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Environmental Assessment

Lower Williams River Abandoned Coal Mines and Road Restoration

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Webster County, West Virginia

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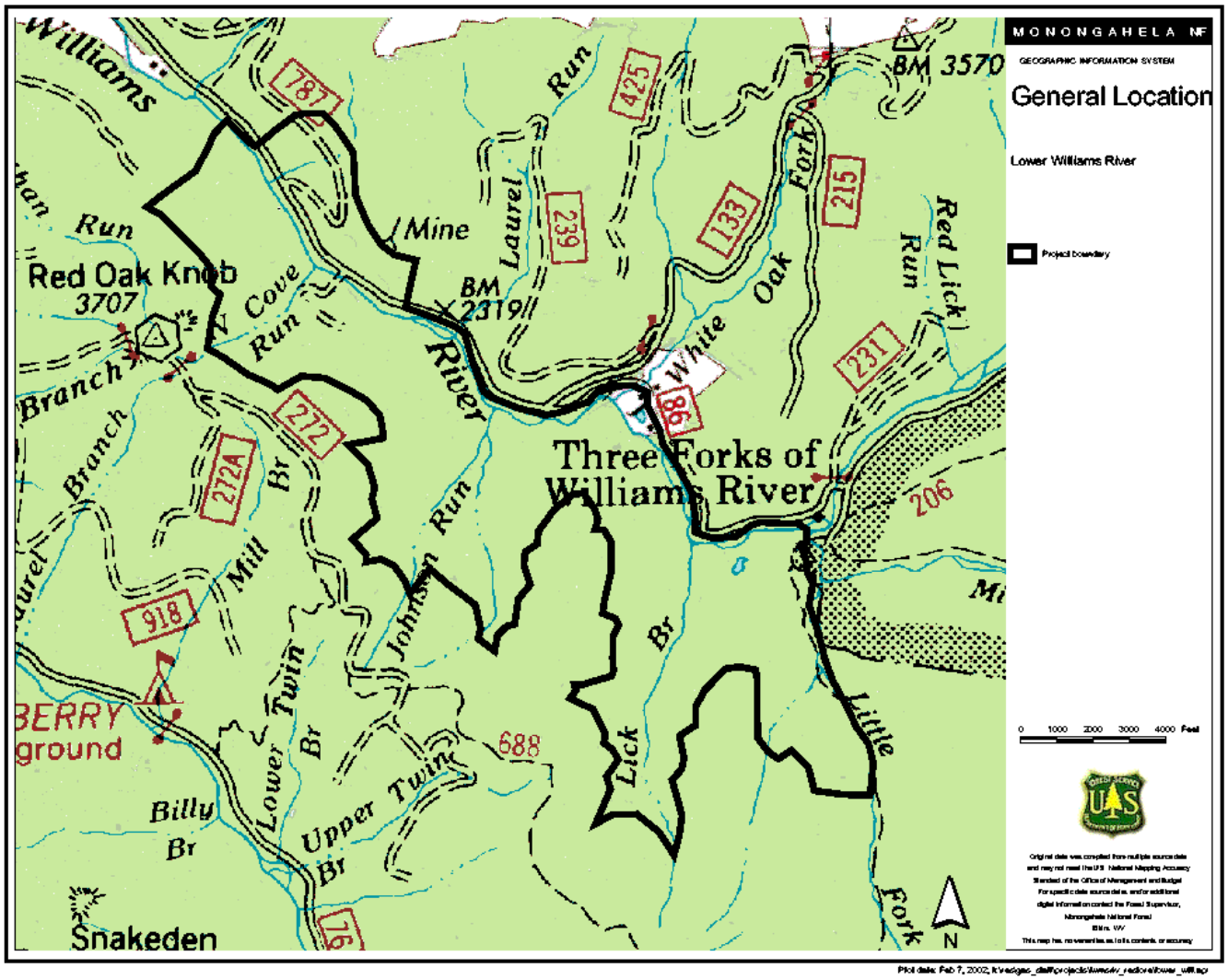
Introduction

Abandoned coal mine sites in the lower Williams River have been identified for rehabilitation. The mine sites are near Dyer, West Virginia and Three Forks of Williams River. Tributaries to the Williams River in the project area include: North Cove Run, Johnson Run, Lick Branch, Little Fork, and many unnamed tributaries. Forest Service system roads 429, 86, and 787 are within the project area. Figure 1 shows the general location of the project area, maps of the project area are found in Appendix B.

Figure 1 – General Vicinity



This environmental assessment (EA) documents the development of actions to rehabilitate the mine sites, issues related to the project, possible alternatives to the proposed action, and effects from implementation of the proposed action or alternatives.

Purpose of and Need for Action

The Monongahela National Forest inventoried abandoned coal mine lands in 1998. An analysis of the

inventoried abandoned coal mine lands indicated that the lower Williams River watershed (a larger area than this project area) contains the largest concentration of abandoned coal mines with cumulatively the greatest risk to public safety and water quality within the same sub-basin in the Forest. The Williams River, a State designated, high quality stream, is a tributary to the Gauley River a Priority 1 watershed under the Unified Watershed Assessment. Because of this analysis and prioritization, the Forest identified the lower Williams River as its highest priority watershed for abandoned coal mine land restoration work.

The land became National Forest in 1934, including rights to the surface only. The mineral rights are still privately owned.

Some underground coal mining occurred in this area in the early 1900s, including a large, extensive drift mine north of the Williams River (WV-0967 north) with a coal loading area along the railroad on the south side of Williams River (WV-0967 south) just upstream of Dyer, WV. Numbers used to identify mine sites come from the state inventory of sites. A smaller, underground (drift) coal mine that appears to have operated in the early 1900s, also occurs on the hillside within Lick Branch (MF-1041). Underground coal mining occurred again in the late 1960s into the early 1970s. New mines and access haul roads were built during this recent mining, and some existing coal mine areas and infrastructure were used. Coal from the Sewell seam appears to have been extracted by the mining.

Although some stabilization of the modern coal mining impacted areas has occurred, the information collected on abandoned mines in this area identified the following public health and safety hazards and environmental impacts from past mining on National Forest land and resources:

1. 17 portals (openings into the underground mine workings) with possible public entry at seven mine sites;

2. Approximately 11.2 miles of former coal haul road, mine access trail, and woods roads with failing drainage resulting in potential for earth slumping or mass movement and sediment delivery to area streams;

3. Un-maintained sediment ponds, uncontrolled run-off, and discharges from mine openings which currently cause erosion and increased risk of downstream sedimentation;

4. Trash and debris left after mining poses a risk for injury to recreationists and detracts from the area aesthetics.

Water discharging from the mines is not considered acidic (pH of mine discharges ranges from 6.1 to 7.2), and generally within water quality standards chemically. This is probably due to the low sulphur content of the Sewell coal seam and associated alkaline strata.

The purpose of the proposed action is to eliminate or reduce to acceptable levels, through restoration, the public health and safety hazard and environmental impacts of past mining in the lower Williams River watershed. These actions will be planned and implemented in a manner consistent with Forest Service policy, Monongahela National Forest Land and Resource Management Plan (Forest Plan) direction, and management area 2.0, 3.0 and 6.1 direction and standards and guidelines.

Through a joint effort of technical and financial support between West Virginia Division of Environmental Protection, Office of Abandoned Mine Land and Reclamation (WVDEP, AML&R) and

the Forest, needed mine restoration work was identified. The WVDEP, AML&R has prepared mine restoration designs for the Forest.

Proposed Action

The proposed federal action is to complete the abandoned coal mine and road restoration activities in the lower William River watershed as described below and shown on the accompanying Project Map (Appendix B). The proposed restoration would take place within the White Oak Fork West (23.003), Red Oak North (26.103), and Little Fork (22.002) opportunity areas. Project implementation is expected to occur through the summer and fall of 2002 or as soon as funding is available after a decision is made.

Description of activities

Road Decommissioning

Approximately 7.4 miles of former coal mine access road or haul road and approximately 3.8 miles of wet woods roads would be decommissioned to help reduce sources of stream sedimentation and encourage more natural drainage processes within the project area. Although not thought to be associated with coal mining, the obliteration of 3.8 miles of woods road is being addressed in this analysis so that it may be implemented if soil improvement funding becomes available.

Specifically road restoration activities would occur in the following areas (distances are approximate):

1. WV-0967 north side of Williams River (G-223) - 0.5 miles
2. WV-0967 south side of Williams River (G-174) - 0.5 miles
3. MF-1031 access road - 0.6 miles
4. MF-1032 access road (G-220) - 0.2 miles
5. MF-1039 access road - 0.1 miles
6. East from Forest Road 429 across Johnson Run near elevation 2400 feet, Lick Branch near elevation 2900 feet to MF-1038 (G-174) – 5.5 miles
7. Several hundred feet of mine access trail to MF-1036.
8. Approximately 100 feet of mine access trail to mine site MF-1037 adjacent to Forest Road 787.
9. Woods road in Lick Branch to Little Fork drainages in the area near elevation 2450 feet to 2650 feet (G-176) – 2.0 miles
10. Woods roads near the North Cove Run drainage that extend to the west of mine site MF-1032 (G-172) – 1.4 miles, and mine site MF-1031 – 0.4 miles

Road decommissioning would consist of removing drainage structures, re-establishing natural drainage patterns or otherwise designing drainage to disperse flows, constructing waterbars, obliterating ditches, out sloping the road where appropriate, and revegetating with non-aggressive, native genera that meet erosion control and wildlife needs.

Mine site restoration

At all mine sites, modern trash and mining debris (such as plastic, aluminum, tires, electronics, mine belts, and corrugated asbestos) would be collected and disposed of at an appropriate landfill or disposal site, and all areas of exposed soil revegetated using non-aggressive, native genera that meet erosion control and wildlife needs. At some mine sites, portals would be closed with gates that allow bats access

but bar entry by humans. Bat gates are structures of iron bars at specified spacing allowing free entry to and exit from the underground passages. Installation includes removing loose soil and rock from the opening so that the iron bar structure can be anchored to solid stable rock. Specific restoration proposed is described separately for each mine site.

WV-0967 – north side of Williams River

- Install bat gates at three portals.
- Revegetate side cast fill and gob. The side cast fill is soil and rock removed from over the coal seam and discarded down slope when the mine was developed. Gob is generally a mixture of rock and impure coal separated from good quality coal from in the mine and discarded. It is anticipated that a minimum amount of earthwork would be done to this material in order to establish vegetation.
- Up-grade existing sediment control pond by establishing a free flowing, rock-armored outlet channel from the pond to the natural ground off the mine site.
- Old mining structures (such as buildings and foundations) would remain in place with a minimum amount of alteration to make them safer. Protruding rusty metal would be removed and warning signs installed.

WV-0967 – south side of William River

This area was a coal loading site, including railroad sidings, haulroads, buildings, sediment control ponds and tipple for loading coal into railroad cars, but did not contain an underground coal mine.

- Re-design and re-establish site drainage such that surface flows, now collected by ditches and culverts with potential to erode and carry sediment, are broken into smaller flows and dispersed in a way that reduces potential for sediment delivery to the Williams River.
- Eradicate phragmites (reed) and remove autumn olive. These are invasive plants and threats to native vegetation.
- Restore existing sediment control pond by re-establishing and rock-armoring embankment, and constructing a rock-armored outlet.

MF-1031

- Install four bat gates.
- Armor the mine water discharge to an appropriate place to direct it across the mine access road and down the slope as needed to reduce gully erosion caused by mine discharge.

MF-1032

- Install three bat gates.
- Retain and enhance existing wetland (several thousand feet square in size) on the mine bench.
- Armor the water discharge at the outlet point of the wetland area off of the mine fill slope.

MF-1036

- Install two bat gates.
- Armor the existing channel that collects water on the mine site to the point where this surface flow enters the subsurface to reduce its ability to erode.

MF-1038

- Divide existing single surface water discharge off mine site into smaller, dispersed flows to

reduce the water's erosive power.

MF-1039

- Install four bat gates.
- Obliterate one sediment control pond by returning it to approximate original contour. A second stable sediment control pond has little to no need for continuing maintenance and will be left to provide wildlife habitat.

MF-1041

- Install one bat gate.
- Establish a free flowing, rock armored channel for mine discharge from the mine portal to natural ground below the haul road fill slope.

How the proposed activities meet the purpose of and need for action

The Proposed Action implements Forest Service policy and direction.
Forest Service policy includes an emphasis on restoring and maintaining healthy watersheds for use by current and future generations. Watershed protection and ecological restoration is the highest agency priority. Forest Service watershed protection policy calls for protecting, maintaining, restoring or improving watershed conditions. The minerals and geology program area, the agency lead in restoring and reclaiming lands and watershed affected by mining, has made it a national priority to make tangible progress in restoring mined lands, to balance and prioritize human health and safety issues, to approach restoration on a watershed basis, and to meet Clean Water Act and Comprehensive Environmental Response Compensation and Liability Act (CERCLA) requirements when restoring mined lands.

The Proposed Action is consistent with Monongahela Forest Plan direction.
The proposed action is consistent with Forest Plan direction to employ land treatment measures, where feasible, to improve physical and chemical water quality, and to rehabilitate areas presently contributing to water quality problems (Forest Wide Standards/Guidelines, Forest Plan page 81). It is also consistent with MNF Plan direction stating, "Existing roads not needed for future management for motorized use will be removed from the Transportation Plan and abandoned" (Forest Plan page 99).

Project design includes minimizing disturbance to historical features and gating with bat-accessible gates at open mine portals to prevent public entry into unsafe areas while providing bat habitat. Thus, the project implements several Forest Plan guidelines that emphasize public safety, protect heritage resources (Forest Wide Standards/Guidelines, MNF page 70), and enhance habitat for special animal species (Forest Wide Standards/Guidelines, MNF page 84).

Decision to be Made

The Gauley District Ranger will decide to implement the proposed lower Williams River abandoned coal mines and road restoration or alternatives to the proposal, or not to implement coal mine and road restoration in the lower Williams River (no action).

Public Issues Related to the Proposed Action

On January 26, 2001 a letter, explaining the proposed action, was sent to 756 individuals or

organizations interested in management of the Monongahela National Forest. A legal notice requesting comments was published in the February 8, 2001 issue of The Nicholas Chronicle. The project was also listed in the NEPA Quarterly for the Forest. Nine people responded to the letter with comments on the proposed action.

Issues or concerns from the public were grouped by topic to include: roads, sediment ponds, river/stream water quality, wildlife mitigation/threatened and endangered species, revegetation, heritage sites, cleanup costs/responsibility, implementation methods, and general concerns. Appendix A includes Forest's responses to comments made on the proposed action.

A review of the comments, issues, and concerns helped determine the need for alternatives to the proposed action and issues to address in the environmental assessment. Also included in issues addressed in this analysis are issues identified internally by Forest personnel. Many of the public issues tie directly to internal issues.

Issues to be addressed in detail in the analysis of effects include: water quality, wildlife habitat, Forest road system, and heritage resources. Public comments dealing with sediment ponds and species used in revegetation will be addressed under wildlife habitat.

Issue Statements

Water Quality

Current conditions of the mine sites and access roads are affecting sediment delivery to the Williams River and tributaries. Aquatic and soil resources in general are also affected by the current conditions. Active management to correct problems at mine sites will also affect sediment transport and water chemistry both positively and negatively. Effects to the aquatic and soil resources of the area will be addressed in the environmental effects section of this document along with a description of the current condition of the resource.

Wildlife Habitat

The mines themselves provide a unique habitat for some species, both sensitive and non-sensitive, with potential to provide habitat for endangered species. Openings in the forest and settling ponds also provide habitat for many wildlife species. As rehabilitation projects are implemented, impacts to wildlife and their habitats need to be addressed. The erosion control seeding called for in road and mine site rehabilitation should meet habitat needs of wildlife, control erosion, and complement native grass and forbs species. Effects to wildlife habitat will be addressed in the environmental effects section of this document along with a description of the current condition of the resource.

Forest Road System

Decommissioning of roads has an effect on the transportation system of the project area and the opportunity areas contained within the project area. Effects to the Forest road system will be addressed in the environmental effects section of this document along with a description of the current condition of the resource.

Heritage Resources

Mines sites along the Williams River include historic mining features that have been evaluated for listing on the National List of Historic Places by the West Virginia State Historic Preservation Officer. None of the historic mine sites in the project area were determined to be eligible for listing. Effects to heritage resources will be addressed in the environmental effects section of this document along with a description of the current condition of the resource.

Alternatives to the Proposed Action

An alternative including mine site rehabilitation alone, without road decommissioning, was considered but not developed. The roads to be decommissioned are not needed for long-term access, are not being properly maintained, and are in poor condition.

An alternative to install block walls to seal mine entrances instead of installing gates was considered but not developed in detail. Bats, possibly including a sensitive species, are using the mines for shelter. Since the mines are currently providing quality habitat near an excellent food source, gates to allow bats access to the mines will be installed.

Alternative A - No Action

In this alternative no active management of the mine portals, associated access roads and mine sites, would take place. Current management of roads and trails would continue.

Alternative B – Reduced Number of Bat Gates

In this alternative all road rehabilitation actions given in the proposed action would be implemented and those mine portals with documented bat use (any species) would be closed with gates allowing bat access. Other mine portals would be made stable and closed through a wet or dry seal, depending on site conditions. Those mine sites with documented bat use at any portal are: MF-1031, MF-1032, MF-1036, and WV-0967N. Mine site MF-1041 includes an extensive underground system based on site maps, and has had evidence of bat use in the past. To protect this potential, and to protect historic qualities of the mine site, the mine entrance will be closed with a bat gate. Wet or dry seals would close portals at site MF-1039. Sites MF-1037, MF-1038, and WV-0967S have no portals to close.

Mitigation Measures Common to all Action Alternatives

When working at site WV-0967N, a Forest Service representative must be on site to inspect the areas prior to any ground disturbance. If a woodrat is seen in the entrance of the portal, every effort should be made to persuade the woodrat(s) away from the area of disturbance. The representative will inform and educate the contractor that a sensitive species may be using any of the portals in the project area and care should be taken not to harm individuals if at all possible.

See mitigations listed in the Water Quality / Sediment Movement section (pages 11-12) for mitigation measures to reduce sediment movement as the projects are implemented. See also Table 5 (page 20) for mitigations required to protect aquatic resources.

Since much of the area has not been surveyed, all subsurface disturbance associated with mine and road

restoration be limited to previously disturbed areas. Should any unanticipated discoveries of heritage resources occur, activity in that portion of the project area should cease and the Forest Archaeologist should be contacted.

Comparison of Alternatives

Both the proposed action and alternative B propose the same actions on the road system in the project area. The difference between the proposed action and alternative B is the installation and subsequent maintenance of 4 portal closures with bat accessible gates.

Alternative B would correct sources of increased sediment, protect public safety, and provide for bat habitat without expanding bat habitat. Gate maintenance needs would be less if this alternative were implemented compared to the proposed action. Over time, the gates will need painting to reduce rusting, and may need repair if the gates are vandalized.

Table 1 – Comparison of alternatives

	Proposed Action	*Alternative A*	*Alternative B*
Miles of road restored	11.2	0	11.2
Number of wet/dry seals installed	0	0	4
Number of bat gates installed	17	0	13
Approximate cost of portal closure	$170,000	0	$92,000

Other comparisons are documented in the following environmental effects section.

Environmental Effects

Effects to resources in the project area will be addressed based on the issues developed from public comments and internal discussions. Effects to water quality, wildlife habitat, the Forest road system, and heritage resources will be addressed to determine if the protect will result in significant changes to the environment.

Cumulative effects are based on past, ongoing or planned actions in the project area and the long-term effects of the proposed projects. Routine maintenance of FR 86, FR429, and FR787 is expected to occur as in the past. FR 429 was reconstructed in 1997 and 1998 for hauling timber. The sale area is under ten year quite time and no timber sales or other vegetation manipulation projects are planned in the project area.

Water Quality

Soil Resource/Sediment Movement

Soil types and properties determine the movement of sediment into streams and rivers. The effects to water quality through sediment movement will be addressed through impacts to the soil resource.

Existing Condition

The soil map units in the project boundary are documented in the Soil Survey of Webster County, West Virginia (USDA NRCS 1992). The project folder contains a map of soil units in the project area and watershed in which the project is planned. Soil map units in the project watershed are listed in Table 2.

Table 2 - Soil map units in the project area

Symbol	*Name*	*Description*
At	Atkins	Loam
Ch	Chavird	Fine sandy loam
CoB	Cotaco	Silt loam, 3 to 8% slopes
Cr	Craigsville	Gravelly loam, 0 to 5% slopes
GLF	Gilpin-Laidig association	Very steep, extremely stony
ItF	Itmann	Channery loam, very steep (8 to 70% slopes)
KaF	Kaymine	Very channery silt loam, very steep, extremely stony (3 to 80% slopes)
LgF	Laidig	Channery silt loam, 8 to 35% slopes
MaC	Mandy	Channery silt loam, 3 to 15% slopes, extremely stony
MaE	Mandy	Channery silt loam, 15 to 35% slopes, extremely stony
MaF	Mandy	Channery silt loam, 35 to 55% slopes, extremely stony
PgG	Pineville-Gilpin complex	55 to 70% slopes, extremely stony
Po	Pope	Loam
Pp	Pope-Potomac complex	Very cobbly
ScF	Shouns-Cateache complex	35 to 75% slopes, extremely stony
SwE	Snowdog	Channery loam, 15 to 35% slopes, rubbly
Ud	Udorthents	Smoothed
W	Water	Williams River

Not all soil units found in the watershed and listed above occur in the area of the proposed activities. Soil series on which proposed activities would occur are described below.

Gilpin: The Gilpin series consists of moderately deep, well-drained soils formed in acid material weathered from interbedded sandstone, siltstone, and shale bedrock. These soils are located on ridge tops, benches, and side slopes. The available water capacity is moderate, runoff is very rapid, and permeability is moderate. Erosion potential is severe mainly due to slope. Included in areas where Gilpin series is mapped are small areas of rock outcrop on ridgetops and side slopes. Also, there are inclusions of the highly erosive soil series Cateache and Shouns in the project area where the Gilpin soil series is mapped. The soils make up less than 20 percent of any soil map unit. Slopes range from 30 to 70 percent.

Itmann: The Itmann series consists of very deep, somewhat excessively drained soils formed in acid waste material (mainly coal and high carbon shale) from deep mined coal. The Itmann soils are on ridge tops, benches, and hillsides. Most areas are covered with as much as 20 inches of natural soil from the surrounding area. However, there may be areas with no natural soil cover, bedrock can be found at depths of 20 inches or less, and areas where the surface is covered with 15 to 75 percent stones and boulders. The available water capacity is low or moderate, permeability is moderately rapid and rapid in the substratum, and runoff is very rapid. Soil fertility on these soils is low. Soil reaction is extremely acid to strongly acid. The growth of native trees and planted seedlings is slow because of the low

fertility level.

Kaymine: The Kaymine series consists of very deep, well-drained soils that formed in a mixture of partially weathered sandstone, siltstone, shale, mudstone, and coal rock fragments and partially weathered fine-earth material in areas that have been disturbed by surface mining operations. These soils are on ridgetops, benches, and side slopes. Because of the highly variable weatherable material found in these soils, soil characteristics and properties can vary widely. Included in these soils are areas of shallow, moderately deep, and deep soils, small areas of rubble land, and vertical highwalls. The available water capacity is low to high, permeability is moderate and moderately rapid in the substratum, and runoff is very rapid. Soil fertility is medium or high. Soil reaction is moderately acid to neutral. Slope ranges from 3 to 80 percent.

Laidig: The Laidig series consists of very deep, well-drained soils that formed in acid, colluvial material moved downslope from soils on uplands. The Laidig soils are on foot slopes, head slopes near mountain tops, along drainageways, on benches, and mountain side slopes. Slope ranges mainly from 8 to 35 percent and in some areas may range up to 45 percent. Stones 10 to 24 inches in diameter cover 15 to 75 percent of the surface. Laidig soils have a fragipan. The seasonal high water table is approximately 2.5 to 4 feet in depth. Runoff is rapid or very rapid. Permeability is slow and moderately slow in the firm layers of the profile (in the fragipan). The available water capacity is low or moderate. Natural fertility is low. The Laidig soils have low shear strength. The hazard of erosion is severe on slopes greater than 30 percent and moderate on less steep slopes (8 to ~30 percent).

Mandy: The Mandy series consists of moderately deep, well drained soils that formed in acid material weathered from interbedded sandstone, siltstone, and shale bedrock. These soils are on mountain side slopes, shoulder slopes, and ridgetops, mainly at elevations of more than 3, 400 feet. The soils have more than 35 percent rock fragments in the subsoil, and 3 to 5 percent of the soil surface is covered with stones 10 to 24 inches in size. The available water capacity is very low or low, permeability is moderate, and runoff is rapid or very rapid. Soil reaction is extremely acid or very strongly acid. Erosion potential in unprotected areas is very severe; otherwise, erosion potential is moderate to severe depending on slope. Shear strength is low.

Pineville: Pineville series consists of very deep, well-drained soils that formed in colluvial material that move downslope from soils on uplands. The Pineville soils are on mountain side slopes and foot slopes. The available water capacity is moderate or high, permeability is moderate, and runoff is very rapid. Shear strength is low. Slopes in the project area where Pineville soils are mapped range from 55 to 70 percent. Slope is the major management concern where this soil series is mapped.

Snowdog: The Snowdog series consists of very deep, moderately well drained soils that formed in acid, colluvial material on uplands. The Snowdog soils are on foot slopes, along drainage ways, on head slopes near mountain tops, benches, and mountain side slopes, mainly at elevations of more than 3,400 feet. The available water capacity is low or moderate; and permeability is slow and moderately slow in the firm portion of the soil profile. Runoff is rapid or very rapid. Natural fertility is medium. A seasonal high water table is at a depth of about 1.5 to 2.5 feet. The hazard of erosion is moderate. Stones that are 10 to 24 inches cover 15 to 75 percent of the soil surface. Included in areas where Snowdog soils are mapped are soils that are somewhat poorly and poorly drained.

Udorthent: Udorthents are generally very deep, well drained soils in the areas that have been disturbed by road construction and other urban development. At mine site WV-0967S the Udorthents are poorly

drained. This site is located in the Williams River floodplain. The water table is at or near the surface as well as the site receives a considerable amount of surface water from drainages above. Runoff is slow in the Udorthents mapped in this project area. These soils are typically located along highways, railroads, in mining sites, construction sites, and other areas that have been excavated and/or filled. Slope is 0 percent and in cuts nearly vertical. Udorthents can consist of highly variable material, which is extremely erosive.

Effects of Actions

To properly close the 11.2 miles of low standard road called for in the project area, soil will have to be disturbed. While the road surfaces may be stable, ditches and drainage structures have failed causing trenching along ditches, stream capture, and erosion of fill as water surges leave the road. Approximately 7.4 miles of road may be used for access to the mines for mine site restoration. After restoration work on the mine site, the road will be closed as described in the proposed action. On the 3.8 miles of woods roads in the project area identified for closure work that are not needed for mine site access; soil will be exposed for a short amount of time as the ditches and drainage structures are re-worked.

Direct short-term effects to the soil resource are the exposure of bare soils in areas where soil must be disturbed to accomplish reclamation of mine sites and obliteration of roads.

Direct long-term effects to the soil resource include the reduction of compaction (increased soil porosity) of soils under the roadbed surface.

During an on-site visit, it was observed that the roadbeds leading to MF-1032 and MF-1031 might have fill material in them from an alternate source. This fill material may not have the same soil properties as the soil material above and below the cut bank. Consequently, the material may not respond to transporting water downslope in the same manner as the undisturbed soil surrounding it. This would be an immediate concern in and around drainages as the soil material settles, and channels and drainages start to once again properly function. The effect is indirect and short-term.

Indirect long-term effects to the soil resource from road obliteration would include the restoration of the soil's ability to transport water efficiently down slope and absorb the energy created by water movement downslope. Soil moisture would increase in areas where drainage was no longer channeled. This would also indirectly affect vegetation composition in areas where seeps develop. However, inclusions of wetter soils are identified in the soil survey in all of the series described in the project area.

An indirect long-term negative impact to the wildlife resource from road obliteration would be the destruction of microhabitats created in road ruts for amphibians. In addition, these ruts filled with standing water act as insect breading grounds, which provide food for bats and other predatory species that feed off insects and their larvae.

Road obliteration indirectly affects the soil resource by increasing overall soil productivity in the reclaimed area. Soil properties such as porosity, organic matter distribution, available water capacity, and soil structure are improved which allows vegetation to establish cover and then through succession trees repopulate the former roadbed.

Cumulative Effects

Other actions ongoing in the project area are not expected to contribute to long-term effects to the soil resource as much as the impacts from the actions proposed here, since road construction or timber sale activities are not planned in the project area. If mitigation listed below is implemented then the cumulative effects to the soil resource in the project area are:

- Overall soil productivity in the watershed is slightly increased due to the restoration and obliteration of the roadbeds and spoil areas.
- Soil compaction is reduced and soil porosity is increased also increasing soil productivity.
- The amount of sediment delivered to the Lower Williams River in the project area is significantly reduced by road obliteration and restoration due to the revegetation of the roadbed surface and the dechannelization of drainages and ditches.
- Soils also would be able to better dissipate the energy of surface water moving down and through the soil profile because water would no longer be channeled into ditches.
- Slope stability would be increased by road obliteration and the occurrence of mass wasting events on mountain sides would also be reduced in the project area due to the dispersal of water.

Comparison of Alternatives

There is no difference for the comparison of effects for the proposed action vs. alternative B since only the type of mine closure at one mine site differs between the alternatives. If no action were to be taken, the soil resource would continue to exist as is documented and the issues driving the proposed action would still exist and possibly worsen over time. The roadbeds would continue to deliver sediment to the Lower Williams River. Soil productivity on the roadbeds would eventually increase over time as vegetation from surrounding seed sources slowly establishes. Freeze-thaw action would also decrease compaction and increase porosity over time. However, it would take many years to reach the levels of soil productivity that the proposed action and alternative B can accomplish.

Mitigation

To reduce sediment movement and other effects to the soil and water resources the following mitigations must be added to the project design and eventual contract.

Road restoration work will be accomplished during periods of dry weather. Follow all existing Forest Plan standards and guidelines for reducing sediment movement, including prompt seeding and mulching of areas of bare soil, and placement of hay bales or other sediment traps.

Native seed mixtures used to seed bare soil on obliterated roads would contain species that are shade tolerant and tolerant of wet soils or soils with seasonally high water tables that reach the root zone. The soils map can identify these areas. Soil map units containing the soil series Laidig, Snowdog, and Udorthents would be of most concern. Otherwise, species chosen would be adequate for well-drained, moderately deep, to deep soils with silt loam to silty clay loam textures.

On all areas of bare soil to be seeded, fertilizer and lime would be added to the soil to increase the soil fertility and rate of seed germination. Optimum soil pH is 6.5 for seed germination.

Roadbeds would be ripped to reduce soil compaction and allow for increased surface water infiltration and hydraulic conductivity. In some areas, roadbeds are the underlying geology or bedrock. It is not feasible to reclaim these areas to approximate original contour. The areas should be blocked off and any bare soil should be seeded with the recommend project seed mixture for woods roads according to the Forest Plan.

If during road obliteration, the soil material being put back on contour or outsloped is identified as being obviously different in particle size than the native soil on the downslope or cutbank, special mitigation with biodegradable geotextile would be used. The biodegradable geotextile (straw mats) would be placed (using landscape staples to hold the mat in place) on the out sloped portion of the reconstructed perennial and intermittent drains to hold the disturbed soil or fill material in place as the area is revegetated. Otherwise, this material may be more prone to blow out or gully erosion because of the presence of water moving down the slope in the drain and high flows from storm events. Through time, these areas would settle and reach equilibrium for water movement through the soil.

In the area mapped as Udorthents (Mine site WV-0967S), highly variable materials such as waste rock, coal, and gob are present. Currently, no vegetation grows on this material in some places. It may be desirable to mitigate these areas to increase soil productivity. This may include the ripping of this material and the addition of topsoil, lime, and fertilizer. On these areas, native grasses or non-invasive non-native grassed and legume species that are aggressive may be needed to be establish a quick vegetative cover because of the nutrient poor soils and fill material in Udorthents. In addition, meadow or wetland species would be reseeded in the areas of the Udorthents where water tables enter the root zone or are present at the soil surface.

Mitigation for the destruction of the microhabitats for amphibians and for feeding ground of bats and other insect feeders would be accomplished by the expansion of wetlands in MF-1032, the expansion of wet soils in the reclaimed Udorthents mapped in WV-0967S, and the retention and upgrade of existing sedimentation ponds.

Aquatic Resources

Existing Condition

The proposed project is located in the lower third of the Williams River watershed in Webster County, West Virginia (Figure 1). The Williams River watershed is 44,612 acres and is a tributary to the Gauley River, which merges with the New River to form the Kanawha River. The Williams River watershed is delineated as a 5th level Hydrologic Unit (05050005020) according to the 2001 (draft) Federal Standards for Delineation of Hydrologic Unit Boundaries; 5th level Hydrologic Units are termed watersheds. The Monongahela National Forest recently conducted a broad-scale assessment of watershed health for 31 watersheds that individually contain more than 0.85% National Forest System lands (East-wide Watershed Assessment Protocol for the Monongahela National Forest – 2001 draft report). The data and findings from the assessment help provide a broad landscape context for the Williams River watershed. This information is generally applicable to the Lower Williams River Abandoned Coal Mines and Road Restoration project area.

National Forest System lands occupy approximately 88% of the Williams River watershed. Nearly 96% of the Williams River watershed is classified as forested land use. Landsat Multi-spectral Scanner Imagery indicates that less than 1% of the watershed was altered from a forested condition in 1985 to a non-forested condition by 1992. Of the 31 watersheds analyzed, the Williams River watershed had the second lowest population density in 1990. However, this watershed experienced the 3rd greatest increase in population density (expressed as a percent) between the years 1990-96. In addition, recreation pressure within the Williams River watershed is among the highest across the Forest. Road densities and stream crossings in the Williams River watershed are relatively low when compared among the 31 watersheds. The assessment also indicates that the Williams River watershed has a relatively low number of point sources and non-point sources of pollution. When these results where used to assess the relative condition of the 31 watersheds, the Williams River watershed was ranked as being among the best in terms of sustained ecological integrity.

The assessment also evaluated the 31 watersheds for their level of susceptibility or vulnerability to changes in ecological function or desired watershed uses. Results indicate that the Williams River watershed possesses a relatively low degree of vulnerability associated with forested or wetland riparian areas and a low incidence of municipal water supply (no facilities). The Williams River watershed possesses a relatively moderate degree of susceptibility associated with highly erodible soils as well as a comparatively high percentage of watershed area comprised of water and wetlands. The Williams River watershed exhibits a relatively high level of vulnerability associated with fish communities (percent of native fish, sensitive fish, and endemic fish species), water quality impaired stream segments, and outstanding resource waters. Cumulatively, the Williams River watershed was ranked as the watershed most vulnerable to changes in ecological function.

The analysis area for aquatic resources associated with this project encompasses a land base of approximately 4,722 acres (7.4 mi^2) in the lower third of the Williams River watershed. This area comprises nearly 11% of the Williams River watershed. It includes all or portions of 4 named tributaries to the Williams River (North Cove Run, Johnson Run, Lick Branch, and Little Fork), several unnamed tributaries, and approximately 4.5 miles of the lower Williams River main stem. The elevation ranges between 3,761 feet at in the headwaters of Lick Branch to approximately 2,250 feet at the downstream extent of the Williams River. Annual precipitation averages between 53 and 57 inches within the analysis area.

There are a total of about 21 miles of perennial stream in the analysis area as mapped on 7.5-minute series Quadrangle Maps (United States Geological Survey). There are many additional miles of intermittent and ephemeral streams in the analysis area that are not mapped. The density of mapped streams in the analysis area is 2.8 miles/$mile^2$. Designated uses of the surface waters within the analysis area include propagation and maintenance of fish and other aquatic life (Category B) and water contact recreation (Category C) (West Virginia Department of Environmental Protection 2001). In addition, the entire length of the Williams River within the analysis area is designated trout waters (Category B2). The Williams River and Lick Branch are on the presumptive list of Tier 2.5 streams according to West Virginia's anti-degradation rule for protecting water quality as mandated by the Clean Water Act (West Virginia Department of Environmental Protection 2002). Other streams in the analysis areas are afforded Tier 2.0 protection. No stream segments within the analysis area are listed in the State's 1998 303(d) List of "water quality limited waters" (West Virginia Department of Environmental Protection 1998).

Table 3 displays pH and total iron data collected from a sample station on the Williams River upstream from the mouth of North Cove Run (western edge of project area) from 1976 through 1981 (STORET database). Data is only displayed for those dates with both pH and total iron data. The Monongahela National Forest provided the monitoring efforts at this sample site. The data show there is seasonal variation in pH and total iron in the main stem of the Williams River but conditions can support aquatic biota.

The 1999 Abandoned Mine Lands Survey completed for the Forest Service by the Army Corps of Engineers sampled mine water discharge to assess pH and total iron content, among other factors. Table 4 displays data for mine sites in the project area for 1999. Data ranges reflect water samples from multiple discharge portals at a particular mine site. Comparison between water chemistry data from mine discharges in the analysis area with similar data collected from the main stem of the Williams River indicates mine sites are not discharging acid drainage.

Table 3 – Partial water chemistry data for North Cove Run station (211609)

Date	*pH*	*Total Iron (ug/l)*
July 1976	6.80	120
February 1977	5.70	210
March 1977	6.46	90
June 1977	5.89	70
December 1978	6.18	360
March 1979	5.40	30
Junme 1979	6.32	70
December 1979	5.64	80
January 1980	5.52	160
February 1980	5.39	60
March 1980	5.53	70
April 1980	5.20	150
May 1980	5.76	70
June 1980	5.10	170
July 1980	6.66	90
August 1980	5.95	90
September 1980	5.74	140
January 1981	5.70	130

Table 4 – Partial water chemistry data for Lower Williams mine sites

Mine Site	*pH*
MF-1031	6.3 – 6.5
MF-1032	6.7 – 7.0
MF-1036	6.5
MF-1037	7.2
MF-1038	6.2
MF-1039	6.4 – 6.6
WV-0967 (N&S)	7.1 – 8.3

Aquatic habitat data is limited for streams in the analysis area. Generally, in-stream habitat conditions in the Williams River and its tributaries continue a recovery trend from impacts associated with early 20th century logging activities and the influence of contemporary land uses such as transportation systems and recreational development (Watershed Analysis Report for the Upper Williams River Watershed, 2000). As such, streams generally lack large woody debris and have limited pool habitat, limited cover and channel complexity, and elevated levels of fine sediment.

Forest Service crews surveyed fish habitat in Lick Branch and Little Fork during 1992. July 1992 data indicate that aquatic habitat in both streams is dominated by riffles as pool:riffle ratios were typically low (less than 0.10). Stream substrate was dominated by cobble/boulders in Lick Branch and cobbles in Little Fork. Stream pH was measured at 5.8 in Lick Branch and 5.3 in Little River. Forest Service crews found brook trout, mottled sculpin, creek chub, and bluegill in Lick Branch during fish population surveys in August 1992. No other fish habitat or population survey data is available for streams in the analysis area.

Stauffer *et al.* (1995) report that there are 28 fish species within the Williams River watershed. Of these 28 species, 22 are native, 4 are listed as Regional 9 sensitive species, and 5 are endemic species found only in the upper Kanawha River system (upstream from the 7.3 m Kanawha Falls). In addition, mountain redbelly dace *(Phoxinus orea*s), a native species, and brown trout *(Salmo trutt*a), a nonnative species, were collected in the Williams River upstream from this analysis area during 1999 surveys. Many of the species reported in the Williams River watershed are likely to occur in the section of the Williams River that traverses the analysis area. However, fish species distribution in fish bearing tributaries of the Williams River within the analysis area is speculative and likely exhibits seasonal fluctuations.

There are approximately 20.5 miles of mapped roads in the analysis area although several miles of roads are not mapped and, therefore, were not included in this analysis. The density of mapped roads within the analysis area is 2.8 miles/mi^2. Roads generally present various challenges for managing healthy watersheds and can be a source of considerable concern for aquatic resources even when they are carefully located and managed. Roads can influence watershed health in various ways such as altering hydrologic processes at various scales, increasing sediment production and delivery to streams, impairing riparian condition and function, disrupting stream dynamics that facilitate stable stream channels, and creating migration barriers for aquatic biota. Any one of these influences can lead to degraded aquatic environments though widespread combinations of these influences can have long-lasting implications on the functional capacity and sustainability of aquatic ecosystems.

Road systems can affect various watershed processes by functioning as hydrologic extensions or connections to stream channel networks. Frequently, road systems collect road surface drainage and intercept sub-surface flows from road cuts and efficiently route these flows via road ditches to existing stream networks or to hillslopes where new channels can develop. This accelerated delivery of water the stream networks can intensify the magnitude of storm run-off and peak flows in streams as well as increase the frequency of channel altering flows. This effect modifies the hydrologic regime under which stream networks naturally evolve and can create conditions of systematic channel instability when channels adjust to accommodate an altered flow regime and attempt to establish a new equilibrium. Also, the accelerated transport of water down and out of a watershed has the potential to influence the timing and duration of baseflows when in-stream habitat is most limited due to low stream levels and associated declines in water quality (*e.g.* low levels of dissolved oxygen and elevated stream temperatures).

Roads can also elevate levels of sediment production and delivery to stream systems. Increased stream sedimentation can result from road cut and fill failures, surface erosion along roads, new channel scour and down-cutting at outlets for ditch relief culverts, stream crossing failures, and in-channel erosion associated with channel instability. Elevated levels of sediment production can be problematic not only due to the added burden on channel processes to move the material through the system but because channel functions (*e.g.* development and maintenance of quality in-stream habitat) can become impaired. Increased sediment production in streams can degrade aquatic habitat. The relationship between levels of fine sediment in streams and the reproductive success of trout and other aquatic organisms is well documented in the literature. These data generally indicate an inverse relationship between the percentage of fine sediment in stream substrates and population vigor for many desired aquatic organisms. Recent studies of fine sediment on the Monongahela National Forest substantiate findings previously reported in the literature and validate these findings for aquatic ecosystems on the Forest (Hakala 2000 and Kaller 2001). Total sediment levels being transported through a system can also be problematic when they either instigate channel instability (*e.g.* large inputs of sediment from landslides) or are symptomatic of other causes of channel instability (*e.g.* altered hydrologic regime). In either case, the quality of in-stream habitat is often compromised.

Roads located within riparian areas can be associated with the aforementioned influences on the aquatic environment in addition to having the potential to disrupt dynamic relationships between stream channels and their associated floodplains and riparian areas. Roads built in riparian areas can reduce the amount of shade canopy desired during warm summer months to maintain advantageous stream temperatures. These roads typically reduce the potential for large woody debris recruitment to streams and can deprive streams of desired densities of LWD for in-stream cover, aquatic habitat formation, structural diversity, sediment storage and routing, nutrient inputs and retention, and over-all stream health. Roads in riparian areas can occupy floodplain areas and, in effect, channelize out-of-bank flows during floods, which can initiate channel instability and associated effects. Roads in riparian areas often intersect stream channels and can inhibit or prevent the migration of aquatic biota. Although stream crossings accomplished with culverts can be particularly problematic with regard to migration issues, most stream crossing structures alter hydrologic properties at the crossing and can result in undesirable changes to the channel.

The Forest Aquatic Ecologist conducted field reviews within the analysis area on August 16, 2001 and on May 1, 2002. The area reviews were conducted to assess conditions influencing the health of the aquatic environment and evaluate the proposed action for the project. Field observations within the analysis area raised concerns directly or indirectly related to the modification of hydrologic characteristics and processes. There are numerous and widespread concerns associated with legacy roads and mines in the analysis area as well as concern with some of the more modern roads within the area. Many roads have not received regular maintenance nor have they been properly stored or decommissioned. As a result, there are chronic sources of sediment production associated with artificially channelized flow (Figure 2). Many of these sediment sources are unnecessary and preventable as they occur along roads that are no longer needed for motorized use and can be decommissioned. Though actual mine sites were not reviewed during the 2 field visits, concentrated flow from mine discharge characteristically pose similar risks for channel scour and sediment production and is reported to be occurring. The effects of concentrated flows and associated complications initiated by road drainage and mine discharge continue to contribute to risks of degradation to the aquatic environment.

Figure 2 – Slumping road cut and eroding ditch along road to mine site MF-1031

Effects of Actions

Proposed Action

Direct/Indirect Effects

The proposed action would remove approximately 11 miles of roads and reduce the density of mapped roads to 1.3 miles/mi^2 (a reduction of about 54%) within the analysis area. In the process of treating roads, a minimum of 20 stream crossings would be eliminated and channel sites restored. In addition, 8 mine sites would be treated in order to rehabilitate previously impacted areas and reduce the soil erosion potential associated with mine discharge, channelized flows, and other features at these sites. The effect of these activities would be expected to help improve the condition and trend for the aquatic ecosystem. Expected benefits would be attributed to a long-term reduction in sediment production to streams, a movement away from synchronized run-off as existing sources of channelized flow become less hydrologically connected to streams, improved in-stream conditions as hydrologic regimes become more favorable for channel stabilization, and an accelerated improvement of overall soil productivity that will facilitate forest succession.

Many of the proposed activities require various degrees of soil disturbance in order to implement project designs and achieve project objectives. These activities include treatments associated with road decommissioning, up-grades and obliteration of existing sediment control ponds, modification of surface drainage patterns at the previous coal-loading site adjacent to the Williams River, armoring mine discharge channels, and wetland enhancements. Due to the nature of these restoration activities to disturb soils, there is the potential for short-term increases in sediment production to streams. The

potential for increased sediment production following soil disturbing activity would be minimized to the extent practicable by employing Best Management Practices (Soil Resource Specialist Input) and Forest Plan Standards and Guides (Table 5). Field conditions indicate that areas proposed for treatment are currently contributing sediment to streams at sustained levels that may exceed expected sedimentation rates of this proposal even in the short-term. It is anticipated that the implementation of this proposal would result in considerably less sediment to streams over the long-term than if these areas were left untreated.

Other activities included in the proposed action are not expected to produce direct or indirect effects to the aquatic environment over the short- or long-term. These include the removal of modern trash and mining debris at each mine site and the installation of bat gates at selected mine portals.

Cumulative Effects

Although the proposed action would address a considerable number of problematic conditions for aquatic resources, there would continue to be risks to aquatic resources within the analysis area. Cumulative effects associated with the proposed action would include the anticipated direct and indirect effects associated with this proposal along with the continuation of effects associated with road maintenance activity, roads not treated in the proposal, dispersed recreational uses, and other untreated risks to aquatic resources (*e.g.* potential migration barriers and channel instability). Road-related effects associated with the remaining transportation system (including Forest system roads and woods roads) would continue to contribute to hydrologic modification, sediment production, impairment of riparian health, and their synergistic effects on channel condition and function similar to other roaded areas of the Forest. Nonetheless, the proposed action would help enhance recovery trends for aquatic resources in the analysis area and expedite the attainment of future desired conditions.

Alternative A – No Action

Direct/Indirect Effects

A decision to implement alternative A would result in no direct or indirect effects because no new actions would be pursued on National Forest System lands.

Cumulative Effects

Cumulative effects associated with alternative A would consist of a continuation of existing conditions and trends within the analysis area. Sediment production to streams has been identified as an issue of concern for the health of aquatic ecosystems on the Forest. Selection of this alternative would not treat known sources of sediment production. In addition, the level of hydrologic connectivity between roads and streams would remain unchanged. This alternative would help ensure that recovery trends for aquatic resources in the analysis area continue to be inhibited by the current level of hydrologic modification, sediment production, impairment of riparian health, and their synergistic effects on channel condition and function.

Alternative B - Reduced Number of Bat Gates

Direct/Indirect/Cumulative Effects

Direct, indirect, and cumulative effects to aquatic resources that are associated with alternative B would be identical to those discussed for the proposed action. This is because the activities included in alternative B are identical to those in the proposed action except 4 of the 17 mine portals would be closed with wet/dry seals instead of bat gates under this alternative.

Mitigation

Mitigation listed to reduce effects of sediment movement will aid in protecting water quality in the project area. In addition, Forest Plan standards and guidelines listed in Table 5 should be followed if the proposed action or alternative B is implemented.

Table 5 - Applicable Forest Plan standards and guidelines to be employed during proposed project activities to help mitigate risks to aquatic resources

FSM Ref.	*Subject*	*Area*	*General Direction*	*Standard & Guide*	*Page(s)*
2500	Water/Soil	Forest-wide	A	1, 2, 3, 4, 5	79
			E	1, 2	80-81
			F		81
			H		82
			I	1	82a
			J	2, 4a-d, 5	82a-82b
2620	Wildlife Planning	Forest-wide	A	1, 2	83
2630	Fish Habitat	Forest-wide	B		83a
			C		83a
2630	Wildlife Habitat	MP 2.0	C	2, 3, 6	124 & Amendment 3
2630	Wildlife Habitat	MP 3.0	C	2, 3, 6	138 & Amendment 3
2630	Wildlife Habitat	MP 6.1	C	2, 3, 6	179 & Amendment 3

Wildlife Habitat

General Habitat

Existing Condition

The project area is part of the largely forested, closed canopy, 70 – 90 year old hardwood forest that makes up most of the Monongahela National Forest. The major influence on wildlife in the project area is the Williams River, a large perennial stream. The project area is also adjacent to the Cranberry Wilderness, which provides a large area of undisturbed, remote habitat.

The majority of stands in the project area are between 70 and 80 years old (1,870 acres out of 2,707 acres). Within the project area there are about 300 acres of forest 30 years old or less, and 130 acres over 90 years old. Most of the area is typed as mixed hardwood forest, with some areas typed as yellow poplar-white oak-red oak, mixed oaks, sugar maple-beech-yellow birch, and black cherry-white ash-yellow poplar forest types. There are also stands classified as lowland brush or open (grass or forbs ground cover) in the project area.

The mine portals and underground passages provide unique habitat. Bats use mine portals similar to natural caves, and other species use the surface features such as exposed rock ledge. The presence of a

large water feature in the project area adds to diversity of habitats and wildlife species. FR 86 runs along the length of the Williams River and is open to traffic year round.

With this diversity in age, forest type, and features the project area has the potential to provide habitat to a variety of non-game and game wildlife species.

Effects of Actions

The main purposes for the actions proposed are first to protect public safety by blocking access to mine portals and second to reduce sediment movement from mine sites and associated access roads. Blocking access to mine entrances by installing bat gates also protects a unique wildlife habitat. The proposed action would place bat gates on all mine portals suitable for this work regardless of bat use. Alternative B reduces the number of gates installed by proposing to place gates only on those portals with documented bat use. Both alternatives protect existing habitat, but the proposed action allows for future expansion of habitat by keeping stable portals open for bat and other small mammal use.

Correcting existing sources of accelerated sedimentation and stabilizing old road grades and mine sites benefits aquatic wildlife in the long term by increasing water quality. In the short term, while the projects are implemented, sediment movement may increase. However, timing of earth moving activities and protection of water channels by mitigation given in the Water Quality effects section (page 11) would reduce sediment movement as a result of the rehabilitation projects themselves. There is no difference between the proposed action and alternative B in road restoration activities.

No activities would take place to alter the present condition of the proposed project area. The mine portals would continue collapse. Poor drainage systems on former coal haul roads, mine access trails, and woods roads would continue to contribute to earth slumping, mass movement and sediment delivery to area streams. Non-maintained sediment ponds, uncontrolled run-off and discharges from mine openings would continue increasing risks of down stream sedimentation.

In terms of cumulative effects, no other road abandonment, reconstruction, or construction projects are planned or anticipated. Part of the project area is under ten year quiet time and no timber sale or other vegetation manipulation actions are planed in the project area. Cumulative effects from the projects proposed here will be beneficial to wildlife habitat in general as unique habitat protected by portal closures and as road beds return to shrub and tree cover.

Mitigation

No additional mitigation is required.

Threatened and Endangered Species

Existing Condition

There are no threatened or endangered animals or plants known to be present in the project area. There is potential habitat for the Indiana bat, although the project area is not within 5 miles of a hibernaculum. There is potential habitat for the West Virginia northern flying squirrel in the project area and surrounding area.

As this project is not within 5 miles of an occupied cave (the nearest cave known to contain Indiana bats is over thirteen miles away), the area does not provide Indiana bat swarming or hibernating habitat. Health and safety issues have prevented human entry into the mine portals to complete the winter surveys inside the mine portals necessary to document presence of hibernating Indiana bats. Summer (September 1999) mist net surveys conducted near the mine portal entrances by the WVDNR did not result in the capture of any Indiana bats. Three sites were surveyed by mist netting in June 2000; the sites were 0.8, 0.17 and 0.5 miles from the project area. No Indiana bats were captured during these surveys. Surveys were conducted in July 2000 in the Hunters Heaven area (South west of project area) at four sites, the closest being approximately 4.4 miles from the mine portal project. No Indiana bats were captured. Although no Indiana bats have been documented within thirteen miles of the area, the area is considered general forest habitat with potential summer foraging, roosting, and maternity colony habitat.

This area of the MNF includes some red spruce and northern hardwood forest above 3000 ft. in elevation. West Virginia northern flying squirrels occur at high elevation sites along the headwaters of Little Fork within 0.5 miles of the proposed project area. The project area itself does not provide suitable West Virginia northern flying squirrel habitat.

Two sensitive species, the Eastern small-footed bat and the Allegheny woodrat are known to occur in the project area. There is habitat suited to the Southern rock vole, Southern water shrew, Northern goshawk, timber rattlesnake, green salamander, hellbender, candy darter, New River shiner, Appalachian darter, and Kanawha minnow in the project area. Surveys for sensitive plants were made in the summer of 1999 and there appeared to be habitat for the following plant species in the project area; white monkshood, long-stalked holly, butternut, large-flowered Barbara's buttons, nodding pagonia, and Appalachian blue violet. No individuals of these species, or other sensitive plants, were found during the survey.

Effects of Actions

The effects of the proposed action, alternative A, and alternative B are documented in the Biological Evaluation (BE) for the actions described in the alternatives for this project, dated May 10, 2002. The findings of the BE are summarized here.

West Virginia Northern flying squirrel

Proposed Action

Mining debris removal and other restoration activities would not alter the habitat condition for flying squirrels. In order to secure cave gates, small, sapling-sized trees may have to be removed near mine portals; however, West Virginia northern flying squirrel northern flying squirrels do not utilize these small-diameter trees. Therefore, there would be no direct, indirect, or cumulative effects of mine site restoration because of the proposed action.

Alternative A - No Action

No activities would take place to alter the present condition of the proposed project area; therefore, no direct, indirect, or cumulative effects would occur as a result of the alternative A.

Alternative B - Reduced Number of Bat Gates

The effects of mine site restoration under Alternative B are similar to those discussed under the

proposed action, with the exception that fewer saplings would be removed since fewer bat gates would be installed. Therefore, there would be no direct, indirect, or cumulative effects of mine site restoration to the West Virginia northern flying squirrel because of alternative B.

Determination

- A determination of **no effect** of mine site restoration and road obliteration/restoration to the West Virginia northern flying squirrel northern flying squirrel is made for the proposed action, alternative A, and alternative B.

Indiana Bat

Proposed Action

Mining debris removal and other mine restoration activities would not alter habitat conditions preferred by Indiana bats. In order to secure bat gates, small, sapling-sized trees may have to be removed near mine portals; however, these small-diameter trees are unlikely to provide roost trees for Indiana bats. Bat gates would protect potential hibernacula for all bats. Therefore, there would be no direct, indirect, or cumulative effects of mine site restoration on Indiana bats, as they are not known to use these portals.

Road restoration would involve removing existing drainage structures, constructing waterbars, obliterating ditches, re-establishing natural drainage patterns, and re-vegetating with non-aggressive, native species. A few large-diameter trees may be harvested during these activities. Some of the trees slated for removal may provide suitable roost trees for Indiana bats. There is a possibility of directly affecting individuals as tree felling may harm individual bats. In addition, tree felling would remove some potential roost trees from the area. However, there would be no cumulative effects of road obliteration/restoration to Indiana bats due to the absence (or very small population) of Indiana bats in the area, in conjunction with minute size, scope, and duration of road obliteration/restoration activities.

Alternative A - No Action

No activities would take place to alter the present condition of the proposed project area. The mine portals would continue to collapse. Poor drainage systems on former coal haul roads, mine access trails, and woods roads would continue to contribute to earth slumping, mass movement and sediment delivery to area streams. Non-maintained sediment ponds, uncontrolled run-off and discharges from mine openings would continue increasing risks of down stream sedimentation. No direct, indirect, or cumulative effects would occur as a result of the alternative A.

Alternative B - Reduced Number of Bat Gates

The effects of mine site restoration under alternative B are similar to those discussed under the Proposed Action, with the exception that fewer saplings would be removed since fewer bat gates would be installed. Therefore, there would be no adverse direct, indirect, or cumulative effects of mine site restoration to the Indiana bat because of alternative B.

The effects of road obliteration/restoration under alternative B would be the same as those discussed under the proposed action, as the proposed road activities would be the same.

Determination

- A determination of **no effect** of mine site restoration to the Indiana bat is made for the proposed action.
- A determination of **may affect, not likely to adversely affect** Indiana bats as a result of road

obliteration/restoration is made for the proposed action as any affects are discountable or insignificant. In addition, there would be no adverse effects beyond those set forth in the MNF Biological Opinion.

- A determination of **no effect** to Indiana bats is made for alternative A, the "no action" alternative.
- A determination of **no effect** of mine site restoration to the Indiana bat is made for alternative B.
- A determination of **may affect, not likely to adversely affect** Indiana bats as a result of road obliteration/restoration is made for alternative B as any affects are discountable or insignificant. In addition, there would be no adverse effects beyond those set forth in the MNF Biological Opinion.

Sensitive Species

Table 6 displays the determination of effects to plants and animals on the Regional Forester's sensitive species list with suitable or occupied habitat within the project area. Sensitive species are not afforded any Federal protection, however the USFS considers sensitive species in their management and research activities. The USFS identifies potential risks to sensitive species, and efforts are made through project amendment to reduce risk to the species population. A more detailed discussion of effects is found in the biological evaluation.

Table 6 – Determination of effects to sensitive species

	Determination				
	Proposed Action		**Alternative A**	**Alternative B**	
Species	**Mine Site Restoration**	**Road Obliteration**		**Mine Site Restoration**	**Road Obliteration**
Southern rock vole	No impact	No impact	No impact	No impact	No impact
Eastern small-footed myotis	Beneficial impact	No impact	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	Beneficial impact	No impact
Allegheny woodrat	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	Beneficial impact	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	Beneficial impact
Southern water shrew	Beneficial impact	Beneficial impact	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	Beneficial impact	Beneficial impact
Northern goshawk	No impact	No impact	No impact	No impact	No impact
Timber rattlesnake	No impact	No impact	No impact	No impact	No impact
Green salamander	No impact	No impact	No impact	No impact	No impact
hellbender	Beneficial impact	Beneficial impact	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	Beneficial impact	Beneficial impact
Candy darter	Beneficial impact	Beneficial impact	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	Beneficial impact	Beneficial impact
New River shiner	Beneficial impact	Beneficial impact	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	Beneficial impact	Beneficial impact
Appalachian darter	Beneficial impact	Beneficial impact	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	Beneficial impact	Beneficial impact
Kanawha minnow	Beneficial impact	Beneficial impact	May impact individuals but not likely to cause a trend to federal listing or a loss of viability	Beneficial impact	Beneficial impact

	Determination				
	Proposed Action		**Alternative A**	**Alternative B**	
Species	**Mine Site Restoration**	**Road Obliteration**		**Mine Site Restoration**	**Road Obliteration**
White monkshood	No impact	No impact	No impact	No impact	No impact
Long-stalked holly	No impact	No impact	No impact	No impact	No impact
Butternut	No impact	No impact	No impact	No impact	No impact
Large-flowered Barbara's buttons	No impact	No impact	No impact	No impact	No impact
Nodding pogonia	No impact	No impact	No impact	No impact	No impact
Appalachian blue violet	No impact	No impact	No impact	No impact	No impact

Mitigation

See Mitigation Measures Common to all Action Alternatives (page 7).

Forest Road System

Existing Condition

A Road System Analysis was completed for the project area and documented in a report (Appendix C).

Effects of Actions

None of the roads proposed for obliteration are currently system roads, instead they are unclassified roads also called woods roads. There will be no change to the system of maintained forest roads. FR 429 was reconstructed in 1997 and 1998 to connect the project area to FR 101 along Craig Run. This will remain the main access to the project area for management.

Mitigation

No mitigation is required.

Heritage Resources

Existing Condition

Although Forest Heritage Resource staff examined the project area previously and recommendations were made, a thorough documentary search was undertaken. This search consisted of examining deeds, historical period maps, aerial photographs, and Forest Service Heritage Resource records. This search was undertaken to determine the earliest period of mining in the proposed restoration area.

The deed that transferred the property (Tract 372) from The Cherry River Boom and Lumber Co. to the Forest Service in 1934 did not contain any information about mining activities in, or any other details concerning, the project area. The project area was well away from any corners or exceptions, and the

deed spoke mainly to boundaries, not to the contents of or improvements to the land. The only interesting detail discovered in the course of deed research was the financial involvement of Senator Johnson N. Camden, John McGraw, and the West Virginia & Pittsburgh Rail Road, all of whom are listed as owners of the mineral rights on this tract. Their heirs and assigns currently own the mineral rights.

The only historic period map available of the area was the 1915 Webster Springs 7.5' Quadrangle. Examination of this map did not reveal any mining activities at that that time. The map indicated to previous Forest Service researchers that two previously identified potential archaeological sites, both Unidentified Structures, may be located in the project area. These potential sites were identified by R. Stephen Davis in his Archaeological Overview of the Forest (1978).

Examination of the Special Use Permit and associated documentation issued by the Forest to the Gauley Mountain Coal Company in October 1945 indicated that a small mine was located approximately 2000 feet west of Laurel Run by that time. This mine is shown as a fairly small (about 700' x 400') opening depicted on a map dating to August 1945 as the "Williams River Mine." At that time the mine included a conveyance across the river to the Baltimore and Ohio Rail Road line, a tipple, and a private road leading to the mine. No additional special use permits for the area were located in Forest Service records, so it is likely that this mine dated to sometime between the publication of the 1915 USGS quadrangle sheet and the acquisition of the property by the Forest Service in 1934. The project area was reopened to mining again in the 1970s.

Pedestrian reconnaissance of the area by Forest Service staff supports this approximate date for the earliest mining activities in the project area. The areas of early mining appeared to along both sides of the Williams River on Mine WV-0967 and in the area of mine MF-1041. On April 12, 2002 a site visit was made by John Calabrese, Jeff Davis (State Historic Preservation Office, SHPO), Linda Tracy, and Melissa Thomas-Van Gundy. The SHPO has determined the mine sites to be ineligible for inclusion on the National Register of Historic Places. Any modification or removal of structures at mines WV-0967 and MF-1041 deemed necessary can be made.

Additional examination of Forest Service Heritage Resources records indicates that while some of the area proposed for restoration has been surveyed for the presence of prehistoric and historic heritage resources, much of it has not.

Effects of Actions

One of the goals of the Forest Service regarding historic and archaeological properties is to preserve and protect those properties eligible for, or listed in, the National Register of Historic Places in accordance with the Secretary of the Interior's Standards. None of the known sites are eligible for listing, therefore any modification to the structures deemed necessary to protect public safety is allowed.

Since the mine sites are not eligible for inclusion on the National Register of Historic Places, there will be no effects to the historical resources at the mine sites from implementation of the proposed action or alternatives. However, since the entire project area has not been surveyed for heritage resources, it is possible for a previously unknown site to be uncovered during project implementation. The proposed actions are occurring on previously disturbed ground, much of it significantly disturbed, so the likelihood of site discovery in low. Mitigation listed below is required to assure that effects to the

heritage resources of the Forest are reduced.

Mitigation

Since much of the area has not been surveyed, it is recommended that all subsurface disturbance associated with mine and road restoration be limited to previously disturbed areas. Should any unanticipated discoveries of heritage resources occur, activity in that portion of the project area should cease and the Forest Archaeologist should be contacted.

Consultation and Coordination

The Forest entered into a co-operative agreement with the West Virginia Department of Environmental Protection Office of Abandoned Mine Lands & Reclamation (WVDEP AML) for collection of data needed for mine site restoration design, and to prepare, review and approve conceptual mine site restoration design. This agreement is also known as Challenge Cost Share agreement number 21011300. Site visits involving Forest and WVDEP AML personnel were made on December 6, 2000, and February 22, 2001.

Consultation with Dr. Roy Powers was made in the course of designing the portal closures to allow bat access.

Randall Biller, Forest Engineer, was also involved in project design and location through field reviews of the sites to be restored and review of the design standards.

On 12 April 2002, Linda Tracy, Melissa Thomas-Van Gundy, John Calabrese, and Jeff Davis (State Historic Preservation Officer's Office) visited mines sites MF-1041, WV-0967N, and WV-0967S to review for eligibility for inclusion in the National Register of Historic Places. The results of this visit are documented in a letter (April 16, 2002) from Jennifer Murdock, Structural Historian to John Calabrese, Forest Archeologist.

Monitoring

Implementation of the Lower Williams River Abandoned Coal Mines and Road Restoration Project will be monitored as a part of routine construction contract inspection.

Periodic inspection and maintenance of installed bat gates would be conducted every 3-5 years. In addition, the Forest Plan (Chapter V) provides for selective monitoring of projects such as this one. As such, this project may be selected as one of the various Forest management activities that are monitored on a Forest-wide basis.