; waters in the Spruce Knob Recreation Areas in Randolph County; rivers within the Monongahela National Forest designated as National Wild and Scenic Study Rivers in Tucker, Randolph, Preston, and Pocahontas Counties; all streams and tributaries as contained within the boundaries of designated National Wilderness Areas or the headwaters of the Cranberry River in Pocahontas County, Red Creek in Tucker County, and Laurel Fork and Otter Creek in Randolph and Tucker Counties are designated as "Waters of Special Concern."	No Effect	☐	No Effect	☐	No Effect	☐
K. Other Agencies and Broad Public Concerns	***No Action***		***Alternative 1***		***Alternative 2***	
Easements, Permissions, Public Review, or Permits Required and Agencies Consulted.	None		Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation may also be required.		New Flood Control Channel-Channelization work in more heavily populated areas of the watershed to increase flood protection.	
Cumulative Effects Narrative (Describe the cumulative impacts considered, including past, present and known future actions regardless of who performed the actions)	Absent the proper and increased application of conservation practices, cumulative effects will likely lead to continued environmental degradation.		Installation of flood control dams would increase flood protection for the community, provide recreational opportunities, and potentially supply water and energy. There would be increase burden on local sponsors for maintenance and cost share would be required from the sponsor.		Channelization of streams would increase flood protection for the more urban sections of the community. There would be increase burden on local sponsors for maintenance and cost share would be required from the sponsor.	
L. Mitigation (Record actions to avoid, minimize, and compensate)	None		Mitigation would likely be required for the length of streams impacted by construction of new impoundments. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.		Mitigation could be required for the length of streams impacted by the channel. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.	
M. Preferred Alternative	√ preferred alternative	☐	☐		☐	
	Supporting reason		Installation of flood control dams in the watershed to increase flood protection.		Installation of flood control channel in more heavily populated areas in the watershed to increase flood protection.	
N. Context (Record context of alternatives analysis)		local		local		local
The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.						

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

ENVIRONMENTAL EVALUATION WORKSHEET

A. Client Name: Monongahela Conservation District

B. Conservation Plan ID # (as applicable): Cheat River Watershed PIFR
Program Authority (optional): PL-566

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

C. Identification # (farm, tract, field #, etc. as required):
Cheat River Watershed
Monongalia, Preston, Tucker, Randolph, Pocahontas Counties, WV
(HUC #05020004)

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

H. Alternatives

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

Resource Concerns

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

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	**I. Effects of Alternatives**					
	Alternative 3		***Alternative 4***		***Alternative 5***	
	Amount, Status, Description *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
SOIL						
Sheet and rill erosion Sedimentation caused by erosion in the uplands of the watershed negatively impact Cheat River and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	No effect to upland erosion. Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks.	☐ NOT meet PC	Forest stand improvement, prescribed grazing and associated practices, cover crop, reduced tillage, and other related land treatment practices typical for the region would decrease sheet and rill erosion on upland slopes and decrease sedimentation in the stream.	☐ NOT meet PC	Reduction in soil erosion from reduced velocities of water conveyance during high rain events.	☐ NOT meet PC

WATER						
Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Approximately 13% and 15% of residences are at major flooding risk in Monongalia and Preston Counties respectively. Flooding is a threat to property, 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. No similar information is available for Pocahontas, Randolph, & Tucker Counties.	Natural stream restoration could increase the channel's capacity to hold flood waters.	☐ NOT meet PC	Proper management of upland slopes would reduce erosion and sedimentation in the stream. sedimentation. This would allow the stream to maintain its capacity and thus reduce flooding impacts.	☐ NOT meet PC	Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural functions of wetlands and installation of rain gardens. The infrastructure would reduce damages caused by flash flood events.	☐ NOT meet PC
Sediment transported to surface water 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.	There would be a reduction in sediments entering the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities.	☐ NOT meet PC	There would be a reduction in sediments in the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities.	☐ NOT meet PC	Reduction in sediment entering the watershed due to reduced velocities of water conveyance during high rain events.	☐ NOT meet PC
Nutrients transported to surface water Water quality is negatively affected by sedimentation, failing septic systems, nutrients, mining, abandoned mines, barren lands, oil and gas production, 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, residential stormwater sources, and various sources in Pennsylvania. The watershed also has significant metal loads of iron, aluminum, and manganese from abandoned mines, forest harvesting, oil and gas production, barren lands, urban and residential stormwater, and streambank erosion.	There would be a reduction of nutrients in surface water with the exclusion of livestock from the stream in conjunction with natural stream and riparian area restoration.	☐ NOT meet PC	There would be a reduction of nutrients in surface water with the installation of conservation practices such as Nutrient Management, Prescribed Grazing, and Access Control.	☐ NOT meet PC	Enhancements and installation of wetlands and other green infrastructure can reduce nutrients transported to surface water within the local watershed	☐ NOT meet PC

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	I. (continued)					
	Alternative3		*Alternative 4*		*Alternative 5*	
	Amount, Status, Description *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
AIR						
No resource concern identified The watershed is not in an area recognized for regularly having impaired air quality or any significant air quality issues.	No effect	☐ NOT meet PC	Localized odors and particulate matter concerns could be addressed through conservation practices such as Waste Storage Facilities or Windbreaks/Shelterbelts.	☐ NOT meet PC	No effect	☐ NOT meet PC
PLANTS						
Plant structure and composition The watershed provides for both agricultural crops as well as naturally vegetated areas that provide wildlife habitat. There is a lack of plant species diversity, specifically along streams in riparian areas, and a presence of invasive species.	Improved riparian areas will provide more naturally occurring plant species. Fencing streams and restoration of riparian areas could result in a loss of pasture or crop land.	☐ NOT meet PC	Plant structure and composition would benefit from properly managed grazing (Prescribed Grazing and associated practices) as well as through implementation of Forest Stand Improvement in the watershed.	☐ NOT meet PC	Plant structure and composition would be improved through the installation of green infrastructure- wetlands, rain gardens, tree plantings, etc.	☐ NOT meet PC
ANIMALS						
Terrestrial habitat for wildlife and invertebrates Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 16 threatened, endangered, or candidate species found in the watershed.	Terrestrial habitat would be improved through the creation of riparian areas.	☐ NOT meet PC	Terrestrial wildlife habitat would be improved through proper livestock grazing in pastures, invasive species control across all landuses, and implementation of forest stand improvement in woodlands.	☐ NOT meet PC	Terrestrial habitat would be improved through the installation of green infrastructure- wetlands, rain gardens, tree plantings, etc.	☐ NOT meet PC
Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat.	Aquatic habitat would be improved by installing practices return the streambed to a more natural value and function.	☐ NOT meet PC	Aquatic habitat would be improved by the reduction in sedimentation of the stream caused by upland soil erosion through the installation of conservation practices typical of the region.	☐ NOT meet PC	Aquatic habitat would be improved by the reduction and sedimentation of stream caused by high velocities of water during storm events. Aquatic habitat would also benefit from enhancement and installation of wetlands.	☐ NOT meet PC
ENERGY						
No resource concern identified This area has various electrical, oil, and gas transmission facilities. The Albright Power Station, a coal-fired power generation facility, was closed in 2012, but the plant and supporting infrastructure remain. Active and legacy coal mining is widespread in the watershed.	No effect	☐ NOT meet PC	No effect	☐ NOT meet PC	Existing structures could be retrofitted for hydroelectricity production.	☐ NOT meet PC

Human Economic and Social Considerations			
Public Health and Safety Damaging floods occur on an annual basis with increasing severity over the past few decades. Flooding impacts residents' access to emergency services, results in loss of land, and creates unsanitary conditions in effected residences and businesses.	While this alternative does not provide substantial, additional protection from flooding and risk of loss of life, it would create opportunities for increased outdoor recreation that is associated with healthy streams. Implementation of this alternative would likely reduce erosion, sedimentation, and flooding of roads and bridges, resulting in increased safety for the public and reduction in maintenance activates. There would also be less disruptions to regular traffic, as well as emergency vehicles.	While this alternative does not provide substantial, additional protection from flooding and risk of loss of life, it would create opportunities for increased outdoor recreation that is associated with healthy streams. Implementation of this alternative would likely reduce erosion, sedimentation, and flooding of roads and bridges, resulting in increased safety for the public and reduction in maintenance activates. There would also be less disruptions to regular traffic, as well as emergency vehicles.	This alternative would provide a reduction of damages from flash flooding events resulting in loss of life and transportation disruptions.

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

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

G. Special Environmental Concerns (Document existing/ benchmark conditions)	J. Impacts to Special Environmental Concerns					
	Alternative 3		***Alternative 4***		***Alternative 5***	
	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action
●Clean Air Act *Guide Sheet* The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐	No Effect Land treatment practices are not likely to negatively effect air quality.	☐	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐
●Clean Water Act / Waters of the U.S. *Guide Sheet* Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered as waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.	May Affect Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may also be required.	☐	No Effect Land treatment practices are not likely to negatively effect Waters of the US.	☐	May Affect Construction involved with the rehabilitation 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	☐	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 Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐
●Endangered and Threatened Species *Guide Sheet* There is a total of 16 Federally listed threatened, endangered, or candidate species potentially found in this watershed listed by the US Fish and Wildlife Service (USFWS). According to West Virginia Department of Natural Resources (WVDNR), WV is a permanent home to 22 federally endangered species (17 animals, 4 plants) and 7 federally threatened species (5 animals, 2 plants). WVDNR's State Wildlife Action Plan (SWAP) recognizes 22 Conservation Focus Areas (CFA) throughout the state that includes Species of Greatest Conservation Need (SGCN). See Appendix E for a complete USFWS IPaC Species list, WVDNR state listings, map of WV CFAs, and a list of SGCN for this watershed.	May Affect This alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐	May Affect This alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Conservation practices will be evaluated on a plan by plan basis through the Interagency Coordinator Tool and all required avoidance strategies will be followed.	☐	May Affect This alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐

Environmental Justice *Guide Sheet* All of the counties in the watershed are completely within the Appalachian Region. These counties are not designated as limited resource counties by USDA. However, Monongalia, Preston, and Tucker are are designated as 'transitional' by the Appalachian Regional Commission, indicating that local economies still need improvement. Randolph and Pocahontas Counties are designation as 'at risk' indicating their economies are weak.Monongalia County is 89.9% white and 3.9% Black or African American. Asians comprise 3.5% of the population. The diversity is likely attributed to the presence of West Virginia University in Morgantown, Monongalia County. Preston County is less diverse, with whites comprising 97.2% of the population. Tucker county is 97.9% white. Randolph County is 96.1% white. Pocahontas County is 96.1% white. The poverty rates in Monongalia, Preston, and Randolph Counties are about 15%, on par with the WV poverty rate of 15.8%. The poverty rate in Tucker County is 13.8%, below the WV poverty rate and Pocahontas is 18.1%, above the WV poverty rate. The National poverty rate is 11.4%.	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* The Cheat River Watershed has a major risk of flooding over the next few decades.	May Affect Floodplain management would be a consideration during the design process of natural stream restoration and would likely be benefited.	☐	May Affect Land treatment practices are not likely to negatively effect flood plains. Annual flooding would likely be reduced to the decreased sedimentation of the stream.	☐	No Effect Annual flooding would likely be reduced to the decreased sedimentation of the stream and increase water holding capacities in wetlands and rain gardens.	☐
Invasive Species *Guide Sheet* Invasive species are found in the watershed.	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐	May Affect Invasive species occur within the watershed and would be controlled through scheduled land treatment activates on privately owned or operated lands.	☐	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐

•Migratory Birds/Bald and Golden Eagle Protection Act *Guide Sheet* Migratory birds and eagles utilize the Cheat River Watershed habitats. There is a total of 18 federally listed birds in the area. The birds listed are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location.	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐
Natural Areas *Guide Sheet* Federal: The US Fish and Wildlife Service manages the Canaan Valley National Wildlife Refugee area in Tucker County; the US Forest Service manages the Monongahela National Forest in Preston, Tucker, Randolph, and Pocahontas Counties. State: The West Virginia Division of Natural Resources manages the 382 acre Cass Scenic Railroad State Park, the 6,015 acre Canaan Valley Resort State Park, the 2,358 acre Blackwater Falls State Park, the 9,482 acre Calvin Price State Forest, the 12,747 acre Coopers Rock State Forest. These areas are within the watershed. Brooklyn Heights Preserve, Bear Rocks Preserve, Mt Porte Crayon Preserve, and Upper Shavers Fork Preserve is owned by the Nature Conservancy. Upper Cheat Mountain and Thunderstruck Rock are owned by private landowners but are in an easement with the Nature Conservancy.	No Effect	☐	No Effect	☐	No Effect	☐
Prime and Unique Farmlands *Guide Sheet* Presently there are 25,296 acres of Prime Farmland, which accounts for 3% of land in the study area. Additionally, there are 204 acres of Farmland of Local Importance and 128,545 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land in a portion of the watershed. The threat of conversion in the entire watershed, however, is not drastic.	No Effect Conservation of prime and unique farmlands is not anticipated with this alternative.	☐	No Effect Conversion of prime and unique farmlands is not anticipated with this alternative.	☐	No Effect 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.	May Affect Riparian areas will be enhanced as part of this alternative.	☐	May Affect Riparian areas will be enhanced as part of this alternative.	☐	May Affect Riparian areas will be enhanced as part of this alternative.	☐
Scenic Beauty *Guide Sheet* Areas of potential scenic beauty in this watershed are typical of the Allegheny Mountain physiographic province and common to the area.	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 Allegheny Mountain physiographic province.	☐	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Allegheny Mountain physiographic province.	☐
●Wetlands *Guide Sheet* There are 34,230 acres of wetlands within the Cheat River Watershed which consist of the following: 7,633 acres of Freshwater Emergent Wetlands; 12,042 acres of Freshwater Forested/Shrub Wetlands; 1,136 acres of Freshwater Pond; 1,748 acres of Lake, and 11,671 acres of Riverine. Data collected from the US Fish and Wildlife Service National Wetlands Inventory.	May Affect 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.	☐	No Effect Action is likely to have a positive impact on wetlands.	☐
●Wild and Scenic Rivers *Guide Sheet* All trout streams in Pocahontas, Randolph, Preston, and Tucker Counties; waters in the Spruce Knob Recreation Areas in Randolph County; rivers within the Monongahela National Forest designated as National Wild and Scenic Study Rivers in Tucker, Randolph, Preston, and Pocahontas Counties; all streams and tributaries as contained within the boundaries of designated National Wilderness Areas or the headwaters of the Cranberry River in Pocahontas County, Red Creek in Tucker County, and Laurel Fork and Otter Creek in Randolph and Tucker Counties are designated as “Waters of Special Concern.”	No Effect	☐	No Effect	☐	No Effect	☐

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

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

ENVIRONMENTAL EVALUATION WORKSHEET

A. Client Name: **Monongahela Conservation District**

B. Conservation Plan ID # (as applicable): Cheat River Watershed PIFR
Program Authority (optional): PL-566

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

C. Identification # (farm, tract, field #, etc. as required):
Cheat River Watershed
Monongalia, Preston, Tucker, Randolph, Pocahontas Counties, WV
(HUC #05020004)

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

H. Alternatives

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

Resource Concerns

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

I. Effects of Alternatives

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	***Alternative 6*** **Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
SOIL						
Sheet and rill erosion Sedimentation caused by erosion in the uplands of the watershed negatively impact Cheat River and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways.	☐ NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce sediment loads in waterways.	☐ NOT meet PC		☐ NOT meet PC

WATER						
Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Approximately 13% and 15% of residences are at major flooding risk in Monongalia and Preston Counties respectively. Flooding is a threat to property, 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. No similar information is available for Pocahontas, Randolph, & Tucker Counties.	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sedimentation of streams to allow more capacity during flood events and allow for more water retention and controlled flow from flood control dams and rain gardens/wetlands.	☐ NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce sedimentation of streams to allow more capacity during flood events and allow for more water retention and controlled flow from flood control dams and rain gardens/wetlands.	☐ NOT meet PC		☐ NOT meet PC
Sediment transported to surface water 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.	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sediment loads in waterways.	☐ NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce sediment loads in waterways.	☐ NOT meet PC		☐ NOT meet PC

Nutrients transported to surface water Water quality is negatively affected by sedimentation, failing septic systems, nutrients, mining, abandoned mines, barren lands, oil and gas production, 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, residential stormwater sources, and various sources in Pennsylvania. The watershed also has significant metal loads of iron, aluminum, and manganese from abandoned mines, forest harvesting, oil and gas production, barren lands, urban and residential stormwater, and streambank erosion.	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure nutrient transportation to waterways	☐ NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce nutrient transportation to waterways.	☐ NOT meet PC		☐ NOT meet PC

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	**I. (continued)**					
	Alternative 6					
	Amount, Status, Description *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**	**Amount, Status, Description** *(Document both short and long term impacts)*	**√ if does NOT meet PC**
AIR						
No resource concern identified The watershed is not in an area recognized for regularly having impaired air quality or any significant air quality issues.	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	☐ NOT meet PC	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	☐ NOT meet PC		☐ NOT meet PC
PLANTS						
Plant structure and composition The watershed provides for both agricultural crops as well as naturally vegetated areas that provide wildlife habitat. There is a lack of plant species diversity, specifically along streams in riparian areas, and a presence of invasive species.	Plant structure and composition would be improved on cropland and pasture land, riparian areas would be restored to natural, native vegetation, hydrophytic vegetation would benefit from wetland restoration and green infrastructure.	☐ NOT meet PC	Plant structure and composition would be improved on cropland and pasture land, riparian areas would be restored to natural, native vegetation, hydrophytic vegetation would benefit from wetland restoration and green infrastructure.	☐ NOT meet PC		☐ NOT meet PC

ANIMALS						
Terrestrial habitat for wildlife and invertebrates Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 16 threatened, endangered, or candidate species found in the watershed.	Terrestrial habitat would be improved through the implementation of wildlife oriented land treatment practices, riparian areas created as part of natural stream restoration and green infrastructure, and creation/enhancement of wetlands. Displacement of wildlife and destruction of habitat due to flooding would be significantly reduced.	☐ NOT meet PC	Terrestrial habitat would be improved through the implementation of wildlife oriented land treatment practices, riparian areas created as part of natural stream restoration and green infrastructure, and creation/enhancement of wetlands. Displacement of wildlife and destruction of habitat due to flooding would be significantly reduced.	☐ NOT meet PC		☐ NOT meet PC
Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat.	The effects of sedimentation on aquatic wildlife would be significantly controlled with a strategic implementation of all alternatives previously evaluated.	☐ NOT meet PC	The effects of sedimentation on aquatic wildlife would be significantly controlled with a strategic installation of flood control structures on homes and land treatment practices on bought	☐ NOT meet PC		☐ NOT meet PC
ENERGY						
No resource concern identified This area has various electrical, oil, and gas transmission facilities. The Albright Power Station, a coal-fired power generation facility, was closed in 2012, but the plant and supporting infrastructure remain. Active and legacy coal mining is widespread in the watershed.	Hydroelectric power generation could be included as an element in the design of the structures to provide clean energy to the region.	☐ NOT meet PC	Applicants that would choose to participate in a floodplain buyout would decrease energy use in the area.	☐ NOT meet PC		☐ NOT meet PC
Human Economic and Social Considerations						
Public Health and Safety Damaging floods occur on an annual basis with increasing severity over the past few decades. Flooding impacts residents' access to emergency services, results in loss of land, and creates unsanitary conditions in effected residences and businesses.	Strategic planning and installation of all previously evaluated alternatives would increase flood protection of the counties' residences and business. It would also provide the opportunity for rural water supply, recreation opportunities, and a short term creation of jobs during construction. Over all watershed and stream health would be improved.		Installation of flood control structures on homes and land treatment practices on bought out lots would increase flood protection of the counties' residences and business. It would also provide recreation opportunities and a short term creation of jobs during construction. Over all watershed and stream health would be improved.			

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

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

G. Special Environmental Concerns (Document existing/ benchmark conditions)	**J. Impacts to Special Environmental Concerns**					
	Alternative 6					
	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	√ if needs further action
●Clean Air Act *Guide Sheet* The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	☐		☐

●Clean Water Act / Waters of the U.S. *Guide Sheet* Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered as waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.	May Affect Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may also be required.	☐	May Affect Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may also be required.	☐		☐
●Coastal Zone Management *Guide Sheet* There are no costal zones present in or near the watershed.	No Effect	☐	No Effect	☐		☐
Coral Reefs *Guide Sheet* There are no coral reefs present in or near the watershed.	No Effect	☐	No Effect	☐		☐
●Cultural Resources / Historic Properties *Guide Sheet* There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	☐		☐
●Endangered and Threatened Species *Guide Sheet* There is a total of 16 Federally listed threatened, endangered, or candidate species potentially found in this watershed listed by the US Fish and Wildlife Service (USFWS). According to West Virginia Department of Natural Resources (WVDNR), WV is a permanent home to 22 federally endangered species (17 animals, 4 plants) and 7 federally threatened species (5 animals, 2 plants). WVDNR's State Wildlife Action Plan (SWAP) recognizes 22 Conservation Focus Areas (CFA) throughout the state that includes Species of Greatest Conservation Need (SGCN). See Appendix E for a complete USFWS IPaC Species list, WVDNR state listings, map of WV CFAs, and a list of SGCN for this watershed.	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	☐		☐

Environmental Justice *Guide Sheet* All of the counties in the watershed are completely within the Appalachian Region. These counties are not designated as limited resource counties by USDA. However, Monongalia, Preston, and Tucker are are designated as 'transitional' by the Appalachian Regional Commission, indicating that local economies still need improvement. Randolph and Pocahontas Counties are designation as 'at risk' indicating their economies are weak.Monongalia County is 89.9% white and 3.9% Black or African American. Asians comprise 3.5% of the population. The diversity is likely attributed to the presence of West Virginia University in Morgantown, Monongalia County. Preston County is less diverse, with whites comprising 97.2% of the population. Tucker county is 97.9% white. Randolph County is 96.1% white. Pocahontas County is 96.1% white. The poverty rates in Monongalia, Preston, and Randolph Counties are about 15%, on par with the WV poverty rate of 15.8%. The poverty rate in Tucker County is 13.8%, below the WV poverty rate and Pocahontas is 18.1%, above the WV poverty rate. The National poverty rate is 11.4%.	No Effect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.	☐	No Effect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.	☐		☐
●Essential Fish Habitat *Guide Sheet* This area is not designated as Essential Fish Habitat.	No Effect	☐	No Effect	☐		☐
Floodplain Management *Guide Sheet* The Cheat River Watershed has a major risk of flooding over the next few decades.	May Affect This alternative will result in the protection of floodplains due to the decreased impacts of flooding.	☐	May Affect This alternative will result in the protection of floodplains due to the decreased impacts of flooding.	☐		☐
Invasive Species *Guide Sheet* Invasive species are found in the watershed.	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	☐		☐
●Migratory Birds/Bald and Golden Eagle Protection Act *Guide Sheet* Migratory birds and eagles utilize the Cheat River Watershed habitats. There is a total of 18 federally listed birds in the area. The birds listed are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location.	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	☐		☐

Natural Areas *Guide Sheet* Federal: The US Fish and Wildlife Service manages the Canaan Valley National Wildlife Refugee area in Tucker County; the US Forest Service manages the Monongahela National Forest in Preston, Tucker, Randolph, and Pocahontas Counties. State: The West Virginia Division of Natural Resources manages the 382 acre Cass Scenic Railroad State Park, the 6,015 acre Canaan Valley Resort State Park, the 2,358 acre Blackwater Falls State Park, the 9,482 acre Calvin Price State Forest, the 12,747 acre Coopers Rock State Forest. These areas are within the watershed. Brooklyn Heights Preserve, Bear Rocks Preserve, Mt Porte Crayon Preserve, and Upper Shavers Fork Preserve is owned by the Nature Conservancy. Upper Cheat Mountain and Thunderstruck Rock are owned by private landowners but are in an easement with the Nature Conservancy.	No Effect	☐	No Effect	☐		☐
Prime and Unique Farmlands *Guide Sheet* Presently there are 25,296 acres of Prime Farmland, which accounts for 3% of land in the study area. Additionally, there are 204 acres of Farmland of Local Importance and 128,545 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land in a portion of the watershed. The threat of conversion in the entire watershed, 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.	☐	No Effect Alternative would provide protection of prime farmland through the reduction of streambank erosion, sheet and rill erosion, and sedimentation of streams.	☐		☐
Riparian Area *Guide Sheet* There are riparian areas present in or near the project area. Riparian areas found in this region are generally characterized as vegetated and un-vegetated. These areas are often utilized for agricultural purposes.	May Affect Riparian areas would be enhanced through the installation of natural stream restoration, land treatment programs, and green infrastructure.	☐	May Affect Riparian areas would be enhanced through the installation of natural stream restoration, land treatment programs, and green infrastructure.	☐		☐
Scenic Beauty *Guide Sheet* Areas of potential scenic beauty in this watershed are typical of the Allegheny Mountain physiographic province and common to the area.	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Allegheny Mountain physiographic province.	☐	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.	☐		☐

●Wetlands *Guide Sheet* There are 34,230 acres of wetlands within the Cheat River Watershed which consist of the following: 7,633 acres of Freshwater Emergent Wetlands; 12,042 acres of Freshwater Forested/Shrub Wetlands; 1,136 acres of Freshwater Pond; 1,748 acres of Lake, and 11,671 acres of Riverine. Data collected from the US Fish and Wildlife Service National Wetlands Inventory.	May Affect Alternative would enhance the values and functions of wetlands and surrounding ecosystems.	☐	May Affect Alternative would enhance the values and functions of wetlands and surrounding ecosystems.	☐		☐
●Wild and Scenic Rivers *Guide Sheet* All trout streams in Pocahontas, Randolph, Preston, and Tucker Counties; waters in the Spruce Knob Recreation Areas in Randolph County; rivers within the Monongahela National Forest designated as National Wild and Scenic Study Rivers in Tucker, Randolph, Preston, and Pocahontas Counties; all streams and tributaries as contained within the boundaries of designated National Wilderness Areas or the headwaters of the Cranberry River in Pocahontas County, Red Creek in Tucker County, and Laurel Fork and Otter Creek in Randolph and Tucker Counties are designated as "Waters of Special Concern."	No Effect	☐	No Effect	☐		☐

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

N. Context (Record context of alternatives analysis)	local	local	

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

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

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

Signature (TSP if applicable)	Title	Date
CHRISTI HICKS Digitally signed by CHRISTI HICKS Date: 2024.09.17 08:09:10 -04'00'		
Signature (NRCS)	**Title**	**Date**

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

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

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

P. Determination of Significance or Extraordinary Circumstances

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

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

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

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

R. Rationale Supporting the Finding

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

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

S. Signature of Responsible Federal Official:

JON BOURDON Digitally signed by JON BOURDON Date: 2024.09.23 15:20:31 -04'00'

Signature | **Title** | **Date**

Additional notes

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
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

Amphibians

NAME	STATUS
Cheat Mountain Salamander Plethodon nettingi Wherever found	Threatened

Fishes

NAME	STATUS
Candy Darter (CH) Etheostoma osburni Wherever found	Endangered

Clams

NAME	STATUS
Clubshell Pleurobema clava	Endangered
Fanshell Cyprogenia stegaria Wherever found	Endangered
Northern Riffleshell Epioblasma rangiana Wherever found	Endangered
Spectaclecase (mussel) Cumberlandia monodonta Wherever found	Endangered
Tubercled Blossom (pearlymussel) Epioblasma torulosa torulosa	Endangered

Snails

NAME	STATUS
Flat-spired Three-toothed Snail Triodopsis platysayoides Wherever found	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found	Candidate
Rusty Patched Bumble Bee Bombus affinis Wherever found	Endangered

Flowering Plants

NAME	STATUS
Shale Barren Rock Cress Boechera serotina Wherever found	Endangered
Small Whorled Pogonia Isotria medeoloides	Threatened
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.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Indiana Bat Myotis sodalis	Final
Virginia Big-eared Bat Corynorhinus (=Plecotus) townsendii virginianus	Final

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

This location overlaps the following National Wildlife Refuge lands:

LAND	ACRES
CANAAN VALLEY NATIONAL WILDLIFE REFUGE	17,000.39 acres

Fish hatcheries

There are no fish hatcheries 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 Eagle Aquila chrysaetos Non-BCC Vulnerable	Breeds elsewhere
Golden-winged Warbler Vermivora chrysoptera BCC Rangewide (CON)	Breeds May 1 to Jul 20
Henslow's Sparrow Ammodramus henslowii BCC Rangewide (CON)	Breeds May 1 to Aug 31
Kentucky Warbler Oporornis formosus BCC Rangewide (CON)	Breeds Apr 20 to Aug 20
Northern Saw-whet Owl Aegolius acadicus acadicus BCC - BCR	Breeds Mar 1 to Jul 31
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.

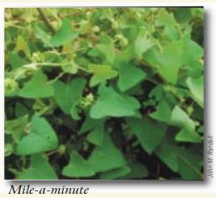
How do they differ from native species?

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."

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.

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

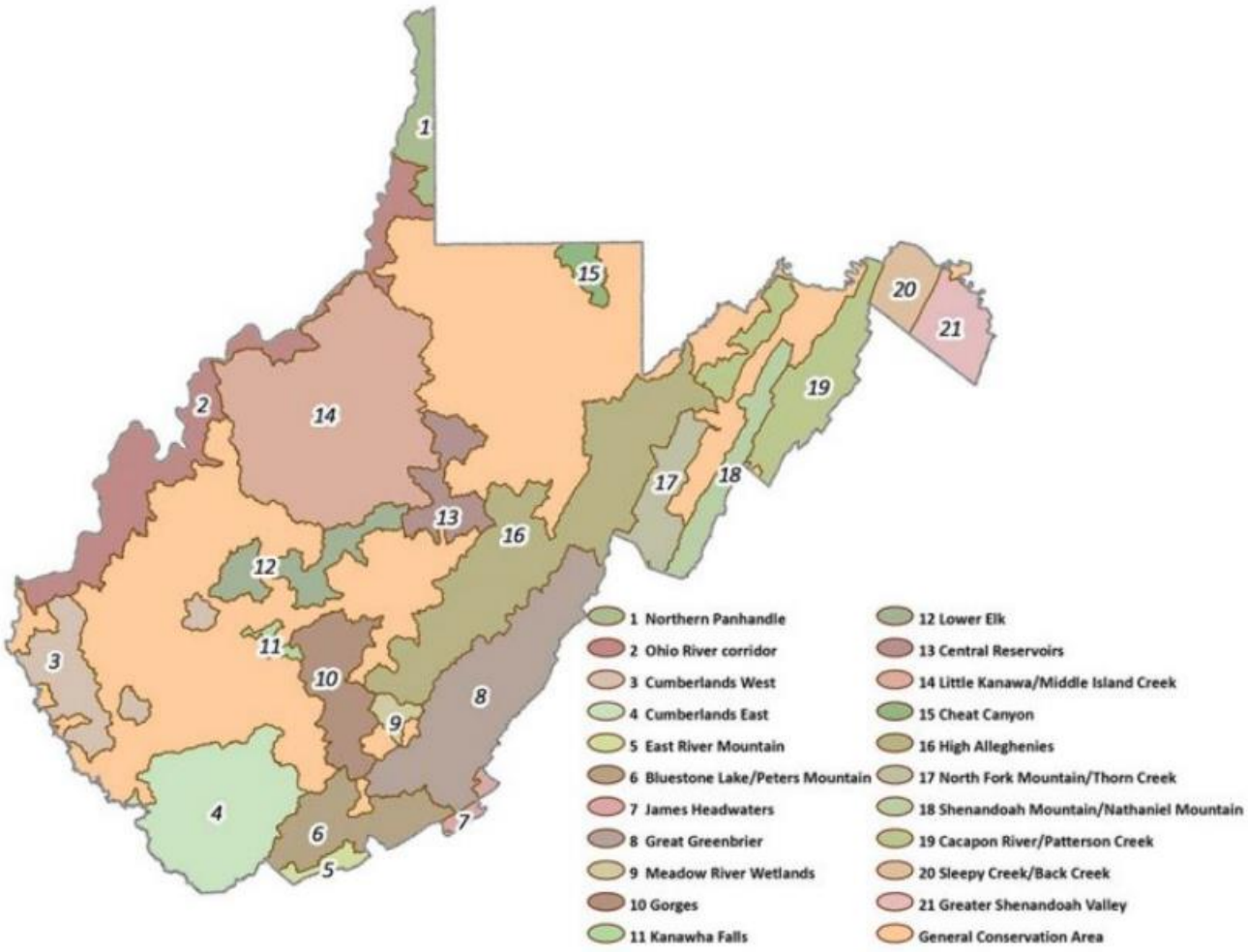
Many agencies and private landowners are using native alternatives for conservation purposes, and many West Virginia nurseries sell varieties derived from local communities to be sold as alternatives to exotic species.

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 Cheat River Watershed

Common Name	Scientific Name	Name Category	G Rank	S Rank
A Cave Beetle	*Pseudanophthalmus sp. 2*	Invertebrate Animal	G1	S1
A Cave Planarian	*Phagocata angusta*	Invertebrate Animal	G1	S1
A Spider	*Phanetta subterranea*	Invertebrate Animal	G5	S3
A Springtail	*Sinella agna*	Invertebrate Animal	G3G4	S3
A Stonefly	*Ostrocerca prolongata*	Invertebrate Animal	G3	S1
Adder's Mouth	*Malaxis bayardii*	Vascular Plant	G1G2	SH
Alder Flycatcher	*Empidonax alnorum*	Vertebrate Animal	G5	S3B
Alderleaf Buckthorn	*Rhamnus alnifolia*	Vascular Plant	G5	S1S2
Alleghany Plum	*Prunus alleghaniensis var. alleghaniensis*	Vascular Plant	G4T4	S3
Allegheny Cliff Fern	*Woodsia appalachiana*	Vascular Plant	G4	S2
Allegheny Mountain Dusky Salamander	*Desmognathus ochrophaeus*	Vertebrate Animal	G5	S4
Allegheny Mountain Mudbug	*Cambarus fetzneri*	Invertebrate Animal	G3G4	S3S4
Allegheny Onion	*Allium allegheniense*	Vascular Plant	G3	S2
Allegheny Woodrat	*Neotoma magister*	Vertebrate Animal	G3G4	S3
American Climbing Fern	*Lygodium palmatum*	Vascular Plant	G4	S3
American Mannagrass	*Glyceria grandis var. grandis*	Vascular Plant	G5T5	S2
An Isopod	*Caecidotea simonini*	Invertebrate Animal	G1	S1
Angular Disc	*Discus catskillensis*	Invertebrate Animal	G5	S1
Appalachian Cottontail	*Sylvilagus obscurus*	Vertebrate Animal	G4	S2
Appalachian Oak Fern	*Gymnocarpium appalachianum*	Vascular Plant	G3	S2
Appalachian Shoestring Fern	*Vittaria appalachiana*	Vascular Plant	G4	S1
Appalachian Tiger Beetle	*Cicindela ancocisconensis*	Invertebrate Animal	G3	S3
Appalachian Tiger Swallowtail	*Papilio appalachiensis*	Invertebrate Animal	G4	S2
Arctic Bentgrass	*Agrostis mertensii*	Vascular Plant	G5	S1
Atlantis Fritillary	*Speyeria atlantis*	Invertebrate Animal	G5	S3
Awned Sedge	*Carex atherodes*	Vascular Plant	G5	S1
Bald Eagle	*Haliaeetus leucocephalus*	Vertebrate Animal	G5	S3BS3N
Balsam Fir	*Abies balsamea*	Vascular Plant	G5	S1
Balsam Poplar	*Populus balsamifera ssp. balsamifera*	Vascular Plant	G5T5	S1
Balsam Ragwort	*Packera paupercula*	Vascular Plant	G5	S2
Beaked Dodder	*Cuscuta rostrata*	Vascular Plant	G4	S2
Bear Creek Slitmouth	*Stenotrema simile*	Invertebrate Animal	G2	S2
Bearded Sedge	*Carex comosa*	Vascular Plant	G5	S2
Black Arches Moth	*Melanchra assimilis*	Invertebrate Animal	G5	S1
Black Ash	*Fraxinus nigra*	Vascular Plant	G5	S1
Black Sedge	*Carex arctata*	Vascular Plant	G5	S1
Black Striate	*Striatura ferrea*	Invertebrate Animal	G5	S3
Blackgirdle Bulrush	*Scirpus atrocinctus*	Vascular Plant	G5	S3
Black-tipped Darner	*Aeshna tuberculifera*	Invertebrate Animal	G5	S3
Blue Ridge St. John's-wort	*Hypericum mitchellianum*	Vascular Plant	G3	S1
Bog Fern	*Thelypteris simulata*	Vascular Plant	G4G5	S1
Bog Jacob's-ladder	*Polemonium vanbruntiae*	Vascular Plant	G3G4	S2
Bog Rosemary	*Andromeda polifolia var. glaucophylla*	Vascular Plant	G5T5	S1
Branched Bur-reed	*Sparganium androcladum*	Vascular Plant	G4G5	S2S3
Brislted Slitmouth	*Stenotrema barbatum*	Invertebrate Animal	G5	S3
Bristly Black Currant	*Ribes lacustre*	Vascular Plant	G5	S2
Broad-headed Skink	*Plestiodon laticeps*	Vertebrate Animal	G5	S2
Bronze Copper	*Lycaena hyllus*	Invertebrate Animal	G5	S2
Buckbean	*Menyanthes trifoliata*	Vascular Plant	G5	S1
Bulbous Woodrush	*Luzula bulbosa*	Vascular Plant	G5	S1
Bush's Sedge	*Carex bushii*	Vascular Plant	G4	S2S3

Common Name	Scientific Name	Name Category	G Rank	S Rank
Butternut	*Juglans cinerea*	Vascular Plant	G3	S2
Campylopus Moss	*Campylopus flexuosus*	Vascular Plant	G5	S1
Canada Burnet	*Sanguisorba canadensis*	Vascular Plant	G5	S2S3
Canada Mountain Ricegrass	*Piptatherum canadense*	Vascular Plant	G4G5	S1
Canada Yew	*Taxus canadensis*	Vascular Plant	G5	S2S3
Canadian Bunchberry	*Cornus canadensis*	Vascular Plant	G5	S2
Cannulate Cave Isopod	*Caecidotea cannula*	Invertebrate Animal	G1	S1
Carey's Sedge	*Carex careyana*	Vascular Plant	G4G5	S1
Cattail Flash-train Firefly	*Photinus consimilis*	Invertebrate Animal	GU	S2S3
Chamomile Grape-fern	*Botrychium matricariifolium*	Vascular Plant	G5	S2
Channel Darter	*Percina copelandi*	Vertebrate Animal	G4	S2S3
Cheat Mountain Salamander	*Plethodon nettingi*	Vertebrate Animal	G1G2	S2
Cherry-faced Meadowhawk	*Sympetrum internum*	Invertebrate Animal	G5	S2
Cherrystone Drop	*Hendersonia occulta*	Invertebrate Animal	G4	S3
Cliff Swallow	*Petrochelidon pyrrhonota*	Vertebrate Animal	G5	S3B
Climbing Fumitory	*Adlumia fungosa*	Vascular Plant	G4	S2
Cloud Sedge	*Carex haydenii*	Vascular Plant	G5	S1
Clustered Mountainmint	*Pycnanthemum muticum*	Vascular Plant	G5	S1
Common Ribbonsnake	*Thamnophis sauritus sauritus*	Vertebrate Animal	G5T5	S2
Corymbed Rattlesnake-root	*Prenanthes crepidinea*	Vascular Plant	G4	S1
Costate Vallonia	*Vallonia costata*	Invertebrate Animal	G5	S2
Creeping Snowberry	*Gaultheria hispidula*	Vascular Plant	G5	S3
Crimson-ringed Whiteface	*Leucorrhinia glacialis*	Invertebrate Animal	G5	S1
Culver's Cave Amphipod	*Stygobromus culveri*	Invertebrate Animal	G1	S1
Culver's Planarian	*Sphalloplana culveri*	Invertebrate Animal	G1	S1
Downy Arrow-wood	*Viburnum rafinesquianum*	Vascular Plant	G5	S2
Dry Fork Valley Cave Beetle	*Pseudanophthalmus montanus*	Invertebrate Animal	G1	S1
Dwarf Anemone	*Anemone quinquefolia var. minima*	Vascular Plant	G5T3	S2
Dwarf Red Raspberry	*Rubus pubescens var. pubescens*	Vascular Plant	G5T5	S1
Early Coralroot	*Corallorhiza trifida*	Vascular Plant	G5	S1
Early Hairstreak	*Erora laeta*	Invertebrate Animal	G2G3	S2
Eastern Hellbender	*Cryptobranchus alleganiensis*	Vertebrate Animal	G3	S2
Eastern Small-footed Bat	*Myotis leibii*	Vertebrate Animal	G4	S1
Eastern Spotted Skunk	*Spilogale putorius*	Vertebrate Animal	G4	S2
Eastern Swamp Saxifrage	*Saxifraga pensylvanica*	Vascular Plant	G5	S2
Eastern Wormsnake	*Carphophis amoenus*	Vertebrate Animal	G5	S3
Emory's Sedge	*Carex emoryi*	Vascular Plant	G5	S2
False Indian-plantain	*Hasteola suaveolens*	Vascular Plant	G4	S3
False Melicgrass	*Schizachne purpurascens*	Vascular Plant	G5	S1
Few-flower Sedge	*Carex pauciflora*	Vascular Plant	G5	S1
Fine-ribbed Striate	*Striatura milium*	Invertebrate Animal	G5	S3
Flat-spired Threetooth	*Triodopsis platysayoides*	Invertebrate Animal	G1	S1
Fly-honeysuckle	*Lonicera canadensis*	Vascular Plant	G5	S2
Forcipate Emerald	*Somatochlora forcipata*	Invertebrate Animal	G5	S3
Forest Disc	*Discus whitneyi*	Invertebrate Animal	G5	S2
Forked Rush	*Juncus dichotomus*	Vascular Plant	G5	S1
Foxtail Clubmoss	*Lycopodiella alopecuroides*	Vascular Plant	G5	S1
Fragile Rockbrake	*Cryptogramma stelleri*	Vascular Plant	G5	S1
Franz's Cave Amphipod	*Stygobromus franzi*	Invertebrate Animal	G3G4	S1
Fringed Gentian	*Gentianopsis crinita*	Vascular Plant	G5	S1
Gandy Creek Cave Springtail	*Pseudosinella certa*	Invertebrate Animal	G1	S1
Glade Spurge	*Euphorbia purpurea*	Vascular Plant	G3	S2
Glomerate Sedge	*Carex aggregata*	Vascular Plant	G5	S2
Glossy Button	*Mesomphix luisant*	Invertebrate Animal	G1	S1
Glossy Dome	*Ventridens acerra*	Invertebrate Animal	G4	S1

Common Name	Scientific Name	Name Category	G Rank	S Rank
Golden Dome	*Ventridens arcellus*	Invertebrate Animal	G4	S3
Golden-winged Warbler	*Vermivora chrysoptera*	Vertebrate Animal	G4	S1B
Goldthread	*Coptis trifolia*	Vascular Plant	G5	S2
Grass Pink	*Calopogon tuberosus var. tuberosus*	Vascular Plant	G5T5	S1
Grasshopper Sparrow	*Ammodramus savannarum*	Vertebrate Animal	G5	S3B
Grassleaf Speedwell	*Veronica scutellata*	Vascular Plant	G5	S2
Grass-leaved Rush	*Juncus biflorus*	Vascular Plant	G5	S2
Gray Comma	*Polygonia progne*	Invertebrate Animal	G5	S2
Great Blue Heron	*Ardea herodias*	Vertebrate Animal	G5	S3BS4N
Greater Straw Sedge	*Carex normalis*	Vascular Plant	G5	S3
Green Arrow-arum	*Peltandra virginica*	Vascular Plant	G5	S2
Green Dome	*Zonitoides elliotti*	Invertebrate Animal	G4	S2
Green Salamander	*Aneides aeneus*	Vertebrate Animal	G3G4	S3
Greenbrier Cave Amphipod	*Stygobromus emarginatus*	Invertebrate Animal	G3	S3
Greenbrier Valley Cave Isopod	*Caecidotea holsingeri*	Invertebrate Animal	G5	S3
Green-striped Darner	*Aeshna verticalis*	Invertebrate Animal	G5	S2S3
Hairy Hedge-nettle	*Stachys arenicola*	Vascular Plant	G5T4	S1
Hairy Panicgrass	*Dichanthelium acuminatum var. acuminatum*	Vascular Plant	G5T5	S1
Hairy Rockcress	*Arabis hirsuta var. pycnocarpa*	Vascular Plant	G5T5	S2
Hairy-fruit Sedge	*Carex trichocarpa*	Vascular Plant	G4	S1
Harris's Checkerspot	*Chlosyne harrisii*	Invertebrate Animal	G5	S3
Heartleaf Twayblade	*Listera cordata var. cordata*	Vascular Plant	G5T5	S2
Henslow's Sparrow	*Ammodramus henslowii*	Vertebrate Animal	G4	S1B
Highbush Cranberry	*Viburnum opulus var. americanum*	Vascular Plant	G5T5	S1
Hill Glyph	*Glyphyalinia cumberlandiana*	Invertebrate Animal	G4	S3
Hoffman's Springtail	*Sinella hoffmani*	Invertebrate Animal	G5	S3
Hoffmaster's Cave Flatworm	*Macrocotyla hoffmasteri*	Invertebrate Animal	G3G4	S2
Indiana Bat	*Myotis sodalis*	Vertebrate Animal	G2	S1
Inflated Sedge	*Carex vesicaria*	Vascular Plant	G5	S2
Iroquois Vallonia	*Vallonia excentrica*	Invertebrate Animal	G5	S3
Jefferson Salamander	*Ambystoma jeffersonianum*	Vertebrate Animal	G4	S2
Jointleaf Rush	*Juncus articulatus*	Vascular Plant	G5	S2
Kidneyleaf Grass-of-parnassus	*Parnassia asarifolia*	Vascular Plant	G4	S2
Knotted Rush	*Juncus nodosus var. nodosus*	Vascular Plant	G5T5	S1S2
Lake Sedge	*Carex lacustris*	Vascular Plant	G5	S2
Lance-leaf Grape-fern	*Botrychium lanceolatum var. angustisegmentum*	Vascular Plant	G5T4	S1
Large Cranberry	*Vaccinium macrocarpon*	Vascular Plant	G5	S3
Large-leaf White Violet	*Viola blanda var. palustriformis*	Vascular Plant	G5T4T5	S1
Lesser Purple Fringe Orchid	*Platanthera psycodes*	Vascular Plant	G5	S1
Little Brown Bat	*Myotis lucifugus*	Vertebrate Animal	G3G4	S2
Loesel's Twayblade	*Liparis loeselii*	Vascular Plant	G5	S3
Long-bract Green Orchis	*Coeloglossum viride var. virescens*	Vascular Plant	G5T5	S1
Longleaf Aster	*Symphyotrichum novi-belgii*	Vascular Plant	G5	S2S3
Long-lobe Arrowhead	*Sagittaria calycina var. calycina*	Vascular Plant	G5T5	S1
Long-stalk Holly	*Ilex collina*	Vascular Plant	G3	S2
Longstalk Sedge	*Carex pedunculata*	Vascular Plant	G5	S2
Long-tailed Shrew	*Sorex dispar*	Vertebrate Animal	G4	S2S3
Lowland Pillsnail	*Euchemotrema leai*	Invertebrate Animal	G5	S3
Mannagrass	*Glyceria laxa*	Vascular Plant	G5	S2S3
Mannagrass	*Torreyochloa pallida var. fernaldii*	Vascular Plant	G5T5Q	S2
Marsh Spikerush	*Eleocharis palustris*	Vascular Plant	G5	S3
Matting Witchgrass	*Dichanthelium meridionale*	Vascular Plant	G5	S2S3
Meadow Jumping Mouse	*Zapus hudsonius*	Vertebrate Animal	G5	S3

Common Name	Scientific Name	Name Category	G Rank	S Rank
Meadow Sundrops	*Oenothera pilosella ssp. pilosella*	Vascular Plant	G5T5	S2
Mead's Sedge	*Carex meadii*	Vascular Plant	G4G5	S1
Midland Mud Salamander	*Pseudotriton montanus diastictus*	Vertebrate Animal	G5T5	S1
Mimic Threetooth	*Triodopsis fallax*	Invertebrate Animal	G5	S1
Minute Cave Amphipod	*Stygobromus parvus*	Invertebrate Animal	G2G3	S1
Monongahela Barbara's-buttons	*Marshallia pulchra*	Vascular Plant	G3	S2
Morrison's Sooty Dart Moth	*Pseudohermonassa tenuicula*	Invertebrate Animal	G5	SH
Mountain Earthsnake	*Virginia valeriae pulchra*	Vertebrate Animal	G5T3T4	S2
Mountain Fetterbush	*Pieris floribunda*	Vascular Plant	G4	S3
Mountain-cinquefoil	*Sibbaldiopsis tridentata*	Vascular Plant	G5	S2
Nannyberry	*Viburnum lentago*	Vascular Plant	G5	S1S2
Natural Bridge Supercoil	*Paravitrea pontis*	Invertebrate Animal	G3	S2
Necklace Sedge	*Carex projecta*	Vascular Plant	G5	S3
Netted Chainfern	*Woodwardia areolata*	Vascular Plant	G5	S2
New England Sedge	*Carex novae-angliae*	Vascular Plant	G5	S1
Northern Adder's Tongue	*Ophioglossum pusillum*	Vascular Plant	G5	S1
Northern Bog Clubmoss	*Lycopodiella inundata*	Vascular Plant	G5	S2
Northern Bog Violet	*Viola nephrophylla*	Vascular Plant	G5	SH
Northern Coal Skink	*Plestiodon anthracinus anthracinus*	Vertebrate Animal	G5T5	S2
Northern Dusky Salamander	*Desmognathus fuscus*	Vertebrate Animal	G5	S5
Northern Goshawk	*Accipiter gentilis*	Vertebrate Animal	G5	S1BS1N
Northern Harrier	*Circus hudsonius*	Vertebrate Animal	G5	S1BS3N
Northern Long-eared Bat	*Myotis septentrionalis*	Vertebrate Animal	G2G3	S1S2
Northern Map Turtle	*Graptemys geographica*	Vertebrate Animal	G5	S1
Northern Oak Fern	*Gymnocarpium dryopteris*	Vascular Plant	G5	S1
Northern Pygmy Clubtail	*Lanthus parvulus*	Invertebrate Animal	G4G5	S3
Northern Red Salamander	*Pseudotriton ruber ruber*	Vertebrate Animal	G5T5	S3
Northern Saw-whet Owl	*Aegolius acadicus*	Vertebrate Animal	G5	S2BS2N
Northern Spreadwing	*Lestes disjunctus*	Invertebrate Animal	G5	S3
Northern Stitchwort	*Stellaria borealis ssp. borealis*	Vascular Plant	G5T5	S1
Obese Thorn	*Carychium exiguum*	Invertebrate Animal	G5	S3
Oblong-fruited Serviceberry	*Amelanchier bartramiana*	Vascular Plant	G5	S2
One-cone Ground-pine	*Lycopodium lagopus*	Vascular Plant	G5	S1
Orange Coneflower	*Rudbeckia fulgida var. fulgida*	Vascular Plant	G5T4	S2
Organ Cavesnail	*Fontigens tartarea*	Invertebrate Animal	G2	S2
Ostrich Fern	*Matteuccia struthiopteris*	Vascular Plant	G5	S2
Pale False Mannagrass	*Torreyochloa pallida var. pallida*	Vascular Plant	G5T5	S1
Paper Birch	*Betula papyrifera*	Vascular Plant	G5	S2
Pearl Dace	*Margariscus margarita*	Vertebrate Animal	G5	S2S3
Pine Barren Deathcamas	*Zigadenus leimanthoides*	Vascular Plant	G4Q	S2
Pine Siskin	*Carduelis pinus*	Vertebrate Animal	G5	S2BS4N
Pink-edged Sulphur	*Colias interior pop. 1*	Invertebrate Animal	G5T2Q	S2
Popeye Shiner	*Notropis ariommus*	Vertebrate Animal	G3	S2
Porcupine	*Erethizon dorsatum*	Vertebrate Animal	G5	S3
Pubescent Sedge	*Carex hirtifolia*	Vascular Plant	G5	S3
Purple Avens	*Geum rivale*	Vascular Plant	G5	S1
Purple Virgin's Bower	*Clematis occidentalis var. occidentalis*	Vascular Plant	G5T5	S2
Pussy Willow	*Salix discolor*	Vascular Plant	G5	S2
Pygmy Button	*Mesomphix sp. 1*	Invertebrate Animal	G1	S1
Rapids Clubtail	*Gomphus quadricolor*	Invertebrate Animal	G3G4	S3
Redside Dace	*Clinostomus elongatus*	Vertebrate Animal	G3G4	S1S2
Ribbed Striate	*Striatura exigua*	Invertebrate Animal	G5	S2
Ridge-and-Valley Slitmouth	*Stenotrema edvardsi*	Invertebrate Animal	G4G5	S3
Roan Mountain Sedge	*Carex roanensis*	Vascular Plant	G3	S2
Robin-run-away	*Dalibarda repens*	Vascular Plant	G5	S3

Common Name	Scientific Name	Name Category	G Rank	S Rank
Rock Skullcap	*Scutellaria saxatilis*	Vascular Plant	G3G4	S2
Rose Pogonia	*Pogonia ophioglossoides*	Vascular Plant	G5	S2
Roundleaf Goldenrod	*Solidago patula var. patula*	Vascular Plant	G5T5	S1
Roundleaf Sundew	*Drosera rotundifolia var. rotundifolia*	Vascular Plant	G5T5	S3
Running Buffalo Clover	*Trifolium stoloniferum*	Vascular Plant	G3	S3
Rusty-patched Bumble Bee	*Bombus affinis*	Invertebrate Animal	G2	S1
Salt & Pepper Looper Moth	*Syngrapha rectangula*	Invertebrate Animal	G5	S1
Sand Grape	*Vitis rupestris*	Vascular Plant	G3	S2
Sandhill Crane	*Antigone canadensis*	Vertebrate Animal	G5	S1B
Seal Salamander	*Desmognathus monticola*	Vertebrate Animal	G5	S5
Sedge Wren	*Cistothorus stellaris*	Vertebrate Animal	G5	S1B
Shining Ladies'-tresses	*Spiranthes lucida*	Vascular Plant	G4	S1S2
Shining Willow	*Salix lucida ssp. lucida*	Vascular Plant	G5T5	S1
Short-stemmed Sedge	*Carex deflexa*	Vascular Plant	G5	S1
Showy Lady's-slipper	*Cypripedium reginae*	Vascular Plant	G4G5	S1
Shriver's Frilly Orchid	*Platanthera shriveri*	Vascular Plant	G1	S1
Silver-bordered Fritillary	*Boloria selene myrina*	Invertebrate Animal	G5T5	S3
Silver-haired Bat	*Lasionycteris noctivagans*	Vertebrate Animal	G3G4	S2
Ski-tipped Emerald	*Somatochlora elongata*	Invertebrate Animal	G5	S3
Slender Sedge	*Carex lasiocarpa var. americana*	Vascular Plant	G5T5	S1
Slender Waternymph	*Najas gracillima*	Vascular Plant	G5	S2
Slender Wild Rye	*Elymus trachycaulus ssp. trachycaulus*	Vascular Plant	G5T5	S2
Slender Yellow-eyed-grass	*Xyris torta*	Vascular Plant	G5	S2
Slim-stem small-reedgrass	*Calamagrostis stricta*	Vascular Plant	G5	S1
Small Cranberry	*Vaccinium oxycoccos*	Vascular Plant	G5	S3
Small Whorled Pogonia	*Isotria medeoloides*	Vascular Plant	G2G3	S1
Small-fruit Bulrush	*Scirpus microcarpus*	Vascular Plant	G5	S2S3
Small-fruited Agrimony	*Agrimonia microcarpa*	Vascular Plant	G5	S1
Smooth Blue Aster	*Symphyotrichum laeve var. concinnum*	Vascular Plant	G5T4	S2
Smooth Button	*Mesomphix perlaevis*	Invertebrate Animal	G4G5	S3
Smooth Coil	*Lucilla singleyana*	Invertebrate Animal	G5	S2
Smooth Hedge-nettle	*Stachys tenuifolia*	Vascular Plant	G5	S3
Smooth Rose	*Rosa blanda var. blanda*	Vascular Plant	G5T5Q	S2
Smyth's Green Comma	*Polygonia faunus smythi*	Invertebrate Animal	G5T3	S1
Snow Trillium	*Trillium nivale*	Vascular Plant	G4	S2
Southeastern Gem	*Hawaiia alachuana*	Invertebrate Animal	G4G5Q	S3
Southern Bog Lemming	*Synaptomys cooperi*	Vertebrate Animal	G5	S3
Southern Pygmy Shrew	*Sorex hoyi winnemana*	Vertebrate Animal	G5T4	S2S3
Southern Rock Vole	*Microtus chrotorrhinus carolinensis*	Vertebrate Animal	G5T3	S2
Southern Water Shrew	*Sorex palustris punctulatus*	Vertebrate Animal	G5T3	S1
Spine-crowned Clubtail	*Gomphus abbreviatus*	Invertebrate Animal	G4	SH
Splendid Tiger Beetle	*Cicindela splendida*	Invertebrate Animal	G5	S1
Split-tooth Dome	*Ventridens virginicus*	Invertebrate Animal	G4	S3
Spotted Tussock Moth	*Lophocampa maculata*	Invertebrate Animal	G5	S1
Spreading Sedge	*Carex laxiculmis var. copulata*	Vascular Plant	G5T4	S2
Spruce Knob Threetooth	*Triodopsis picea*	Invertebrate Animal	G3	S3
Starflower False Solomon's-seal	*Maianthemum stellatum*	Vascular Plant	G5	S2
Star-nosed Mole	*Condylura cristata*	Vertebrate Animal	G5	S2
Sticky Bog-asphodel	*Triantha glutinosa*	Vascular Plant	G5	S1
Stygian Black-parmelia	*Melanelia stygia*	Fungus	G5	S2
Swamp Azalea	*Rhododendron viscosum*	Vascular Plant	G5	S1
Swamp Lousewort	*Pedicularis lanceolata*	Vascular Plant	G5	S2
Sweet Shrub	*Calycanthus floridus var. glaucus*	Vascular Plant	G5T5	SH
Synchronous Firefly	*Photinus carolinus*	Invertebrate Animal	G4	S2S3
Temperate Coil	*Helicodiscus shimeki*	Invertebrate Animal	G4G5	S2

Common Name	Scientific Name	Name Category	G Rank	S Rank
Tennessee Pondweed	*Potamogeton tennesseensis*	Vascular Plant	G2G3	S2
Thread Rush	*Juncus filiformis*	Vascular Plant	G5	S2
Threadfoot	*Podostemum ceratophyllum*	Vascular Plant	G5	S2
Timber Rattlesnake	*Crotalus horridus*	Vertebrate Animal	G4	S3
Tricolored bat	*Perimyotis subflavus*	Vertebrate Animal	G3G4	S2
Troublesome Sedge	*Carex molesta*	Vascular Plant	G4	S2S3
Twinflower	*Linnaea borealis ssp. americana*	Vascular Plant	G5T5	S1
Two-spotted Skipper	*Euphyes bimacula*	Invertebrate Animal	G4	S2
Vervain Thoroughwort	*Eupatorium pilosum*	Vascular Plant	G5	S2
Vesper Sparrow	*Pooecetes gramineus*	Vertebrate Animal	G5	S2BS2N
Virginia Big-eared Bat	*Corynorhinus townsendii virginianus*	Vertebrate Animal	G4T4	S2
Virginia Mantleslug	*Philomycus virginicus*	Invertebrate Animal	G3	S2
Virginia Rail	*Rallus limicola*	Vertebrate Animal	G5	S1BS1N
Water Horsetail	*Equisetum fluviatile*	Vascular Plant	G5	S2
Water Sedge	*Carex aquatilis var. substricta*	Vascular Plant	G5TNR	S1
Weakstalk Bulrush	*Schoenoplectus purshianus*	Vascular Plant	G4G5	S3
West Virginia Blind Cave Millipede	*Zygonopus krekeleri*	Invertebrate Animal	G4	S1
West Virginia Glyph	*Glyphyalinia sp. 1*	Invertebrate Animal	G1	S1
West Virginia White	*Pieris virginiensis*	Invertebrate Animal	G2G3	S2
Whip Nutrush	*Scleria triglomerata*	Vascular Plant	G5	S2
White Alumroot	*Heuchera alba*	Vascular Plant	G2Q	S2
White Monkshood	*Aconitum reclinatum*	Vascular Plant	G3G4	S3
White-faced Meadowhawk	*Sympetrum obtrusum*	Invertebrate Animal	G5	S3
White-hair Leatherflower	*Clematis albicoma*	Vascular Plant	G4	S3
White-m Hairstreak	*Parrhasius m-album*	Invertebrate Animal	G5	S3
Wiry Panicgrass	*Panicum flexile*	Vascular Plant	G5	S1
Wood Lily	*Lilium philadelphicum var. philadelphicum*	Vascular Plant	G5T4T5	S2S3
Woodland Horsetail	*Equisetum sylvaticum*	Vascular Plant	G5	S1
Woolly Sedge	*Carex pellita*	Vascular Plant	G5	S2
WV Northern Flying Squirrel	*Glaucomys sabrinus fuscus*	Vertebrate Animal	G5T2T3	S2
Yellow Avens	*Geum aleppicum*	Vascular Plant	G5	S1
Yellow Gentian	*Gentiana alba*	Vascular Plant	G4	S1
Yellow Lady's-slipper	*Cypripedium parviflorum*	Vascular Plant	G5	S2
Yellow Nailwort	*Paronychia virginica*	Vascular Plant	G4	S2
Yellow-banded Bumble Bee	*Bombus terricola*	Invertebrate Animal	G3G4	S2S3

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

Nonindigenous Aquatic Species

Specimen ID	Date Reported	Species	New Area
276654	7/5/2011	mottled fingernailclam *Eupera cubensis*	County: Monongalia (WV) Drainage: Upper Monongahela (05020003)
1321940	9/15/2016	American alligator *Alligator mississippiensis*	County: Randolph (WV) Drainage: Tygart Valley (05020001)
282847	4/23/2012	Asian clam *Corbicula fluminea*	County: Tucker (WV) Drainage:Cheat (05020004)

Invasive Species

Animals:

Common Name	Scientific Name
coyote	*Canis latrans*
mollusc-eating hammerhead worm	*Bipalium vagum*
Norway rat	*Rattus norvegicus*
red-eared slider	*Trachemys scripta elegans*
wandering broadhead planarian	*Bipalium adventitium*

Diseases:

Common Name	Scientific Name
basil downy mildew	*Peronospora belbahrii*
beech bark disease	*Neonectria faginata*
butternut canker	*Ophiognomonia clavigignenti-juglandacearum*
chestnut blight or canker	*Cryphonectria parasitica*
cucurbit downy mildew	*Pseudoperonospora cubensis*
dogwood anthracnose	*Discula destructive*
oak wilt	*Bretziella fagacearum*
Phytophthora root rot	*Phytophthora cinnamomi*
rose rosette disease (RRD)	*Emaravirus RRD*
white pine blister rust	*Cronartium ribicola*

Insects:

Common Name	Scientific Name
Asiatic oak weevil	*Cyrtepistomus castaneus*
bark beetle	*Hylastes opacus*
brown marmorated stink bug	*Halyomorpha halys*
common pine shoot beetle, larger pine shoot beetle	*Tomicus piniperda*
defoliating hemlock moth	*Agonopterix alstroemeriana*
elm leafminer	*Kaliofenusa ulmi*
elongate hemlock scale	*Fiorinia externa*
emerald ash borer	*Agrilus planipennis*
fall cankerworm	*Alsophila pometaria*

Common Name	Scientific Name
forest tent caterpillar	*Malacosoma disstria*
green stink bug	*Chinavia hilaris*
hemlock woolly adelgid	*Adelges tsugae*
Japanese beetle	*Popillia japonica*
larch sawfly	*Pristiphora erichsonii*
large aspen tortrix	*Choristoneura conflictana*
maple petiole borer	*Caulocampus acericaulis*
mile-a-minute weevil	*Rhinoncomimus latipes*
mountain-ash sawfly	*Pristiphora geniculata*
multicolored Asian lady beetle	*Harmonia axyridis*
rice stink bug	*Oebalus pugnax*
southern pine beetle	*Dendroctonus frontalis*
spongy moth (formerly gypsy moth)	*Lymantria dispar*
spotted-wing drosophila	*Drosophila suzukii*
spruce beetle	*Dendroctonus rufipennis*

Plants:

Common Name	Scientific Name
alfalfa	*Medicago sativa*
alfalfa	*Medicago sativa ssp. sativa*
alpine knapweed, Tyrol knapweed	*Centaurea nigrescens*
alsike clover	*Trifolium hybridum*
American burnweed	*Erechtites hieraciifolius*
American mannagrass	*Glyceria grandis var. grandis*
Amur honeysuckle	*Lonicera maackii*
annual bluegrass	*Poa annua*
annual honesty	*Lunaria annua*
annual ragweed	*Ambrosia artemisiifolia var. elatior*
annual sowthistle	*Sonchus oleraceus*
annual wormwood	*Artemisia annua*
apple-of-Peru	*Nicandra physalodes*
Asiatic dayflower	*Commelina communis*
asparagus	*Asparagus officinalis*
autumn olive	*Elaeagnus umbellate*
bald brome	*Bromus racemosus*
balsam poplar	*Populus balsamifera*
barnyardgrass	*Echinochloa crus-galli*
beach wormwood	*Artemisia stelleriana*
beaked dodder	*Cuscuta rostrata*
bermudagrass	*Cynodon dactylon*
big chickweed	*Cerastium fontanum ssp. vulgare*
bigroot morning-glory	*Ipomoea pandurate*

Common Name	Scientific Name
bird vetch	*Vicia cracca*
birdseye pearlwort	*Sagina procumbens*
birdsfoot trefoil	*Lotus corniculatus*
birdsrape mustard	*Brassica rapa*
bittersweet nightshade	*Solanum dulcamara*
bittersweets	*Celastrus spp.*
black knapweed	*Centaurea nigra*
black locust	*Robinia pseudoacacia*
black medic	*Medicago lupulina*
black mustard	*Brassica nigra*
bladder campion	*Silene vulgaris*
bluebuttons, field scabious	*Knautia arvensis*
border privet	*Ligustrum obtusifolium*
Boston ivy	*Parthenocissus tricuspidate*
bouncingbet	*Saponaria officinalis*
bristlegrass	*Setaria spp.*
bristly foxtail	*Setaria verticillate*
bristly locust	*Robinia hispida*
brittleleaf naiad	*Najas minor*
broadleaf dock	*Rumex obtusifolius*
broadleaf plantain	*Plantago major*
broomrape	*Orobanche spp.*
broomsedge bluestem	*Andropogon virginicus*
brown knapweed	*Centaurea jacea*
buckhorn plantain	*Plantago lanceolata*
buckwheat	*Fagopyrum esculentum*
bulbous bluegrass	*Poa bulbosa*
bulbous buttercup	*Ranunculus bulbosus*
bull thistle	*Cirsium vulgare*
burcucumber	*Sicyos angulatus*
bush honeysuckles (exotic)	*Lonicera spp.*
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*
canarygrass	*Phalaris canariensis*
carpet bugle	*Ajuga reptans*
catchweed bedstraw	*Galium aparine*
catnip	*Nepeta cataria*
cheatgrass, downy brome	*Bromus tectorum*

Common Name	Scientific Name
chicory	*Cichorium intybus*
Chinese catalpa	*Catalpa ovata*
Chinese chestnut	*Castanea mollissima*
Chinese silvergrass	*Miscanthus sinensis*
Chinese wisteria	*Wisteria sinensis*
Chinese yam	*Dioscorea polystachya*
chocolate vine	*Akebia quinate*
climbing false buckwheat	*Fallopia scandens*
clover dodder	*Cuscuta epithymum*
colonial bentgrass	*Agrostis capillaris*
coltsfoot	*Tussilago farfara*
common barberry	*Berberis vulgaris*
common buckthorn, European buckthorn	*Rhamnus cathartica*
common burdock, lesser burdock	*Arctium minus*
common cattail	*Typha latifolia*
common chickweed	*Stellaria media*
common chickweed	*Stellaria pallida*
common cocklebur	*Xanthium strumarium*
common dandelion	*Taraxacum officinale ssp. officinale*
common duckweed	*Lemna minor*
common flax	*Linum usitatissimum*
common grape hyacinth	*Muscari botryoides*
common groundsel	*Senecio vulgaris*
common horse chestnut	*Aesculus hippocastanum*
common lilac	*Syringa 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 purslane	*Portulaca oleracea*
common ragweed	*Ambrosia artemisiifolia*
common reed	*Phragmites australis*
common salsify	*Tragopogon porrifolius*
common selfheal	*Prunella vulgaris*
common speedwell	*Veronica officinalis*
common St. Johnswort	*Hypericum perforatum*
common tansy	*Tanacetum vulgare*
common teasel	*Dipsacus fullonum*
common valerian	*Valeriana officinalis*
common velvetgrass	*Holcus lanatus*

Common Name	Scientific Name
common vetch	*Vicia sativa*
common viper's bugloss, blueweed	*Echium vulgare*
common yarrow	*Achillea millefolium*
corn chamomile	*Anthemis arvensis*
corn cockle	*Agrostemma githago*
corn gromwell	*Buglossoides arvensis*
corn speedwell	*Veronica arvensis*
corn spurry	*Spergula arvensis*
cornflower	*Centaurea cyanus*
cowcockle	*Vaccaria hispanica*
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*
crossleaf heath	*Erica tetralix*
cultivated currant	*Ribes rubrum*
curly dock	*Rumex crispus*
curly dock	*Rumex crispus ssp. crispus*
curly leaf pondweed	*Potamogeton crispus*
curly plumeless thistle	*Carduus crispus*
cutleaf blackberry	*Rubus laciniatus*
cutleaf evening-primrose	*Oenothera laciniata*
cutleaf geranium	*Geranium dissectum*
cutleaf teasel	*Dipsacus laciniatus*
cypress spurge	*Euphorbia cyparissias*
dames rocket	*Hesperis matronalis*
dandelion	*Taraxacum officinale*
Deptford pink	*Dianthus armeria*
devil's-claw	*Proboscidea louisianica*
didymo, rock snot	*Didymosphenia geminata*
dodder	*Cuscuta spp.*
dog mustard	*Erucastrum gallicum*
dog rose	*Rosa canina*
dotted smartweed	*Persicaria punctata*
doubtful knight's-spur	*Consolida ajacis*
dwarf snapdragon	*Chaenorhinum minus*
dwarf violet iris	*Iris verna*
Dyer's woad	*Isatis tinctoria*
eastern poison-ivy	*Toxicodendron radicans*
eastern redcedar	*Juniperus virginiana*

Common Name	Scientific Name
eastern white pine	*Pinus strobus*
eclipta	*Eclipta prostrata*
elecampane	*Inula helenium*
English ivy	*Hedera helix*
Eurasian watermilfoil	*Myriophyllum spicatum*
European birch	*Betula pendula*
European black alder	*Alnus glutinosa*
European centaury	*Centaurium erythraea*
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*
European sticktight	*Lappula squarrosa*
European stinging nettle	*Urtica dioica ssp. dioica*
European vervain	*Verbena officinalis*
European water-clover	*Marsilea quadrifolia*
everlasting peavine	*Lathyrus latifolius*
fall dandelion	*Scorzoneroides autumnalis*
fall panicum	*Panicum dichotomiflorum*
false spiraea	*Sorbaria sorbifolia*
false strawberry	*Potentilla indica*
feverfew	*Tanacetum parthenium*
field bindweed	*Convolvulus arvensis*
field brome	*Bromus arvensis*
field dodder	*Cuscuta pentagona*
field horsetail	*Equisetum arvense*
field madder	*Sherardia arvensis*
field pennycress	*Thlaspi arvense*
field pepperweed	*Lepidium campestre*
field thistle	*Cirsium discolor*
five-leaf aralia	*Eleutherococcus sieboldianus*
fiveangled dodder	*Cuscuta pentagona var. pentagona*
fortune meadowsweet	*Spiraea japonica var. fortune*
foxglove	*Digitalis purpurea*
foxtail millet	*Setaria italica*
garden catchfly	*Silene armeria*
garden cosmos	*Cosmos bipinnatus*
garden vetch	*Vicia sativa ssp. nigra*
garlic mustard	*Alliaria petiolate*
germander speedwell	*Veronica chamaedrys*
giant chickweed	*Myosoton aquaticum*

Common Name	Scientific Name
giant foxtail	*Setaria faberi*
giant knotweed	*Reynoutria sachalinensis*
giant ragweed	*Ambrosia trifida*
giantseed goosefoot	*Chenopodium simplex*
glossy buckthorn	*Frangula alnus*
goldenrain tree	*Koelreuteria paniculate*
goosegrass	*Eleusine indica*
gorse	*Ulex europaeus*
goutweed	*Aegopodium podagraria*
grassy arrowhead	*Sagittaria graminea*
gray poplar	*Populus x canescens*
greater celandine	*Chelidonium majus*
green bristlegrass	*Setaria viridis var. viridis*
green foxtail	*Setaria viridis*
ground ivy	*Glechoma hederacea*
hairy bittercress	*Cardamine hirsute*
hairy cat's ear	*Hypochaeris radicata*
hairy galinsoga	*Galinsoga quadriradiata*
hairy vetch	*Vicia villosa*
hairy willowherb	*Epilobium hirsutum*
halberdleaf orach	*Atriplex patula*
heather	*Calluna vulgaris*
hedge bindweed	*Calystegia sepium*
hedge maple	*Acer campestre*
hedge mustard	*Sisymbrium officinale*
hedgehog dogtailgrass	*Cynosurus echinatus*
helleborine	*Epipactis helleborine*
hemp dogbane	*Apocynum cannabinum*
hemp/marijuana (sativa)	*Cannabis sativa*
henbit	*Lamium amplexicaule*
high mallow	*Malva sylvestris*
highbush blackberry	*Rubus argutus*
hoary cress	*Lepidium draba*
hollyhock	*Alcea rosea*
hop clover	*Trifolium aureum*
horsenettle	*Solanum carolinense*
houndstongue	*Cynoglossum officinale*
Indian mustard	*Brassica juncea*
ivyleaf morning-glory	*Ipomoea hederacea*
ivyleaf speedwell	*Veronica hederifolia*
Japanese barberry	*Berberis thunbergia*
Japanese clover	*Kummerowia striata*

Common Name	Scientific Name
Japanese flowering crabapple	*Malus floribunda*
Japanese hedge-parsley, erect hedgeparsley	*Torilis japonica*
Japanese honeysuckle	*Lonicera japonica*
Japanese hop	*Humulus japonicus*
Japanese knotweed	*Reynoutria japonica*
Japanese spiraea	*Spiraea japonica*
Japanese stiltgrass	*Microstegium vimineum*
jetbead	*Rhodotypos scandens*
jimsonweed	*Datura stramonium*
johnsongrass	*Sorghum halepense*
Kentucky bluegrass	*Poa pratensis*
kingdevil hawkweed	*Hieracium piloselloides*
knotroot foxtail	*Setaria parviflora*
Korean lespedeza	*Kummerowia stipulacea*
kudzu	*Pueraria montana var. lobata*
Kummerowia	*Kummerowia spp.*
ladysthumb	*Persicaria maculosa*
lambsquarters	*Chenopodium album*
large crabgrass	*Digitaria sanguinalis*
large gray willow	*Salix cinerea*
large hop clover	*Trifolium campestre*
largeseed dodder	*Cuscuta indecora*
largeseed falseflax	*Camelina sativa*
leafy spurge	*Euphorbia esula*
lemon balm	*Melissa officinalis*
lesser celandine, fig buttercup	*Ficaria verna*
lettuce	*Lactuca sativa*
lily of the valley	*Convallaria majalis*
little starwort	*Stellaria graminea*
live-forever stonecrop	*Hylotelephium telephium*
Lombardy poplar	*Populus nigra*
Long's sedge	*Carex longii*
longleaf groundcherry	*Physalis longifolia*
longleaf speedwell	*Pseudolysimachion longifolium*
longspine sandbur	*Cenchrus longispinus*
longstalk cranesbill	*Geranium columbinum*
low cudweed	*Gnaphalium uliginosum*
Mahaleb cherry	*Prunus mahaleb*
marsh-pepper smartweed	*Persicaria hydropiper*
meadow brome	*Bromus erectus*
meadow fescue	*Festuca pratensis*
meadow foxtail	*Alopecurus pratensis*

Common Name	Scientific Name
meadow hawkweed	*Hieracium caespitosum*
meadow salsify	*Tragopogon lamottei*
memorial rose	*Rosa lucieae*
Mexican fireweed	*Bassia scoparia*
mexicantea	*Dysphania ambrosioides*
mile-a-minute vine, Asiatic tearthumb	*Persicaria perfoliata*
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 mallow	*Malva moschata*
musk thistle, nodding thistle	*Carduus nutans*
narrow-leaved cattail	*Typha angustifolia*
nettleleaf goosefoot	*Chenopodium murale*
nimblewill	*Muhlenbergia schreberi*
nipplewort	*Lapsana communis*
nodding star-of-Bethlehem	*Ornithogalum nutans*
northern catalpa	*Catalpa speciosa*
northern white cedar	*Thuja occidentalis*
Norway maple	*Acer platanoides*
Norway spruce	*Picea abies*
orange hawkweed	*Pilosella aurantiaca*
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 dock	*Rumex latissimus*
pale smartweed	*Polygonum lapathifolium*
pale yellow iris, yellow flag iris	*Iris pseudacorus*
panicled hydrangea	*Hydrangea paniculate*
paradise apple	*Malus pumila*
parrotfeather	*Myriophyllum aquaticum*
peach	*Prunus persica*
peppermint	*Mentha x piperita*
perennial ryegrass	*Lolium perenne*
perennial ryegrass	*Lolium perenne ssp. perenne*

Common Name	Scientific Name
perennial sowthistle	*Sonchus arvensis*
perilla mint	*Perilla frutescens*
periwinkle	*Vinca spp.*
Persian speedwell	*Veronica persica*
piedmont bedstraw	*Cruciata pedemontana*
pineapple-weed	*Matricaria discoidea*
plumeless thistle	*Carduus spp.*
poison hemlock	*Conium maculatum*
poison-sumac	*Toxicodendron vernix*
poverty brome	*Bromus sterilis*
prairie sunflower	*Helianthus petiolaris*
prickly lettuce	*Lactuca serriola*
princess-feather	*Persicaria orientalis*
princesstree	*Paulownia tomentosa*
privet	*Ligustrum spp.*
prostrate knotweed	*Polygonum aviculare*
prostrate pigweed	*Amaranthus blitoides*
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*
queen-of-the-meadow	*Filipendula ulmaria*
rabbitfoot clover	*Trifolium arvense*
radish	*Raphanus sativus*
rapeseed	*Brassica napus*
red clover	*Trifolium pratense*
red fescue	*Festuca rubra*
red morning-glory	*Ipomoea coccinea*
red sorrel	*Rumex acetosella*
redroot pigweed	*Amaranthus retroflexus*
redsepal evening-primrose	*Oenothera glazioviana*
redstem filaree	*Erodium cicutarium*
redstem stork's bill	*Erodium cicutarium ssp. cicutarium*
redtop	*Agrostis gigantea*
reed canarygrass	*Phalaris arundinacea*
rock dandelion	*Taraxacum erythrospermum*
rose campion	*Silene coronaria*
rose of Sharon	*Hibiscus syriacus*
roughstalk bluegrass	*Poa trivialis*

Common Name	Scientific Name
Russian thistle	*Salsola tragus*
rye brome	*Bromus secalinus*
salad burnet	*Sanguisorba minor*
scarlet pimpernel	*Anagallis arvensis*
Scotch broom	*Cytisus scoparius*
Scots pine	*Pinus sylvestris*
Seaside rose	*Rosa rugosa*
sensitive partridgepea	*Chamaecrista nictitans*
sericea lespedeza	*Lespedeza cuneata*
sheep fescue	*Festuca trachyphylla*
shepherd's-purse	*Capsella bursa-pastoris*
showy fly honeysuckle, Bell's honeysuckle	*Lonicera x bella*
shrubby lespedeza	*Lespedeza bicolor*
Siberian elm	*Ulmus pumila*
silvery cinquefoil	*Potentilla argentea*
slender meadow foxtail	*Alopecurus myosuroides*
small carpetgrass, joint-head grass	*Arthraxon hispidus*
small hop clover	*Trifolium dubium*
smallflower galinsoga	*Galinsoga parviflora*
smallseed falseflax	*Camelina microcarpa*
smooth bedstraw	*Galium mollugo*
smooth brome	*Bromus inermis*
smooth cat's ear	*Hypochaeris glabra*
smooth hawksbeard	*Crepis capillaris*
sneezewort yarrow	*Achillea ptarmica*
sorghum (type unspecified)	*Sorghum bicolor*
sour cherry	*Prunus cerasus*
southern catalpa	*Catalpa bignonioides*
spanishneedles	*Bidens bipinnata*
spearmint	*Mentha spicata*
spiny plumeless thistle	*Carduus acanthoides*
spiny sowthistle	*Sonchus asper*
splitlip hempnettle	*Galeopsis bifida*
spotted deadnettle	*Lamium maculatum*
spotted knapweed	*Centaurea stoebe ssp. micranthos*
spotted spurge	*Euphorbia maculate*
spotted waterhemlock	*Cicuta maculate*
spring whitlowgrass	*Draba verna*
sneezewort yarrow	*Achillea ptarmica*
southern catalpa	*Catalpa bignonioides*
spearmint	*Mentha spicata*
spiny plumeless thistle	*Carduus acanthoides*

Common Name	Scientific Name
spiny sowthistle	*Sonchus asper*
splitlip hempnettle	*Galeopsis bifida*
spotted knapweed	*Centaurea stoebe ssp. micranthos*
spotted spurge	*Euphorbia maculata*
spotted waterhemlock	*Cicuta maculata*
star-mustard	*Coincya monensis*
star-of-Bethlehem	*Ornithogalum umbellatum*
starch grape hyacinth	*Muscari neglectum*
sticky chickweed	*Cerastium glomeratum*
stinging nettle	*Urtica dioica*
stinkgrass	*Eragrostis cilianensis*
stinking chamomile	*Anthemis cotula*
strawberry raspberry	*Rubus illecebrosus*
sulfur cinquefoil	*Potentilla recta*
sulphur cosmos	*Cosmos sulphureus*
sweet alyssum	*Lobularia maritima*
sweet autumn virginsbower	*Clematis terniflora*
sweet cherry	*Prunus avium*
sweet vernalgrass	*Anthoxanthum odoratum*
sweetbriar	*Rosa rubiginosa*
sweetwilliam	*Dianthus barbatus*
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*
twoleaf watermilfoil	*Myriophyllum heterophyllum*
velvetleaf	*Abutilon theophrasti*
Venice mallow	*Hibiscus trionum*
Virginia groundcherry	*Physalis virginiana var. virginiana*
Virginia pepperweed	*Lepidium virginicum*

Common Name	Scientific Name
wallflower mustard	*Erysimum cheiranthoides*
water speedwell	*Veronica anagallis-aquatica*
watercress	*Nasturtium officinale*
waterpurslane	*Ludwigia palustris*
weeping lovegrass	*Eragrostis curvula*
weeping willow	*Salix babylonica*
western salsify	*Tragopogon dubius*
white campion	*Silene latifolia*
white clover	*Trifolium repens*
white cockle	*Silene latifolia ssp. alba*
white horehound	*Marrubium vulgare*
white mulberry	*Morus alba*
white poplar	*Populus alba*
white sweetclover	*Melilotus albus*
white willow	*Salix alba*
wild buckwheat	*Fallopia convolvulus*
wild four-o'clock	*Mirabilis nyctaginea*
wild garlic	*Allium vineale*
wild marjoram	*Origanum vulgare*
wild mustard	*Sinapis arvensis*
wild oat	*Avena fatua*
wild onion	*Allium canadense*
wild parsnip	*Pastinaca sativa*
wild radish	*Raphanus raphanistrum*
willowleaf lettuce	*Lactuca saligna*
wine raspberry	*Rubus phoenicolasius*
winged burning bush	*Euonymus alatus*
winter creeper	*Euonymus fortune*
Wisconsin weeping willow	*Salix x penduline*
wisterias	*Wisteria spp.*
witch's moneybags	*Hylotelephium telephium ssp. telephium*
woodland strawberry	*Fragaria vesca*
woodland strawberry	*Fragaria vesca ssp. vesca*
yellow alyssum	*Alyssum alyssoides*
yellow bedstraw	*Galium verum*
yellow daylily	*Hemerocallis lilioasphodelus*
yellow fieldcress	*Rorippa sylvestris*
yellow foxtail	*Setaria pumila*
yellow groove bamboo	*Phyllostachys aureosulcata*
yellow hornpoppy	*Glaucium flavum*
yellow nutsedge	*Cyperus esculentus*
yellow rocket	*Barbarea vulgaris*

Common Name	Scientific Name
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)