NRCS West Virginia

# *Preliminary Investigation Feasibility Report (PIFR)*

## Elk Creek

10-digit HUC 0502000202

September 16, 2024

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# Summary

In January 2022, the City of Clarksburg in Harrison County, WV submitted a request to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) for assistance addressing continued flooding on Elk Creek, specifically in the town of Nutter Fork, which is adjacent to and upstream from Clarksburg.

However, a leadership change in the City of Clarksburg brought new priorities to the foreground, and the city is no longer interested in sponsoring this PIFR. Therefore, at this time, though both the Town of Nutter Fort and the City of Clarksburg have expressed interest in the project, neither potential sponsor is able to commit to the responsibilities outlined on the WS-4 Sponsor Authority and Role Declaration, and there is not a qualified sponsor for the project.

The primary PL-566 project purpose is flood prevention, with additional project purposes and resource concerns including watershed protection, agricultural water management, municipal and industrial water supply, and water quality management.

The watershed is in parts of Harrison, Barbour, and Upshur Counties in West Virginia. Clarksburg is the county seat of Harrison County and is a relatively large urban area. Project implementation would affect local business owners and their clients, local homeowners and renters, and commuters and travelers who use city streets.

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

The project is significant because it has the potential to provide flood prevention within the watershed. Disruptions to travel and property damage to businesses and residences due to flooding are recurring. The project could provide long-term relief with positive impacts to the environment, the economy, and to residents and business owners in the watershed.

Potential alternatives for addressing the sponsors concerns are the installation of new flood control dams, construction of flood control channels, stream restoration, land treatment, low impact development, a combination of these alternatives, floodplain buyout and restoration, and a no action alternative. The baseline condition without Federal investment is a situation of continued flooding, negatively impacting residents and businesses. The alternatives that were developed include structural and non-structural measures consisting of land treatment practices and possible construction of new infrastructure.

# 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 City of Clarksburg requested assistance with conducting a Preliminary Investigation and Feasibility Report (PIFR) for a potential watershed project in the **Elk Creek Watershed, Harrison, Barbour, and Upshur Counties, WV,** 10-digit HUC (0502000202, Elk Creek).<br><br>This assistance is authorized under the Watershed Protection and Flood Prevention Act (Public Law 83-566). The BSB is interested in being a sponsor for a watershed project in the watershed and meets the PL 83-566 criteria for a sponsor. Watershed protection, flood protection, public recreation, and agricultural water management would be the likely purposes of a potential watershed project. | | |
| Will the project area exceed 250,000 acres in size? [1,2] | ☐ YES | ☒NO |
| If over 250,000 acres, will it be divided into sub-watersheds in one plan? | ☐ YES | ☒NO |
| Potential Project Area Size: **77,250** acres | | |
| Will any single structure provide more than 12,500 acre-feet of floodwater detention capacity, or have 25,000 acre-feet of total capacity? | ☐ YES[3] | ☒NO |
| How many recreational developments will be included in the project area? | | |
| • One development in a project area less than 75,000 acres | ☐YES | ☒NO |
| • Two developments in a project area between 75,000 and 150,000 acres | ☐YES | ☒NO |
| • Three developments in a project area greater than 150,000 acres | ☐YES | ☒NO |
| Which authorized purposes will the project address? (Indicate only one purpose as primary): | | |
| | Primary | Other |
| • Flood prevention | ☒ | ☐ |
| • Watershed Protection | ☐ | ☒ |
| • Public Recreation | ☐ | ☐ |
| • Public Fish and Wildlife | ☐ | ☐ |
| • Agricultural Water Management | ☐ | ☒ |
| • Municipal or Industrial Water Supply | ☐ | ☒ |
| • Water Quality Management | ☐ | ☒ |
| Will the project produce substantial benefits to the general public, to communities, and to groups of landowners? | ☒YES | ☐ NO[3] |
| Can the project be installed by individual or collective landowners under alternative cost-sharing assistance? | ☐ YES[3] | ☒NO |
| Will the project have strong local citizen and sponsor support through agreements to obtain land rights, permits, contribute the local cost of construction, and carry out operation and maintenance. | ☒YES | ☐ NO[3] |
| Will the project take place in a Special Designated Area? (if yes, check applicable area below.) | ☒YES | ☐NO |
| Appalachia ☒ \| Delaware River Basin ☐ \| Susquehanna River Basin ☐ \| Tennessee Valley ☐ | | |

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

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

*3- The project will not meet the statutory requirements.*

*References:*

*16 USC 18 - §1004, Conditions for Federal assistance 7 CFR 611 - 11, Eligible Watershed Projects*

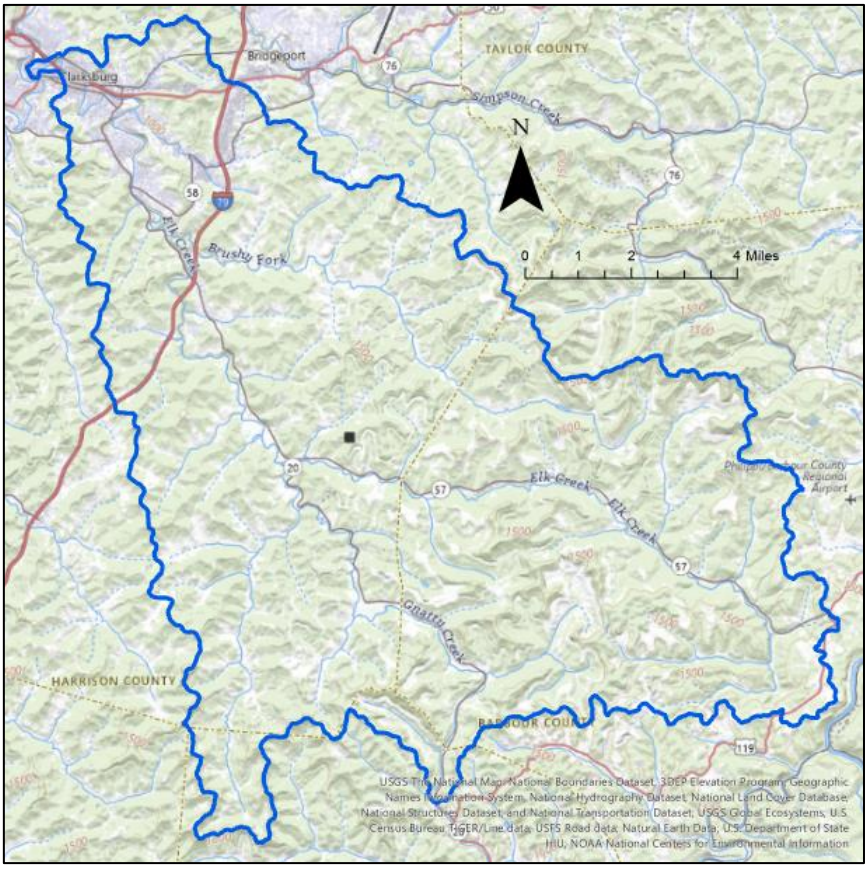
*Title 390, NWPM – 500.3 Eligible Purposes*

## Potential for 20% Agricultural (Rural) Benefits

Harrison County had a population of 65,921 people reported on the 2020 Census. The county seat of Clarksburg had 16,061, and is the largest population center in the watershed. As per the USDA definition, Clarksburg is a rural community because it has fewer than 50,000 people. Because Harrison County is a rural county and Clarksburg is a rural community, at least 20% of the benefits will meet the agricultural (rural) requirement. Populations potentially benefitting from a project would include agricultural producers, homeowners and renters, travelers and commuters, business owners, and the public.

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

## Project Overview

| | |
|---|---|
| Proposed Project Name | Elk Creek Watershed,10-digit HUC (0502000202) |
| | |
| State | West Virginia |
| | |
| County | Harrison, Barbour, and Upshur Counties |
| | |
| Congressional District | 2nd Congressional District |
| | |
| USGS Hydrologic Unit Code (HUC) and Watershed Name | 10-digit HUC 0502000202, Elk Creek   |
| | |

| | |
|---|---|
| General Coordinates of the Watershed | Latitude 39.182° , Longitude -80.209° |
| | |
| Potential Project Area - Size | 77,250 acres |
| | |
| Project Setting | Elk Creek drains a large part of the city of Clarksburg, West Virginia, including the town of Nutter Fork. Elk Creek flows into West Fork River within the Clarksburg city limits. The West Fork River meets the Tygart Valley River near Fairmont, WV, to form the Monongahela River. The Monongahela River meets the Allegheny River at Pittsburg, PA, forming the Ohio River. The Ohio River joins the Mississippi River at Cairo, Illinois. The Mississippi flows into the Gulf of Mexico.<br><br>The total watershed drainage area is 77,250 acres. Of that, 43,758 acres are in Harrison County, 30,796 acres are in Barbour County, and 2,696 acres are in Upshur County, WV.<br><br>Elk Creek flows through Elk City, Overfield, Craigmoor, Quiet Dell, Stonewood, Nutter Fort, and Clarksburg, West Virginia.<br><br>The topography in the watershed ranges from an elevation of 1,900' MSL in the headwaters near the Harrison and Upshur County line to a low point of approximate elevation 925' MSL at the confluence of Elk Creek with West Fork River.<br><br>The watershed, which lies entirely in Major Land Resource Area (MLRA) 126, Central Allegheny Plateau, is characterized by a dissected plateau underlain mainly by horizontally bedded sedimentary rocks. The narrow, level valleys and narrow, sloping ridgetops are separated by long, steep to very steep side slopes.<br><br>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.<br><br>The jet stream is located near or over the northeast during the winter bringing frequent storm systems to the watershed. |

Figure 1: Location of HUC 10 0502000202 Elk Creek in West Virginia.

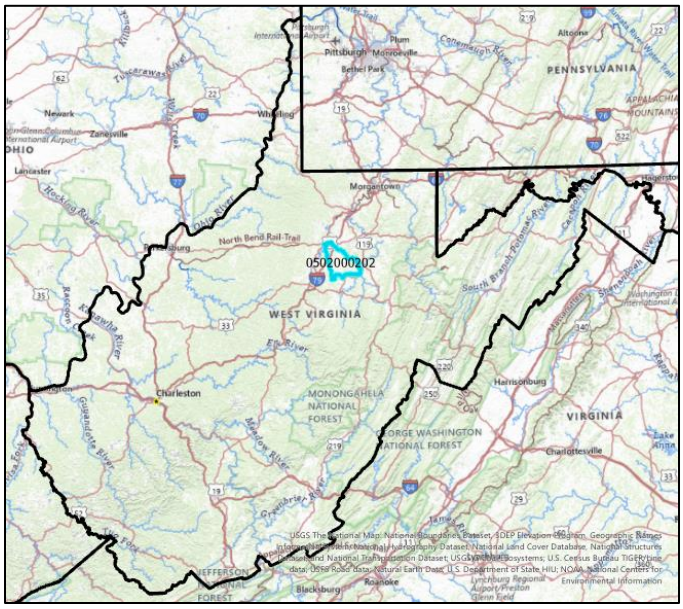
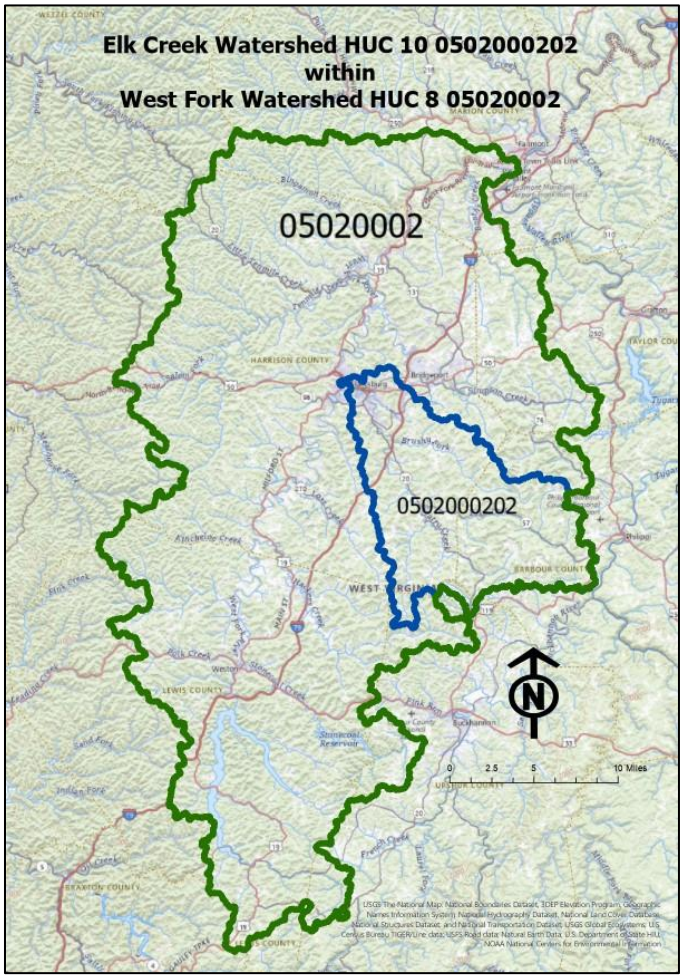



Figure 2: Location of HUC 10 0502000202 Elk Creek within HUC 8 05020002 West Fork River.



# Resource Information

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|---|---|
| Soils | The project area lies within Major Land Resource Area (MLRA) 126, Central Alleghany Plateau. This MLRA consists of a dissected plateau with narrow, level valley floors, narrow, sloping ridgetops, and long steep to very steep side slopes. The plateau is underlain by flat-lying cyclic beds of shale, sandstone, mudstone, and minor amounts of limestone and coal. The dominant soil orders are Alfisols, Utisols, and Inceptisols.<br><br>The project area has uniform elevation on the ridgetops, except when broken by saddles and high knobs. The streams of the area have a dendritic drainage pattern. Soils formed from residdum parent material are in upland areas, from colluvium on foot slopes, and from old alluvium on high terraces, and recent alluvium on high and low floodplains. The soils formed from residdum are the most extensive and have a wide range of characteristics, most of which are well-drained and moderately deep. Soils formed in the sloping areas where runoff is moderate to rapid are usually well drained, have a bright colored, unmottled subsoil, and are leached to a greater depth in most cases than wetter soils in the same area. In level areas or slight depressions where the water table is near the surface for longer amounts of time, the soils show gray or dark colored thick surface layers and are typically strongly mottled and/or have gray subsoil. The common soils in the area are Gilpin-Upshur complex, strip mines, and Clarksburg silt loam.<br><br>Major resource concerns include sheet and rill erosion, land slippage, subsidence resulting from underground mining, streambank erosion, surface compaction, and reduced content of organic matter on cropland. |
| Water | Elk Creek and several tributaries, including Brushy Fork to the north and east and Gnatty Creek to the south and west, are the main streams in the watershed. Elk Creek meets the West Fork River downstream from the watershed. |
| Air | The watershed is not in an area recognized for regularly having impaired air quality or any significant air quality issues. Dust and fumes from project activity may temporarily adversely impact these areas. |
| Plants | The watershed provides for both agricultural crops as well as naturally vegetated forested areas utilized as wildlife habitat. There is one species of plant listed by USFWS as threatened, Virginia Spiraea *Spiraea virginiana*, but no critical habitat is present within the watershed. See appendix E for more information. |
| Animals | The watershed is largely forested and has animal resources consisting of game, non-game, and invasive species. There are one threatened and one endangered bat species and two endangered clam species within the watershed, but no critical habitat is present. See Appendix E for more information. |
| Energy | This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state. |

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|---|---|
| Human | **Demographics**: The 2020 U.S. Census reports the population of Harrison County at 65,921 and the City of Clarksburg at 16,061 residents. Approximately 94% of Harrison County and 92% of Clarksburg residents are non-Hispanic whites, with African Americans making up approximately 2% of the population of Harrison County and 3% of the population of Clarksburg. The population density of Harrison County is 159 people per square mile, and in Clarksburg it is 1,654.<br><br>For the years 2018-2022, per capita income was $32,658 in Harrison County and $26,585 in Clarksburg, while median household incomes were $56,184 in Harrison County and $46,525 in Clarksburg. The owner-occupied housing unit rate was 74% in Harrison County and 63% in Clarksburg, with median values of owner-occupied housing units approximately $146,900 and $110,600 respectively. Median monthly rent was $836 in Harrison County and was $748 in Clarksburg.<br><br>For the years 2018-2022, people under age 65 with a disability made up 15.6% of Clarksburg residents and 11.3% of Harrison County residents, compared to 13.8% in West Virginia and 8.9% nationally. 24.7% of Harrison County residents and 23.5% of Clarksburg residents had a bachelor's degree or higher, compared to 22.7% of state residents and 34.3% nationally.<br><br>Barbour and Upshur Counties are more rural, with 15,465 residents in Barbour and 23,816 residents in Upshur County reported on the 2020 census. As more rural counties, they have slightly higher percentages of non-hispanic whites (95% and 96%), significantly lower population densities (45 and 67 people per square mile), and lower percentages of residents with a bachelor's degree or higher (12% and 17%). Per capita and median household incomes are slightly lower than Harrison county, and are below the state and national averages, while owner occupied housing rates are slightly higher.<br><br>**Transportation:** Major highways within the watershed include US Interstate 79, which runs north to south through the northwest corner of the watershed. State Rt. 50 crosses the northern part of the watershed east to west, crossing Elk Creek twice in the Clarksburg city limit. County Rt. 20 follows Elk Creek through the watershed to the Gnatty Creek confluence, then follows Gnatty Creek though it's headwaters to the south. County Rt. 57 follows along Elk Creek from the Gnatty Creek confluence through the headwaters to the east. State Rt. 119 briefly passes through the far east portion of the watershed but crosses only ephemeral and intermittent headwaters in that area.<br><br>Other transportation infrastructure associated with an urban/suburban environment are present throughout the lower portion of the watershed, including but not limited to city streets, overhead and buried power and telecommunication lines, and natural gas distribution lines.<br><br>**Recreation:** There is little federal or state-owned land in the watershed. Approximately half of the state-owned Center Branch Wildlife Management Area, located south of Clarksburg, is within the watershed. The WMA offers hunting, fishing, hiking, and other outdoor recreation activities.<br><br>The Clarksburg City Park is located along Elk Creek in the town of Nutter Fort. It offers sporting facilities, picnic pavilions, playgrounds, and a hiking trail. |

# Resources of Special Concern

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| Clean Water Act | Elk Creek and many of its tributaries, including Gnatty Creek and Brushy Fork, are listed as impaired for iron and for fecal coliform bacteria in the US EPA approved TMDL for the West Fork River watershed. The impairments are due to pollution form both point and non-point sources. Abandoned mine lands are a significant source of metals, including iron, that have led to the impairment. Failing septic system and straight pipes are a significant source of fecal coliform bacteria. |
| | |
| Clean Air Act | The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues. |
| | |
| Coastal Zone Management | NA |
| | |
| Coral Reefs | NA |
| | |
| Cultural Resources | There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended. |
| | |
| Endangered & Threatened Species | The US Fish and Wildlife Service identifies 6 Federally listed threatened, endangered, or candidate species potentially found in this watershed. According to the USFWS Information for Planning and Consultation (IPaC) regulatory review process, the project "may affect" 2 listed bat species: Indiana bat *myotis sodalist* (endangered) and northern long-eared bat *myotis septentrionalis* (threatened). Further consultation with USFWS is underway, and time of year restrictions may be placed on some project activity. See Appendix E for a complete USFWS IPaC Species list, determination letters, species survey guidelines, and project design guidelines aimed at minimizing impacts to T&E species. |
| | |
| Environmental Justice | Harrison, Upshur, and Barbour Counties are completely within the Appalachian Region but are not designated as a limited-resource counties by USDA. Upshur and Barbour Counties are designated as "distressed" by the Appalachian Regional Commission, indicating that they are economically depressed and rank within the bottom 10% of counties in the nation. Harrison County is designated as "transitional", ranking between the worst 25% and the best 25% of counties nationwide. However, 3 census tracts within the county, all in the Mill Creek watershed, are designated as "distressed areas". *Reference: https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/* |
| | |
| Essential Fish Habitat | There are no know essential fish habitats within the watershed. Elk Creek and its tributaries are not stocked with trout by WV DNR. |
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|---|---|
| Floodplain Management | In spring of 2014, Harrison County adopted a floodplain management ordinance that requires permits for repair, relocation, or construction of buildings, provides minimum standards for construction, and spells out penalties for violations of the ordinance.<br><br>FEMA has designated much of the area adjacent to Elk Creek and its tributaries as Zone AE. Much if this area is developed for agricultural and urban uses. |
| | |
| Invasive Species | Invasive species are found in the watershed. EDDMaps provides a web-based mapping system for documenting invasive species and pest distribution. See Appendix E for complete species lists. Note that the list is for Harrison County and is not specific to the watershed or project area. |
| | |
| Migratory Birds/Bald & Golden Eagle Protection Act | Migratory birds and eagles utilize the Elk Creek Watershed habitats. There are 11 USFWS listed Birds of Conservation Concern (BCC) in the area. See Appendix E for a complete list. |
| | |
| Natural Areas | **Federal**: There are no federally owned or operated lands within the watershed.<br><br>**State**: The West Virginia Division of Natural Resources operates the Tygart Lake State Park, Pleasant Creek Wildlife Management Area, and Stonecoal Lake Wildlife Management Area. The West Virginia Department of Agriculture operated the Pruntytown State Farm. None of these areas are within the watershed but are adjacent to or within close proximity to the watershed. The Center Branch Wildlife Management Area, located south of Clarksburg, is partially within the watershed. |
| | |
| Prime and Unique Farmlands | Within the Elk Creek watershed, there are 3,230 acres of Prime Farmland, which accounts for 4% of land in the watershed. Additionally, there are 18,720 acres of Farmland of Statewide Importance and 530 acres of Farmland of Local Importance (Figure 3). There are no farmland protection boards actively conserving land in the watershed. Development and subdivision of farmland is ongoing as the area continues to grow, making threat of conversion high. |
| | |
| Riparian Area | There are riparian areas present in the watershed. Riparian areas found in this region are generally characterized as vegetated and un-vegetated. These areas are often forested or utilized as agricultural, urban, or residential purposes. |
| | |
| Scenic Beauty | Areas of potential scenic beauty in this watershed are typical of the Appalachian Plateau physiographic province and common to the region. |
| | |
| Wetlands | Within the Elk Creek watershed, there are 1,095 acres of wetland, consisting of 200 acres of Freshwater Emergent Wetlands, 34 acres of Freshwater Forested/Shrub Wetlands, 84 acres of Freshwater Pond, and 677 acres of Riverine (Figure 4).<br>*Reference: US Fish and Wildlife Service National Wetlands Inventory.* |
| | |
| Wild and Scenic Rivers | No designated Wild and Scenic Rivers are in or near the project area. |

Figure 3: Elk Creek watershed farmland classification map.

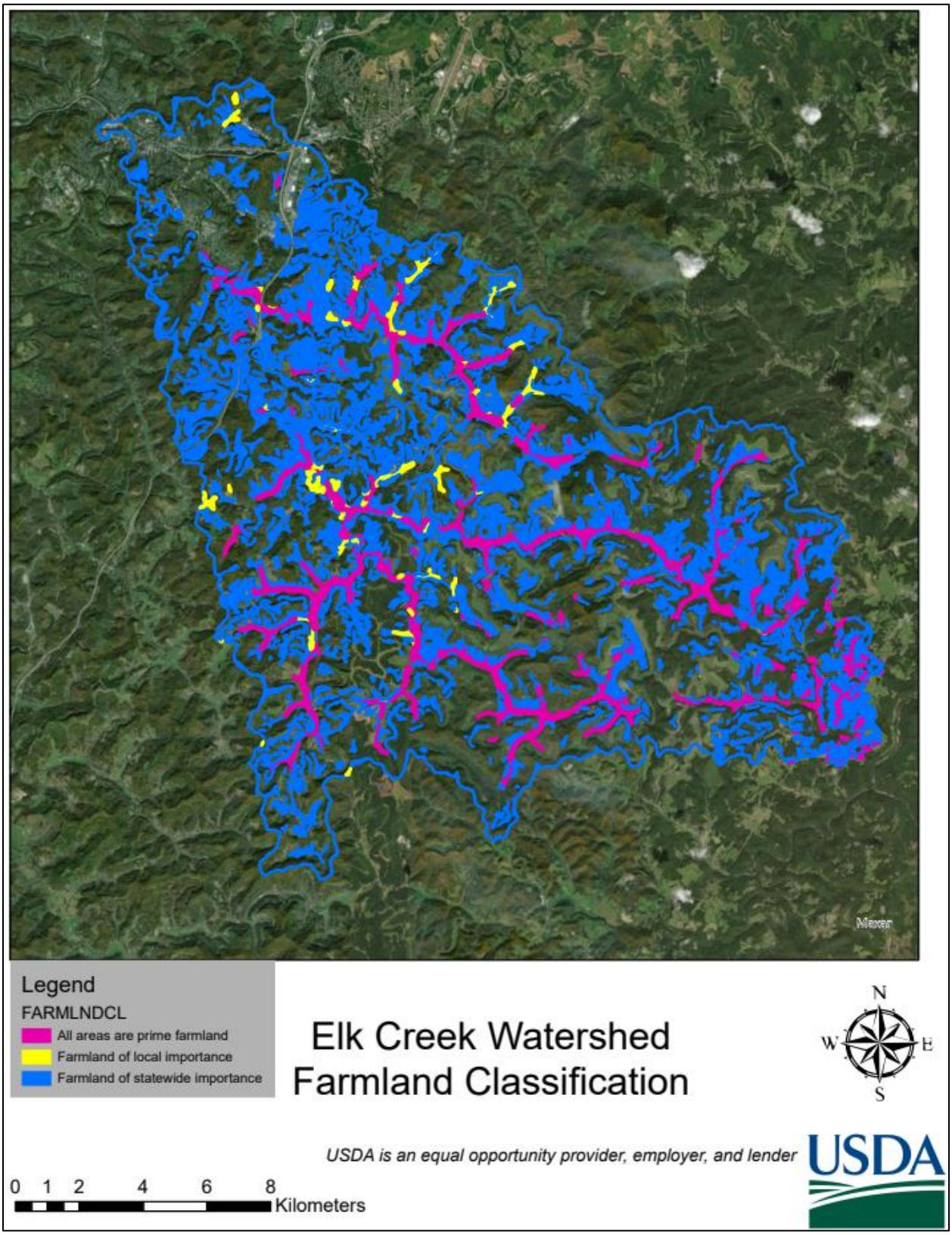
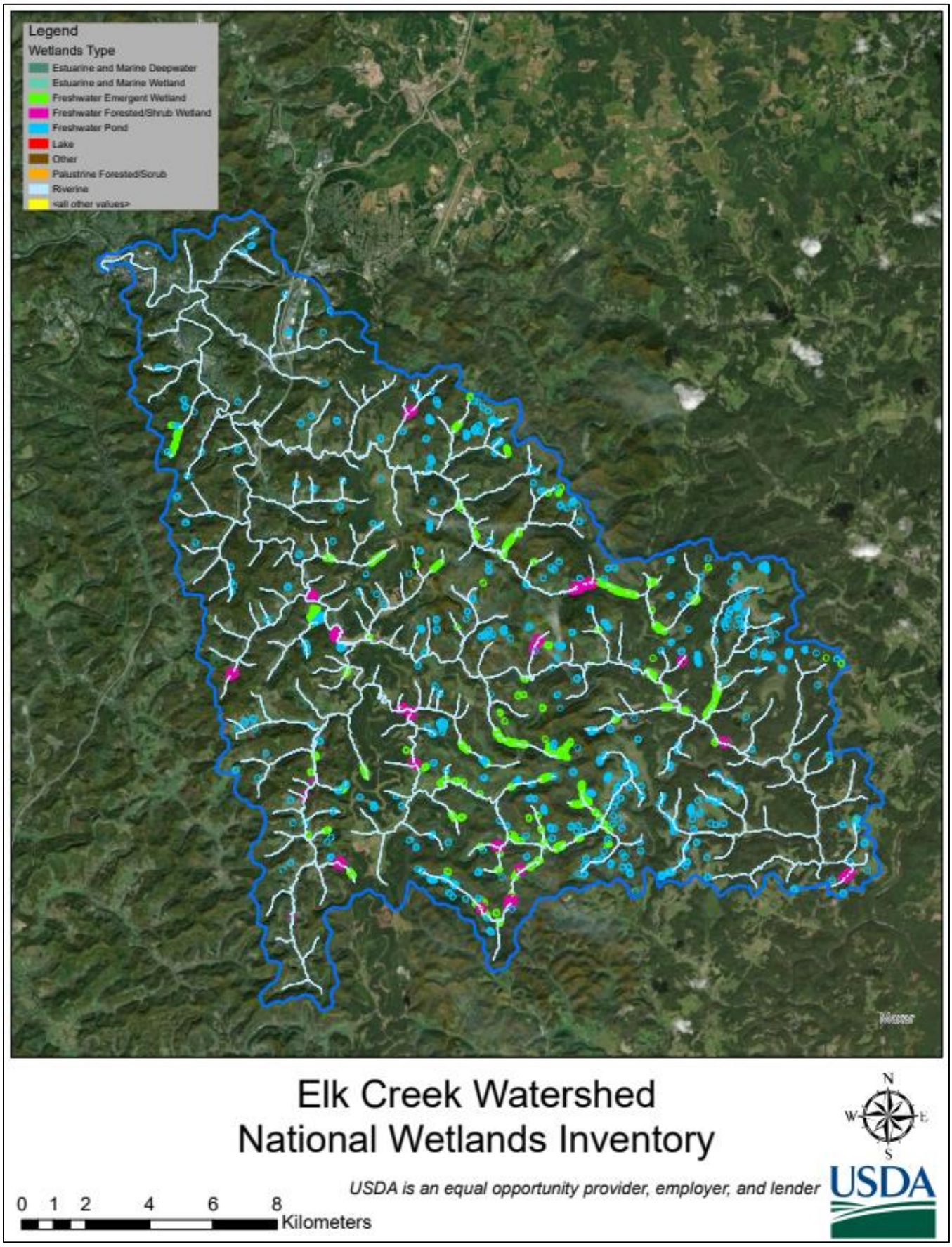


Figure 4: Elk Creek watershed USFWS National Wetlands Inventory map.



# Proposed Project Purpose and Need Statement

The purpose of the proposed project is to address resource concerns in the Elk Creek watershed, where landowners and municipalities in flood prone areas are experiencing repeated flooding, destruction of property, and threats to human health and safety.

The PL 566 primary project purposes will be flood prevention, with watershed protection, agricultural water management, municipal or industrial water supply, and water quality management as additional objectives.

The current condition of the stream and floodplain has resulted in flood risk to roadways, local businesses, residential and commercial structures, and to utility infrastructure, and poses a threat to human health and safety.

## 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 Elk Creek Watershed contains water resources concerns and opportunities that offer the potential for a watershed project that achieves this Federal Objective.

| **Resources** | **Concerns** | **Opportunities** |
|---|---|---|
| Water | • Flooding | • Reduce flood impacts<br>• Address flood risk management concerns |
| Soil | • Soil loss is likely due to OM depletion, compaction resulting in reduced infiltration on agricultural lands and urban lands, impervious surfaces. Erosion on farms is most likely from overgrazing and bare soil areas. | • Reduce impacts to soils and improve soil health |
| Air | • No air quality issues present | • Monitor state air data for potential issues |
| Plant | • Lack of plant species diversity and presence of invasive species. | • Increase of plant diversity with the establishment of native regionally appropriate species. |
| Animals | • Lack of game and non-game species diversity and habitat diversity | • Provide appropriate game and non-game habitat. |
| Energy | • Potential damage to energy infrastructure from flooding | • Efficiencies in energy use<br>• Improvements to air quality |
| Human | • Decreasing living standards due to flood risk | • Improvements to quality of life |
| Recreation | • Disparate recreational access<br>• Underutilization of water-based recreation potential | • Increase accessibility to recreation for local residents<br>• Increased water recreation opportunities |
| Environmental Justice | • Persistent poverty<br>• Flooding of neighborhoods<br>• 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 |

## State, Tribal, Federal Stakeholder Engagement

Notification letters were sent out to the West Fork Conservation District, West Virginia State Historic Preservation Office, tribes, and the West Virginia Conservation Agency. There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.

## Potential Alternatives

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

| Alternatives | Possible Positive Impacts and Effects | Possible Adverse Impacts and Effects |
|---|---|---|
| No Action | -No new costs to taxpayers or sponsors<br>-no new maintenance requirements | -no flood protection<br>-no public works project(s)<br>-Structures remain out of compliance<br>-hazard to public and infrastructure increases<br>-maintenance becomes more expensive |
| Alt 1-New Flood Control Dams- Installation of additional flood control dams in the watershed to increase flood protection | -Increased flood protection<br>-recreation opportunities<br>-water supply, rural, ag, municipal, & industrial<br>-aquatic habitat<br>-short term construction jobs<br>-Increased federal investment into local infrastructure<br>-increased public safety<br>-possible power generation capabilities included<br>-ag water management | -Loss of private land through condemnation/easements<br>-Loss of local tax base<br>-Loss of farmland and/or terrestrial habitat<br>-loss of stream habitat<br>-aquatic organism passage barrier<br>-long term maintenance burden on sponsors<br>-potential relocations of homes, roads, & utilities<br>-may require some local cost share funds |

| | | |
|---|---|---|
| Alt 2-New Flood Control Channel-Channelization work in heavier populated area of the watershed to increase flood protection | -Increased flood protection in more urban areas<br>-short term construction jobs<br>-increased federal investment into local infrastructure<br>-reduce significant risk to loss of life<br>-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<br>-long term maintenance burden on sponsors<br>-potential relocations of utilities<br>-may require some local cost share funds<br>-loss of stream habitat & riparian areas<br>-may only reduce flooding from higher frequency storms |
| Alt 3 - Stream Restoration | -restoring stream and riparian habitat<br>-reduced long term maintenance cost<br>-short term construction jobs<br>-majority or all federal funds<br>-reduction in sediment and nutrients<br>-increased outdoor recreation<br>-relatively low cost<br>-improved water quality<br>-increase in fish and wildlife populations | -no flood protection<br>-requires a fenced and maintained riparian area for cattle exclusion<br>-possible loss of pasture due to fencing |
| Alt 4 - Land Treatment | -restoring forests and ag land to their production potential<br>-no long-term maintenance cost<br>-majority or all federal funds<br>-reduction in sediment and nutrients<br>-increased outdoor recreation<br>-relatively low cost<br>-improved water quality<br>-increase in fish and wildlife populations<br>-typically voluntary programs | -no flood protection<br>-no public works project(s) |

| | | |
|---|---|---|
| Alt 5 - Green Infrastructure/Low Impact Development | -aquatic habitat uplift<br>-aesthetic improvements<br>-improved water quality<br>-extend life of flood control structures<br>-permanent jobs maintaining structures<br>-possible retrofitting existing structures for hydro power generation | -minor loss of land<br>-maintenance burden on landowners/sponsors<br>-increased cost of development |
| Alt 6 - Land Treatment, Stream Restoration, Rehab, Repair, Channelization, Green Infrastructure, New Structures | -combination of all the above<br>-huge amount of federal money provided<br>-several years of construction jobs<br>-improved flood protection, water quality, recreation, & water supply<br>-improved productivity on ag and forest land | -combination of all the above<br>-large amount of cost share required from local sponsors<br>-maintenance cost and burden increases |
| Alt 7- Floodplain Buyout, flood proofing affected homes, relocation of homes | -Elimination of threat to life and property<br>-Floodplain converted to more natural condition including wetlands.<br>-Increased wildlife habitat.<br>-Enhanced learning and recreational opportunities | -Relocation of cemeteries and/or utilities.<br>-Loss of cultural values in the community.<br>-Displacement of local businesses, schools, and public facilities.<br>-Increased resistance to relocation and property condemnation.<br>-Increased cost of development. |

# Potential Effects of Proposed Alternatives

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

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

| **Resource Concerns: SWAPA + Energy + Human** | | |
|---|---|---|
| | **Alt 1 – No Federal Action** Description: The sponsor does not implement measures using federal funds | **Alt 2 – Federal Action:** Description: Combination of measures using federal funds |
| Soil | - | + |
| Water | - | + |
| Air | 0 | 0 |
| Plants | - | + |
| Animals | - | + |
| Energy | 0 | 0 |
| Human | - | + |
| Clean Air Act | 0 | 0 |
| Clean Water Act/Waters of the U.S. | 0 | 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 | * |

## Facilitating Factors

- Two potential sponsors, the Town of Nutter Fort and the City of Clarksburg, have expressed some interest in working with NRCS on a project, but are not able to meet the criteria for sponsorship.

## Obstructing Factors

- Neither potential sponsor is able to assume the responsibilities outlined on the WS-4 Sponsor Authority and Role Declaration.
- Local funding is dependent on state appropriations and local government budgets.

## Environmental Document

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

## Sponsors

Neither potential sponsor, the Town of Nutter Fort or the City of Clarksburg, is currently willing and able to assume the responsibilities outlined on the WS-4 Sponsor Authority and Role Declaration.

| *Sponsor Will:* | Assist in Planning | Land Rights / Eminent Domain | Local Cost Share | O/M Funds | Permits | Land Treatment |
|---|---|---|---|---|---|---|
| City of Clarksburg | | | | | | |
| Town of Nutter Fort | | | | | | |

Sponsor will:

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

## Potential Cooperating Agencies

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

## Potential Stakeholders

| Stakeholder | Role | Resources | Contribution |
|---|---|---|---|
| Town of Nutter Fort | Co-Sponsor | Cost-share funds | For Plan/EA attain permits and assists with Public Meetings, Mailings, and overall administration of the project. |
| City of Clarksburg | Co-sponsor | Cost-share funds | For Plan/EA attain permits and assists with Public Meetings, Mailings, and overall administration of the project. |
| USDA-NRCS | Lead Agency for Plan- EA, FA/TA, Reviews | Funding assistance, Technical Reviews | Reviews for project location, inventory needs, Plan-EA supplement |
| Army Corps of Engineers (USACE) | Section 404 permit, Section 10 permit, Section 408 review | Technical Reviews, Wetlands-Waters of the U.S. Jurisdiction | Permitting, technical review |
| Catawba Indian Nation – Chief - Bill Harris | Permit- Cultural Review | Review of Project APE | Permit for Project APE |
| Catawba Indian Nation – Cultural Division Program Manager - Caitlin Rogers | Permit- Cultural Review | Review of Project APE | Permit for Project APE |
| Catawba Indian Nation - Tribal Historic Preservation Officer - Dr. Wenonah G. Haire | 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 - Carol Butler | Permit- Cultural Review | Review of Project APE | Permit for Project APE |
| Eastern Shawnee Tribe of Oklahoma- Tribal Historic Preservation Officer - Lora Nuckolls | Permit- Cultural Review | Review of Project APE | Permit for Project APE |
| Eastern Shawnee Tribe of Oklahoma – Chief - Glenna Wallace | Permit- Cultural Review | Review of Project APE | Permit for Project APE |
| Shawnee Tribe- Chief - Benjamin Joseph Barnes | Permit- Cultural Review | Review of Project APE | Permit for Project APE |
| Shawnee Tribe- Tribal Historic Preservation Officer - Tonya Tipton | Permit- Cultural Review | Review of Project APE | Permit for Project APE |
| West Virginia Historic Preservation Office (WVSHPO) | Permit- Cultural Review | Review of Project APE | Permit for Project APE |
| WVDEP | Permits | Review for Permits | Review for Permits |

## Notifications

| Entity/Agency | Method and Date Notified |
|---|---|
| Governor (WV) | Mail, 5/15/2024 |
| US Fish and Wildlife Service | Email, 4/19/2023 |
| US Army Corps of Engineers | Email, 4/19/2023 |
| Catawba Indian Nation | Mail, 8/1/2023 |
| Osage Nation | Mail, 8/1/2023 |
| Absentee Shawnee Tribe | Mail, 8/1/2023 |
| Eastern Shawnee Tribe of Oklahoma | Mail, 8/1/2023 |
| Shawnee Tribe | Mail, 8/1/2023 |

## Estimated Project Implementation Timeline

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

| | | |
|---|---|---|
| Planning Start* | October | 2023 |
| Planning End* | October | 2026 (36 months typically) |
| Design Start* | December | 2026 |
| Design End* | December | 2028 (24 months typically) |
| Construction Start* | March | 2029 |
| Construction End* | November | 2032 (~42 months typically) |

**Dependent on funding*

# Recommendation

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

Jon Bourdon, West Virginia State Conservationist.

By:

Name: Clayton Scott Title: RC-Watershed Planner Date: June 28, 2024

Organization: Natural Resources Conservation Service (NRCS)

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

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

Preparers Signature: Signature: CLAYTON SCOTT Digitally signed by CLAYTON SCOTT Date: 2024.09.17 10:48:28 -04'00' Date: _____

State Watershed Operations Program Manager: Signature: CHRISTI HICKS Digitally signed by CHRISTI HICKS Date: 2024.09.18 09:09:13 -04'00' Date: _____

State Technical Lead (SRC, SCE, Other): Signature: LEWTON DEICHERT Digitally signed by LEWTON DEICHERT Date: 2024.10.02 11:39:48 -04'00' Date: _____

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

State Conservationist: Signature: JON BOURDON Digitally signed by JON BOURDON Date: 2024.10.02 16:28:47 -04'00' Date: _____

# Appendix

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

Appendix A:

Sponsor Letter of Request

CITY OF CLARKSBURG
WEST VIRGINIA

OFFICE OF
CITY MANAGER

January 25, 2022

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

Dear State Conservationist Bourdon:

We request NRCS Watershed Program planning assistance for a potential Public Law (PL) 83-566 project in Harrison County in the Elk Creek Watershed. The Town of Nutter Fort experiences flooding from Elk Creek. We would like for the NRCS to determine the feasibility of flood protection for the town and surrounding area. We understand, as sponsors of a PL 83-566 planning effort, 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 further understand that there is **no cost** share required for a feasibility report and that the Town will review and consider its future participation at every step.

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

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

Harry R. Faulk, City Manager
City of Clarksburg
222 West Main Street
Clarksburg, WV. 26301

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

Sincerely,

City Manager

cc:

Don Dodd, Watershed Planning Specialist, USDA Natural Resources Conservation Service, Beckley, WV

Pam Yost, Watershed Economist, USDA Natural Resources Conservation Service, Morgantown, WV

Julie Stutler, Conservation Partnership Specialist, USDA Natural Resources Conservation Service, Cross Lanes, WV

Appendix B:

WS-4; Sponsor Authority and Role Declaration(s)

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

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

State: WV County: Harrison, Barbour and Upshur Watershed: ELK CREEK

Project Name: ELK CREEK WATERSHED

| | | | |
|---|---|---|---|
| **Sponsor's Name:** | **CITY OF NUTTER FORT** | | |
| **Sponsor's Mailing Address:** | **1415 Buckhannon Pike<br>Nutter Fort WV 26301** | | |
| **Contact Name:** | Sam Maxson | **Phone:** | 304 622-7713 x105 |
| **Title:** | Mayor | **Email:** | mayor@townofnutterfort.com |
| **Sponsor Website:** | TownofNutterFort.com | | |

**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 Elk Creek 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 Elk Creek 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 Elk creek Watershed located in Harrison, Barbour, and Upshur 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: Harrison, Barbour and Upshur Watershed: Elk Creek

Project Name: Elk CREEK WATERSHED

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

**Authorized Representative of Sponsor**

**Name (printed):** Sam Maxson **Title:** Mayor

**Signature:** Sam Maxson **Date:** Jan 31, 2023



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:** City of Clarksburg, WV

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

**D. Client's Objective(s) (purpose):**
The purpose of this project is to provide flood protection and watershed protection by reducing flood impacts, erosion and sedimentation, and nutrient loading in the Elk Creek Watershed.

**C. Identification #** (farm, tract, field #, etc. as required):
Elk Creek Watershed, Harrison, Barbour, and Upshur Counties, WV
10-digit HUC (0502000202, Elk Creek)

**E. Need for Action:**
The baseline condition without federal investment is a of flood protection, incidental recreation, rural water supply , and other amenities associated with impoundments. Flooding is persistent and results in loss of property and crops, stream bank erosion, and sedimentation of streams.

**H. Alternatives**

| *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 Elk Creek Watershed. | New Flood Control Channel- Channelization work in more heavily populated areas of the watershed to increase flood protection. Focused funding for technical and financial assistance through the Watershed Protection and Flood Prevention Act would result in reduced sedimentation, improved water quality, protection of prime farmland, and reduce significant loss of life in the Elk Creek Watershed. |

## Resource Concerns

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

**I. Effects of Alternatives**

| **F. Resource Concerns and Existing/ Benchmark Conditions** (Analyze and record the existing/benchmark conditions for each identified concern) | *No Action* — **Amount, Status, Description** *(Document both short and long term impacts)* | *No Action* — √ if does NOT meet PC | *Alternative 1* — **Amount, Status, Description** *(Document both short and long term impacts)* | *Alternative 1* — √ if does NOT meet PC | *Alternative 2* — **Amount, Status, Description** *(Document both short and long term impacts)* | *Alternative 2* — √ if does NOT meet PC |
|---|---|---|---|---|---|---|
| **SOIL** | | | | | | |
| Sheet and rill erosion<br>Sedimentation caused by erosion in the uplands of the watershed negatively impact Elk Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. | Continued degradation of the resource without any federal action. | ☐ NOT meet PC | Increased flood control and holding capacity would decrease sediment loading within streams and reduce flooding impacts on stream bank erosion due to reduced flows. | ☐ NOT meet PC | Channelization would reduce streambank erosion and sedimentation by protecting adjacent streambanks. | ☐ NOT meet PC |
| **WATER** | | | | | | |
| Ponding and flooding<br>Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Flooding is a threat to property, access to utilities, emergency services, transportation, agricultural land, and crops. | Residences, businesses, and agricultural lands would continue to endure periodic flooding as storm frequency and intensity trends continue. | ☐ NOT meet PC | Increased flood protection provided by installation of 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<br>Sedimentation caused by erosion in the uplands of the watershed negatively impact Elk Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events. | Resources would continue to be degredated. Frequent flooding will continues to scour streambanks, increasing sedimentation within streams and reducing channel capacity. | ☐ NOT meet PC | Increased flood control and holding capacity would decrease sediment loading within streams and reduce flooding impacts on stream bank erosion due to reduced flows. | ☐ NOT meet PC | Channelization would reduce streambank erosion and sedimentation by protecting adjacent streambanks. | ☐ NOT meet PC |
| Nutrients transported to surface water<br>Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources. | Continued degradation of the resource without any federal action. | ☐ NOT meet PC | Increased flood protection provided by constrution of 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**<br>*(Document both short and long term impacts)* | **√ if does NOT meet PC** | **Amount, Status, Description**<br>*(Document both short and long term impacts)* | **√ if does NOT meet PC** | **Amount, Status, Description**<br>*(Document both short and long term impacts)* | **√ if does NOT meet PC** |
| **AIR** | | | | | | |
| No resource concern identified<br>Air quality is not currently a resource concern in the watershed. | Air quality would not be impacted with no action. | ☐ NOT meet PC | Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary. | ☐ NOT meet PC | 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<br>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<br>Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 6 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<br>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<br>This area has various electrical, oil, and gas transmission facilities. | 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<br>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 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<br>*Guide Sheet*<br>The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues. | No Effect | ☐ | May Affect<br>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<br>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.<br>*Guide Sheet*<br>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<br>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<br>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<br>*Guide Sheet*<br>There are no costal zones present in or near the watershed. | No Effect | | ☐ | No Effect | | ☐ | No Effect | | ☐ |
| Coral Reefs<br>*Guide Sheet*<br>There are no coral reefs present in or near the watershed. | No Effect | | ☐ | No Effect | | ☐ | No Effect | | ☐ |
| ●Cultural Resources / Historic Properties<br>*Guide Sheet*<br>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<br>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<br>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<br>*Guide Sheet*<br>There is a total of 6 Federally listed threatened, endangered, or candidate species potentially found in this watershed listed by the US Fish and Wildlife Service (USFWS). According to West Virginia Department of Natural Resources (WVDNR), WV is a permanent home to 22 federally endangered species (17 animals, 4 plants) and 7 federally threatened species (5 animals, 2 plants). WVDNR's State Wildlife Action Plan (SWAP) recognizes 22 Conservation Focus Areas (CFA) throughout the state that includes Species of Greatest Conservation Need (SGCN). See Appendix E for a complete USFWS IPaC Species list, WVDNR state listings, map of WV CFAs, and a list of SGCN for this watershed. | No action may have the potential to negatively impact federally listed aquatic species through continued sedimentation and habitat destruction. | | ☐ | May Affect<br>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<br>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<br>*Guide Sheet*<br>Harrison County is completely within the Appalachian Region. This county is not designated as limited resource counties by USDA. However, it is designated as 'transitional' by the Appalachian Regional Commission, indicating that the local economy still need improvement.<br>Harrison County is predominately white at 94.2%. The Black or African American residents comprising less than 2% of the population. . | No Effect | ☐ | No Effect<br>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities. | ☐ | No Effect<br>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities. | ☐ |
| ●Essential Fish Habitat<br>*Guide Sheet*<br>This area is not designated as Essential Fish Habitat. | No Effect | ☐ | No Effect | ☐ | No Effect | ☐ |
| Floodplain Management<br>*Guide Sheet*<br>Harrison, Barbour and Upshur Counties all have a major risk of flooding over the next few decades. | No Effect<br>Continued risk of flooding. | ☐ | May Affect<br>This alternative will result in the protection of the floodplain due to decreased flooding impacts. | ☐ | May Affect<br>This alternative will result in the protection of the floodplain due to decreased flooding impacts | ☐ |
| Invasive Species<br>*Guide Sheet*<br>Invasive species are found in the watershed. | No Effect<br>Continued expansion on invasive species. | ☐ | May Affect<br>Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas. | ☐ | May Affect<br>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<br>*Guide Sheet*<br>Migratory birds and eagles utilize the Elk Creek Watershed habitats. There is a total of 11 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<br>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg. | ☐ | No Effect<br>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg. | ☐ |
| Natural Areas<br>*Guide Sheet*<br>Federal: There are not federally owned or operated lands in or near the project area.<br>State: The West Virginia Division of Natural Resources operates the Tygart Lake State Park, Pleasant Creek Wildlife Management Area, and Stonecoal Lake Wildlife Management Area. The West Virginia Department of Agriculture operated the Pruntytown State Farm. None of these areas are within the watershed. However, the natural areas are either adjacent, abutting or in close proximity to the watershed | No Effect | ☐ | No Effect | ☐ | No Effect | ☐ |

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|---|---|---|---|---|---|---|---|
| Prime and Unique Farmlands<br>*Guide Sheet*<br>Presently there are 3,230 acres of Prime Farmland, which accounts for 4 % of land in the study area. Additionally, there are 530 acres of Farmland of Local Importance and 18,720 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land. Development and subdivision of farmland is ongoing as the area continues to grow, making the threat of conversion high. | No Effect<br>Continued potential threat to loss of prime farm land from streambank erosion. | ☐ | No Effect<br>Alternative would provide protection of prime farmland through the reduction of streambank erosion. | ☐ | No Effect<br>Alternative would provide protection of prime farmland through the reduction of streambank erosion. | ☐ |
| Riparian Area<br>*Guide Sheet*<br>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<br>Continued degradation of riparian land as streambanks erode and invasive species dominate regrowth. | ☐ | May Affect<br>There are riparian areas present in or near the project area and may have the potential to be impacted. | ☐ | May Affect<br>There are riparian areas present in or near the project area and may have the potential to be impacted. | ☐ |
| Scenic Beauty<br>*Guide Sheet*<br>Areas of potential scenic beauty in this watershed are typical of the Appalachian<br>Plateau physiographic province and common to the region. | No Effect | ☐ | No Effect<br>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian<br>Plateau physiographic province. | ☐ | No Effect<br>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian<br>Plateau physiographic province. | ☐ |
| ●Wetlands<br>*Guide Sheet*<br>There are 1,095 acres of wetlands within the Elk Creek watershed which consist of the following: 200 acres of Freshwater Emergent Wetlands; 34 acres of Freshwater Forested Shrub/ Wetland; 84 acres of Freshwater Pond; and 677 acres of Riverine. Data collected from the US Fish and Wildlife Service National Wetlands Inventory. | No Effect | ☐ | No Effect<br>Action is not likely to negatively impact any wetlands in the watershed. | ☐ | No Effect<br>Action is not likely to negatively impact any wetlands in the watershed. | ☐ |
| ●Wild and Scenic Rivers<br>*Guide Sheet*<br>No designated Wild and Scenic Rivers are in or near the project area. | 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 additional flood control dams in the watershed to increase flood protection. | Installation of flood control channel in more heavily populated areas in the watershed to increase flood protection. |
| **N. Context** (Record context of alternatives analysis) | | local | local | local |
| The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. | | | | |

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

# ENVIRONMENTAL EVALUATION WORKSHEET

**A. Client Name:** City of Clarksburg, WV

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

**D. Client's Objective(s) (purpose):**
The purpose of this project is to provide flood protection and watershed protection by reducing flood impacts, erosion and sedimentation, and nutrient loading in the Elk Creek Watershed.

**C. Identification #** (farm, tract, field #, etc. as required):
Elk Creek Watershed, Harrison, Barbour, and Upshur Counties, WV
10-digit HUC (0502000202, Elk Creek)

**E. Need for Action:**
The baseline condition without federal investment is a of flood protection, incidental recreation, rural water supply , and other amenities associated with impoundments. Flooding is persistent and results in loss of property and crops, stream bank erosion, and sedimentation of streams.

**H. Alternatives**

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

## Resource Concerns

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

**I. Effects of Alternatives**

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

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|---|---|---|---|---|---|---|
| Sediment transported to surface water<br>Sedimentation caused by erosion in the uplands of the watershed negatively impact Elk Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events. | There would be a reduction in sediments entering the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities. | ☐ NOT meet PC | There would be a reduction in sediments entering the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities. | ☐ NOT meet PC | Reduction in sediment entering the watershed and the watershed due to reduced velocities of water conveyance during high rain events. | ☐ NOT meet PC |
| Nutrients transported to surface water<br>Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources. | There would be a reduction of nutrients in surface water with the exclusion of livestock from the stream in conjunction with natural stream and riparian area restoration. | ☐ NOT meet PC | There would be a reduction of nutrients in surface water with the installation of conservation practices such as Nutrient Management, Prescribed Grazing, and Access Control. | ☐ NOT meet PC | Enhancements and installation of wetlands and other green infrastructure can reduce nutrients transported to surface water within the local watershed | ☐ NOT meet PC |
| **F. Resource Concerns and Existing/ Benchmark Conditions** (Analyze and record the existing/benchmark conditions for each identified concern) | **I. (continued)** | | | | | |
| | ***Alternative 3*** | | ***Alternative 4*** | | ***Alternative 5*** | |
| | **Amount, Status, Description** *(Document both short and long term impacts)* | **√ if does NOT meet PC** | **Amount, Status, Description** *(Document both short and long term impacts)* | **√ if does NOT meet PC** | **Amount, Status, Description** *(Document both short and long term impacts)* | **√ if does NOT meet PC** |
| **AIR** | | | | | | |
| No resource concern identified<br>Air quality is not currently a resource concern in the watershed. | No effect | ☐ NOT meet PC | Localized odors and particulate matter concerns could be addressed through conservation practices such as Waste Storage Facilities or Windbreaks/Shelterbelts. | ☐ NOT meet PC | No effect | ☐ NOT meet PC |
| **PLANTS** | | | | | | |
| Plant structure and composition<br>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<br>Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 6 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<br>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<br>This area has various electrical, oil, and gas transmission facilities. | 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<br>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<br>*Guide Sheet*<br>The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues. | May Affect<br>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<br>Land treatment practices are not likely to negatively effect air quality. | ☐ | May Affect<br>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.<br>*Guide Sheet*<br>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<br>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<br>Land treatment practices are not likely to negatively effect Waters of the US. | ☐ | May Affect<br>Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. | ☐ |
| ●Coastal Zone Management<br>*Guide Sheet*<br>There are no costal zones present in or near the watershed. | No Effect | ☐ | No Effect | ☐ | No Effect | ☐ |
| Coral Reefs<br>*Guide Sheet*<br>There are no coral reefs present in or near the watershed. | No Effect | ☐ | No Effect | ☐ | No Effect | ☐ |

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| ●Cultural Resources / Historic Properties<br>*Guide Sheet*<br>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<br>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<br>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<br>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<br>*Guide Sheet*<br>There is a total of 6 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<br>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<br>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<br>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<br>*Guide Sheet*<br>Harrison County is completely within the Appalachian Region. This county is not designated as limited resource counties by USDA. However, it is designated as 'transitional' by the Appalachian Regional Commission, indicating that the local economy still need improvement.<br>Harrison County is predominately white at 94.2%. The Black or African American residents comprising less than 2% of the population. | May Affect<br>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities. | ☐ | May Affect<br>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities. | ☐ | | ☐ |
| ●Essential Fish Habitat<br>*Guide Sheet*<br>This area is not designated as Essential Fish Habitat. | No Effect | ☐ | No Effect | ☐ | No Effect | ☐ |
| Floodplain Management<br>*Guide Sheet*<br>Harrison, Barbour and Upshur Counties all have a major risk of flooding over the next few decades. | May Affect<br>Floodplain management would be a consideration during the design process of natural stream restoration and would likely be benefited. | ☐ | No Effect<br>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<br>Annual flooding would likely be reduced to the decreased sedimentation of the stream and increase water holding capacities in wetlands and rain gardens. | ☐ |

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| Invasive Species<br>*Guide Sheet*<br>Invasive species are found in the watershed. | May Affect<br>Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas. | ☐ | May Affect<br>Invasive species occur within the watershed and would be controlled through scheduled land treatment activates on privately owned or operated lands. | ☐ | May Affect<br>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<br>*Guide Sheet*<br>Migratory birds and eagles utilize the Elk Creek Watershed habitats. There is a total of 11 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<br>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg. | ☐ | No Effect<br>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg. | ☐ | No Effect<br>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg. | ☐ |
| Natural Areas<br>*Guide Sheet*<br>Federal: There are not federally owned or operated lands in or near the project area.<br>State: The West Virginia Division of Natural Resources operates the Tygart Lake State Park, Pleasant Creek Wildlife Management Area, and Stonecoal Lake Wildlife Management Area. The West Virginia Department of Agriculture operated the Pruntytown State Farm. None of these areas are within the watershed. However, the natural areas are either adjacent, abutting or in close proximity to the watershed | No Effect | ☐ | No Effect | ☐ | No Effect | ☐ |
| Prime and Unique Farmlands<br>*Guide Sheet*<br>Presently there are 3,230 acres of Prime Farmland, which accounts for 4 % of land in the study area. Additionally, there are 530 acres of Farmland of Local Importance and 18,720 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land. Development and subdivision of farmland is ongoing as the area continues to grow, making the threat of conversion high. | No Effect<br>Conversion of prime and unique farmlands is not anticipated with this alternative. | ☐ | No Effect<br>Conversion of prime and unique farmlands is not anticipated with this alternative. | ☐ | No Effect<br>Conservation of prime and unique farmlands is not anticipated with this alternative. | ☐ |
| Riparian Area<br>*Guide Sheet*<br>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<br>Riparian areas will be enhanced as part of this alternative. | ☐ | May Affect<br>Riparian areas will be enhanced as part of this alternative. | ☐ | May Affect<br>Riparian areas will be enhanced as part of this alternative. | ☐ |

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|---|---|---|---|---|---|---|---|
| Scenic Beauty<br>*Guide Sheet*<br>Areas of potential scenic beauty in this watershed are typical of the Appalachian<br>Plateau physiographic province and common to the region. | No Effect<br>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian<br>Plateau physiographic province. | ☐ | No Effect<br>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian<br>Plateau physiographic province. | ☐ | No Effect<br>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian<br>Plateau physiographic province. | ☐ | |
| ●Wetlands<br>*Guide Sheet*<br>There are 1,095 acres of wetlands within the Elk Creek watershed which consist of the following: 200 acres of Freshwater Emergent Wetlands; 34 acres of Freshwater Forested Shrub/ Wetland; 84 acres of Freshwater Pond; and 677 acres of Riverine. Data collected from the US Fish and Wildlife Service National Wetlands Inventory. . | No Effect<br>Action is not likely to negatively impact any wetlands in the watershed. | ☐ | No Effect<br>Action is not likely to negatively affect any wetlands in the watershed. | ☐ | May Affect<br>Action is likely to have a positive impact on wetlands. | ☐ | |
| ●Wild and Scenic Rivers<br>*Guide Sheet*<br>No designated Wild and Scenic Rivers are in or near the project area. | 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**<br>(Record actions to avoid, minimize, and compensate) | None | None | None |
| **M. Preferred Alternative** √ preferred alternative | ☐ | ☐ | ☐ |
| Supporting reason | Natural stream restoration would benefit the overall heath of the stream. | Implementation of conservation practices to prevent upland erosion causing sediment loading of the water ways. | Reduced impacts of flash flooding and improvement of stream health. |
| **N. Context** (Record context of alternatives analysis) | local | local | local |

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

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

# ENVIRONMENTAL EVALUATION WORKSHEET

**A. Client Name:** City of Clarksburg, WV

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

**D. Client's Objective(s) (purpose):**
The purpose of this project is to provide flood protection and watershed protection by reducing flood impacts, erosion and sedimentation, and nutrient loading in the Elk Creek Watershed.

**C. Identification #** (farm, tract, field #, etc. as required):
Elk Creek Watershed, Harrison, Barbour, and Upshur Counties, WV
10-digit HUC (0502000202, Elk Creek)

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

**H. Alternatives**

| *Alternative 6* √ if RMS ☐ | *Alternative 7* √ if RMS ☐ | √ if RMS ☐ |
|---|---|---|
| Combination of all alternatives- Land Treatment, Stream Restoration, Rehab, Repair, Channelization, Green Infrastructure, and New Structures. Strategic installation of a combination of all practices and structures evaluated in other alternatives could more fully address concerns associated with flooding, erosion and sedimentation, water quality, recreation, and water supply. Technical and financial assistance would be focused in the area through the Watershed Protection and Flood Prevention Act as well as traditional Farm Bill programs such as CTA, EQIP and NWQI, along with funding and in kind services provided by local sponsors | Floodplain Buyout and Restoration- Address repetitve flood damage by removing structures from the floodplain through demolition or relocation and employing conservation pratices to restore the floodplain to a natural condition. This alternative would address resource concerns associated with flooding, erosion and sedimentation, water quality, recreational opportunities, and fish and wildlife habitat. Appropriate conservation practices will be employed at areas where structures are removed to reestablish natural floodplain habitats. 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. | |

## 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 6*** | | ***Alternative 7*** | | | |
| | **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<br>Sedimentation caused by erosion in the uplands of the watershed negatively impact Elk Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. | Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways. | ☐ NOT meet PC | Removing structures and applying conservation practices in floodplains buy-out areas would reduce soil erosion across all land uses and reduce sediment loads in waterways. | ☐ NOT meet PC | | ☐ NOT meet PC |
| **WATER** | | | | | | |
| Ponding and flooding<br>Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Flooding is a threat to property, access to utilities, emergency services, transportation, agricultural land, and crops. | Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sedimentation of streams to allow more capacity during flood events and allow for more water retention and controlled flow from flood control dams and rain gardens/wetlands. | ☐ NOT meet PC | Removing structures and applying conservation practices in floodplains buy-out areas would reduce the impact of flooding on both private property and on public utilities, emergency services, and transportation. | ☐ NOT meet PC | | ☐ NOT meet PC |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sediment transported to surface water<br>Sedimentation caused by erosion in the uplands of the watershed negatively impact Elk Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events. | Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sediment loads in waterways. | ☐ NOT meet PC | Removing structures and applying conservation practices in floodplains buy-out areas would reduce sediment loads in waterways by reducing exposed and bare land within the flood plain and by providing a vegetated riparian buffer zone along the stream to reduce surface runoff from adjacent areas. | ☐ NOT meet PC | | ☐ NOT meet PC |
| Nutrients transported to surface water<br>Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources. | Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure nutrient transportation to waterways | ☐ NOT meet PC | Removing structures and applying conservation practices in floodplains buy-out areas would reduce nutients transported to surface waters by eliminating straigh pipe and failing septic systems within the flood plain and by providing a vegetated riparian buffer zone along the stream to reduce surface runoff from adjacent areas. | ☐ 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*** | | ***Alternative 7*** | | | |
| | **Amount, Status, Description**<br>*(Document both short and long term impacts)* | **√ if does NOT meet PC** | **Amount, Status, Description**<br>*(Document both short and long term impacts)* | **√ if does NOT meet PC** | **Amount, Status, Description**<br>*(Document both short and long term impacts)* | **√ if does NOT meet PC** |
| **AIR** | | | | | | |
| No resource concern identified<br>Air quality is not a resource concern within the watershed. | Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary. | ☐ NOT meet PC | Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary. | ☐ NOT meet PC | | ☐ NOT meet PC |
| **PLANTS** | | | | | | |
| Plant structure and composition<br>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 in restored floodplain riparian areas. Native vegetation and hydrophytic vegetation would benefit from floodplain and wetland restoration. | ☐ NOT meet PC | | ☐ NOT meet PC |
| **ANIMALS** | | | | | | |
| Terrestrial habitat for wildlife and invertebrates<br>Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 10 threatened, endangered, or candidate species found in the watershed. | Terrestrial habitat would be improved through the implementation of wildlife oriented land treatment practices, riparian areas created as part of natural stream restoration and green infrastructure, and creation/enhancement of wetlands. Displacement of wildlife and destruction of habitat due to flooding would be significantly reduced. | ☐ NOT meet PC | Terrestrial streambank and floodplain habitats, including wetlands, would be increased and improved in floodplain buy-out areas through the implimentation of appropriate conservation practices. | ☐ NOT meet PC | | ☐ NOT meet PC |

| | | | | | | |
|---|---|---|---|---|---|---|
| Aquatic habitat for fish and other organisms<br>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 and nutrient enrichment on aquatic habitat would be reduced by eliminating sources of both and providing a restored floodplain riparian zone to reduce impacts from other areas. | ☐ NOT meet PC | | ☐ NOT meet PC |
| **ENERGY** | | | | | | |
| No resource concern identified<br>This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state. | Hydroelectric power generation could be included as an element in the design of the structures to provide clean energy to the region. | ☐ NOT meet PC | Applicants that would choose to participate in a floodplain buyout would decrease energy use in the area. | ☐ NOT meet PC | | ☐ NOT meet PC |
| **Human Economic and Social Considerations** | | | | | | |
| Public Health and Safety<br>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. | | Removing structures and applying conservation practices in floodplains buy-out areas would reduce flood impacts to residences and businesses. It would also reduce the impact of flooding on emergency services, public utilities, and transportattion. Further, it would create short term structure demolision or relocation related jobs and could provide improved recreation opportunities through increased stream access. | | | |

## 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*** | | ***Alternative 7*** | | | |
| | 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<br>*Guide Sheet*<br>The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues. | May Affect<br>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<br>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.<br>*Guide Sheet*<br>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<br>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<br>Removal of structures, including buried septic lines or existing resident installed bank stabilization features, within the floodplain 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<br>*Guide Sheet*<br>There are no costal zones present in or near the watershed. | No Effect | ☐ | No Effect | ☐ | | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| Coral Reefs<br>*Guide Sheet*<br>There are no coral reefs present in or near the watershed. | No Effect | ☐ | No Effect | ☐ | | ☐ |
| ●Cultural Resources / Historic Properties<br>*Guide Sheet*<br>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<br>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<br>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<br>*Guide Sheet*<br>There is a total of 6 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<br>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<br>Removing structures and applying conservation practices in floodplains buy-out areas may impact habitat for threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction. | ☐ | | ☐ |
| Environmental Justice<br>*Guide Sheet*<br>Harrison, Barbour, and Upshur Counties are completely within the Appalachian Region. These counties are not designated as a limited-resource county by USDA. However, Barbour and Upshur Counties and areas of Harrison County are designated as 'distressed' by the Appalachian Regional Commission, indicating that local economies are depressed. All three counties are predominately white and have poverty rates similar to WV as a whole and significantly higher than the national average. | No Effect<br>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities. | ☐ | No Effect<br>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities. | ☐ | | ☐ |
| ●Essential Fish Habitat<br>*Guide Sheet*<br>This area is not designated as Essential Fish Habitat. | No Effect | ☐ | No Effect | ☐ | | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| Floodplain Management<br>*Guide Sheet*<br>Harrison County and the City of Clarksburg hve a major risk of flooding over the next few decades. | May Affect<br>This alternative will result in the protection of floodplains due to the decreased impacts of flooding. | ☐ | May Affect<br>This alternative will result in the protection of floodplains due to the decreased impacts of flooding. | ☐ | | ☐ |
| Invasive Species<br>*Guide Sheet*<br>Invasive species are found in the watershed. | May Affect<br>Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas. | ☐ | May Affect<br>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<br>*Guide Sheet*<br>Migratory birds and eagles utilize the Elk Creek Watershed habitats. There is a total of 11 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<br>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg. | ☐ | No Effect<br>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg. | ☐ | | ☐ |
| Natural Areas<br>*Guide Sheet*<br>Federal: There are no federally owned or operated lands within the watershed.<br>State: The West Virginia Division of Natural Resources operates the Tygart Lake State Park, Pleasant Creek Wildlife Management Area, and Stonecoal Lake Wildlife Management Area. The West Virginia Department of Agriculture operated the Pruntytown State Farm. None of these areas are within the watershed but are adjacent to or within close proximity to the watershed. The Center Branch Wildlife Management Area, located south of Clarksburg, is partially within the watershed. | No Effect | ☐ | No Effect | ☐ | | ☐ |
| Prime and Unique Farmlands<br>*Guide Sheet*<br>Presently there are 3,230 acres of Prime Farmland, which accounts for 4% of land in the study area. Additionally, there are 530 acres of Farmland of Local Importance and 18,720 acres of Farmland of Statewide Importance. There are no farmland protection boards actively conserving land in the watershed. | No Effect<br>Alternative would provide protection of prime farmland through the reduction of streambank erosion, sheet and rill erosion, and sedimentation of streams. | ☐ | No Effect<br>Alternative would provide protection of prime farmland through the reduction of streambank erosion, sheet and rill erosion, and sedimentation of streams. | ☐ | | ☐ |
| Riparian Area<br>*Guide Sheet*<br>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<br>Riparian areas would be enhanced through the installation of natural stream restoration, land treatment programs, and green infrastructure. | ☐ | May Affect<br>Riparian areas would be enhanced through the installation of natural stream restoration, land treatment programs, and green infrastructure. | ☐ | | ☐ |

| | | | | | | |
|---|---|---|---|---|---|---|
| Scenic Beauty<br>*Guide Sheet*<br>Areas of potential scenic beauty in this watershed are typical of the Appalachian Plateau physiographic province and common to the region. | No Effect<br>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<br>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province. | ☐ | | ☐ |
| ●Wetlands<br>*Guide Sheet*<br>There are 1,095 acres of wetlands within the Elk Creek Watershed which consist of the following: 200 acres of Freshwater Emergent Wetlands; 34 acres of Freshwater Forested/Shrub Wetlands; 84 acres of Freshwater Pond; and 677 acres of Riverine. | May Affect<br>Alternative would enhance the values and functions of wetlands and surrounding ecosystems. | ☐ | May Affect<br>Alternative would enhance the values and functions of wetlands and surrounding ecosystems. | ☐ | | ☐ |
| ●Wild and Scenic Rivers<br>*Guide Sheet*<br>No designated Wild and Scenic Rivers are in or near the project area. | No Effect | ☐ | No Effect | ☐ | | ☐ |

| **K. Other Agencies and Broad Public Concerns** | ***Alternative 6*** | ***Alternative 7*** | |
|---|---|---|---|
| Easements, Permissions, Public Review, or Permits Required and Agencies Consulted. | Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation may also be required. | Removing structures, including buried septic lines or existing resident installed bank stabilization features, and applying conservation practices in floodplains buy-out areas 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. | Removing structures and applying conservation practices in floodplains buy-out areas will improve the areas overall resilience to flooding and improve quality of life for the ecosystems and the residents. | |
| **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 according to a vegetative plan developed conjunction with NRCS and local sponsors. | |
| **M. Preferred Alternative** — √ preferred alternative | ☐ | ☐ | ☐ |
| **M. Preferred Alternative** — Supporting reason | Installation of various flood control and land treatment practices will provide a holistic approach to flood resiliency. | Removing structures and applying conservation practices in floodplains buy-out areas will reduce the impact of flooding. | |

**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: 2024.09.18 09:27:19 -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**<br>Findings Documentation | At this point in the planning process, the interdisciplinary team has determined that the Environmental Document for the project may be an Environmental Assessment. However, it is acknowledged that an Environmental Impact Statement could be required if significant or controversial issues arise during further planning. |
| **R.2**<br>Applicable Categorical Exclusion(s)<br>**(more than one may apply)**<br><br>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: 2024.10.02 16:29:27 -04'00'

| Signature | Title | Date |
|---|---|---|

## Additional notes

# Appendix D:
# Forecasted NRCS Staffing Needs

# *Elk Creek Staffing Needs*

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

# *Elk Creek Staffing Needs*

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

# *Elk Creek Staffing Needs*

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

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

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

*Elk Creek Staffing Needs,*
*assuming NRCS will conduct work with own staff*

| | Planner | Engineer | Engineer | Bilologist | Economist | Admin Asst | |
|---|---|---|---|---|---|---|---|
| ***Total Hours*** | 1096 | 1498 | 1498 | 1300 | 1186 | 368 | |
| ***Hourly Rate (includes overhead)*** | *$120.00* | *$100.00* | *$100.00* | *$100.00* | *$100.00* | *$75.00* | **TOTAL COST** |
| ***Total Cost*** | $131,520.00 | $149,800.00 | $149,800.00 | $130,000.00 | $118,600.00 | $27,600.00 | **$707,320.00** |

# Appendix E:

# Supporting Information (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<br>Wherever found | Endangered |
| Northern Long-eared Bat<br>Myotis septentrionalis<br>Wherever found | Threatened |

## Clams

| NAME | STATUS |
|---|---|
| Clubshell<br>Pleurobema clava | Endangered |
| Snuffbox Mussel<br>Epioblasma triquetra<br>Wherever found | Endangered |

## Insects

| NAME | STATUS |
|---|---|
| Monarch Butterfly<br>Danaus plexippus<br>Wherever found | Candidate |

## Flowering Plants

| NAME | STATUS |
|---|---|
| Virginia Spiraea<br>Spiraea virginiana<br>Wherever found | Threatened |

## Critical habitats

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

There are no critical habitats at this location.

# Migratory birds

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

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

RELATED LINKS

Birds of Conservation Concern

Measures for avoiding and minimizing impacts to birds

Nationwide conservation measures for birds

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

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

THUMBNAILS | LIST

PROBABILITY OF PRESENCE SUMMARY

| NAME / LEVEL OF CONCERN | BREEDING SEASON |
|---|---|
| Bald Eagle<br>Haliaeetus leucocephalus<br>Non-BCC Vulnerable | Breeds Sep 1 to Aug 31 |
| Black-billed Cuckoo<br>Coccyzus erythropthalmus<br>BCC Rangewide (CON) | Breeds May 15 to Oct 10 |
| Black-capped Chickadee<br>Poecile atricapillus practicus<br>BCC - BCR | Breeds Apr 10 to Jul 31 |
| Bobolink<br>Dolichonyx oryzivorus<br>BCC Rangewide (CON) | Breeds May 20 to Jul 31 |
| Cerulean Warbler<br>Dendroica cerulea<br>BCC Rangewide (CON) | Breeds Apr 27 to Jul 20 |

| | |
|---|---|
| Chimney Swift<br>Chaetura pelagica<br>BCC Rangewide (CON) | Breeds Mar 15 to Aug 25 |
| Kentucky Warbler<br>Oporornis formosus<br>BCC Rangewide (CON) | Breeds Apr 20 to Aug 20 |
| Prairie Warbler<br>Dendroica discolor<br>BCC Rangewide (CON) | Breeds May 1 to Jul 31 |
| Red-headed Woodpecker<br>Melanerpes erythrocephalus<br>BCC Rangewide (CON) | Breeds May 10 to Sep 10 |
| Rusty Blackbird<br>Euphagus carolinus<br>BCC - BCR | Breeds elsewhere |
| Wood Thrush<br>Hylocichla mustelina<br>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/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 riffleshell** | *Epioblasma torulosa rangiana* | | 1993 |
| **clubshell** | *Pleurobema clava* | | 1993 |
| **James spinymussel** | *Pleurobema collina* | | 1998 |
| **snuffbox** | *Epioblasma triquetra* | | 2012 |
| **rayed bean** | *Villosa fabalis* | | 2012 |
| **spectaclecase** | *Cumberlandia monodonta* | | 2012 |
| **sheepnose** | *Plethobasus cyphyus* | | 2012 |
| **Diamond Darter** | *Crystallaria cincotta* | Y | 2013 |
| **Guyandotte River crayfish** | *Cambarus veteranus* | proposed | 2016 |
| **rusty patched bumble bee** | *Bombus affinis* | | 2017 |
| **Candy Darter** | *Etheostoma osburni* | proposed | 2018 |
| **tubercled-blossom pearly mussel** | *Epioblasma torulosa torulosa* | extirpated | |

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

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

* Proposed for delisting

Revised: 30 September 2020

## Invasive species examples:

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

*Garlic mustard*

*Spotted knapweed*

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

## What can you do?

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

## Who is helping?

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

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

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


**Wildlife Diversity Program**
**Wildlife Resources**
*West Virginia Division of Natural Resources*
P.O. Box 67
Elkins, WV 26241
(304) 637-0245
Fax: (304) 637-0250





10M 4/06


WVDNR WILDLIFE RESOURCES SECTION

# Invasive Plants of West Virginia

www.wvdnr.gov

*Kudzu*

## What are non-native invasive plants?

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

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

Concerned citizens have long been sounding alarms about the effects of pollution and misuse of land on our native plant and animal communities. Recently, increasing concern has been expressed that non-native plant species are invading and changing natural areas. These aggressive "weeds" are non-native invasive plants, sometimes referred to as exotic pest plants.

## 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

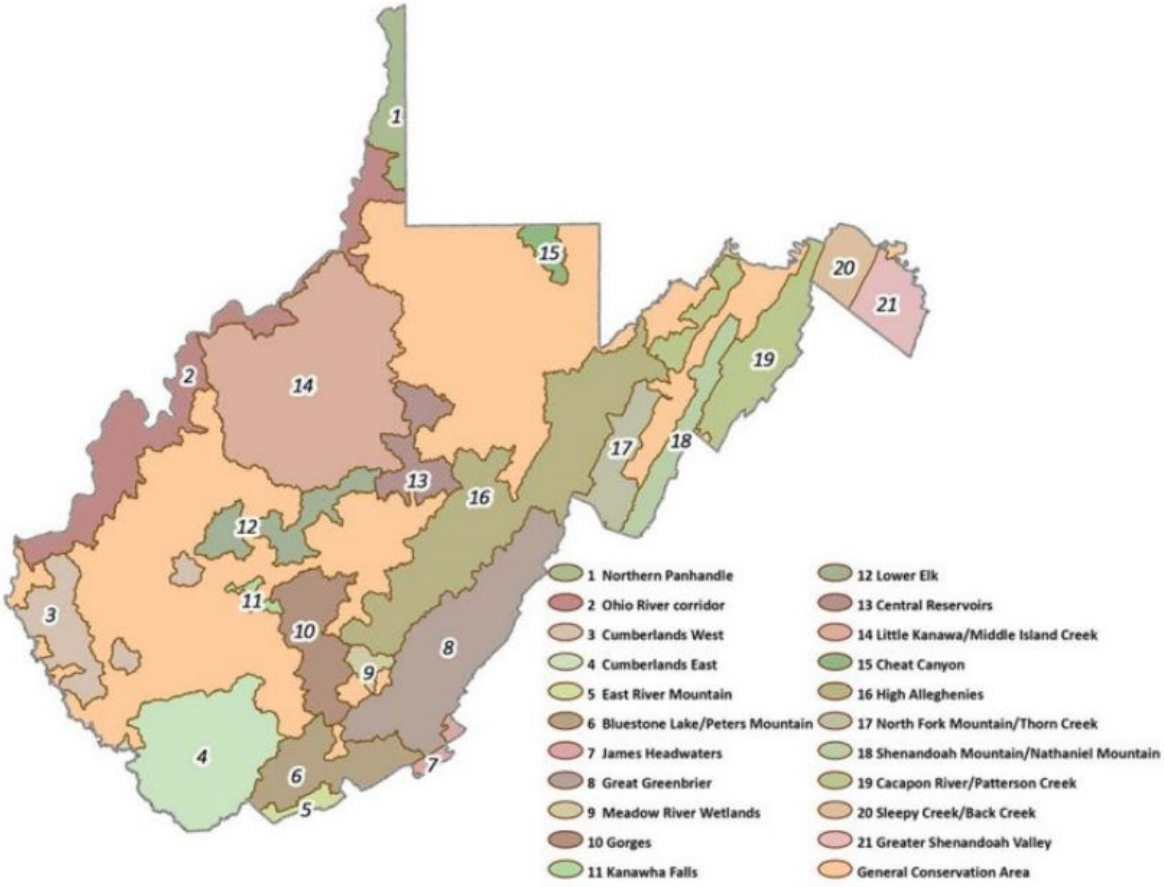
Many agencies and private landowners are using native alternatives for conservation purposes, and many West Virginia nurseries sell varieties derived from local communities to be sold as alternatives to exotic species.

*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 Elk Creek Watershed

| Common Name | Scientific Name | Name Category | G Rank | S Rank |
|---|---|---|---|---|
| American Kestrel | *Falco sparverius* | Vertebrate Animal | G5 | S3BS3N |
| American Woodcock | Scolopax minor | Vertebrate Animal | G5 | S3B |
| Bald Eagle | *Haliaeetus leucocephalus* | Vertebrate Animal | G5 | S3BS3N |
| Bear Creek Slitmouth | *Stenotrema simile* | Invertebrate Animal | G2 | S2 |
| Blue-winged Warbler | *Vermivora cyanoptera* | Vertebrate Animal | G5 | S3B |
| Cerulean Warbler | *Setophaga cerulea* | Vertebrate Animal | G4 | S2B |
| Chimney Swift | *Chaetura pelagica* | Vertebrate Animal | G4G5 | S3B |
| Eastern Box Turtle | Terrapene carolina carolina | Vertebrate Animal | G5T5 | S5 |
| Eastern Meadowlark | Sturnella magna | Vertebrate Animal | G5 | S3BS3N |
| Eastern Whip-poor-will | Antrostomus vociferus | Vertebrate Animal | G5 | S3B |
| Fatmucket | Lampsilis siliquoidea | Invertebrate Animal | G5 | S3 |
| Field Sparrow | Spizella pusilla | Vertebrate Animal | G5 | S3BS3N |
| Golden-winged Warbler | Vermivora chrysoptera | Vertebrate Animal | G4 | S1B |
| Grasshopper Sparrow | Ammodramus savannarum | Vertebrate Animal | G5 | S3B |
| Green-striped Darner | Aeshna verticalis | Invertebrate Animal | G5 | S2S3 |
| Louisiana Waterthrush | Parkesia motacilla | Vertebrate Animal | G5 | S3B |
| Northern Long-eared Bat | Myotis septentrionalis | Vertebrate Animal | G2G3 | S1S2 |
| Proud Globelet | Patera pennsylvanica | Invertebrate Animal | G4 | S2 |
| River Carpsucker | Carpiodes carpio | Vertebrate Animal | G5 | S3 |
| Rough Alumroot | Heuchera americana var. hispida | Vascular Plant | G5T3 | S2 |
| Smooth Greensnake | Opheodrys vernalis | Vertebrate Animal | G5 | S5 |
| Starflower False Solomon's-seal | Maianthemum stellatum | Vascular Plant | G5 | S2 |
| Swainson's Warbler | Limnothlypis swainsonii | Vertebrate Animal | G4 | S3B |
| Tennessee Pondweed | Potamogeton tennesseensis | Vascular Plant | G2G3 | S2 |
| Wood Thrush | Hylocichla mustelina | Vertebrate Animal | G4 | S3B |
| Yellow-breasted Chat | Icteria virens | Vertebrate Animal | G5 | S3B |

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

# Nonindigenous Aquatic Species

| Specimen ID | Date Reported | Species | New Area |
|---|---|---|---|
| 279153 | 9/21/2011 | Chinese mysterysnail *Cipaangopaludina chinensis* | County: Upshur (WV) Drainage: West Fork (05020003) |

# Invasive Species

## Animals: None

## Diseases:

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

## Insects:

| Common Name | Scientific Name |
|---|---|
| Asian chestnut gall wasp | *Dryocosmus kuriphilus* |
| Asiatic oak weevil | *Cyrtepistomus castaneus* |
| bark beetle | *Hylastes opacus* |
| black vine weevil | *Otiorhynchus sulcatus* |
| brown marmorated stink bug | *Halyomorpha halys* |
| common pine shoot beetle, larger pine shoot beetle | *Tomicus piniperda* |
| emerald ash borer | *Agrilus planipennis* |
| European elm bark beetle, smaller European elm bark beetle | *Scolytus multistriatus* |
| hemlock woolly adelgid | *Adelges tsugae* |
| Japanese beetle | *Popillia japonica* |
| large aspen tortix | *Choristoneura conflictana* |
| mile-a-minute weevil | *Rhinoncomimus latipes* |
| multicolored Asian lady beetle | *Harmonia axyridis* |
| southern pine beetle | *Dendroctonus frontalis* |
| spongy moth (formerly gypsy moth) | *Lymantria dispar* |

## Plants:

| Common Name | Scientific Name |
|---|---|
| alfalfa | *Medicago sativa* |
| alfalfa | *Medicaga sativa ssp. sativa* |
| alpine knapweed, Tyrol knapweed | *Centaurea nigrescens* |
| alsike clover | *Trifiolium hybridum* |

| Common Name | Scientific Name |
|---|---|
| American burnweed | *Erechtites hieraciifolius* |
| Amur honeysuckle | *Lonicera maackii* |
| annual bluegrass | *Poa annua* |
| annual honesty | *Lunaria annua* |
| annual ragweed | *Ambrosia artemisiifolia var. elatior* |
| annual sowthistle | *Sonchus oleraceus* |
| Asiatic dayflower | *Commelina communis* |
| asparagus | *Asparagus officinalis* |
| autumn olive | *Elaeagnus umbellata var. parvifolia* |
| bald brome | *Bromus racemosus* |
| barnyardgrass | *Echinochloa crus-galli* |
| bermudagrass | *Cynodon dactylon* |
| big chickweed | *Cerastium fontanum ssp.vulgare* |
| bigroot morning-glory | *Ipomoea pandurate* |
| birdseye pearlwort | *Sagina procumbens* |
| birdsfoot trefoil | *Lotus corniculatus* |
| birdsrape mustard | *Brassica rapa* |
| bittersweet nightshade | *Solanum dulcamara* |
| 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* |
| bouncingbet | *Saponaria officinalis* |
| bristlegrass | *Setaria ssp.* |
| brittleleaf naiad | *Najas minor* |
| broadleaf dock | *Rumex obtusifolius* |
| broadleaf plantain | *Plantago major* |
| broomrape | *Orobanche spp.* |
| broomsedge bluestem | *Andropogon virginicus* |
| buckhorn plantain | *Plantago lanceolata* |
| buckwheat | *Fagopyrum esculentum* |
| bulbous buttercup | *Ranunculus bulbosus* |
| bull thistle | *Cirsium vulgare* |
| burcucumber | *Sicyos angulatus* |
| bush honeysuckles (exotic) | *Lonicera spp.* |
| Canada bluegrass | *Poa compressa* |
| Canada thistle | *Cirsium arvense* |
| Canadian horseweed | *Erigeron canadensis* |
| carpet bugle | *Ajuga reptans* |
| catnip | *Nepeta cataria* |
| cheatgrass, downy brome | *Bromus tectorum* |
| chicory | *Cichorium intybus* |
| Chinese catalpa | *Catalpa ovata* |
| Chinese chestnut | *Castanea mollissima* |
| Chinese elm | *Ulmus parvifolia* |
| Chinese silvergrass | *Miscanthus sinensis* |
| Chinese yam | *Dioscorea polystachya* |

| Common Name | Scientific Name |
|---|---|
| clover dodder | *Cuscuta epithymum* |
| colonial bentgrass | *Agrostis capillaris* |
| coltsfoot | *Tussilago farfara* |
| common barberry | *Berberis vulgaris* |
| 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 groundsel | *Senecio vulgaris* |
| common mallow | *Malva neglecta* |
| common mouse-ear chickweed | *Cerastium fontanum* |
| common mullein | *Verbascum thapsus* |
| common pear | *Pyrus communis* |
| common periwinkle | *Vinca minor* |
| common pokeweed | *Phytolacca americana* |
| common purslane | *Portulaca oleracea* |
| common ragweed | *Ambrosia artemisiifolia* |
| 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 vetch | *Vicia sativa* |
| common viper's bugloss, blueweed | *Echium vulgare* |
| corn chamomile | *Anthemis arvensis* |
| corn cockle | *Agrostemma githago* |
| corn gromwell | *Buglossoides arvensis* |
| corn speedwell | *Veronica arvensis* |
| corn spurry | *Spergula arvensis* |
| cornflower | *Centaurea cyanus* |
| cowcockle | *Vaccaria hispanica* |
| cranberry viburnum, European highbush cranberry | *Viburnum opulus ssp. opulus* |
| creeping bentgrass | *Agrostis stolonifera* |
| creeping buttercup | *Ranunculus repens* |
| creeping yellow loosestrife, creeping Jenny | *Lysimachia nummularia* |
| curly dock | *Rumex crispus* |
| curly dock | *Rumex crispus ssp. crispus* |
| curly leaf pondweed | *Potamogeton crispus* |
| curly plumeless thistle | *Carduus crispus* |
| cutleaf blackberry | *Rubus laciniatus* |
| cutleaf evening-primrose | *Oenothera laciniata* |
| cutleaf teasel | *Dipsacus laciniatus* |
| cypress spurge | *Euphorbia cyparissias* |

| Common Name | Scientific Name |
|---|---|
| dames rocket | *Hesperis matronalis* |
| dandelion | *Taraxacum officinale* |
| Deptford pink | *Dianthus armeria* |
| dodder | *Cuscuta spp.* |
| dotted smartweed | *Persicaria punctata* |
| doublefile viburnum | *Viburnum plicatum tomentosum* |
| doubtful knight's-spur | *Consolida ajacis* |
| dwarf honeysuckle | *Lonicera xylosteum* |
| dwarf snapdragon | *Chaenorhinum minus* |
| eastern poison-ivy | *Toxicodendron radicans* |
| eastern redcedar | *Juniperus virginiana* |
| eastern white pine | *Pinus strobus* |
| eclipta | *Eclipta prostrata* |
| elecampane | *Inula helenium* |
| Eurasian watermilfoil | *Myriophyllum spicatum* |
| European black alder | *Alnus glutinosa* |
| European common reed, Phragmites | *Phragmites australis ssp.australis* |
| European cranberrybush | *Viburnum opulus* |
| European privet | *Ligustrum vulgare* |
| everlasting peavine | *Lathyrus latifolius* |
| fall panicum | *Panicum dichotomiflorum* |
| false strawberry | *Potentilla indica* |
| field bindweed | *Convolvulus arvensis* |
| field brome | *Bromus arvensis* |
| field horsetail | *Equisetum arvense* |
| field pennycress | *Thlaspi arvense* |
| field pepperweed | *Lepidium campestre* |
| field thistle | *Cirsium discolor* |
| fiveangled dodder | *Cuscuta pentagona var. pentagona* |
| fortune meadowsweet | *Spiraea japonica var. fortunei* |
| foxglove | *Digitalis purpurea* |
| fragrant waterlily | *Nymphaea odorata* |
| fuzzy pride-of-Rochester | *Deutzia scabra* |
| garlic mustard | *Alliaria petiolate* |
| giant chickweed | *Myosoton aquaticum* |
| giant foxtail | *Setaria faberi* |
| giant knotweed | *Reynoutria sachalinensis* |
| giant ragweed | *Ambrosia trifida* |
| giant reed | *Arundo donax* |
| glossy buckthorn | *Frangula alnus* |
| goosegrass | *Eleusine indica* |
| goutweed | *Aegopodium podagraria* |
| gray poplar | *Populus x canescens* |
| greater celandine | *Chelidonium majus* |
| green bristlegrass | *Setaria viridis var. viridis* |
| green foxtail | *Setaria viridis* |
| ground ivy | *Glechoma hederacea* |
| hairy cat's ear | *Hypochaeris radicata* |
| hairy galinsoga | *Galinsoga quadriradiata* |

| Common Name | Scientific Name |
|---|---|
| hairy vetch | *Vicia villosa* |
| hedge bindweed | *Calystegia sepium* |
| hedge mustard | *Sisymbrium officinale* |
| hemp dogbane | *Apocynum cannabinum* |
| henbit | *Lamium amplexicaule* |
| herb-robert | *Geranium robertianum* |
| highbush blackberry | *Rubus argutus* |
| hop clover | *Trifolium qureum* |
| horsenettle | *Solanum carolinense* |
| Japanese barberry | *Berberis thunbergia* |
| 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* |
| johnsongrass | *Sorghum halepense* |
| Kentucky bluegrass | *Poa pratensis* |
| 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* |
| lemon balm | *Melissa officinalis* |
| little starwort | *Stellaria graminea* |
| longleaf groundcherry | *Physalis longifolia* |
| longstalk cranesbill | *Geranium columbinum* |
| Mahaleb cherry | *Prunus mahelb* |
| marsh-pepper smartweed | *Persicaria hydropiper* |
| meadow fescue | *Festuca pratensis* |
| meadow hawkweed | *Hieracium caespitosum* |
| 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* |

| Common Name | Scientific Name |
|---|---|
| nimblewill | *Muhlenbergia schreberi* |
| nipplewort | *Lapsana communis* |
| northern catalpa | *Catalpa speciosa* |
| northern white cedar | *Thuja occidentalis* |
| Norway maple | *Acer platanoides* |
| Norway spruce | *Picea abies* |
| orchard grass | *Dactylis glomerata* |
| oriental bittersweet | *Celastrus orbiculatus* |
| Oriental lady's thumb | *Persicaria longiseta* |
| Oriental lady's thumb | *Polygonum posumbu* |
| oxeye daisy | *Leucanthemum vulgare* |
| pale smartweed | *Polygonum lapathifolium* |
| pale yellow iris, yellow flag iris | *Iris pseudacorus* |
| paradise apple | *Malus pumila* |
| peach | *Prunus persica* |
| peppermint | *Mentha x piperita* |
| perennial ryegrass | *Lolium perenne* |
| perennial ryegrass | *Loliumperenne ssp. perenne* |
| perennial sowthistle | *Sonchus arvensis* |
| perilla mint | *Perilla frutescens* |
| periwinkle | *Vinca spp.* |
| piedmont bedstraw | *Cruciata pedemontana* |
| poison hemlock | *Conium maculatum* |
| poison-sumac | *Toxicodendron vernix* |
| porcelain-berry | *Ampelopsis glandulosa var. brevipedunculata* |
| poverty brome | *Bromus sterilis* |
| prickly lettuce | *Lactuca serriola* |
| princess-feather | *Persicaria orientalis* |
| privet | *Ligustrum spp.* |
| prostrate knotweed | *Polygonum aviculare* |
| purple crown-vetch | *Securigera varia* |
| purple cudweed | *Gamochaeta purpurea* |
| purple deadnettle | *Lamium salicaria* |
| purple loosestrife | *Lythrum salicaria* |
| purpleosier willow | *Salix purpurea* |
| quackgrass | *Elymus repens* |
| Queen Anne's lace, wild carrot | *Daucus carota* |
| rapeseed | *Brassica napus* |
| red clover | *Trifolium pratense* |
| red fescue | *Festuca rubra* |
| red sorrel | *Rumex acetosella* |
| redroot pigweed | *Amaranthus retroflexus* |
| redstem filaree | *Erodium cicutarium* |
| redtop | *Agrostis gigantea* |
| reed canarygrass | *Phalaris grundinacea* |
| rock dandelion | *Taraxacum erythrospermum* |
| rose of Sharon | *Hibiscus syriacus* |
| roughstalk bluegrass | *Poa trivialis* |
| rye brome | *Bromus secalinus* |

| Common Name | Scientific Name |
|---|---|
| scarlet pimpernel | *Anagallis arvensis* |
| Scotch broom | *Cytisus scoparius* |
| Scots pine | *Pinus sylvestris* |
| 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 crabapple | *Malus baccata* |
| silvery cinquefoil | *Potentilla argentea* |
| small carpetgrass, joint-head grass | *Arthraxon hispidus* |
| small hop clover | *Trifolium dubium* |
| smooth bedstraw | *Galium mollugo* |
| smooth brome | *Bromus inermis* |
| smooth hawksbeard | *Crepis capillaris* |
| southern catalpa | *Catalpa bignonioides* |
| spanishneedles | *Bidens bipinnata* |
| sparrow vetch | *Vicia tetrasperma* |
| spearmint | *Mentha spicata* |
| spiny amaranth | *Amaranthus spinosus* |
| spiny plumeless thistle | *Carduus acanthoides* |
| spiny sowthistle | *Sonchus asper* |
| spotted deadnettle | *Lamium maculatum* |
| spotted knapweed | *Centaurea stoebe ssp. micranthos* |
| spotted spurge | *Euphorbia maculata* |
| spotted waterhemlock | *Cicuta maculata* |
| spring whitlowgrass | *Draba verna* |
| star-of-Bethlehem | *Ornithogalum umbellatum* |
| starch grape hyacinth | *Muscari neglectum* |
| sticky chickweed | *Cerastium glomeratum* |
| stinkgrass | *Eragrostis cilianensis* |
| stinking chamomile | *Anthemis cotula* |
| strawberry raspberry | *Rubus illecebrosus* |
| sulfur cinquefoil | *Potentilla recta* |
| sweet autumn virginsbower | *Clematis terniflora* |
| sweet cherry | *Prunus avium* |
| sweet vernalgrass | *Anthoxanthum odoratum* |
| sweetbriar | *Rosa rubiginosa* |
| tall buttercup | *Ranunculus acris* |
| tall fescue | *Festuca grundinacea* |
| tall lettuce | *Lactuca canadensis* |
| tall morning-glory | *Ipomoea purpurea* |
| tall oatgrass | *Arrhenatherum elatius* |
| Tatarian honeysuckle | *Lonicera tatarica* |
| tawny daylily | *Hemerocallis fulva* |
| thymeleaf sandwort | *Arenaria serpyllifolia* |
| thymeleaf speedwell | *Veronica serpyllifolia* |
| thymeleaf speedwell | *Veronica serpyllifolia ssp. serpyllifolia* |

| Common Name | Scientific Name |
|---|---|
| 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 pepperweed | *Lepidium virginicum* |
| wallflower mustard | *Erysimum cheiranthoides* |
| water speedwell | *Veronica anagallis-aquatica* |
| watercress | *Nasturtium officinale* |
| waterpurslane | *Ludwigia palustris* |
| weeping lovegrass | *Eragrostis curvula* |
| 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* |
| wild buckwheat | *Fallopia convolvulus* |
| wild garlic | *Allium vineale* |
| wild mustard | *Sinapis arvensis* |
| wild onion | *Allium canadense* |
| wild parsnip | *Pastinaca sativa* |
| winged burning bush | *Euonymus alatus* |
| winter creeper | *Euonymus fortunei* |
| Wisconsin weeping willow | *Salix x penduline* |
| woodland strawberry | *Fragaria vesca* |
| woodland strawberry | *Fragaria vesca ssp. vesca* |
| yellow bedstraw | *Galium verum* |
| yellow daylily | *Hemerocallis lilioasphodelus* |
| yellow foxtail | *Staria pumila* |
| yellow nutsedge | *Cyperus esculentus* |
| yellow rocket | *Barbarea vulgaris* |
| yellow sweet-clover | *Melilotus officinalis* |
| yellow toadflax | *Linaria vulgaris* |
| yellow woodsorrel | *Oxalis stricta* |

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

## Essential Fish Habitat

None for WV

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