



United States
Department of
Agriculture

Forest Service

Eastern Region

Monongahela
National Forest

December 2005



Allegheny Wood Products Easement

Draft Environmental Impact Statement

Monongahela National Forest



The U.S. Department of Agriculture (USDA) prohibits discrimination in all its program and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202)720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202)720-5964 (voice and TDD). USDA is an equal Opportunity provider and employer.

Draft Environmental Impact Statement Allegheny Wood Product Easement Monongahela National Forest

December 2005

Tucker County, West Virginia

Lead Agency: USDA Forest Service
Monongahela National Forest

Responsible Official: Clyde N. Thompson, Forest Supervisor
Monongahela National Forest
200 Sycamore Street
Elkins, WV 26241
(304) 636-1800

For Further Information: Bill Shields, Project Team Leader
Monongahela National Forest
200 Sycamore Street
Elkins, WV 26241
(304) 636-1800, ext 287

ABSTRACT: When the historic railroad grade in Blackwater Canyon was abandoned by the railroad, ownership reverted to the adjacent landowners resulting in a linear division of ownership on the grade. Currently, the 6 feet of tread on the uphill side of the grade is in National Forest System management. The downhill side of the grade is owned by Allegheny Wood Products Inc. (AWP).

In July 2001, AWP applied for motorized access on the National Forest System portion of the railroad grade for the purpose of long-term timber management on roughly 300 acres of their property that is located between the railroad grade and the Blackwater River.

This Draft Environmental Impact Statement (DEIS) documents the analysis of two alternatives that would grant AWP access to their private property located in the Blackwater Canyon area of Tucker County, West Virginia. An additional alternative, one that would allow no access, was also explored.

Alternative 3 is the Preferred Alternative. Alternative 3 would convey a reciprocal easement for rights-of-way to AWP for the purpose of long-term timber management on roughly 300 acres of their privately-owned timberlands, and to allow the Forest Service an interest in the remaining half of the railroad grade in order to actively manage the recreation opportunities and attempt to minimize impacts to heritage resources.

COMMENTING INFORMATION: The comment period on the DEIS will be 45 days from the date the Environmental Protection Agency publishes the notice of availability in the Federal Register.

The Forest Service believes, at this early stage, it is important to give reviewers notice of several court rulings related to public participation in the environmental review process. First, reviewers of DEISs must structure their participation in the environmental review of the proposal so that it is meaningful and alerts an agency to the reviewer's position and contentions. Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553 (1978). Also, environmental objections that could be raised at the draft environmental impact statement stage but that are not raised until after completion of the final environmental impact statement may be waived or dismissed by the courts. City of Angoon v. Hodel, 803 F.2d 1016, 1022 (9th Cir. 1986) and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). Because of these court rulings, it is very important that those interested in this proposed action participate by the close of the 45-day comment period so that substantive comments and objections are made available to the Forest Service at a time when it can meaningfully consider them and respond to them in the final environmental impact statement.

To assist the Forest Service in identifying and considering issues and concerns on the proposed action, comments on the DEIS should be as specific as possible. It is also helpful if comments refer to specific pages or chapters of the draft statement. Comments may also address the adequacy of the DEIS or the merits of the alternatives formulated and discussed in the statement. Reviewers may wish to refer to the Council on Environmental Quality Regulations for implementing the procedural provisions of the National Environmental Policy Act at 40 CFR 1503.3 in addressing these points.

Summary of the Draft Environmental Impact Statement

The Proposed Action

The Forest Service proposes to convey an easement of right-of-way along the railroad grade located in the Blackwater Canyon area of Tucker County, West Virginia for the reasonable use and enjoyment of private lands. The easement would be provided to Allegheny Wood Products, Inc. (AWP) for the purpose of long-term timber management on roughly 300 acres located between the Blackwater River and the railroad grade. The proposed action would include authorizing reconstruction of the railroad grade to allow safe motorized vehicle use, including logging trucks, and to improve drainage. The easement would run approximately 5.5 miles and would only allow access for timber management. This proposal was submitted through a special use application by Allegheny Wood Products, which specifically asks for access along the abandoned railroad grade.

Purpose and Need for Action

The purpose of this action is to authorize the use of National Forest System lands by Allegheny Wood Products, Inc. in the Blackwater Canyon area for the reasonable use and enjoyment of their property.

The Monongahela National Forest Plan Goal XIV (p. 39) is to “permit use of National Forest Land by others, under special use or lease authorities that is compatible with National Forest goals and objectives, and will contribute to the improved quality of life for local residents.”

The railroad grade falls within MP 6.3. The guidance for authorizing special uses for MP 6.3 (p 190g) states that, “Special use permits may be issued within the primary range if they are compatible with Indiana bat management.” In accepting the permit application submitted by AWP, the Forest determined that providing access as requested would likely be compatible with the intent of management of the Indiana bat as described under MP 6.3. This supports the portion of Forest Goal XIV which describes special uses needing to be compatible with National Forest goals and objectives.

AWP manages the property on the north side of the Blackwater River for timber production. They have requested access to conduct timber management activities, which may include timber stand improvement and light commercial thinnings on a 10-15 year bases. This also includes quick response to insect and disease infestation and fire prevention and suppression in order to protect forest health.

In addition, AWP has requested access in order to improve the drainage structures along the grade because the current drainage is causing damage to the AWP property located downhill. The area is steep and prone to slips and slides. AWP believes that poor drainage in exacerbating the problem.

Providing access across National Forest System lands to allow for the ability to respond quickly to insect and disease infestation and wildfire, to allow for an economically feasible avenue to

conduct timber stand improvement work and commercial thinning, and to allow for protection against slumps and slides on private property falls under the intent of Forest Plan Goal XIV (p. 39).

AWP has requested access consistent with The Alaska National Interest Lands Conservation Act (ANILCA) and the Federal Land Policy and Management Act of 1976 (FLPMA), both which contain authorization for the Forest Service to grant rights-of-way.

Issues Used to Formulate Alternatives

Issues are used to formulate alternatives, prescribe mitigation measures, and to define the scope of the environmental analysis. The responses received during the scoping period were reviewed and significant issues were identified. The issues are described below using an issue statement and background information on the issue. Indicators are also identified which are used to track effects associated with the issue.

Issue 1- Recreation

ISSUE STATEMENT A: Conveying an easement as proposed would allow AWP to reconstruct portions of the railroad grade to allow for vehicle traffic, including logging trucks on an intermittent basis, which would impact the sense of solitude currently experienced when hiking, mountain biking, or skiing along the grade.

Background: The area along the railroad grade provides a feeling of solitude and a perception that the area is relatively undisturbed. Panoramic views of Blackwater Canyon can be seen from numerous spots along the railroad grade. Several concerns were raised that allowing AWP to reconstruct the railroad grade and then drive vehicles, including logging trucks, would impact the sense of solitude and would change the current recreational character of the railroad grade. This would include impacting the cross-country skiing experiences should AWP plow snow off the railroad grade.

Indicator: Changes to the opportunities to experience solitude
Measurement: Changes in the Recreation Opportunity Spectrum (ROS)

ISSUE STATEMENT B: Conveying an easement as proposed would allow AWP to change the surfacing of the grade which would impact mountain biking experiences.

Background: The railroad grade is popular for mountain biking because the tread is fairly smooth with little surfacing. Concerns were raised that addition of large aggregate to the surface would make it difficult to ride mountain bikes along the railroad grade. Although mountain biking would still be allowed, the popularity of the trail would likely decrease because riding on aggregate is difficult.

Indicator: Changes to the quality of mountain biking experiences
Measurement: Qualitative discussion

ISSUE STATEMENT C: Conveying an easement as proposed would allow AWP access but would not provide the Forest any interest (legal rights), to adequately manage the popular recreation trail.

Background: As mentioned previously, the railroad grade is a popular trail for hiking, mountain biking, and cross-country skiing. The Forest only manages the 6 feet of tread on the uphill side of the railroad grade. The trail currently meanders across the AWP-owned portion of the railroad grade and the National Forest System portion of the railroad grade. The perception by many people recreating in the area is that the entire grade is in National Forest System management. The Forest cannot maintain or improve the tread because it is not entirely in National Forest System ownership. For the same reasons, the Forest cannot actively manage or encourage recreation. As proposed, people would continue to trespass on AWP property with the impression that they are recreating on National Forest System lands.

Indicator: Would the Forest obtain the ability to actively manage recreation?
Measurement: Yes/No

Issue 2- Heritage Resources

ISSUE STATEMENT A: Conveying an easement as proposed would allow AWP to reconstruct portions of the railroad grade and allow for pickup truck and log truck traffic. These activities would adversely impact heritage sites that are eligible for listing on the National Registry of Historic Places.

Background: There are many historic sites along the railroad grade, including the grade itself, that are eligible for listing on the National Registry of Historic Places. Of particular interest are the stone arches that were built at stream crossings. AWP would be allowed to reconstruct the railroad grade to safely use a pick-up truck and to haul logs. This type of disturbance has the potential to cause adverse impacts to historic sites.

Indicator: Level of protection of historic sites
Measurement: Qualitative discussion on adverse impacts to heritage sites

Alternatives Given Detailed Study

The following section describes each alternative given detailed study. The acres or miles identified for activities have been identified from mapping and should be considered estimates.

Alternative 1- No Action

The National Environmental Policy Act (NEPA) requires that an environmental impact statement includes a “no action” alternative to serve as a baseline to compare action alternatives. The no action is based on the premise that the Forest changes, even in the absence of active management. It responds to those in the public that do not want this action to occur on National Forest System lands. This alternative provides the decision-maker with a clear basis for reasoned choice among the alternatives studied in detail.

Alternative 1 is essentially the “status quo” strategy that allows current activities and policies to move forward over time, such as keeping the locked gates on the railroad grade in place.

Alternative 2- Proposed Action

The proposed action would allow the Forest Service to grant an easement of right-of-way across National Forest System (NFS) lands along an abandoned railroad grade for the reasonable use and enjoyment of private property owned by Allegheny Wood Product, Inc (AWP). The reasonable use and enjoyment was described in the application for the easement submitted by Allegheny Wood Product Inc. (AWP) as long term timber management. Access for timber management would allow reconstruction of the grade to improve drainage, timber stand improvement, and light commercial thinning on a 10-15 year, which is described in the AWP easement application. The access is also intended to allow quick response to insect and disease infestation and associated activities, and wildfire prevention and suppression. Access for uses other than timber management as described above would not be approved under this easement. Motorized access by the Forest Service along the railroad grade would not be allowed.

This easement would allow for long term timber management on roughly 300 acres of AWP property located between the Blackwater River and the railroad grade. This alternative is designed to provide the access requested by AWP in a special use application submitted in July 2001.

The Monongahela National Forest would convey 10 feet of easement to AWP with additional width as required for protecting and stabilizing cut slopes. AWP would be required to perform routine maintenance along the grade which would include such activities as cleaning culverts and ditches, and fixing any future slumps or slides. Even though the tread of the railroad grade is generally 6 feet in width, 10 feet would be conveyed in the easement in order to capture the ditches, culvert heads and the tops of most of the cut slopes of which AWP is required to maintain.

The easement would run between the existing gates located on the grade, an estimated 5.5 miles.

Alternative 3- Reciprocal Easement (Preferred Alternative)

Alternative 3 was developed to address the issues related to unmanaged recreation, protection of the existing recreation experiences, and protection of heritage resources. This alternative is described in terms of what is different in this alternative as compared to Alternative 2.

In addition to the easement provided to AWP described under Alternative 2, the National Forest System (NFS) would obtain an easement across the AWP owned-portion of the railroad grade in order to ensure a legal interest in the railroad grade in order to better manage the recreation and heritage resources. This would be completed by use of a reciprocal easement. AWP would convey 10 feet of easement to the NFS with additional width as required for protection and stabilization of the fill slopes. The Forest would be required to perform routine maintenance along the grade related to managing the heritage resources and the railroad grade as a recreation trail. Even though the tread of the railroad grade is generally 6 feet in width, 10 feet would be

conveyed in the easement in order to capture the ditches and most culvert outlets of which the NFS may need to maintain.

The Forest Service would be allowed motorized access to manage the recreation and heritage resources along the trail. It is not anticipated that any additional width beyond the existing tread of the railroad grade as constructed would be necessary to accommodate either parties proposed activities.

To address the issue related to disturbing the sense of solitude along the trail which would result from motorized traffic on the railroad grade, no access for timber management activities would be allowed from 6:00 PM on Friday evenings through 6:00 AM on Monday mornings, except for wildfire suppression. In addition, no access for timber management would take place on national holidays. Signs notifying the public of activities would be posted by AWP at each gate during periods of timber harvest. The Forest would be notified at least two weeks prior to harvesting to allow for public notices to be published in local newspapers. The railroad grade may be closed to public access during periods of reconstruction and timber cutting and hauling for public safety. Lastly, no snow-plowing would be allowed to protect the cross-country skiing opportunities.

To address the issue relating to mountain biking, placement of gravel surfacing would be to the minimum level necessary to provide for vehicle access in an attempt to maintain a relatively smooth and stable base for mountain bikers.

AWP, the Forest, and the State Historic Preservation Office would be required to cooperatively develop a mitigation plan for the historic sites as discussed under Alternative 2. This alternative differs from Alternative 2 because the Forest would strive for additional protection than would be afforded in Alternative 2 in order to address the issue related to protection of heritage resources. The protection would go beyond what is minimally required to meet the intent of the law and may include such things as applying a weight limit for vehicles passing over the historic stone arch at Big Run in order to protect its stability, applying surfacing that would visually resemble the original surface while being suitable for vehicle traffic, and designing and installing interpretive signs along the grade. In addition, efforts could be made to retain existing culvert heads and boxes in place with additional new culverts being made as visually unobtrusive as possible.

Alternatives Considered but Eliminated from Detailed Study

The alternatives were considered but eliminated from detailed study because they are infeasible, impractical, or they do not meet the purpose and need for action. Detailed information is found in Chapter 2.

- **Purchasing of AWP Property**
- **Condemnation of AWP Property**
- **Mitigation on Private Lands**
- **Alternative Route across NFS Lands**

Affected Environment and Environmental Consequences

Chapter 3 describes the affected environment and environmental consequences. This section provides a project area description and then identifies the effects of the alternatives in relation to the issues identified previously.

Project Area Description

The Allegheny Wood Products Easement project area is the proposed easement for right-of-way along the railroad grade. This would be a total of 10 feet in width as a right-of-way for the length of the grade that is located between the existing gates, an estimated 5.5 miles, with any additional width needed for accommodation and protection of cut slopes.

The project area is located in Tucker County, West Virginia. The railroad grade follows the Blackwater River, linking the towns of Hendricks and Thomas, and lies between State Routes 72 and 27. Several streams, including Tub Run, Big Run, Flat Rock Run, and Hickory Lick Run, cross the railroad grade before entering the Blackwater River.

The entire railroad grade is estimated at 9 miles in length. It is open for vehicle traffic on both ends for a short distance. The majority of the railroad grade is closed to vehicle traffic by gates. The portion of the grade restricted from vehicle traffic is an estimated 5.5 miles.

Comparison of Alternatives

The following section provides a comparison of the alternatives based on the issues described earlier in this chapter.

Issue 1- Recreation

Issue	Alt 1	Alt 2	Alt 3
A- Changes to Recreation Opportunity Spectrum	Semi-Primitive Non-Motorized	Roaded Natural	Roaded Natural
B- Changes to the Quality of Mountain Biking Experiences	No Change	Mountain bikers may find the trail more difficult to travel until the gravel settles and becomes imbedded in the soil.	Care would be taken to limit the amount and placement of gravel along the railroad grade where possible in an attempt to provide a smooth surface for mountain biking. However, mountain bikers may still find parts of the trail more difficult to travel until the gravel settles.
C- Would the Forest obtain rights to manage recreation along the entire width of the railroad grade?	No	No	Yes

Issue 2- Heritage Resources

Issue	Alt 1	Alt 2	Alt 3
A- Protection of Heritage Resource Sites	Heritage Sites are Not Disturbed	Adverse effects	Adverse effects would occur to some sites but this alternative would protect some sites from adverse impacts, or at least minimize impacts to sites.

Identification of Preferred Alternative

The Preferred Alternative is Alternative 3- Reciprocal Easement

Table of Contents

Summary of the Draft Environmental Impact Statement.....	i
The Proposed Action.....	i
Purpose and Need for Action.....	i
Issues Used to Formulate Alternatives	ii
Alternatives Given Detailed Study	iii
Alternatives Considered but Eliminated from Detailed Study	v
Affected Environment and Environmental Consequences	vi
Identification of Preferred Alternative.....	vii
Chapter 1- Purpose and Need For Action	1
Introduction.....	1
Background.....	1
Project Area Description.....	2
The Proposed Action.....	2
Forest Plan Direction	2
Purpose and Need for Action.....	3
Chapter 2- Alternatives Considered.....	1
Introduction.....	1
Public Scoping	1
Issues Used to Formulate Alternatives	1
Alternatives Considered but Eliminated from Detailed Study	3
Alternatives Given Detailed Study	4
Comparison of Alternatives	7
Chapter 3- Affected Environment and Environmental Consequences.....	1
Introduction.....	1
Cumulative Effects Consideration Actions.....	2
Heritage Resources	4
Recreation	10
Soils.....	15
Vegetation.....	19
Wildlife	29
Aquatics	54
Social and Economic.....	62
Other Required Disclosures	64
Chapter 4- List of Preparers	1
Chapter 5- Consultation and Coordination	1
Appendix A- References	1
Appendix B- Snow Plowing Guidelines	1

Chapter 1- Purpose and Need For Action

Introduction

The Monongahela National Forest is preparing this Draft Environmental Impact Statement (DEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This DEIS discloses direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. This document is organized into four chapters.

- **Chapter 1- Purpose and Need for Action:** This chapter includes information on the history of the project proposal, the purpose and need for the project, and the agency's proposal for achieving that purpose and need.
- **Chapter 2- Alternatives Considered:** This Chapter details how the Forest Service informed the public of the proposal and how the public responded. It also provides a more detailed description of the agency's proposed action as well as the alternative methods for achieving the stated purpose. These alternatives were developed based on issues raised by the public and other agencies. A comparison table of the alternatives is also provided.
- **Chapter 3- Affected Environment and Environmental Consequences:** This Chapter describes the existing conditions and the environmental effects of implementing the proposed actions and other alternatives.
- **Chapter 4- Project Consultation and Coordination:** This chapter provides a list of the Federal, State, and local agencies consulted during the development of the DEIS.

Background

When the historic railroad grade in Blackwater Canyon was abandoned by the railroad, ownership reverted to the adjacent landowners resulting in a linear division of ownership on the grade. Currently, the 6 feet of tread on the uphill side of the grade is in National Forest System management. The downhill side of the grade is owned by Allegheny Wood Products, Inc. (AWP).

In July 2001, AWP submitted an application for an easement for motorized access along the National Forest System portion of the railroad grade. AWP had identified a need to improve the drainage structures along the grade because the current drainage is causing damage to the AWP property located downhill. The area is steep and prone to slips and slides. AWP believes that poor drainage is exacerbating the problem.

AWP manages the property on the north side of the Blackwater River for timber production. They have requested access to make it economically feasible to conduct timber stand improvement work and light commercial thinnings. They would also like to be able to respond

quickly to insect and disease infestation and fire prevention and suppression in order to protect forest health.

Project Area Description

The Allegheny Wood Products Easement project area is the proposed easement for right-of-way along the railroad grade. This would be a total of 10 feet in width as a right-of-way for the length of the grade that is located between the existing gates, an estimated 5.5 miles, with any additional width needed for accommodation and protection of cut slopes.

The project area is located in Tucker County, West Virginia. The railroad grade follows the Blackwater River, linking the towns of Hendricks and Thomas, and lies between State Routes 72 and 27. Several streams, including Tub Run, Big Run, Flat Rock Run, and Hickory Lick Run, cross the railroad grade before entering the Blackwater River.

The entire railroad grade is estimated at 9 miles in length. It is open for vehicle traffic on both ends for a short distance. The majority of the railroad grade is closed to vehicle traffic by gates. The portion of the grade restricted from vehicle traffic is an estimated 5.5 miles.

A vicinity map is located on page 1-4.

The Proposed Action

The Forest Service proposes to convey an easement of right-of-way along the railroad grade located in the Blackwater Canyon area of Tucker County, West Virginia for the reasonable use and enjoyment of private lands. The easement would be provided to Allegheny Wood Products, Inc. (AWP) for the purpose of long-term timber management on roughly 300 acres located between the Blackwater River and the railroad grade. The proposed action would include authorizing reconstruction of the railroad grade to allow safe motorized vehicle use, including logging trucks, and to improve drainage. The easement would run approximately 5.5 miles and would only allow access for timber management. This proposal was submitted through a special use application by Allegheny Wood Products, which specifically asks for access along the abandoned railroad grade.

Forest Plan Direction

The AWP Easement project area runs through Management Prescription MP 6.3 (p. 190a) as described in the Monongahela National Forest Land and Resource Management Plan (Forest Plan). The area is identified as suitable for timber production. The Forest Plan (p. 190a) identifies the desired land conditions emphasized as:

- management of the habitat most likely to be used as summer roosting, foraging, and fall swarming habitat by Indiana bats,
- management of other threatened and endangered species,
- a semi-primitive and non-motorized type of recreational environment, and

- a mix of forest products.

Purpose and Need for Action

The purpose of this action is to authorize the use of National Forest System lands by Allegheny Wood Products, Inc. in the Blackwater Canyon area for the reasonable use and enjoyment of their property.

The Monongahela National Forest Plan Goal XIV (p. 39) is to “permit use of National Forest Land by others, under special use or lease authorities that is compatible with National Forest goals and objectives, and will contribute to the improved quality of life for local residents.”

The railroad grade falls within MP 6.3. The guidance for authorizing special uses for MP 6.3 (p 190g) states that, “Special use permits may be issued within the primary range if they are compatible with Indiana bat management.” In accepting the permit application submitted by AWP, the Forest determined that providing access as requested would likely be compatible with the intent of management of the Indiana bat as described under MP 6.3. This supports the portion of Forest Goal XIV which describes special uses needing to be compatible with National Forest goals and objectives.

AWP manages the property on the north side of the Blackwater River for timber production. They have requested access to conduct timber management activities, which may include timber stand improvement and light commercial thinnings on a 10-15 year bases. This also includes quick response to insect and disease infestation and fire prevention and suppression in order to protect forest health.

In addition, AWP has requested access in order to improve the drainage structures along the grade because the current drainage is causing damage to the AWP property located downhill. The area is steep and prone to slips and slides. AWP believes that poor drainage in exacerbating the problem.

Providing access across National Forest System lands to allow for the ability to respond quickly to insect and disease infestation and wildfire, to allow for an economically feasible avenue to conduct timber stand improvement work and commercial thinnings, and to allow for protection against slumps and slides on private property falls under the intent of Forest Plan Goal XIV (p. 39).

AWP has requested access consistent with The Alaska National Interest Lands Conservation Act (ANILCA) and the Federal Land Policy and Management Act of 1976 (FLPMA), both which contain authorization for the Forest Service to grant rights-of-way.

VICINITY MAP

Chapter 2- Alternatives Considered

Introduction

This chapter explains how the Forest Service defined the scope of the project through public involvement, describes the issues identified through public scoping, and describes and compares the alternatives considered for the AWP Easement.

Public Scoping

The AWP Easement project has been listed in the Monongahela Schedule of Proposed Action beginning October 2002 through the present.

In November 2002, the Forest initiated a public scoping period with the intention of preparing an environmental assessment (EA). A legal ad was placed in *The Inter-Mountain* newspaper on November 27, 2002 which identified the project and requested public input. Approximately 4,500 responses were received during this initial scoping period.

The Forest determined that an EA may not meet the intent of NEPA because of potential impacts to historic sites along the railroad grade. A Notice of Intent (NOI) to publish an environmental impact statement (EIS) was published in the Federal Register in April 2005, initiating a 45-day scoping period. A letter announcing the scoping period was sent to an estimated 4,300 individuals, organizations, and other agencies. An estimated 803 responses were received.

Comments received during these processes were used to define issues, develop alternatives, and define the scope of the environmental consequences.

Issues Used to Formulate Alternatives

Issues are used to formulate alternatives, prescribe mitigation measures, and to define the scope of the environmental analysis. The responses received during the scoping period were reviewed and significant issues were identified. The issues are described below using an issue statement and background information on the issue. Indicators are also identified which are used to track effects associated with the issue.

Issue 1- Recreation

ISSUE STATEMENT A: Conveying an easement as proposed would allow AWP to reconstruct portions of the railroad grade to allow for vehicle traffic, including logging trucks on an intermittent basis, which would impact the sense of solitude currently experienced when hiking, mountain biking, or skiing along the grade.

Background: The area along the railroad grade provides a feeling of solitude and a perception that the area is relatively undisturbed. Panoramic views of Blackwater Canyon can be seen from numerous spots along the railroad grade. Several concerns were raised that allowing AWP to reconstruct the railroad grade and then drive vehicles, including logging trucks, would impact the

sense of solitude and would change the current recreational character of the railroad grade. This would include impacting the cross-country skiing experiences should AWP plow snow off the railroad grade.

Indicator: Changes to the opportunities to experience solitude
Measurement: Changes in the Recreation Opportunity Spectrum (ROS)

ISSUE STATEMENT B: Conveying an easement as proposed would allow AWP to change the surfacing of the grade which would impact mountain biking experiences.

Background: The railroad grade is popular for mountain biking because the tread is fairly smooth with little surfacing. Concerns were raised that addition of large aggregate to the surface would make it difficult to ride mountain bikes along the railroad grade. Although mountain biking would still be allowed, the popularity of the trail would likely decrease because riding on aggregate is difficult.

Indicator: Changes to the quality of mountain biking experiences
Measurement: Qualitative discussion

ISSUE STATEMENT C: Conveying an easement as proposed would allow AWP access but would not provide the Forest any interest (legal rights), to adequately manage the popular recreation trail.

Background: As mentioned previously, the railroad grade is a popular trail for hiking, mountain biking, and cross-country skiing. The Forest only manages the 6 feet of tread on the uphill side of the railroad grade. The trail currently meanders across the AWP-owned portion of the railroad grade and the National Forest System portion of the railroad grade. The perception by many people recreating in the area is that the entire grade is in National Forest System management. The Forest cannot maintain or improve the tread because it is not entirely in National Forest System ownership. For the same reasons, the Forest cannot actively manage or encourage recreation. As proposed, people would continue to trespass on AWP property with the impression that they are recreating on National Forest System lands.

Indicator: Would the Forest obtain the ability to actively manage recreation?
Measurement: Yes/No

Issue 2- Heritage Resources

ISSUE STATEMENT A: Conveying an easement as proposed would allow AWP to reconstruct portions of the railroad grade and allow for pickup truck and log truck traffic. These activities would adversely impact heritage sites that are eligible for listing on the National Registry of Historic Places.

Background: There are many historic sites along the railroad grade, including the grade itself, that are eligible for listing on the National Registry of Historic Places. Of particular interest are the stone arches that were built at stream crossings. AWP would be allowed to reconstruct the

railroad grade to safely use a pick-up truck and to haul logs. This type of disturbance has the potential to cause adverse impacts to historic sites.

Indicator: Level of protection of historic sites
Measurement: Qualitative discussion on adverse impacts to heritage sites

Alternatives Considered but Eliminated from Detailed Study

The following is a summary of alternatives considered but eliminated from detailed study, along with the rationale for dismissal.

Purchasing of AWP Property: An alternative where the National Forest System would purchase the AWP property located between the railroad grade and the Blackwater River was considered. AWP and Forest Service went through a series of negotiations from March 1997 through December 1998 to allow the Forest Service to acquire the property, including an attempt at a land exchange. Because of appraisal values and other concerns related to the proposed land exchange, AWP was not interested, and is still not interested today, in exchanging or selling all or parts of their property in Blackwater Canyon. Since AWP is not a willing seller, this alternative has been eliminated from detailed study because it is infeasible.

Condemnation of AWP Property: An alternative where the National Forest System would condemn the AWP property and transfer it into National Forest System ownership was considered. Although the National Forest System does have the power of eminent domain, the Forest has “willing seller” policy. Although the recreational and heritage resource values are high in this area, they are not to the level needed to trigger condemnation by the agency. Therefore, this alternative was eliminated from detailed study because it is impractical.

Mitigation on Private Lands: An alternative where standard mitigation applied on National Forest System lands would be applied to the AWP portion of the railroad grade was considered. Examples of these standard mitigations include such things as requiring that mulch used for road stabilization must be certified as weed-free and specifying that the soil and other materials that accumulate from cleaning ditches not be dumped in riparian areas. This alternative was not given detailed study because the National Forest System does not have the authority to regulate these types of activities on private lands. This alternative is considered impractical.

Alternative Route across NFS Lands: The option of providing access across National Forest System Lands other than on the railroad grade was considered. However, the only way this could be accomplished would be to construct a road above the existing railroad grade. This road would be constructed on steep ground and would need to cross the railroad grade in order to actually access AWP properties. This could trigger the de-stabilization of the railroad grade, the access that could be provided by this road would likely not allow AWP to manage their timber resources as desired, and AWP would not be able to correct drainage problems which are causing damage to AWP property. This alternative was not given detailed study because it is impractical and it will not meet the purpose and need for this project.

Alternatives Given Detailed Study

The following section describes each alternative given detailed study. The acres or miles identified for activities have been identified from mapping and should be considered estimates.

Alternative 1- No Action

The National Environmental Policy Act (NEPA) requires that an environmental impact statement includes a “no action” alternative to serve as a baseline to compare action alternatives. The no action is based on the premise that the Forest changes, even in the absence of active management. It responds to those in the public that do not want this action to occur on National Forest System lands. This alternative provides the decision-maker with a clear basis for reasoned choice among the alternatives studied in detail.

Alternative 1 is essentially the “status quo” strategy that allows current activities and policies to move forward over time, such as keeping the locked gates on the railroad grade in place.

Alternative 2- Proposed Action

The proposed action would allow the Forest Service to grant an easement of right-of-way across National Forest System (NFS) lands along an abandoned railroad grade for the reasonable use and enjoyment of private property owned by Allegheny Wood Product, Inc (AWP). The reasonable use and enjoyment was described in the application for the easement submitted by Allegheny Wood Product Inc. (AWP) as long term timber management. Access for timber management would allow reconstruction of the grade to improve drainage, timber stand improvement, and light commercial thinning on a 10-15 year, which is described in the AWP easement application. The access is also intended to allow quick response to insect and disease infestation and associated activities, and wildfire prevention and suppression. Access for uses other than timber management as described above would not be approved under this easement. Motorized access by the Forest Service along the railroad grade would not be allowed.

This easement would allow for long term timber management on roughly 300 acres of AWP property located between the Blackwater River and the railroad grade. This alternative is designed to provide the access requested by AWP in a special use application submitted in July 2001.

The Monongahela National Forest would convey 10 feet of easement to AWP with additional width as required for protecting and stabilizing cut slopes. AWP would be required to perform routine maintenance along the grade which would include such activities as cleaning culverts and ditches, and fixing any future slumps or slides. Even though the tread of the railroad grade is generally 6 feet in width, 10 feet would be conveyed in the easement in order to capture the ditches, culvert heads and the tops of most of the cut slopes of which AWP is required to maintain.

The easement would run between the existing gates located on the grade, an estimated 5.5 miles. Please see Alternative 2 and 3 Map located at the end of this chapter.

The easement would allow for the use of motorized vehicles including ATVs, pick-up trucks, and logging equipment such as tandems, tri-axles and tractor/trailers. AWP would also need the road to move logging equipment into and out of the area. AWP would reconstruct the grade to ensure the safe passage of pick-up truck traffic on yearly basis and log truck traffic on an estimated 10-15 year interval. It is not anticipated that any additional width beyond the existing tread of railroad grade as constructed would be necessary to accommodate AWP's anticipated timber management activities.

Reconstruction would be allowed for two reasons. First, to improve the drainage that is causing damage to AWP property, as requested in the easement application. Second, reconstruction would take place to allow for the safe passage of pick-up trucks on a yearly basis and log trucks on a 10-15 year interval. In the reconstruction, AWP would be required to adequately protect soil and water resources on NFS lands, which may include such activities as replacing culverts, increasing the number and size of culverts, and stabilizing existing slumps. In addition, removal of encroaching vegetation may be needed, as well as placement of surfacing materials. Typically, reconstruction includes re-alignment of a road or trail. No re-alignment of the railroad grade would be needed for this project.

Silt fencing should be used around culvert construction on NFS lands if steep banks are cut into in order to insert or replace culverts. Silt fences would need to be cleaned periodically and after large storm events. The material cleaned from the silt fences would be deposited in an area outside of the riparian buffer, filterstrip, or any other area where the material could be delivered to a stream channel. This fill would be seeded and mulched.

In addition, all disturbed soil on National Forest System lands would be seeded as soon as possible. Mulching should occur if seeding is not effective, if disturbance is temporary and to be re-mediated at a later time, or if the disturbance occurs during the winter.

The gates located at either end of the grade would remain in place, closed, and locked during all activities.

Road maintenance would be the responsibility of AWP and may include such activities as cleaning culverts and ditches, and grading the road surface. AWP would follow the standard snow plowing guidelines found which includes such items as snow plowing should only be done to a depth of 2 inches above the road surface (see Appendix B).

AWP, the Forest, and the West Virginia Division of Culture and History would be required to formally consult and agree to a mitigation plan under the terms of the implementing regulations of section 110 (b) and section 106 of the National Historic Preservation Act (36 CFR 800-Protection of Historic Properties). The mitigation plan would focus on what is minimally required to meet the intent of the law. This would likely include a requirement that significant historic structures and engineering features would be recorded, prior to their loss, in accordance with the Historic American Buildings/Historic American Engineering Record guidelines.

Details for work performed on the grade would be stipulated by the Forest to provide for improvements within the right-of-way that can support the intended uses while adequately protecting resources and users.

Alternative 3- Reciprocal Easement (Preferred Alternative)

Alternative 3 was developed to address the issues related to unmanaged recreation, protection of the existing recreation experiences, and protection of heritage resources. This alternative is described in terms of what is different in this alternative as compared to Alternative 2.

In addition to the easement provided to AWP described under Alternative 2, the NFS would obtain an easement across the AWP owned-portion of the railroad grade in order to ensure a legal interest in the railroad grade in order to better manage the recreation and heritage resources. This would be completed by use of a reciprocal easement. AWP would convey 10 feet of easement to the NFS with additional width as required for protection and stabilization of the fill slopes. The Forest would be required to perform routine maintenance along the grade related to managing the heritage resources and the railroad grade as a recreation trail. Even though the tread of the railroad grade is generally 6 feet in width, 10 feet would be conveyed in the easement in order to capture the ditches and most culvert outlets of which the NFS may need to maintain.

The Forest Service would be allowed motorized access to manage the recreation and heritage resources along the trail. It is not anticipated that any additional width beyond the existing tread of the railroad grade as constructed would be necessary to accommodate either parties proposed activities.

The easement would run between the existing gates located on the grade, an estimated 5.5 miles. A map of Alternatives 2 and 3 is located at the end of this Chapter.

Road maintenance would be shared based on the level of use. Road maintenance related to use of the road for timber management on AWP property would be the responsibility of AWP. Road maintenance needed to manage the recreation and heritage resources along the railroad grade would be the responsibility of the National Forest System. Road maintenance may include such things as cleaning culverts and ditches, and grading the road surface.

To address the issue related to disturbing the sense of solitude along the trail which would result from motorized traffic on the railroad grade, no access for timber management activities would be allowed from 6:00 PM on Friday evenings through 6:00 AM on Monday mornings, except for wildfire suppression. In addition, no access for timber management would take place on national holidays. Signs notifying the public of activities would be posted by AWP at each gate during periods of timber harvest. The Forest would be notified at least two weeks prior to harvesting to allow for public notices to be published in local newspapers. The railroad grade may be closed to public access during periods of reconstruction and timber cutting and hauling for public safety. Lastly, no snow-plowing would be allowed to protect the cross-country skiing opportunities.

To address the issue relating to mountain biking, placement of gravel surfacing would be to the minimum level necessary to provide for vehicle access in an attempt to maintain a relatively smooth and stable base for mountain bikers.

AWP, the Forest, and the State Historic Preservation Office would be required to cooperatively develop a mitigation plan for the historic sites as discussed under Alternative 2. This alternative differs from Alternative 2 because the Forest would strive for additional protection than would be afforded in Alternative 2 in order to address the issue related to protection of heritage resources. The protection would go beyond what is minimally required to meet the intent of the law and may include such things as applying a weight limit for vehicles passing over the historic stone arch at Big Run in order to protect its stability, applying surfacing that would visually resemble the original surface while being suitable for vehicle traffic, and designing and installing interpretive signs along the grade. In addition, efforts could be made to retain existing culvert heads and boxes in place with additional new culverts being made as visually unobtrusive as possible.

Details for work performed on the grade would be stipulated by the Forest to provide for improvements within the right-of-way that can support the intended uses while adequately protecting resources and users.

Comparison of Alternatives

The following section provides a comparison of the alternatives based on the issues described earlier in this chapter.

Table 2-1: Issue 1- Recreation

Issue	Alt 1	Alt 2	Alt 3
A- Changes to Recreation Opportunity Spectrum	Semi-Primitive Non-Motorized	Roaded Natural	Roaded Natural
B- Changes to the Quality of Mountain Biking Experiences	No Change	Mountain bikers may find the trail more difficult to travel until the gravel settles and becomes imbedded in the soil.	Care would be taken to limit the amount and placement of gravel along the railroad grade where possible in an attempt to provide a smooth surface for mountain biking. However, mountain bikers may still find parts of the trail more difficult to travel until the gravel settles.
C- Would the Forest obtain rights to manage recreation along the entire width of the railroad grade?	No	No	Yes

Table 2-2: Issue 2- Heritage Resources

Issue	Alt 1	Alt 2	Alt 3
A- Protection of Heritage Resource Sites	Heritage Sites are Not Disturbed	Adverse effects	Adverse effects would occur to some sites but this alternative would protect some sites from adverse impacts, or at least minimize impacts to sites.

Alternative 2 and 3 Map

Chapter 3- Affected Environment and Environmental Consequences

Introduction

This chapter describes the AWP Easement project area affected environment, including the human elements, and discusses the environmental consequences by resource that may result from implementation of each of the alternatives. It begins with a discussion of those activities not associated with this proposal but having a potential additional impact to the resources when added to the impacts of the proposal. It provides the scientific and analytic basis for the cumulative effects discussions throughout this chapter.

The environmental consequences are described as the direct, indirect, or cumulative effects of carrying out the proposal or alternative actions. Direct effects are caused by an action and occur at the same time and place. Indirect effects are caused by an action, but occur later in time or farther removed in distance. Cumulative effects result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the other actions (40 CFR 1508.7-1508.8).

In accordance with 40 CFR 1502.16, the analysis will also include any adverse environmental effects which cannot be avoided, the relationship between short-term uses and long-term productivity, and any irreversible and irretrievable commitment of resources. It also discloses consistency with the Monongahela Forest Plan. Chapter III describes the existing condition of the resources that may be affected improvement of the railroad grade on the NFS lands proposed for an easement. The information presented in this chapter provides a base for understanding how the proposed action and connected actions may change current conditions.

For each resource, a geographic area is described, where potential effects are considered. This area is termed the Affected Area.

National Forest resource management is subject to numerous laws, regulations, policies, and guidelines designed to protect, preserve, and properly manage forest resources. In this chapter, the “Regulatory Framework” associated with specific resources explains how the Proposed Action is designed to meet these requirements. The regulatory framework includes Federal laws, such as the Endangered Species Act and the National Forest Management Act; Forest Service regulation and policy expressed in the Forest Service Manual; and Forest-level guidance described in the Monongahela LRMP.

This chapter also discloses the environmental consequences likely to result from each of the alternatives. The terms environmental consequences, effects, and impacts are used interchangeably. The effects disclosed in this chapter provide the comparison of effects of the two alternatives and will be used by the decision maker in selecting an alternative for implementation.

Three types of effects are considered, including direct effects, indirect effects, and cumulative impacts.

- **Direct effects** are caused by the action and occur at the same time and place (40 CFR 1508.8(a)).
- **Indirect effects** are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (40 CFR 1508.8(b)).
- **Cumulative impact** is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time (40 CFR 1508.7).

National Forest lands provide habitat for many forms of plant, wildlife and aquatic species. Analysis of the existing conditions and environmental consequences of the impacts for all existing or potential forms of these species within a planning area is impossible to address. Therefore, in accordance with 36 CFR 219.19(a)(1), individual Forest Plans have identified specific species that would be analyzed as representative samples to show the condition of and effects on ecosystems. These are identified as Management Indicator Species (MIS). In addition to the MIS discussed in the appropriate sections, the Endangered Species Act requires an analysis of the existing condition and environmental consequences to species either listed or proposed for listing under this act. Forest Service policy includes the requirement to look at species listed as "sensitive" by the Regional Forester. While species that fell into these categories during the development of the Forest Plan are included as MIS, species added to these lists after approval of the Forest Plan(s) are also analyzed. This document will use these species as the representative samples to analyze the impact to all species within the planning area.

This chapter is organized into the following sections:

- Cumulative Effects Consideration Actions
- Heritage Resources
- Recreation
- Soils
- Wildlife
- Vegetation
- Social And Economic Factors
- Other Required Disclosures

Cumulative Effects Consideration Actions

Table 3.1 displays those activities that were used in the analysis of the affected environment and the cumulative effects discussions throughout this chapter.

Many of these activities either occurred or will occur outside the planning area (approximately 10 feet from the centerline of the railroad grade). This is because of the spatial and temporal variations used in the analysis of the individual resources.

Table 3.1: Activities considered in the cumulative effects discussions

Activity	Year Completed	Acres or Number	Past	Present	Reasonably Foreseeable
Railroad Construction	1880		X		
Past Timber Harvest	Late 1800s-early 1900's		X		
Past Timber Harvest ¹	1960's-1970's	86	X		
Past Fire Regeneration ¹	1950's	106	X		
Timber harvest on private lands			X		X
Grade maintenance			X	X	X
Brushing of vegetation			X	X	X
Recreational Use of Grade			X	X	X
Slope stabilization			X		X
Refurbishing and reinforcement of railroad grade and arches	1941		X		
Metitiki Mine ³					X
Hunting			X	X	X
Strip mining ¹	Mid 20 th century	<10	X		
Urban and Agricultural development ²		70	X		
Road construction and skid trails			X		X
Timber harvest on private lands	Est. 2015, 2030				X
Corridor H construction					X

¹These acres are related to the analysis boundaries considered in the analysis. Actual acres of these activities may have been higher but did not contribute to the affected environment discussions in the analysis based on the spatial boundaries discussed below. Acres are generated based upon CDS data and only reflect NFS lands.

² Acreage was digitized from aerial photographs. None of these acres are on National Forest System lands.

³ This mine was identified during scoping. It is not expected to have any impacts related to this proposal. (pers. comm. 9/12/05)

AWP has requested to use the easement for timber management including light commercial thinning on an estimated 10-15 year interval, which is stated in the easement application. The area was harvested approximately 4 years ago with the logs flown to a landing by a helicopter on the south side of the River. Since AWP intends to complete light commercial thinning on a 10-15 year schedule, the next entry may occur 6-11 years from now. AWP's intention not to log the area in the near future is supported by a review of state logging permits which does not reveal any plans for logging within this corridor.

Cumulative effects need to be based on past, present or reasonably foreseeable future action. Although the concept of logging on their property is foreseeable within the next 6-11 years, the site specificity of the action is not available. For some resources such as heritage resources, this is enough information to make a reasonable discussion of cumulative effects. These are provided in the discussion further in this chapter. For other resources, a site specific logging plan is needed.

AWP has no logging plans and it would be highly speculative for the Forest to attempt to estimate a plan to the level that any identified potential impacts could be estimated within reason. The logging plan would be pure conjecture, which would mean the estimated impacts would also be pure conjecture. This is considered incomplete or unavailable information under 36 CFR 1502.22 because the means to obtain this information is unknown.

To accurately describe any potential impacts to the human environment related to timber harvesting on private lands, a site specific logging plan is necessary. However, looking at the impacts of commercial thinning for past timber on the Forest (most recently the Lower Clover EA and the Desert Branch EA), none have been determined to have significant impacts to the human environment, including those within threatened and endangered species habitat.

Several comments were related to the potential impacts of the development of a resort and/or condominiums. This analysis is not considering these actions because the easement being considered is only related to timber management. No aspect of this analysis includes the potential motorized access for reasons other than resource management on AWP lands by AWP employees.

Heritage Resources

Scope of the Analysis

This analysis will consider the potential effects of granting an easement to Allegheny Wood Products (AWP) along the National Forest portion of the former West Virginia Central & Pittsburgh railroad grade between Douglas, WV and the former community of Limerock. This portion of the grade has been identified by the Keeper of the National Register of Historic Places (NRHP) as a National Register eligible historic district. Historic properties associated with this district are located on both National Forest and AWP lands. Actions contributing to the effects

that will be considered are those that are reasonably foreseeable as a result of granting the easement to AWP.

These resources are under analysis here as a result of their status as historic properties contributing to a NRHP-eligible district. The Forest Service must consider effects of its actions to these historic properties under the terms of the National Environmental Policy Act and the National Historic Preservation Act.

Spatial Boundary

The geographic area considered here for direct and indirect effects is that portion of the Blackwater Industrial Complex located within the Area of Potential Effect (APE) of the proposed actions alternatives, as defined in 36CFR800. The APE is limited to the former railroad grade between Douglas and Limerock, including all construction and staging areas.

The geographic reference for cumulative effects consists of the area of the state of West Virginia, southwestern Pennsylvania and western Maryland, the physical extent of the commercial empire of the West Virginia Central and Pittsburgh Railway Company and of Davis Coal and Coke, the corporate entity from whose activities the historic district derives much of its significance.

Temporal Boundary

The temporal boundary for direct and indirect effects consists of the time frame beginning with the present and extending fifty years into the future. This time frame was chosen as it most reasonably approximates the actions considered under the easement application. The temporal reference for cumulative effects is the present into the reasonably foreseeable future, a period of approximately 50 years.

Affected Environment

Activities in Table 3.1 which have contributed to the affected environment are only those related to the construction of the railroad and the refurbishment and reinforcement of the structures along the grade. Maintenance of the grade (including brushing) has not compromised the integrity of the railroad grade.

During World War II, coal mining in the area saw a brief resurgence in order to supply the war effort. As a result, the railroad grade was refurbished and some of the original large arches and culverts were reinforced with poured concrete additions to their piers and faces in 1941. These reinforced structures serviced the grade until 1983 when the last train ran from Thomas to Hendricks. The ties and rails were removed from the tracks in 1985.

The addition of concrete to the arches and piers of some of the culverts undermined their eligibility under Criterion C. These additions undermined their integrity of materials and reduced the visibility of the original masonry to point that the structures so altered no longer convey their qualities of significance.

Further undermining the integrity of the site, the West Virginia Department of Environmental Protection (DEP) reclaimed large portions of the site outside of the area currently under consideration. The reclamation efforts had the effect of obscuring much of the historic character of the site, and thereby potentially undermined to an unknown degree its integrity of setting and, by extension, may have undermined its integrity of feeling and association.

Despite the removal of the ties and rails, the railroad grade was specifically mentioned in the 2001 DOE made by the Keeper of the NRHP as a significant resource contributing to the NRHP eligibility of the historic district.

The historic properties considered here are located along the former 1888 West Virginia Central and Pittsburgh railroad located between Douglas, West Virginia and the former community of Limerock. Many of these resources were determined eligible by the Keeper of the NRHP in a formal determination of eligibility (DOE) made on August 2, 2001; resources were found eligible under the four main National Register criteria (Criteria A through D). Criterion A refers to an event or pattern of events significant to the history of the nation; Criterion B applies to historic properties associated with individuals significant to the history of the nation; Criterion C applies to historic properties significant in their physical design or construction; Criterion D refers to an historic property that retains significant research potential, usually archaeological. The formal DOE is appended to this document.

These resources are located on both National Forest and private lands. The railroad grade and many of the engineering features and structures contained within or along the grade, which may or may not be individually eligible, minimally constitute contributing resources to the larger Blackwater Industrial Complex historic district. The period of the district's significance is the late 19th to early 20th centuries.

Potentially affected historic resources include the railroad grade itself and the arches and culverts spanning Big Run, Tub Run, and Finley Run. The arches at Tub and Finley runs were rehabilitated during the 1940s and their original cut stone masonry obscured by the addition of concrete reinforcing piers and walls. Unlike the arches spanning Tub and Finley runs, the arch spanning Big Run has not been rehabilitated. It therefore retains its characteristics dating to time of the district's period of significance, while the arches spanning Tub and Finley runs do not. The arch at Big Run may thus be individually eligible for inclusion within the NRHP under Criteria C as an example of period design and workmanship.

Other contributing historic resources are also present along the grade. These include many smaller cut stone culvert heads and some standing telegraph poles. Some of the culvert heads are substantial and well-preserved and may be individually eligible for inclusion to the NRHP under Criterion C. The culverts and other engineering features and standing telegraph poles may contribute to the district's integrity of setting, feeling, and association during the period of the district's significance. Irrespective of their individual NRHP status, many of these features contribute to the district's NRHP eligible status.

Desired Condition

The following direction is found in the current Forest Plan

Goal XVI (p.40): “Protect natural and cultural resources of the Forest and the health and safety of visitors from damage or degradation” (FP p.40); Forest-Wide Standards and Guidelines, FSM Ref. 2360, General Direction (FP p.70) states: “Protect historic, archeological, and cultural resources from preventable damage and interpret them as appropriate.”

Environmental Consequences

No Action (Alternative 1)

From the perspective of heritage resources, this alternative would have no direct effect to the historic properties located along the grade. All historic properties would remain in their current level of management and their condition monitored. The natural processes of deterioration would in all likelihood continue at their current pace. It is expected through time, the arch at Big Run would collapse on the private lands prior to any impact on National Forest System lands.

Alternative 2

Direct effects to the historic properties discussed above are expected to include the undermining of the arch and walls at Big Run. It is not believed that log truck traffic can be accommodated by the arch at its current tolerances, and so it would have to be reinforced, refurbished or entirely replaced. It is expected that any of these actions would undermine the integrity of materials of the arch either by reducing the visibility of the original stonework or through its removal.

The improvement of the railroad grade, including resurfacing, and drainage improvements would undermine the integrity of materials of the railroad grade and would constitute a direct negative effect from a heritage standpoint.

The historic cut stone culvert heads and boxes and the extant telegraph poles located along the grade may be impacted during reconstruction activities associated with this project. If they are removed or altered, such action would undermine their integrity of materials.

When considered as a whole, these actions would have the combined effect of undermining the integrity of setting, feeling, and association of this portion of the Blackwater Industrial Complex.

Under the terms of the implementing regulations of Section 106 of the NHPA, 36 CFR 800 (Protection of Historic Properties), these direct and indirect effects would constitute adverse effects to historic properties. The recording of the structures employing the Historic American Buildings Survey/Historic American Engineering Record guidelines upon recognition of the adverse effects would mitigate the effects to the minimum level required under the NHPA.

AWP’s vehicle traffic on the railroad grade may detract from visitors’ enjoyment and appreciation of their American historical heritage.

Alternative 3

The rehabilitation, reconstruction, or replacement of the arch spanning Big Run would constitute an adverse effect to this historic property. However, under the mitigation program planned for this alternative, which may include restricting the weight or nature of vehicular traffic over the arch, adverse effects to this property may be wholly avoided.

The improvement of the railroad grade, including resurfacing, and drainage improvements would undermine the integrity of materials of the railroad grade and would constitute a direct negative effect from a heritage standpoint. However, if the mitigation measures are implemented which call for resurfacing the grade to a condition approximating its original gravel surface, then effects would again be minimized. The implementation of this measure must be monitored during construction or alteration of the grade in order to ensure its effectiveness.

Some direct effects may also occur during construction activities associated with this project to the historic cut stone culvert heads and boxes and to the extant telegraph poles located along the grade. If they are removed or altered, such action would undermine their integrity of materials. If the mitigation measures are implemented that minimize effects to the cut stone masonry structures associated with these culverts, effects would be minimized. Again, the effectiveness of these mitigation measures must be monitored during the course construction or alteration.

If the mitigation measures are implemented, in particular to those relating to the protection of the arch spanning Big Run, and the results of monitoring indicate that the arch will not fail or need to be replaced, rehabilitated or refurbished, then this action would not have an adverse effect to this individual historic property. However, if the mitigation measures are not implemented or prove ineffective or impractical, and the integrity of the arch is seen to begin to be undermined, then such undermining would constitute an adverse effect.

Under the terms of the implementing regulations of Section 106 of the NHPA, 36 CFR 800 (Protection of Historic Properties), such undermining of integrity would constitute an adverse effects to an historic property. When a federal undertaking will have an adverse effect to a NRHP eligible resource, Section 110(b) of the NHPA mandates that mitigation through documentation of that resource occur. Documentation in this instance will proceed immediately upon detection that alteration to the arch has occurred.

Similarly, if the mitigation measures relating to avoidance of effects to the smaller cut stone culvert heads and boxes can not be implemented, or prove through the results of monitoring to be ineffective or impractical, then the integrity of their cut stone components would be undermined and documentation of them would be required as just discussed. At the point in time that the culvert heads or boxes are first detected to be undermined, construction activities should cease and documentation at the level to be agreed upon in consultation with the WVDCH shall proceed.

In the event that monitoring of the mitigation measures for the resurfacing of the railroad grade are not effective, then alternative material for surfacing must be procured and applied to the surface. Of all the mitigation measures, this should be the most straightforward and easy to

implement, as it simply requires the purchase and application of a previously agreed upon and appropriate material.

Indirect Effects

Indirect negative effects for heritage resources under both action alternatives include vehicular traffic by AWP and their contractors on the railroad grade; this increased traffic may detract from visitors' enjoyment and appreciation of their American historical heritage. Under Alternative 3, increased public visitation to the site will in all likelihood occur, owing to the reciprocal agreement that will be granted to the United States. Such visitation will likely bring the public to the interpretive kiosks in preparation by the USFS, and the public will have the opportunity to learn about the history of the area. This would be expected to increase public awareness and sensitivity to the historical value of the area.

Cumulative Effects

Reasonably foreseeable future activities related to the cumulative effects in this analysis are the potential timber harvest on private lands, general grade maintenance, and possible slope stabilization. All of these are ground disturbing activities along the grade degrading the integrity of the railroad grade and thus the complex as a whole. Effects discussed here include the existing conditions discussed in the affected environment in conjunction with the proposal and these future activities.

While any alterations to the structures and features along the grade have already been impacted prior to the consideration of this undertaking, implementation of alternative 2 may have the effect of contributing to the process of undermining the National Register eligibility of this portion of the larger Blackwater Industrial Complex. The cumulative effects of implementing this alternative in all likelihood would be to continue the pattern of loss and alteration of historic period properties in the region on both public and private lands.

Many alterations to the structures and features along the grade have already occurred. Implementation of either alternative may have the effect of contributing to the process of undermining the National Register eligibility of this portion of the larger Blackwater Industrial Complex. The cumulative effects of implementing either of the action alternatives will in all likelihood be to continue the pattern of loss and alteration of historic period properties in the region on both public and private lands.

With alternative 3, the implementation of a program of interpretive signage, in addition to the signage currently under design by the Forest Service for the Thomas and Coketon areas will, in combination with the effective implementation of the mitigation measures already discussed, further minimize and mitigate adverse effects to historic properties in the project area.

Recreation

Scope of the Analysis

The scope of this analysis focuses on the potential affects to the Recreation, Trails, and Scenery Resources along the old West Virginia Central and Pittsburgh Railroad Grade in the Blackwater Canyon due to upgrading this railroad grade to serve as a haul road.

Spatial Boundary

For direct, indirect, and cumulative effects, the spatial boundary for the recreation and trails resources includes the Forest Service owned portion of the Blackwater Canyon Trail. For the Recreation Opportunity Spectrum Setting (ROS) and the Scenery Resources viewshed, from the existing trail, the Blackwater River, and established viewing platforms within the Blackwater Falls State Park are included in the spatial boundary.

This spatial boundary is adequate to describe the effects to hikers, mountain bikers, equestrians, and cross-country skiers who utilize the Blackwater Canyon Trail and scenery values from visual and ROS effects to the Blackwater River and Vistas within the Blackwater Falls State Park.

Temporal Boundary

The temporal boundary for direct, indirect, and cumulative effects of noise and visual disturbance associated with upgrade activities is the time during which the actual upgrades will take place. These upgrades include grading, rocking, ditch cleaning, culvert replacement and possibly occasional fill on private property. The exact timing of upgrade activities is not known; upgrade activities are expected to occur as needed to facilitate pickup, log truck, and/ or equipment access. Noise (ROS) associated with upgrade activities are not expected to persist after activities are completed. Depending on the amount and type of upgrades visual landscape changes range from no change to being apparent for a period of time ranging from 1-5 years.

Affected Environment

This section describes the existing condition of the recreation, scenic, wilderness, and trails resources that may be affected by activities proposed in this analysis area. Activities in table 3.1 which have contributed to the affected environment from a recreation standpoint are those related to the construction of the railroad, past timber harvest, strip mining, urban and agricultural development, road and skid trail development, and past fires. Activities related to hiking, hunting and trail maintenance are still occurring and are considered in the affected environment.

Recreation/ Trails

Recreation opportunities along the Blackwater Canyon Trail within the project area boundary (5.5 miles) consist primarily of hiking, mountain biking, horseback riding and cross-country skiing. There is also some hunting, and limited dispersed camping which occurs adjacent to the trail. Based on public comments during the scoping process for this analysis and observations by

Forest Service employees this trail appears to be a popular system trail which receives moderate to high use especially during the summer and fall. There have not been any visitor use surveys for this trail to determine actual use.

There are no Forest Service developed campgrounds, picnic areas, or swimming areas located within the analysis area.

Landscape Character

The landscape character within the Blackwater Canyon is dominated by steep slopes and even-aged second-growth forest that originated after the entire area was clearcut logged during the late 1800's and early 1900's. Ninety percent of National Forest land in the canyon is occupied by forest stands that are between 65 and 101 years old. Stands on National Forest land, which occupies most of the north side of the canyon, are dominated by mixed mesophytic hardwoods. The tree species composition of the mixed hardwoods forest type is diverse and highly variable, but typically includes such species as sugar maple, red maple, black cherry, American beech, yellow-poplar, basswood, white ash and northern red oak.

The private land in Blackwater Canyon, which occupies the south side of the canyon and a small portion of the north side of the canyon, appears have a somewhat different landscape character than the National Forest land in the canyon. Although the Forest Service does not have stand data for this land, aerial photography and observations made during field reconnaissance from the Blackwater Canyon Trail indicate that the south side of the canyon appears to have a much more prominent conifer component, particularly at the higher elevations near the canyon rim and in the upper (northeastern) end of the canyon. The stands with the conifer component appear to be a mixture of eastern hemlock, red spruce, and northern hardwoods. Private lands in the lower (southwestern) end of the canyon appear to be dominated by mixed mesophytic hardwoods. The age class distribution of the private land probably is similar to that of the National Forest land because the widespread logging in the late 1800s and early 1900s affected all areas of the canyon, regardless of current ownership. However, recent thinning or selection harvesting, as evidenced by stumps and partial canopy openings observed during field reconnaissance from the railroad grade, have created small shrubby openings and an uneven-aged stand structure on an unknown proportion of the private land.

Wild and Scenic River Study

The Wild and Scenic River Study completed by the Monongahela National Forest in 1995 identified two segments of the Blackwater River for potential designation as a wild and scenic river. Both segments, from the eastern boundary of Blackwater Falls State Park, to Hickory Creek Run, approximately 8.7 miles (5.5 miles within the project area), were determined to be eligible for scenic status. The outstanding and remarkable values that were identified for these river segments in the 1995 study include scenic and recreational. A description of these values is as follows.

Scenic Values: These segments of river flow through a steep sided canyon ranging in depth from 400 to 1,400 feet. The upper 2.2 miles are within the Blackwater Falls State Park and include the

57 foot Blackwater Falls, a major scenic landmark and scenic attraction. The entire canyon offers outstanding scenic views related to steep topography, rock outcrops, side-stream waterfalls and the continuous cascades of the river itself.

Recreational Values: Part of segment 1 includes the canyon portion of the Blackwater Falls State Park, one of the most popular parks in the State Park system. The portion below the confluence with the North fork (segment 2) is described as “West Virginia’s largest continuous rapids” (Davidson, et.al., 1985) consisting of mostly class 4, with some class 6, whitewater for expert class whitewater boating. Inaccessibility of much of the river adds a semi-primitive opportunity. The former railroad grade from Thomas to Hendricks parallels the river several hundred feet away and is currently managed as a foot and mountain bike trail. The river could provide outstanding fish habitat if acid mine effects are mitigated.

These recommendations have not been acted on. Until such time as suitability studies are completed and Congress either designates or releases the river segments, no projects on National Forest System lands that could change the eligibility of a segment should occur within the river corridor and for one-quarter mile beyond. For scenic designations, some management actions may be approved within the one-quarter mile buffer, as documented through NEPA analysis for significance of effects.

It should be noted that the USDA-Forest Service does not have the authority to regulate management activities occurring on private lands within a Wild and Scenic River Corridor.

Wilderness

There are no federally designated wildernesses within or immediately adjacent to the Allegheny Wood Products Analysis Area.

Desired Condition

The *Land and Resource Management Plan – Monongahela National Forest* (Forest Plan) contains one Forest-wide goal statement relevant to this analysis pertaining to recreation, trails and scenery management. It reads, in part, “... Manage the spectrum of recreation opportunities that exist on the Forest with an emphasis on recreation activities that require a large land area, such as hiking or hunting, and facilities that support that use” (USDA Forest Service 1986, Goal I, page 37). Forest-wide direction specifically related to this analysis calls for (1) emphasizing semi-primitive forms of recreation requiring a large land base (page 63), (2) A system of trails will be constructed and maintained for dispersed recreation opportunities (page 68), and (3) Attain the highest possible visual quality in resource management activities and plan, commensurate with other appropriate uses and benefits (page 72).

Much of the National Forest land within Blackwater Canyon is assigned to Management Prescriptions (MPs) 6.1, 6.3, and 3.0. Desired recreation conditions for MP 6.1 emphasize a system of roads and trails to provide access within the area for administrative and management purposes, including the transportation of forest products. Non-motorized recreation opportunities

will be provided by controlling public motorized vehicle use. Where roads are temporarily opened, semi-primitive motorized experiences will be provided.

The desired future condition for Management Prescription 6.3 emphasizes the management of naturally occurring tree species to provide a continuous supply of suitable roost trees and preferred foraging habitat for the Indiana Bat.

Recreation-related desired conditions for MP 3.0 emphasize a mosaic of primarily hardwood stands that provide a variety of habitat for wildlife. A focus on production of large sawlogs and veneer logs provides habitat for species that prefer mature forests. A high level of human use is expected in MP 3.0 due to the emphases on timber production, mineral development, range management, and motorized and developed recreation. Development activities may occur from many different uses; however they will be compatible with environmental considerations, particularly the visual resource, as provided in the standards and guidelines.

Part of the National Forest land in Blackwater Canyon is assigned to MP 6.3, which is primary range for the Indiana bat. MP 6.3 is applied as an overlay MP within which the desired conditions for the underlying MPs (in this case 6.1 and 3.0) are pursued to the extent they are compatible with MP 6.3 emphasis and direction.

Direct and Indirect Effects

Environmental Consequences Common To All Action Alternatives

All action alternatives would grant an easement for the use of motorized vehicles on the railroad grade. This could result in reconstruction of the grade to the minimum standard needed to ensure safe passage of both pick-up traffic and log truck traffic. The direct and indirect effects of reconstructing the grade will be discussed in this section as they are the same among all action alternatives.

The reconstruction of the grade would require clearing of vegetation, soil disturbance and possibly cut and fill of the existing grade to bring the grade up to haul standards. These effects would change the current character of the Blackwater Canyon trail from a mostly semi-primitive non-motorized Recreation Opportunity Spectrum (ROS) to a roaded natural setting. Although this would be a change from the existing condition, a roaded natural setting is consistent with the Forest Plan Management Prescriptions (MP 6.1 and 3.0) for the area. Depending on the type, amount and location of surface material added to the grade, mountain bikers may find the trail more difficult to travel until the gravel settles and becomes imbedded in the soil.

Based on the steep topography and existing vegetation adjacent to the trail it is unlikely that road reconstruction would affect the landscape character from either the vistas in the Blackwater Falls State Park or the Eligible Blackwater Wild and Scenic River which are the two most sensitive viewpoints adjacent to the analysis area.

Due to vegetative and topographic screening between the Blackwater Canyon Trail and River, reconstruction of this grade will not have any adverse affects on the outstanding and remarkable

values (scenic and recreational) or the free flowing condition of the Eligible Blackwater Wild and Scenic River.

Recreationists using the grade may be impacted when reconstruction is occurring and during periods of motorized use on the grade. Because the timing and extent of reconstruction and timber management activities is unknown, analyzing effects to recreationists is difficult. One comparison is the administrative motorized use that occurs routinely for operations and maintenance and access to a liming station, in the Cranberry Backcountry. Based on public comments it appears that this administrative use is acceptable in an area managed for semi-primitive non-motorized recreation (SPNM) opportunities. Therefore motorized access by AWP performing routine timber management activities should not affect recreationists any more than the Cranberry Backcountry access especially since the grade is not located in an area managed primarily for SPNM recreation. Timber hauling and equipment access may have more impact on recreationists but should only occur as needed by AWP to harvest timber.

It should be noted that the Forest Service has no authority to regulate private lands. We also can not speculate on the type and amount of timber harvesting that may occur on Allegheny Wood Products land. Therefore, describing any effects to the landscape character and the eligible Blackwater Wild and Scenic River based on future management activities on private land are beyond the scope of this analysis.

Alternative 1 – No Action

The no action alternative would not involve any changes from the existing use and maintenance of the railroad grade, and thus would have no effects beyond those that already occur under the existing condition. Recreation activities along and adjacent to the grade would continue and the trail would continue to receive use from non-motorized recreation trail uses. Trail users would continue to lie on both National Forest and AWP property. The Forest would not be able to actively manage the recreation along the trail because of the joint ownership.

Alternative 2 – Proposed Action and Alternative 3 – Reciprocal Easement

Both the proposed action and the Reciprocal Easement Alternative would permit the Forest Service to grant an easement of right-of-way to Allegheny Wood Products Inc. (AWP) along the abandoned railroad grade. This easement would allow motorized access for AWP to manage timber on their lands between the grade and the Blackwater River.

The key differences are that Alternative 3 is designed to address many of the impacts of the proposed action to the recreation resources. The reciprocal easement would allow the Forest Service to manage and maintain the railroad grade as a trail. This alternative also requires advance public notice with on-site signs and newspaper notices before timber harvesting thereby increasing safety to users of the trail.

The impacts to the recreational experience are expected to be minimized through the motorized restrictions in place during the high use periods (i.e. weekends and holidays) and the restrictions

in snowplowing on winter sports. In addition, placement of gravel would be minimized where possible in an attempt to maintain a smooth surface for mountain biking.

Cumulative Impacts

Reasonably foreseeable future activities related to the cumulative effects in this analysis are the potential timber harvest on private lands, general grade maintenance, and recreational use. There is no harvest activities planned in the foreseeable future on NFS lands in this area. Effects discussed here include the existing conditions discussed in the affected environment in conjunction with the proposal and these future activities.

Recreation opportunities in the analysis area are expected to remain about the same. Recreation use of the area is expected to increase slightly.

Implementation of any of the alternatives is not expected to result in any cumulative effects to existing or future recreation opportunities or resources. Any affects to the scenic attractiveness from reconstruction of the grade would be minimal and of a short duration (1-5 years). Recreation opportunities would continue to be maintained under all alternatives, although some mitigation measures may be needed during grade reconstruction and timber hauling to ensure that the quality of recreation opportunities is maintained.

Soils

Scope of the Analysis

This section discloses the effects to the **soil resource** from action alternatives considered within the EIS. There were no issues identified concerning the soil resource from either the public or internally. However, this report will address general impacts related to sedimentation, sensitive soils, slope stability of the easement area, soil disturbance, and any potential effects from proposed activities.

Soil productivity, soil disturbance, compaction, and acid deposition effects to the soil resource will not be discussed this EIS. This area is an existing railroad grade which was disturbed decades ago in its creation. The intended use of this area requires that soils be compacted and graded in order to withstand the use by heavy machinery. This is the long-time use of the soil resource in the easement. Also, soil material in this easement is not intended to be dedicated to growing plant vegetation. Historically, vegetation was removed along the railroad grade and not encouraged to grow. In addition, soils in the easement area are mixed with both native and non-native material. Native rock, refuse from coal, limestone gravel, and other material were all brought in and mixed together to form the grade. Over the years, additional material was added for stabilization. Acid deposition will not be discussed because of the existing soil condition and disturbance. Also materials within the grade are mixed and the chemical composition varies widely throughout the easement area but is primarily alkaline due to the additions of limestone and the red shale from the Mauch Chunk Group.

Spatial Boundary

The spatial boundary used to evaluate impacts to the soil resource was defined as the ridge top of the easement area to the stream bottom or alluvial area where the river meets the land or floodplain. This is the vertical extent of the boundary. The horizontal extent of the boundary is considered to be the distance of the easement and just beyond to the limiting topographic feature (i.e. another ridge top, a stream bank, hard bedrock outcrop, or other physical barrier that prevents soil movement.) This area is used because it spatially encompasses all of the soil material potentially affected by activities within the easement. Once sediment leaves this defined area it becomes a concern to water quality and aquatic habitat (refer to the Hydrology and Aquatics Reports for details.) The spatial boundary used to address **cumulative** impacts was the same as the direct and indirect impacts for the same reasons as stated above. Effects to the soil resource are expected to last as long as the railroad grade is in existence. Short-term effects from new soil disturbance are expected to last less than 1 year. Effects to areas adjacent to the road bed are not expected to last beyond 5 to 10 years.

Temporal Boundary

The temporal boundary used to assess direct and indirect consequences are from the point in time just before construction, through construction, and a projected 30 years beyond construction because the railroad grade exists; it would be then upgraded for the purpose and need, and then be maintained for long-term use. The temporal boundary used to assess cumulative impacts is the same as the direct effects because the easement duration would have limitations as to activities that can occur on this grade over a certain length of time; therefore no additional activities are expected on this easement in the future except for maintenance.

Methodology

The impacts to the soil resource have been described based on the sensitivity of the soils and the amount of soil disturbance that would occur from the activities. Data was used from the existing Tucker County Soil Survey (1967), historic forest information on history and use of the area, and field visit information.

Existing Condition

Soil Types Found within the Easement:

The area of the easement was surveyed in 1943, Soil Survey of Tucker County (1967). The soils are mostly mapped as made land (Ma), sandstone rubble land (Sa), and alluvial land (Al) in the soil survey. The made land unit is a disturbed soil unit. These are areas that have been excavated or graded, and all the original soil characteristics have been destroyed. The characteristics of these soils vary widely, and site visits were required to make up to date interpretations. Sandstone rubble land consists of areas with over 90 percent of the surface is covered with sandstone boulders 2 to 6 feet in diameter. There is very little soil material found between the rocks in this area. Alluvial land consists of soils formed from recent stream deposits with highly varied characteristics. This land is susceptible to flooding. The characteristics of these soils vary

widely, and a site visit is required to make interpretations; however, given that no National Forest System Lands have this soil type, no visit was made to these map units. There are a few areas within the project that are mapped as strip mine (Sm). These soils consist of residual mining material that is typically extremely acid. These areas have been disturbed, and the characteristics are highly variable. Barbour and Pope fine sandy loam (Bb) is found within the area as well. These soils are deep, well-drained, acid soils. They are found along the floodplain and are susceptible to flooding. The Ernest soil series (EnD, ErD) is found along the base of the slopes in the area. These soils are deep, well-drained, acid soils with a fragipan found at 18-24 inches. These are colluvial soils on slopes of 15 to 35 percent. Belmont (BnF), Calvin (CaF, CnF), and Dekalb (VdF) soils are found on the steeply sloping (40 to 80 percent) back slopes in the area. These are all moderately deep to deep, well-drained, acid soils. These soils are formed in place on the slopes. The Very stony land-Dekalb complex consists of 40 to 90 percent surface cover by 2 to 12 ft diameter boulders. Rock outcrops are also common in this complex.

Environmental Effects

Soil Disturbance

All action alternatives would require soil and fill disturbance of the existing grade to bring the grade up to standard including placement, replacement, and stabilization of culverts. Disturbance would also occur with the cleaning of ditch lines and the recreation of ditch lines. The amount would depend upon the excavation required to install or repair the culvert. The railroad grade surface would be graded up to approximately three inches in order to remove the accumulation of vegetation and associated organic matter. Material deposited on National Forest System Lands would be deposited in an area that is stable and out of the riparian buffers. The area of soil disposal would be graveled or revegetated through seeding and mulching and thus not provide a source of sediment above background levels (or native material in an undisturbed area). Forest plan standards for mulching and seeding (Appendix S page 6-12) would be applied on National Forest System Lands. The potential short term effect from these soil disturbing activities would be a pulse of sediment added to the watershed downslope and to tributary streams where ditch lines flow into those streams. The long-term effects from these activities would be negligible for sediment concerns after a period of approximately ten years.

Silt fencing around culvert construction along steep banks that are cut into to replace or insert culverts would be cleaned periodically and after large storm events. The material cleaned from the silt fences would be deposited in an area out of the riparian buffer, filterstrip, or any other area where the material could be delivered to a stream channel when deposited on NFS lands. This mitigation acts to stabilize the soils. If not applied potential adverse effects from erosion and sedimentation could occur especially in the event of heavy storm events and/or long periods of wetness. Soil loss and fill material loss from this site could undermine the grade making it more unstable. Culverts could be undermined and washed out resulting in more excavation and fill material being added.

Slips and Mass Wasting

Upslope and downslope of the railroad grade, there are numerous areas along the route that have had mass wasting and slumping failures. Geological hazards exist throughout the grade where bedrock high walls exist. Stabilization of the areas is highly recommended before use of the grade in order to prevent further head cutting into the soil profile or loss of the existing grade. If stabilization is not done in these areas potential adverse effects from using the grade could develop. It is possible that once soil disturbance occurs a small area could develop into a larger area of soil and rock material and may loosen with exposure to weathering and move downslope. These areas could develop into sources of sediment that could be delivered into the ditch resulting in a sediment delivery to the Blackwater River.

Effects to the Railroad Grade from Hauling Activities

If AWP applies best management practices, there are no expected adverse effects to the railroad grade surface or subsurface material. Negligible amounts of sediment may be generated during hauling periods, however best management practices should prevent adverse effects such as rutting and ponding of water on the grade. Also the existing grade fill material is durable and reaches depths of six feet or more. Stability due to the age of the grade and lack of historic maintenance is of concern. The potential instability of the grade in specific locations may require future maintenance to allow the grade to be utilized for hauling.

Direct/Indirect Environmental Consequences by Alternative

Alternative 1 – No Action

The area of the easement is an old railroad grade. Therefore, the soils have been disturbed in the making of this grade. This area is currently used as a recreational trail and exists within the Forest Trail System as Trail 115. The trail is maintained and this maintenance has kept the trail in good condition. There are no signs of rutting or above normal amounts of sediment being generated on the trail. There is some exception to this in the beginning of the trail where a section has been blown out by rushing water from a large storm event. The head cut started on private land, moved into the trail, crossed over to NF system land, and continues to worsen.

Under the No Action Alternative effects such as erosion and sedimentation to streams would continue to occur from natural processes. No adverse effects from the existing recreational use of the grade would be expected.

Alternative 2 – Proposed Action

The Proposed Action (Alternative 2) would implement activities that would disturb soils, which may cause erosion and mass wasting. Alternative 2 would allow for snowplowing as needed. Snowplowing should only be done to a depth of 2 inches above the surface gravel. This activity could potentially cause rutting and ponding of water if the integrity of the material added to the railroad grade to widen the tread is compromised by excessive use during the freeze thaw

conditions. Following engineering manual direction (FSM 7770) should prevent adverse effects from snowplowing (see Appendix B).

The design activities built into this alternative (i.e. silt fencing, culvert maintenance, seeding of disturbed sites, and mulching) have been shown to reduce the erosion from the reconstruction activities until the soil is stabilized. Placement of additional culverts and replacement of the ineffective culverts should greatly reduce the potential for mass wasting. Adherence to Best Management Practices (BMP's) by AWP on their lands is also expected to minimize both the sedimentation and the potential for mass wasting.

Alternative 3

The effects to the soil resource for erosion and mass wasting for Alternative 3 are the same for all action Alternatives as described in the above sections. Alternative 3 could potentially have a lower impact due to the restricted use on weekends. No snowplowing activities would occur in Alternative 3.

The design activities built into this alternative (i.e. silt fencing, culvert maintenance, seeding of disturbed sites, and mulching) have been shown to reduce the erosion from the reconstruction activities until the soil is stabilized. Placement of additional culverts and replacement of the ineffective culverts should greatly reduce the potential for mass wasting. Adherence to Best Management Practices (BMP's) by AWP on their lands is also expected to minimize both the sedimentation and the potential for mass wasting.

Cumulative Impacts

With alternative 1, the head cutting would continue. The Forest Service could not stabilize the road until the head cuts crossed the property boundary.

Alternative 2 – Proposed Action and Alternative 3

With Alternatives 2 and 3 application of the Best Management Practices applied by AWP and Forest standards and guidelines would prevent long term adverse cumulative effects.

Vegetation

Scope of the Analysis

This analysis includes threatened and endangered plants (T&E), plants listed as Regional Forester's Sensitive Species (RFSS), and non-native invasive plant species (NNIS). The analysis focuses on potential habitat changes due to upgrading the old West Virginia Central and Pittsburgh railroad grade in Blackwater Canyon to serve as a haul road. It also discusses potential introduction and spread of NNIS from the upgrade activities and periodic use of the trail as a haul road.

Spatial Boundary

For direct and indirect effects, the spatial boundary includes the railroad grade and approximately 10 feet on either side. While plants do move, the time scale is greater than the expected timeframe for the direct and indirect impacts from upgrading the railroad grade.

For cumulative effects, the spatial is the same as for direct and indirect effects. Assuming that vegetation and soil disturbance associated with the upgrade activities does not extend beyond the footprint of the cut-and-fill associated with the existing railroad grade, habitat-related effects of the project will be limited to a strip that is about 20 feet wide in most places. This amounts to only 13 acres of affected habitat along the entire 5.5-mile easement. Much of this already is partially open due to use and maintenance of the trail.

Population viability for RFSS is addressed at the Forest-wide scale because the regulatory requirement for maintaining viable populations specifically addresses Forest-wide viability, rather than site-specific viability.

Temporal Boundary

The temporal boundary for the habitat changes associated with the upgrade and with the use and maintenance of the easement is the duration of the easement. These effects are expected to persist for as long as the easement is used and maintained.

Cumulative effects discussions in this section will include the existing condition (affected environment), the impacts of the alternatives discussed, and those activities in table 3.1 related to continued recreation, trail maintenance, and possible commercial thinning activities on private lands.

Affected Environment

Past and present activities identified in table 3.1 that have resulted in the existing conditions related to plant species and habitat are those related to the construction of the railroad grade, development below the planning area, construction and maintenance of Forest road 18, past fire, past timber harvest, maintenance of the grade, and hiking and mountain bike use.

A review of the known TES plant locations in GIS showed no existing sites within the boundary considered for direct and indirect effects. The closest known TES plant site is about 0.6 mile from the grade.

On May 26, 2005, the railroad grade was walked to assess potential habitat for TES plants and to review existing NNIS. Habitats for TES plants encountered on and near the railroad grade include: wet rock ledges, hemlock forests, mixed mesophytic forests, small herbaceous openings (grade itself), and small wet areas created by the grade.

Currently the following NNIS plants are found along the grade: coltsfoot, yarrow, orchard grass, tall fescue, plantain, dandelion, autumn olive, yellow mustard, curly dock, multiflora rose,

Japanese barberry, oxeye daisy, peppergrass, mullein, and clovers. The density of NNIS was generally low along the grade with the exception of multiflora rose. Grasses were not as dominant as expected.

Desired Conditions

Forest Plan general direction for threatened and endangered species states that “Management will protect or enhance habitat for threatened or endangered species and consider the needs of species identified as special or unique.” (page 84). Forest Plan Goal IV directs the Forest to “manage habitat to help recovery of threatened and endangered species on the Forest.” (page 37).

Forest Plan Goal IV addresses Forest-wide desired conditions for all RFSS in a generic fashion. This goal directs the MNF to “...Protect sensitive and unique species until their populations are viable...” The Forest Plan directs the MNF to give RFSS “...the highest possible protection commensurate with the other appropriate uses and benefits...” (page 87a).

Direct and Indirect Effects

The No Action Alternative does not involve any changes from the existing use and maintenance of the railroad grade. Vegetation along the railroad grade would be maintained in approximately its current state by trail maintenance. Therefore, for all TES plants included in this analysis, the No Action Alternative is considered to have no effects beyond the existing condition described in the Affected Environment subsections. Existing NNIS plants could still spread beyond the grade if the No Action Alternative was chosen.

For the remainder of this analysis, all direct, indirect, and cumulative effects described refer to the Action Alternatives (Alternatives 2 and 3). These two alternatives are combined for analysis because they do not differ in terms of habitat alteration, grade width, and soil disturbance therefore effects to TES and NNIS populations and habitats are expected to be essentially the same. It is not anticipated that any additional width beyond the existing railroad grade as constructed would be necessary to accommodate either parties proposed activities under either action alternative.

Effects to Threatened and Endangered Species

Reconstruction of the grade would require soil disturbance and possibly cut and fill of the existing grade to bring the grade up to haul standards. Disturbance would also occur when cleaning existing ditches, creating new ditches, replacing existing culverts, installing new culverts, and the creation of new ditch lines.

To upgrade the railroad grade to a haul road would likely include clearing vegetation from the grade surface, grading the surface, installing or replacing drainage structures, and adding aggregate to the surface. It is possible that vegetation along the sides of the grade would be removed or trimmed back as well. This would convert the grade from a linear opening dominated by grasses and herbs to a graveled surface on approximately 13 acres.

Assuming upgrade activities do not extend outside the footprint of the cut-and-fill associated with the existing grade, they would involve removal of primarily herbaceous vegetation, shrub/sapling vegetation, and overhanging tree limbs, all of which have encroached on the railroad grade despite periodic trail maintenance. Upgrading in some areas may require removal of occasional mature trees growing on the cut-and-fill slopes.

No threatened or endangered plants are known to occur on the grade or within the area expected to be directly impacted by the reconstruction. Slight changes in light and moisture conditions in the surrounding forest would be expected from the reconstruction activities. Periodic maintenance of the grade would occur, although it is not known how frequently this would occur. The reconstruction and maintenance essentially will perpetuate the existing opening that is the current trail. Table 3.2 displays the threatened and endangered plants known to occur on the Monongahela National Forest with possible habitat along, or immediately adjacent to the railroad grade. Shale Barren Rockcress (*Arabis serotina*, and Virginia Spirea (*Spiraea virginiana*) are not discussed because there is no habitat within the analysis for these species.

Table 3.2: Federally-Listed Threatened and Endangered Plants on the Monongahela National Forest

Species	Rank	Habitat	Likelihood of Occurrence
Small-whorled pogonia (<i>Isotria medeoloides</i>)	LT/G2/S1	Mixed deciduous or mixed-deciduous/coniferous forest in generally second or third growth successional stages; occurs in both fairly young forests and in maturing stands. Majority of occupied sites have: sparse to moderate ground cover; relatively open understory, proximity to logging roads, streams or other features that create long persisting breaks in canopy; associated species -- witch-hazel, striped maple, hazelnut, serviceberry; highly acidic nutrient-poor soil. ¹⁷	Not likely – lack of habitat on or near grade
Running Buffalo Clover (<i>Trifolium stoloniferum</i>)	LE/G3/S2	Perennial clover found on rich, fertile (limestone geology & soils), semi-shaded habitats. Open, savannah-like forests; lightly disturbed areas such as old logging roads. Also old farmsteads and cemeteries. ⁹	Not likely – some of grade substrate is slag, some limestone gravel.

Small whorled pogonia has only been found in one site on the Forest in Greenbrier County on the White Sulphur Ranger District. Shale barren rockcress is endemic to shale barrens and found on the Forest in Grant, Greenbrier, and Pendleton Counties. Virginia spirea is found along larger streams and rivers and has been found in Greenbrier County. Running buffalo clover has been found in Randolph, Tucker, Greenbrier, and Pendleton Counties.

Cumulative Effects

Once the railroad grade is upgraded to a road, continual maintenance will retain the road, and maintain the open nature of the edge habitat along the road. This may make the wet rock ledge and small wet area habitats less likely to be colonized by TES plants needing these habitat types. However, since there are no known TES plants in the area currently, there should be no direct or indirect effects to TES plants and no cumulative effects.

Effects to Regional Forester's Sensitive Species

The NFMA implementing regulations under which the current Forest Plan was prepared require National Forests to maintain viable populations of species that occur on a National Forest (36 CFR 219.19, USDA Departmental Regulation 9500-4). As part of the strategy to address NFMA viability requirements and avert the need for listing under the Endangered Species Act (ESA), each region of the Forest Service has developed a list of RFSS, which are species for which population viability may be a concern. Direction in the Region 9 supplement to the Forest Service Manual emphasizes maintaining viability for RFSS and ensuring that management activities do not result in trends toward federal listing (FSM 2670.22, 2670.32). Manual direction requires Forests to determine whether their actions will affect RFSS, and if so, whether the actions will result in a loss of viability or a trend toward federal listing (FSM 2670.32).

Forty-three plants are listed as RFSS on the MNF. To focus this analysis on those RFSS with the potential to be affected by the project, a Likelihood of Occurrence table was prepared to summarize the habitat requirements and known occurrences of RFSS and determine the likelihood that the species or potential habitat could occur in the area to be affected by the project. Because of the large number of RFSS, species are grouped according to important habitat characteristics. Some species could fit into more than one habitat group; these species are included in the group for the habitat characteristic that is considered most important for their life history.

Mesic Hardwood Forests

Affected Environment

With the boundary of the analysis set at the railroad grade and about 10 feet on either side, a narrow corridor of forested land is considered in this effects analysis. However, there are hardwood forests adjacent to the grade and the area is generally mesic in its moisture regime. This is considered habitat for White monkshood (*Aconitum reclinatum*), Lance-leaf grapefern (*Botrychium lanceolatum v. angustisegmentum*), Appalachian oak fern (*Gymnocarpium appalachianum*), and Netted chain fern (*Woodwardia areolata*).

Direct and Indirect Effects

Some trees adjacent to the grade may be removed during upgrade activities. However, considering the greatest impacts to RFSS plants from upgrading the trail/grade would occur within the foot print of the grade itself and little suitable habitat occurs there, no direct or indirect effects are expected to the RFSS plants listed above except for possible impacts to white

monkshood. It is possible that white monkshood could occur immediately adjacent the railroad grade along stream channels. Individual plants may be lost if these areas are disturbed during upgrading activities. Plants not directly impacted may receive more light from the clearing and brushing of the grade, stimulating flowering. These possible impacts would not lead toward listing of the species..

Cumulative Effects

Potential future timber harvest on either privately owned lands could impact sensitive species found in mesic hardwood forests. Impacts could include loss or degradation of habitat. These effects are expected to be minor and considering there are no direct or indirect effects, there would be no cumulative impacts. Population viability at the Forest-wide scale would not be affected by the small changes in habitat at the project scale.

Riparian/Bog/Swamp Habitat

Affected Environment

With the analysis boundary determined to be the grade itself and about 10 feet on each side, little riparian area habitat is found in the project area. There is potential for impacts to riparian areas off the railroad grade to occur due to the upgrade actions. These impacts are described in the Water Resources report and sections of the EIS. Small seasonal and permanent wet areas occur adjacent to the grade, likely caused by the grade functioning as a dam. This is considered habitat for Arctic bentgrass (*Agrostis mertensii*), Blunt-lobed grapefern (*Botrychium oneidense*), Showy lady's slipper (*Cypripedium reginae*), Darlington's spurge (*Euphorbia purpurea*), Sweet-scented Indian plantain (*Hasteola suaveolens*), Blue Ridge St. John's wort (*Hypericum mitchellianum*), Long stalked holly (*Ilex collina*), Thread rush (*Juncus filiformis*), Large-flowered Barbara's buttons (*Marshallia grandiflora*), Bog buckbean (*Menyanthes trifoliata*), Swamp lousewort (*Pedicularis lanceolata*), and Jacob's ladder (*Polemonium vanbruntiae*). Tennessee pondweed (*Potamogeton tennesseensis*) and Sand grape (*Vitis rupestris*) are not discussed due to a lack of potential habitat.

Direct and Indirect Effects

Some of the current wet areas adjacent to the grade are likely to be drained as drainage structures are replaced or added to the upgraded road. Where the grade crosses streams, riparian areas are impacted by reconstruction and maintenance activities. A small amount of riparian habitat may be lost from the project area. The small wet areas along the grade are not likely high quality habitat. However, there could be a slight negative impact to the RFSS plants listed above as the grade is upgraded to a road and wet areas are drained and riparian areas impacted by culvert replacement or placement of new culverts.

Cumulative Effects

Given the very small scale of potential direct and indirect effects to riparian habitat, the contribution of the upgrade and maintenance activities to cumulative loss of riparian habitat in

the project area likely would not be measurable. Because a measurable contribution to cumulative effects at the project level is not expected, there would be no effect on population viability at the Forest-wide scale.

Rocky Habitat

Affected Environment

Rock ledges occur along the railroad grade, some are more exposed to direct sunlight than others. Surface rocks are also found in the forests adjacent to the railroad grade. The cut and fill areas of the grade have also added to rocky habitat in the project area. This is considered habitat for Spreading rockcress (*Arabis patens*), Rock skullcap (*Scutellaria saxatilis*), Ammon's tortula (*Syntrichia ammonsiana*), and Appalachian bristle fern (*Trichomanes boschianum*). Highland rush (*Juncus trifidus*) is not discussed due to a lack of habitat.

Direct and Indirect Effects

Clearing vegetation from cut and fill areas and any adjacent natural rock ledges will change light and moisture conditions in this habitat. This could be a detrimental effect for some of the species listed above. Since no sensitive species requiring rocky habitat are known to be in the project area, direct and indirect effects include modification of habitat, making the area slightly less suitable for some RFSS species.

Cumulative Effects

Because of the small scale of the project relative to potential habitat found in the larger area not impacted by the proposed action, there will be no cumulative impacts to RFSS needing rocky habitats when this action is added to possible future actions. Even when possible future actions outside the analysis boundary (beyond the grade itself), cumulative impacts are negligible.

Limestone Influenced Habitat

Affected Environment

Most of the project area is considered made land, fill brought in to create the grade, and some of this is limestone. The native soils in the area derive from Allegheny, Greenbrier, Mauch Chunk, Pocono, Pottsville, and Quaternary Alluvium geology groups. About half of the easement lies within the Mauch Chunk Geology group. There is Greenbrier limestone in the southern end of the grade and the cut bank of the grade has exposed a limestone outcrop.

The following species are found in limestone influenced habitat; Cooper's milkvetch (*Astragalus neglectus*), Tall larkspur (*Delphinium exaltatum*), Smokehole bergamot (*Monarda fistulosa* v. *brevis*), Yellow nailwort (*Paronychia virginica* v. *virginica*), Canby's mountain lover (*Paxistima canbyi*), and Robust fire pink (*Silene virginica* v. *robusta*). However, there is no suitable limestone habitat for these species in the project area.

Direct and Indirect Effects

Since there is no limestone influenced habitat in the project area, there are no direct or indirect impacts to this habitat or to plants needing this habitat.

Cumulative Effects

Since there is no habitat and no direct or indirect effects, there are also no cumulative impacts.

Shale Barren Habitat

Affected Environment

Shale barren habitat is rare on the Forest and is found where specific edaphic factors of geology, soils, elevation, and rainfall occur to produce a distinct vegetation community. The project area is not in an area with these conditions and no shale barrens are found in the project area.. Therefore, there would be no impacts to Yellow buckwheat (*Eriogonum allenii*), Lillydale onion (*Allium oxiphilum*), Turgid gay feather (*Liatris turgida*), Sword-leaved phlox (*Phlox buckleyi*), and Kate's Mountain clover (*Trifolium virginicum*)

Direct and Indirect Effects

Since there is no shale barren habitat in the project area, there are no direct or indirect impacts to this habitat or to plants needing this habitat.

Cumulative Effects

Since there is no habitat and no direct or indirect effects, there are also no cumulative impacts.

Rich Woods Habitat

Affected Environment

Rich woods are defined here as mesic forested sites with soils of moderate to high nutrient content. This is a general category and includes RFSS with broader ranges than species in other categories. With the analysis area restricted to the grade and 10 feet on either side, little of this habitat is present in the project area. However, most of the forest along the grade is considered rich as the underlying geology is of the Mauch Chunk group. This is considered habitat for Crested coralroot (*Hexalectris spicata*), Butternut (*Juglans cinerea*), and Noding pogonia (*Triphora trianthophora*).

Direct and Indirect Effects

The project will directly effect very little forested habitat. Occasional mature trees may be removed, but impacts are more likely to include brushing and clearing of herbaceous and

shrubby vegetation. There will be no direct impact to this habitat from the proposed activities. Upgrading and maintaining the present railroad grade as a haul road will have the indirect effect of increasing light to some parts of the adjacent forest. This effect is not measurable and is considered negligible. For some species, such as butternut, the increase in light may create more favorable conditions or trigger flowering.

Cumulative Effects

Future timber harvest has the potential to impact this habitat type. As in the case of indirect effects of increase sunlight, these impacts may be negative or positive, but are largely not measurable and unpredictable at this time. Considering the very small amount of this habitat type found within 10 feet of either side of the grade, there are no cumulative impacts from the proposed actions.

Xeric or Submesic Forested Habitat

Affected Environment

The project area is located in an area of the Forest that receives much precipitation. The Landtype Associations (LTA) of the project area are M221Ba08 – Allegheny Plateau Block Red Spruce, Frigid Soils (very small area) and M221Ba10 – Allegheny Front Sideslopes (the majority of the length of the grade). Annual precipitation in the area averages about 52 inches, and is among those LTAs with the highest precipitation averages on the Forest. No xeric or submesic forested habitat is found in the project area. This is considered habitat for Box huckleberry (*Gaylussacia brachycera*), White alumroot (*Heuchera alba*), and Silver nailwort (*Paronychia argyrocoma*). Due to a lack of habitat, Canada mountain rice grass (*Oryzopsis canadensis*=*Piptatherum canadense*) will not be discussed.

Direct and Indirect Effects

There is no xeric or submesic habitat in the project area, therefore there are no direct or indirect effects to this habitat type of plants needing this habitat.

Cumulative Effects

Since this habitat is not found in the project area, and there are no direct or indirect impacts, there are no cumulative impacts to those species listed above or to xeric/submesic habitat.

Other Habitats

Affected Environment

Two sensitive plant species do not fall neatly into any habitat category - Fraser fir and Appalachian blue violet. Fraser fir is found at higher elevations on the Forest, is not native to West Virginia, and is found only where it has been planted. The project area is generally below

2800 feet in elevation. The Appalachian blue violet has been found in a wide variety of wooded and open habitats. There is potential habitat in the project area for this species.

Direct and Indirect Effects

The project will directly effect very little forested habitat. Occasional mature trees may be removed, but impacts are more likely to include brushing and clearing of herbaceous and shrubby vegetation. There may be a direct impact to habitat suitable for the Appalachian blue violet from the proposed activities. Upgrading and maintaining the present railroad grade as a haul road will have the indirect effect of increasing light to some parts of the adjacent forest. Since Appalachian blue violet has been found on floodplains and the banks of ponds, this increase in sunlight may be a positive impact. This effect is not measurable and is considered negligible. There will be no direct or indirect effects to Fraser fir habitat.

Cumulative Effects

Future timber harvest has the potential to impact habitat for the Appalachian blue violet. As in the case of indirect effects of increase sunlight, these impacts may be negative or positive, but are largely not measurable and unpredictable at this time. Considering the very small amount of this habitat type found within 10 feet of either side of the grade, there are no cumulative impacts from the proposed actions. There are no cumulative impacts to Fraser fir habitat from the proposed actions.

Non-Native Invasive Species

There are non-native invasive plants species on the railroad grade. Some were likely planted for erosion control, others are typical roadside weeds found elsewhere on the Forest. Also typical of the Forest is the presence of multiflora rose, likely transported by birds.

Direct and Indirect Effects

All alternatives have the potential to allow continued spread of NNIS in the project area. The action alternatives have a greater likelihood of increasing the numbers of NNIS, introducing new NNIS, and hastening the spread of existing NNIS. Currently no garlic mustard or Japanese stiltgrass, two highly invasive plants known to spread off disturbed areas and into adjacent forests, are found in the project area. Upgrading activities such as grading, cutting and filling, addition of drainage structures, and seeding and mulching all have the potential to introduce new NNIS and spread existing NNIS. Effects could be mitigated by using seed mixes with only native genera, using non-persistent non-native species as temporary crops until native species re-colonize the area and using weed free mulch such as coconut fiber mats. Since part of the upgrade actions will take place on private land, and the USDA Forest Service has no legal means of directing actions on private lands, these mitigating measures are offered only as suggestions.

Cumulative Effects

Maintaining the new road as a road will continue to provide disturbed habitat for NNIS plants. People continuing to use the road as a trail could also transport NNIS into the area. NNIS plants are likely to increase in the area regardless of this proposed action.

Wildlife

Scope of The Analysis

The analysis of terrestrial fauna includes terrestrial Management Indicator Species (MIS), threatened and endangered terrestrial animals, terrestrial animals listed as Regional Forester's Sensitive Species (RFSS), and migratory Birds of Conservation Concern (BCC). The terrestrial wildlife analysis focuses on potential habitat changes due to upgrading the old West Virginia Central and Pittsburgh railroad grade in Blackwater Canyon to serve as a haul road. It also discusses potential direct disturbance and harm to wildlife from the upgrade activities and periodic use of the trail as a haul road.

Spatial Boundary

For direct and indirect effects, the spatial boundary includes the north side of Blackwater Canyon. While the extent of most effects is expected to be much smaller than the entire north side of the canyon, the noise and visual disturbance generated by upgrade and hauling activities will carry well beyond the limits of the easement. The spatial extent of noise and visual disturbance will vary from species to species according to their tolerances, but could potentially cover most of the north side of the canyon for the most wide-ranging and keen-sensed species (e.g., goshawk [*Accipiter gentilis*]).

For cumulative effects, the spatial boundary includes Blackwater Canyon in its entirety. The canyon rim forms a sharp habitat boundary that separates the canyon from adjacent habitats. Assuming that vegetation and soil disturbance associated with the upgrade activities does not extend beyond the footprint of the cut-and-fill associated with the existing railroad grade, habitat-related effects of the project will be limited to a strip that is about 20 feet wide in most places. This amounts to only 13 acres of affected habitat along the entire 5.5-mile easement. Much of this already is partially open due to use and maintenance of the trail. Thirteen acres is a barely measurable fraction (0.25 percent) of the total habitat in the canyon (approximately 5,160 acres), so the project's contribution to cumulative habitat effects beyond the canyon likely would not be measurable in a meaningful way. Disturbance-related effects may be more extensive than habitat-related effects, but still are likely to be below the threshold of meaningful measurement on any scale larger than the 5,160-acre canyon.

The southwestern end of the proposed easement lies within Indiana bat (*Myotis sodalis*) primary range associated with three caves located less than 5 miles to the south. Two of these caves also harbor Virginia big-eared bats (*Corynorhinus townsendii virginianus*), so the southwestern end of the proposed easement also lies within the 6-mile-radius foraging habitat for this species. Typically the Monongahela National Forest (MNF) evaluates cumulative effects to bat foraging habitat within the entire 5-mile or 6-mile circle. In this case, however, the amount of habitat to

be affected is so small that the contribution to cumulative effects within the entire foraging circle cannot be measured in a meaningful way. Therefore, the analysis of cumulative effects to bat foraging habitat also will be limited to Blackwater Canyon.

Population viability for RFSS is addressed at the Forest-wide scale because the regulatory requirement for maintaining viable populations specifically addresses Forest-wide viability, rather than site-specific viability.

Temporal Boundary

The temporal boundary for direct, indirect, and cumulative effects of noise and visual disturbance associated with upgrade activities is the time during which the upgrade activities will take place. The precise timing of upgrade activities is not known; upgrade activities are expected to occur as needed to facilitate pickup, log truck and/or equipment access. Noise and visual disturbances associated with upgrade activities are not expected to persist after the activities are completed. The temporal boundary for the habitat changes associated with the upgrade and the noise and visual disturbance associated with the use and maintenance of the easement is the duration of the easement. These effects are expected to persist for as long as the easement is used and maintained.

Cumulative effects discussions in this section will include the existing condition (affected environment), the impacts of the alternatives discussed, and those activities in table 3.1 related to continued recreation, trail maintenance, and possible commercial thinning activities on private lands.

Affected Environment

Past and present activities identified in table 3.1 that have resulted in the existing conditions related to wildlife species and habitat are those related to the construction of the railroad grade, development below the planning area, construction and maintenance of Forest road 18, past fire, past timber harvest, maintenance of the grade, and hiking and mountain bike use. Because different species have different habitat needs, the wildlife discussions will discuss the affected environment and effects for each species or groups of species considered in this analysis.

Effects of No Action Alternative (1) And Similarity of Action Alternatives (2 And 3)

The No Action Alternative would not involve any changes from the existing use and maintenance of the railroad grade, and thus would have no effects beyond those that already occur under the existing condition. Wildlife habitat along the railroad grade would be maintained in approximately its current state by trail maintenance, while recreational use would continue existing levels of visual and auditory disturbance. Therefore, for all terrestrial fauna included in this analysis, the No Action Alternative is considered to have no effects beyond the existing condition described in the Affected Environment subsections. For the remainder of this analysis, all direct, indirect, and cumulative effects described refer to the Action Alternatives (Alternatives 2 and 3). These two alternatives are combined for analysis because they do not

differ in terms of habitat alteration, soil disturbance, noise, etc., therefore effects to wildlife populations and habitats are expected to be essentially the same.

Terrestrial Management Indicator Species

Implementing regulations for the National Forest Management Act (NFMA) require National Forests to select MIS to monitor the effects of Forest management activities on fish and wildlife populations and habitat (36 CFR 219.19). The Forest Plan identifies nine terrestrial animal species as management indicator species:

- Virginia big-eared bat
- Indiana bat
- Cheat Mountain salamander (*Plethodon nettingi*)
- Black bear (*Ursus americanus*)
- Wild turkey (*Meleagris gallopavo*)
- White-tailed deer (*Odocoileus virginianus*)
- Gray squirrel (*Sciurus carolinensis*)
- Snowshoe (varying) hare (*Lepus americanus*)
- West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*)

The Forest Plan also includes “wild trout” on the MIS list. The three fish species that make up this MIS category are discussed in the Aquatic Resources section of this chapter. Four of the terrestrial MIS – Virginia big eared bat, Indiana bat, Cheat Mountain salamander, and West Virginia northern flying squirrel – are federally-listed as threatened or endangered. These species are discussed in the Threatened and Endangered Terrestrial Animals subsection. The remainder of the terrestrial MIS analysis will focus on black bear, wild turkey, white-tailed deer, gray squirrel, snowshoe hare, and the habitats that they represent.

Affected Environment

All the past and present activities listed in table 3.1 have contributed to the existing conditions discussed in this section except the reinforcement of the arches and the strip mining.

MIS Habitat in Blackwater Canyon

Wildlife habitat in Blackwater Canyon is dominated by even-aged second-growth forest that originated after the entire area was clearcut logged during the late 1800’s and early 1900’s. Ninety percent of National Forest land in the canyon is occupied by forest stands that are between 65 and 101 years old. Stands on National Forest land, which occupies most of the north side of the canyon, are dominated by mixed mesophytic hardwoods (Table 3.3). The tree species composition of the mixed hardwoods forest type is diverse and highly variable, but typically includes such species as sugar maple (*Acer saccharum*), red maple (*A. rubrum*), black cherry (*Prunus serotina*), American beech (*Fagus grandifolia*), yellow-poplar (*Liriodendron tulipifera*), basswood (*Tilia americana*), white ash (*Fraxinus americana*) and northern red oak (*Quercus rubra*). Other forest type groups that occupy 5 percent or more of the National Forest land in the canyon include mixed oaks (white oak [*Q. alba*] and red oak) and northern hardwoods (sugar

maple, American beech, yellow birch [*Betula allegheniensis*]). The red spruce (*Picea rubens*)/balsam fir (*Abies balsamea*) forest type covers only a few acres of National Forest land in the canyon.

Table 3.3: Forest Type Groups on National Forest Land in Blackwater Canyon.

Forest Type Group	Forest Service Forest Types Included in Group	Acres	Percent of National Forest Land in Canyon
Mixed mesophytic hardwoods	83 (black cherry/white ash/yellow poplar), 84 (red maple – dry site), 89 (mixed upland hardwoods)	1,453	66
Mixed oaks	56 (yellow-poplar/white oak/northern red oak), 59 (mixed oaks)	645	5
Northern hardwoods	87 (sugar maple/beechn/yellow birch/red spruce), 96 (birch)	110	5
Spruce	13 (red spruce/balsam fir)	7	<1

The private land in Blackwater Canyon, which occupies the south side of the canyon and a small portion of the north side of the canyon, appears to support somewhat different wildlife habitats than the National Forest land in the canyon. Although the Forest Service does not have stand data for this land, aerial photography and observations made during field reconnaissance from the old railroad grade provide some information on the wildlife habitats present. The private land on the south side of the canyon appears to have a much more prominent conifer component, particularly at the higher elevations near the canyon rim and in the upper (northeastern) end of the canyon. The stands with the conifer component appear to be a mixture of eastern hemlock (*Tsuga canadensis*), red spruce, and northern hardwoods. Private lands in the lower (southwestern) end of the canyon appear to be dominated by mixed mesophytic hardwoods. The age class distribution of the private land probably is similar to that of the National Forest land because the widespread logging in the late 1800s and early 1900s affected all areas of the canyon, regardless of current ownership. However, recent thinning or selection harvesting, as evidenced by stumps and partial canopy openings observed during field reconnaissance from the railroad grade, have created small shrubby openings and an uneven-aged stand structure on an unknown proportion of the private land.

Based on the habitat present in Blackwater Canyon, it is likely, or at least possible, that all of the five MIS discussed in this section occur within the canyon. It is also possible that any of them could occur along the old railroad grade that is the subject of the easement request. Black bears and white-tailed deer were observed along the railroad grade during field reconnaissance. Despite the presence of habitat for these five species, habitat in the canyon is not optimal for any of them.

The oak component of the forest provides mast that forms an important food source for black bears, wild turkeys, white-tailed deer, and gray squirrels (Pelton, 1989, Steffen, et. al., 2002, DeNicola et. al, 2000). Oaks dominate a minority of the land in the canyon, though, so hard mast probably is not abundant enough to support high densities of these species. In addition, hickories (*Carya* spp.) appear to be scarce, which deprives bears and squirrels of an important alternative food source during oak mast failures.

Herbaceous openings and shrubby regeneration are essentially nonexistent on National Forest land in the canyon, except for the narrow disturbed strip along the old railroad grade. Lack of such habitat limits browse for deer (DeNicola, 2000), as well as nesting and brooding habitat for wild turkeys (Wunz and Pack, 1992, Everett et. al., 1985). Visual and auditory disturbance due to frequent recreational use of the old railroad grade limits its value as nesting and brooding habitat for turkeys. However, logging roads, skid trails, and recent thinning/selection harvest areas on the private land in the canyon may partly compensate for the lack of shrubby and herbaceous habitat on National Forest land.

Snowshoe hares could occur in shrub/sapling areas in northern hardwood, hemlock, and spruce stands in the canyon. Disturbed areas in these habitats appear to be rare in the canyon, but do occur along the upper (northeastern) end of the railroad grade and along the Canyon Rim Road on the north rim of the canyon. Logging roads, skid trails, and recent thinning/selection harvest areas on the private land in the canyon may provide early successional spruce and northern hardwoods that could be used by snowshoe hares. The amount of such habitat is not known, but based on inspection of aerial photographs, it does not appear to be extensive.

Direct and Indirect Effects

Effects to Habitat

The upgrade activities associated with the proposed easement likely would involve clearing encroaching vegetation from the old railroad grade surface, grading the surface, rehabilitating or replacing drainage ditches and structures, and adding aggregate to the surface. These activities would remove vegetated wildlife habitat from the surface of the railroad grade. These activities would affect approximately 13 acres of habitat by removing primarily herbaceous vegetation, shrub/sapling vegetation, and overhanging tree limbs, all of which have encroached on the railroad grade despite periodic trail maintenance. Upgrading in some areas may require removal of occasional mature trees that are growing on the cut-and-fill slopes. Vegetation removal would eliminate the browse for white-tailed deer and snowshoe hares, as well as the low-quality turkey brood habitat, that is currently provided by the herbs and shrubs growing on the grade. Vegetation removal would also remove any soft mast provided by shrubs on the grade, which could slightly reduce food availability for all of the five MIS discussed in this section. The loss of herbaceous and shrub/sapling vegetation could be at least partially offset by growth of such vegetation in the forest edges that would be expanded outward by the wider canopy opening associated with cutting overhanging limbs. Any removal of mature trees on the cut-and-fill slopes could involve removal of hard mast-producing trees, but large-scale removal of trees is not expected, so any reduction in hard mast production likely would not be measurable in the context of total mast production on the north side of the canyon.

The duration of these habitat effects is difficult to predict due to lack of information on the expected frequency of maintenance. If maintenance of the upgraded railroad grade is frequent, the effects could be essentially permanent through the life of the easement. However, if maintenance occurs only in conjunction with periodic log hauling every 10 to 15 years, herbaceous and shrubby vegetation likely would re-grow within 5 years after each maintenance episode. This would result in a repeating cycle of up to 5 years of reduced herbaceous and

shrubby vegetation, followed by 5 to 10 years of vegetation conditions similar to the current condition.

Effects to Individuals

The upgrade, maintenance, and log-hauling activities would involve large trucks and/or heavy equipment and likely would cause auditory and visual disturbance of all five MIS discussed in this section. The spatial extent of this disturbance is difficult to quantify, but likely would differ by species. For black bears and nesting/brooding wild turkeys, both of which are known to be sensitive to such disturbances, the effects would extend well beyond the boundaries of the easement. For the other species, the extent of disturbance likely would be less than for bears and turkeys, but still would extend beyond the easement boundaries. Disturbance effects would occur whenever upgrade, maintenance, and log-hauling activities occur. Thus, a period of disturbance would occur for the duration of the initial upgrade activities, which most likely would be a period of weeks or months rather than years. Disturbance would be expected to occur every 10 to 15 years thereafter in association with log-hauling, again probably for a period of weeks or months rather than years. Additional disturbance would occur whenever maintenance occurs, which might be as frequent as every year or two, or as infrequent as every 10 to 15 years if maintenance is performed only in association with log-hauling.

The pickup truck access to be granted by the easement also would cause some visual and auditory disturbance of MIS. While the magnitude of such disturbance would be substantially less than the magnitude of the disturbance caused by upgrade, maintenance, and log-hauling activities, it would be greater than the magnitude of the disturbance caused by the current recreational use of the railroad grade. The frequency and duration of disturbance by pickups is not possible to predict because the easement allows such access at any time.

MIS could suffer direct mortality or harm if they are struck by log trucks, heavy equipment, or pickup trucks. Strikes by log trucks and heavy equipment are likely to be rare due to the normally low speed of these vehicles and the high noise level that likely will frighten animals away before they are struck. Strikes by pickup trucks may be more likely, but the extent of such strikes is not possible to predict due to lack of information on the expected level of use.

Cumulative Effects

Cumulative effects to all wildlife species include the effects of the past activities discussed above, the effects of the alternatives presented and all the reasonably foreseeable future actions except the Mettiki mine. This activity is well beyond the spatial scope of this analysis.

Effects to Habitat

Over the short term, removal of herbaceous and shrubby vegetation on the railroad grade will decrease the cumulative amount of this habitat available to deer, turkeys, and snowshoe hares within Blackwater Canyon in the short term. It is not possible to quantify this reduction relative to the total amount of such habitat in the canyon because the amount that is available on private land due to roads, skid trails, and recent selection harvesting is not known. Over the long term, a

net cumulative increase in herbaceous and shrubby habitat in the canyon would be expected due to additional thinning and selection harvesting that is planned on private land. Although the extent of this planned harvesting is not known, it is expected to outweigh the 13 acres of habitat to be impacted by upgrading and maintaining the railroad grade.

Effects to Individuals

The disturbance effects associated with the railroad grade upgrade, maintenance, log hauling, and pickup truck travel will add to the disturbance effects of the continuing recreational use of the grade and the planned harvest activities on private land. The net result will be an increase in the cumulative amount of disturbance to MIS in Blackwater Canyon during the times that upgrade, maintenance, and log hauling occur. The magnitude of the cumulative increase cannot be predicted because the amount of disturbance due to planned timber harvesting on private land and ongoing recreation on the grade is not known. However, effects to the more disturbance-sensitive black bear and wild turkey are expected to be greater than disturbance effects on the other MIS.

Any vehicle strike mortality will add to hunting mortality of MIS and vehicle strike mortality on roads on private land, thereby increasing the cumulative amount mortality in the canyon. The cumulative increase cannot be quantified because of lack of hunting harvest information for the canyon and lack of information on expected pickup truck use levels on the railroad grade and the roads on private land.

Threatened and Endangered Terrestrial Animals

Five federally-listed threatened and endangered animals are known to occur on the MNF. They are the Indiana bat (*Myotis sodalis*), the Virginia big-eared bat (*Corynorhinus townsendii virginianus*), the West Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*), the Cheat Mountain salamander (*Plethodon nettingi*), and the Bald Eagle (*Haliaeetus leucocephalus*).

Four of the five federally-listed terrestrial animals that occur on the MNF are either known to occur in Blackwater Canyon or could occur based on the presence of potential habitat. One species, the bald eagle, is considered unlikely to occur in the canyon, except for possible migrating or transient individuals passing through. The nearest known nest sites are approximately 20 miles away in the Smoke Hole area of Grant County. No nearby roosting or feeding concentration areas are known. Therefore, the potential for occurrence in the project area is considered low, and the bald eagle will not be analyzed further in this document.

Two other listed species, gray wolf (*Canis lupus* – endangered) and eastern cougar (*Puma concolor cougar* – endangered), formerly existed in the area, but are believed to have been extirpated in the late 1800s or early 1900s (WVDNR 1988, Stihler 2000). One listed species, the gray bat (*Myotis grisescens*), is known from one record from a winter hibernaculum survey in 1991. This record is considered accidental, and the species is not considered to occur in West Virginia (Stihler pers. comm. 2000). These three species will not be discussed further in this analysis.

Indiana Bat

Affected Environment

General Habitat Requirements – Indiana bat distribution is generally associated with limestone karst (solution caves) in the eastern U.S. (Menzel et al. 2001). Indiana bats occupy distinct habitat types: caves and mines are used for hibernation during winter, while forested areas are used for summer foraging, roosting, and fall swarming.

Romme et al. (1995) described optimal roosting habitat as having 60 to 80 percent canopy cover, an abundance of large trees and snags (>8.7 inches DBH), and a relatively open understory. Tree structure, specifically the availability of exfoliating bark with roost space underneath, is a critical characteristic for roost trees. Indiana bats use isolated trees in openings as roost trees (Kurta et al. 1993), and they may switch between shaded and unshaded roost trees depending on weather conditions (Callahan et al. 1997; Kurta et al. 1996) and physiological requirements associated with thermal regulation. Loud noise from construction equipment has been known to disturb maternity colonies (Garner and Gardner 1992, cited in Evans et al. 1998).

While summer foraging habitat needs are not well understood (USFWS 1997), Indiana bats prefer to forage within upper forest canopy layers where overstory canopy cover ranges from 50 to 70 percent. Foraging habitat suitability declines slightly above and below this range (Romme et al. 1995).

Habitat on the Monongahela National Forest and in Blackwater Canyon – Indiana bat habitat on the MNF is managed through the use of four “areas of influence” that encompass the aspects of Indiana bat habitat that are considered most important for survival and reproduction: maternity sites, hibernacula, key areas, and primary range.

Maternity sites are evidenced by lactating females or juveniles discovered prior to August 15. A maternity site is surrounded by a 2-mile radius buffer around the maternity roost site, or around the lactating female/juvenile discovery site if the roost trees cannot be located. Maternity site buffers are maintained for three years and are currently managed under MP 8.0, Opportunity Area 838. Blackwater Canyon does not contain any known maternity sites or any portion of the 2-mile buffer around the one known maternity colony within the MNF proclamation boundary.

The MNF conducts surveys for maternity colonies and summering males using mist net surveys designed according to the protocol outlined in the draft revised recovery plan (USFWS 1999). These surveys are conducted at several long-term monitoring sites that are frequented by summering Indiana bats, as well as in watersheds that are scheduled for upcoming timber management. Because the MNF has no imminent plans for timber management activities in Blackwater Canyon, mist net surveys have not been conducted in the canyon. Mist net surveys were conducted in the Clover Run watershed, approximately 5 miles northwest of Blackwater Canyon, in the summer of 2003. No Indiana bats were caught there. Long-term mist net monitoring has been conducted in the lower Gladly Fork watershed, approximately 5 miles south of Blackwater Canyon. In 2004, the capture of a lactating female at this site resulted in the discovery of the only known maternity colony within the MNF proclamation boundary.

The MNF received information that AWP conducted mist net surveys on the south side of the canyon in August 2005 as part of a Habitat Conservation Plan that they are preparing to address threatened and endangered species on their property. The MNF does not have the data from these surveys, but has been informed that no threatened or endangered bats were caught (C. Stihler pers. comm. 2005).

Even with information from site-specific surveys, the possibility that Blackwater Canyon is used by a maternity colony or roosting males cannot be completely ruled out, particularly since a large portion of the canyon is within 5 miles of three known hibernacula (see discussion of hibernacula and primary range in the following paragraphs). Approximately 90 percent of National Forest land in the canyon is 65 years old or older, and much of it is hardwood or hardwood-conifer mix. Thus, potential roosting habitat is abundant on National Forest land in the canyon, although canopy closure is likely to be above the optimal 60 to 80 percent level because of lack of recent thinning or natural disturbance. The existing railroad grade provides a partial break in the canopy that may enhance the suitability of potential roost trees along the grade. The age class distribution of the private land in the canyon is not known, but is likely to be similar to that of the National Forest land because all land in the canyon was cut over around the same time period in the late 19th and early 20th Centuries. Based on examination of aerial photographs, the tree species composition on the private land in the canyon is likely to be less favorable to Indiana bats due to a larger conifer component than on National Forest land. However, canopy closure levels on the private land may be more suitable for roosting habitat due to recent thinning or selection harvests that appear to have created a semi-open canopy in some places.

Hibernacula are defined as 200-foot radii around entrances to occupied caves and are currently managed under MP 8.0, Opportunity Area 838. There are no known hibernacula in Blackwater Canyon. A cluster of small caves near the mouth of Blackwater Canyon has been explored by cavers, but no evidence of bats was noted on the survey forms (USDA Forest Service unpublished data). The closest known hibernacula are Big Springs Cave, Cave Hollow-Arbogast, and Coal Run Cave, all located within 2 to 5 miles of the southwestern end of the canyon.

Key areas are designated by the MNF to provide mature forest habitat near hibernacula. A key area is at least 150 acres in size, and, as appropriate, should include 20 acres of older growth forest and 130 acres of mature forest located as close to the cave as possible. Key areas are managed under MP 8.0, Opportunity Area 838. There are no designated key areas within Blackwater Canyon. The closest key area is associated with Coal Run Cave and is located approximately 1 mile south of the canyon.

Primary range, which includes summer foraging, roosting, and fall swarming areas, is defined as all areas within 5 miles of hibernacula. Primary range is managed mostly under MP 6.3, with some portions managed under MPs 5.0, 6.2, or 8.0, which place more restrictions on management than MP 6.3. Management of primary range under MP 6.3 focuses on providing a continuous supply of potential roost trees and maintaining or restoring canopy closure levels that are favorable for roosting and foraging habitat.

Primary range associated with Big Springs Cave, Cave Hollow-Arbogast, and Coal Run Cave covers approximately 3,560 acres of Blackwater Canyon, or about 69 percent of the canyon (National Forest and other land ownerships combined). Primary range overlaps 2.6 miles of the proposed easement. National Forest land within the primary range supports a mixture of hardwood forest types, more than 90 percent of which is over 70 years old. This habitat has the potential to support summer foraging, roosting, and fall swarming, although due to lack of recent thinning or disturbance, canopy closure is above the 50 to 70 percent level that is optimal for foraging. The existing railroad grade provides a partial break in the canopy that may enhance the suitability of potential roosting and foraging habitat along the grade. Stand data are not available for primary range on private land in the canyon, but the age class distribution is likely to be similar to the distribution on National Forest land. Based on examination of aerial photographs, the tree species composition on the private land in the canyon is likely to be less favorable for Indiana bat foraging, roosting, and swarming due to a larger conifer component than on National Forest land. However, canopy closure levels on the private land may be more suitable for foraging, roosting, and swarming due to recent thinning or selection harvests that appear to have created a semi-open canopy in some places.

Direct and Indirect Effects

Effects to Habitat –Upgrading in some areas may require removal of occasional mature trees that are growing on the cut-and-fill slopes. This vegetation removal along the railroad grade would enlarge the existing linear canopy opening, which could improve roosting habitat along the grade by exposing more potential roost trees to sunlight. The canopy opening and associated edge habitat also may improve foraging habitat by mimicking the canopy gaps associated with preferred foraging habitat. Cutting of occasional mature trees along the grade may remove some potential roost trees if snags or trees with sloughing bark are removed. Assuming an average clearing width of 20 feet, these alterations to vegetation would affect approximately 6 acres of primary range and about 13 acres of total habitat along the easement. As discussed above in the MIS subsection, whether habitat effects become permanent for the life of the easement or periodic in association with log hauling every 10 to 15 years depends on the frequency of maintenance.

Known hibernacula and designated key areas do not exist in Blackwater Canyon, so the action alternatives would not affect these aspects of Indiana bat habitat.

Effects to Individuals – Because cutting of trees greater than 5 inches dbh would be limited to occasional encroaching trees along the railroad grade, killing or injuring roosting bats would be unlikely, but could occur if any are roosting in the trees to be removed.

Noise associated with the upgrade, maintenance, and log hauling activities may disturb Indiana bats if any are roosting adjacent to the railroad grade. However, effects from noise disturbance likely would be limited to causing bats adjacent to the grade to switch roosts. Because essentially the entire canyon is adequate roosting habitat, suitable alternate roosts likely would be readily available. Because heavy equipment and log trucks generally move slowly, the likelihood of flushed bats being struck by equipment and log trucks is considered very low. Effects from noise disturbance would occur during the initial use of heavy equipment to upgrade

the railroad grade, during periodic use of heavy equipment to maintain the grade, and during log hauling.

Cumulative Effects

Effects to Habitat – The direct and indirect habitat effects outlined above for the action alternatives would make a minor addition to the cumulative effects of similar habitat changes that would be caused by reasonably foreseeable future actions. Reasonably foreseeable actions that have the potential to affect Indiana bat habitat include continued maintenance of the trail along the railroad grade and the planned thinning and selection harvesting on private land in Blackwater Canyon. The overall cumulative effects would include a beneficial increase in areas with canopy closure levels favorable for Indiana bat roosting and foraging, a beneficial increase in the number of potential roost trees with favorable solar exposure, and the detrimental removal of potential roost trees when mature trees are cut. However, because the action alternatives would affect such a small amount of habitat compared to the amount that is likely to be affected by timber management activities on private land in the canyon, the contribution to these cumulative effects would be very small.

Effects to Individuals – The action alternatives have the potential to make a small addition to cumulative noise disturbance of roosting Indiana bats caused by reasonably foreseeable future actions in Blackwater Canyon. The primary future action with the potential to disturb roosting Indiana bats is the planned timber management activities on private land in the canyon. Because the action alternatives would affect such a small area compared to the area that is likely to be affected by timber management activities on private land in the canyon, the contribution to these cumulative effects is likely to be minor. Although the planned timber management on private land has the potential to cause harm or mortality of roosting Indiana bats through cutting roost trees, the action alternatives would be very unlikely to contribute to these effects.

Virginia Big-Eared Bat

Affected Environment

General Habitat Requirements – The Virginia big-eared bat is a year-round cave obligate species occupying a very limited geographic range in the central Appalachians. Even when not hibernating, Virginia big-eared bats return to caves, or sometimes old buildings, to roost during the day. In spring, females form small maternity colonies, while males, being solitary during summer, move to different cave areas and may form bachelor colonies during maternity season.

Virginia big-eared bats generally forage near their maternity caves. They have been documented foraging up to 6 miles from cave entrances (Stihler 1995), and foraging areas may include open pastures, fields, forests, and forest edges.

Habitat on the Monongahela National Forest and in Blackwater Canyon – The MNF has defined three areas of influence that are used to manage important habitat for Virginia big-eared bats. These areas of influence are identified summer colony sites (maternity and bachelor sites), hibernation sites, and foraging areas, which consist of all habitat within a 6 mile radius of

hibernacula and summer colonies. Under the 1986 plan, as amended, areas at least 200 feet in radius around winter hibernacula, summer colonies, and occupied mine openings are defined and managed as Opportunity Area 837. Because Virginia big-eared bats forage in a wide variety of habitat conditions, no special management measures are taken in the 6-mile radius foraging areas.

There are no known Virginia big-eared bat summer colonies or hibernacula in Blackwater Canyon. A cluster of small caves near the mouth of Blackwater Canyon has been explored by cavers, but no evidence of bats was noted on the survey forms. The nearest caves known to be used by Virginia big-eared bats are Big Springs Cave, located approximately 3 miles southwest of the canyon, and Cave Hollow-Arbogast, located approximately 4 miles south of the canyon. Big Springs Cave is considered a hibernaculum, although only two individuals have been observed there in one winter survey (WVDNR 2003). Cave Hollow-Arbogast is both a maternity colony and a hibernaculum. It is one of the more important maternity colonies in the state, typically hosting 300 to 1,000 adults during the summer (WVDNR 2004). Cave Hollow-Arbogast has been designated as critical habitat by the USFWS.

Blackwater Canyon contains part of the 6-mile radius foraging habitat associated with Big Springs Cave and Cave Hollow-Arbogast. Approximately 3,990 acres of foraging habitat exist within the canyon and 3.3 miles of the proposed easement lie within foraging habitat. On National Forest land in the canyon, essentially all of the foraging habitat is hardwood forest, over 90 percent of which is more than 70 years old. Because Virginia big-eared bats are known to forage in a wide variety of forested and open habitats, all of this land could potentially serve as adequate foraging habitat. However, the openings and edges that are often used by this species are lacking. The existing railroad grade provides a partial break in the canopy that may enhance the suitability of potential foraging habitat along the grade. Stand data are not available for the private land in the canyon, but the age class distribution on this land likely is similar to the distribution on National Forest land. However, recent selection or thinning harvests on private land may have enhanced the diversity of foraging habitat by creating partial canopy openings.

Direct and Indirect Effects

Effects to Habitat – Upgrade activities would enlarge the existing linear canopy opening along the grade. This could improve Virginia big-eared bat foraging habitat by increasing habitat diversity and edge habitat along the railroad grade. Assuming an average clearing width of 20 feet, these alterations to vegetation would affect approximately 8 acres of Virginia big-eared bat foraging habitat along the 3.3-mile section of the railroad grade that is within the 6-mile foraging habitat radius. Negative effects to Virginia big-eared bat foraging habitat are not anticipated. As discussed above in the MIS subsection, whether habitat effects become permanent for the life of the easement or periodic in association with log hauling every 10 to 15 years depends on the frequency of maintenance.

Effects To Individuals - All activities associated with the action alternatives are expected to occur during the day. Because Virginia big-eared bats roost in caves or old buildings during the day and no caves or old buildings that are known to harbor Virginia big-eared bats occur near the

proposed easement, the action alternatives are not expected to affect individual Virginia big-eared bats directly.

Cumulative Effects

Effects to Habitat – The direct and indirect habitat effects outlined above for the action alternatives would make a minor addition to the cumulative effects of similar habitat changes that would be caused by reasonably foreseeable future actions. Reasonably foreseeable actions that have the potential to affect Virginia big-eared bat habitat include continued maintenance of the trail along the railroad grade and the planned thinning and selection harvesting on private land in Blackwater Canyon. The overall cumulative effects would include a potentially beneficial increase in diversity of foraging habitat. The increase in diversity would be caused by partial canopy openings created by the proposed upgrade and maintenance activity together with thinning and selective timber harvest on private land. However, because the action alternatives would affect such a small amount of habitat compared to the amount that is likely to be affected by timber management activities on private land in the canyon, the contribution of the project to these cumulative effects would be very small.

Effects to Individuals – Because the action alternatives would not involve any direct effects to individuals, they would not contribute to the cumulative effects of any other actions on individual Virginia big-eared bats.

West Virginia Northern Flying Squirrel

Affected Environment

General Habitat Requirements - In the central Appalachians, northern flying squirrels commonly prefer conifer/hardwood ecotones or mosaics dominated by red spruce and fir with hemlock, beech, yellow birch, sugar or red maple, and black cherry associates. Northern flying squirrels have also been captured in northern hardwoods with a conifer understory (Stihler et.al. 1995). Northern flying squirrels have been captured in stands of various ages, understories, densities, and species composition, but most have been in moist forests with some widely-spaced, mature trees, abundant standing and downed snags (USFWS 1990, WVDNR 1997), usually with some conifer (spruce, hemlock, fir) present (Stihler 1994b).

Habitat on the Monongahela National Forest and in Blackwater Canyon – The Monongahela National Forest is believed to contain more than 90 percent of the range-wide habitat for the West Virginia northern flying squirrel (Stihler pers. comm. 1999). Under the Forest Plan, suitable habitat for the West Virginia northern flying squirrel is managed under MP 8.0/Opportunity Area 832. Suitable habitat is identified and mapped consistent with the Guidelines for Habitat Identification and Management found in the updated *Appalachian Northern Flying Squirrels Recovery Plan* (USFWS 2001). At the Forest-wide level, suitable habitat is identified and mapped based on the MNF's stand inventory forest type and plot data. A map of suitable habitat is collaboratively produced between the MNF, USFWS, and WVDNR. The map is reviewed and refined at the project level based on aerial or satellite imagery supplemented with field reconnaissance. All capture locations are included in suitable habitat.

All mapped suitable habitat is assumed to be occupied by WVNFS, and emphasis is placed on protecting this habitat.

West Virginia northern flying squirrels have been captured at 14 locations in Blackwater Canyon (USDA Forest Service unpublished data). Most captures have been on private land near the south rim, although one capture occurred in the north fork of the canyon near the border between National Forest land and private land, very close to the northeastern end of the proposed easement.

Suitable habitat has been identified and mapped on National Forest land along the northern and southern rims of the canyon. Approximately 60 acres of mapped suitable habitat on National Forest land extends into the canyon, primarily along the northern rim. National Forest land in the north fork of the canyon along the proposed easement route has not been mapped as suitable habitat. However, based on the nearby capture record, aerial photography that appears to show mixed conifer-hardwood vegetation, and a field reconnaissance that found this area to be covered by a northern hardwood-hemlock mixture, National Forest land in the north fork of the canyon probably should be considered suitable habitat. While the habitat here probably is not optimal due to its young, partly disturbed condition and sparse conifer component, it may be used as a travel corridor by squirrels moving between areas of better habitat that partially surround this part of the canyon. The MNF plans to propose a revision to the suitable habitat map that would add approximately 56 acres of suitable habitat on National Forest land in this area. Suitable habitat typically is not mapped on private land, so there is no estimate of the amount of suitable habitat on the private land in Blackwater Canyon. However, based on capture records and inspection of aerial photographs, much of the private land on the south side of the canyon, particularly near the rim and in the upper (northeastern) end of the canyon, appears to be suitable habitat.

Direct and Indirect Effects

Effects to Habitat – Upgrade and maintenance activities would enlarge the existing linear opening along the grade. Grading and surfacing would replace the encroaching herbs and shrubs with aggregate. Assuming a clearing width of approximately 20 feet, these activities would affect approximately 2 acres along approximately 0.8 mile of the easement where the addition to mapped suitable habitat will be proposed. Because approximately half of the railroad grade lies on National Forest land, only half of the area to be affected (1 acre) lies within the proposed addition to mapped suitable habitat on National Forest land. The vegetation to be removed is primarily herbaceous and shrub/sapling vegetation within the area previously disturbed by construction and maintenance of the grade. There is little or no habitat on the railroad grade that approximates the moist, mature conifer-hardwood forests preferred by this species. Therefore, the effects to West Virginia northern flying squirrel habitat are expected to be negligible.

Effects to Individuals – Because the habitat to be affected by the vegetation removal associated with upgrade and maintenance activities has very little potential to harbor West Virginia northern flying squirrels, it is extremely unlikely that upgrade, maintenance, and log hauling activities will directly harm or kill individuals.

If any West Virginia northern flying squirrels are denning adjacent to the railroad grade during the upgrade, maintenance, and log hauling activities, noise from heavy equipment and log trucks could disturb them and cause them to flee from their cavities or nests. However, given the small area of habitat to be affected and the low quality of the habitat along the grade, the number of squirrels disturbed is likely to be very low. Should any squirrels be disturbed, the chances of them being struck by heavy equipment or log trucks is considered negligible due to the normally low speed of these vehicles. Pickup truck traffic is considered unlikely to disturb squirrels because of the low level and duration of noise associated with passing pickup trucks.

Cumulative Effects

Effects to Habitat – Because direct and indirect effects of the action alternatives on West Virginia northern flying squirrel habitat are expected to be negligible, any contribution to the cumulative effects of other actions on habitat are not expected to be measurable.

Effects to Individuals – Reasonably foreseeable future logging activities on private land in Blackwater Canyon may disturb denning West Virginia northern flying squirrels. The upgrade, maintenance, and log hauling activities included in the action alternatives may make a small contribution to the cumulative amount of disturbance in the canyon. However, because of the low number of squirrels expected to be disturbed by the action alternatives, any contribution to cumulative disturbance is not likely to be measurable at the scale of the entire canyon.

Cheat Mountain Salamander

Affected Environment

General Habitat Requirements – The Cheat Mountain salamander is restricted to high-elevation forests containing a red spruce component and mixed deciduous forests with a *Bazzania*-dominated forest floor (Pauley and Pauley 1997).

Because of physiological requirements, Cheat Mountain salamanders require microhabitats with high relative humidity (Feder 1983, Feder and Pough 1975) and acceptable temperatures. Cheat Mountain salamanders shelter under rocks and rotten logs to conserve moisture. Old, structurally complex forests are more likely than young forests to provide the necessary moist, stable microenvironments (USDA Forest Service 2001), although Cheat Mountain salamanders can occur in younger forests where abundant loose rocks provide shelter.

Habitat on the Monongahela National Forest and in Blackwater Canyon – High potential Cheat Mountain Salamander habitat on MNF land is estimated at over 100,000 acres Forest-wide. Surveys have documented occurrences at scattered locations within and near that potential habitat (USDA Forest Service unpublished data). Cheat Mountain Salamanders are generally confined to high-elevation areas in the northern and central portions of the Forest. Recent surveys have expanded the known range of the Cheat Mountain Salamander to about 935 square miles, with about 65 of the 85 known occurrences located on MNF land.

Cheat Mountain salamanders are known to occur at four locations in Blackwater Canyon, all of which are on private land on the south side of the canyon. Most surveys in the canyon to date have focused on the north and south canyon rims, which support spruce forest that is connected to larger areas of spruce forest on the adjacent plateaus. Surveys in the area were conducted by Dr. Thomas K. Pauley of Marshall University, who is the recognized leading expert on the species. The surveys on the north side of the canyon were conducted in 1993 (T.K. Pauley, pers. comm., 20 October 2005).

Mapped high potential habitat covers approximately 730 acres in the canyon, with 410 acres of this occurring on National Forest land and 320 acres on private land. The mapped high potential habitat is not completely accurate, however, as one of the known salamander locations in the canyon lies outside the mapped habitat. Mapped high potential habitat lies adjacent to the old railroad grade at one point along the route of the proposed easement. However, field reconnaissance of this location revealed the habitat to be low-elevation mixed mesophytic hardwoods with a minor hemlock component, which is not likely to provide habitat for Cheat Mountain salamanders.

While no potential habitat is mapped in the north fork of the canyon, aerial photography appears to show mixed conifer-hardwood vegetation, and a field reconnaissance along the railroad grade in this area found northern hardwood-hemlock forest. While the vegetation is not old and structurally complex and therefore does not appear to be optimum Cheat Mountain Salamander habitat, potential presence in the north fork of the canyon cannot be ruled out without a survey. The MNF conducted a salamander survey on the uphill (Forest Service) side of the railroad grade in late September 2005. While the summer of 2005 was very dry and survey conditions were less than optimal, rain had fallen the morning of the survey and conditions were moist enough to support some salamander activity. The survey located slimy salamanders (*Plethodon glutinosus*), red-backed salamanders (*Plethodon cinereus*), and one red eft (*Notophthalmus viridescens*), but no Cheat Mountain salamanders. While the presence of Cheat Mountain Salamanders cannot be ruled out based on this survey, the lack of Cheat Mountain salamanders coupled with the presence of other *Plethodon* species suggests a low probability of occurrence. Past survey experience suggests that where the Cheat Mountain salamander occurs, it is often the predominant species found in surveys, whereas it tends not to be found in association with other *Plethodon* species. Dr. Pauley has stated that the habitat on the north side of the canyon does not appear to be right for Cheat Mountain salamanders (T.K. Pauley, pers. comm., 20 October 2005).

While the railroad grade passes through low-potential habitat in the north fork of the canyon, the grade itself is very unlikely to support Cheat Mountain salamanders. Due to past soil and vegetation disturbance associated with construction of the grade and ongoing disturbance associated with maintenance and recreational use of the grade, the surface of the grade is not continuously vegetated or shaded and is composed of ballast rock and compacted soil. The grade probably forms an effective barrier that fragments any Cheat Mountain salamander habitat that may exist on either side of the grade. The MNF survey along the grade found one slimy salamander on the rock cut bank along the grade, indicating that at least that species can inhabit the edge of the proposed easement area. However, slimy salamanders are widely distributed throughout the eastern U.S. and are known to be much more tolerant of a wide range of environmental conditions than Cheat Mountain salamanders, so their presence does not

necessarily indicate that Cheat Mountain salamanders can tolerate conditions along the edge of the grade.

Direct And Indirect Effects

Effects to Habitat – Upgrade and maintenance activities on the railroad grade would involve the clearing of encroaching herbaceous vegetation, shrubby vegetation, overhanging tree limbs, and cutting of occasional mature trees along the railroad grade. Because the grade itself is very unlikely to support Cheat Mountain salamanders, there is very little chance that the upgrade and maintenance activities would affect Cheat Mountain salamander habitat. Because the existing grade already acts as a fragmenting feature, upgrade and maintenance activities would not cause additional fragmentation of Cheat Mountain Salamander habitat.

Effects to Individuals – Upgrade activities, maintenance, log hauling, and pickup use are expected to be limited to the existing footprint of the railroad grade, and the railroad grade currently is very unlikely to be used or even crossed by Cheat Mountain salamanders. Therefore, the potential for these activities to harm or kill Cheat Mountain salamanders is extremely low. Noise disturbance of salamanders sheltering near the railroad grade is not an issue because salamanders do not have ears. They may sense vibrations from equipment and trucks operating nearby, but they typically remain under their cover object unless the cover object is displaced. Therefore, disturbance to individuals is considered very unlikely.

Cumulative Effects

Effects to Habitat – Because the action alternatives are unlikely to have direct or indirect effects on Cheat Mountain salamander habitat, a measurable contribution to cumulative effects of other actions on habitat in Blackwater Canyon is not expected.

Effects to Individuals – Because the action alternatives are unlikely to have direct or indirect effects on individual Cheat Mountain salamanders, a measurable contribution to cumulative effects of other actions on individuals in Blackwater Canyon is not expected.

Regional Forester's Sensitive Species

This analysis addresses terrestrial animal species that are listed as RFSS on the MNF, including insects and other invertebrates. Aquatic species are addressed in the Water and Aquatic Resources section. RFSS plants are addressed in the Threatened, Endangered, and Sensitive Plants section.

Forty terrestrial animals are listed as RFSS on the MNF. To focus this analysis on those RFSS with the potential to be affected by the project, a Likelihood of Occurrence table was prepared to summarize the habitat requirements and known occurrences of RFSS and determine the likelihood that the species or potential habitat could occur in the area to be affected by the project. The Likelihood of Occurrence table is included in the project record; only those terrestrial RFSS with the potential to occur in areas to be affected by the project are discussed here. Because of the large number of RFSS, species are grouped according to important habitat

characteristics. Some species could fit into more than one habitat group; these species are included in the group for the habitat characteristic that is considered most important for their life history.

Mature Forest Species

Affected Environment

Three RFSS with the potential to be affected by the project (northern goshawk (*Accipiter gentilis*), green salamander (*Aneides aeneus*), and Diana fritillary (*Speyeria diana*)) occur in mature forests composed primarily of sawtimber-sized trees. Such habitats on the MNF typically are 60 to 100 years old, even-aged, and have mostly closed canopies of hardwood trees. However, one of the species in this habitat group, Diana fritillary (*Speyeria diana*), prefers older forests that are trending toward uneven-aged conditions with scattered small openings. Another species, northern goshawk, can occur in mature coniferous forests as well as hardwood forests.

As noted above in the MIS subsection, mature forest (65 to 101 years old) covers about 90 percent of the National Forest land in Blackwater Canyon. Stand data are not available for the private land in the canyon, but the age class distribution on private land is thought to be similar to the age class distribution on National Forest land due to extensive clearcut logging in the late 19th and early 20th Centuries.

Essentially the entire canyon is considered potential habitat for the northern goshawk, green salamander (*Aneides aeneus*), and Diana fritillary, but certain local-scale aspects of the habitat are noteworthy. The old railroad grade provides a partial canopy opening and herbaceous vegetation that may serve as potential nectaring habitat for the Diana fritillary. Roads, skid trails, and small openings from recent timber harvests create more potential nectaring habitat on private land in the canyon. Cut slopes along the railroad grade that run through bedrock may be potential green salamander habitat in places where encroaching vegetation shades the rocks and keeps them moist. Because goshawks are known to be sensitive to human disturbance during the nesting period, recreational use of the railroad grade creates visual and auditory disturbances that may diminish the potential for some lands on the north side of the canyon to serve as goshawk nesting habitat. However, goshawks also are known to include trails and other small openings in their nest territories, possibly to provide travel lanes to the nest, or perhaps because of the diversity such openings add to the prey base (Squires and Reynolds 1997).

Direct and Indirect Effects

Effects to Habitat – Essentially all of the proposed easement would pass through mature forest habitat. Upgrade and maintenance activities involving the clearing of encroaching herbaceous vegetation, shrubby vegetation, overhanging tree limbs, and cutting of occasional mature trees along the railroad grade would enlarge the existing linear opening along the grade. Grading and surfacing would replace the encroaching herbs and shrubs with aggregate. Assuming an average clearing width of 20 feet, clearing would affect about 13 acres along the 5.5-mile easement.

The upgrade and maintenance activities would affect the three forested habitat RFSS in different ways. By removing flowering herbaceous vegetation from the railroad grade, the upgrade and maintenance activities would reduce the suitability of the railroad grade for potential nectaring habitat for the Diana fritillary. Removal of overhanging vegetation that shades exposed bedrock on the cut slopes likely would make these outcrops less suitable as potential green salamander habitat. Effects on potential goshawk habitat are difficult to predict, though the loss of herbaceous and shrubby vegetation could reduce diversity of the prey base by providing less cover and food for small mammals and birds. The increased edge effect in the forest adjacent to the railroad grade may partially offset the negative habitat effects on the Diana fritillary and northern goshawk. As discussed above in the MIS subsection, whether habitat effects become permanent for the life of the easement or periodic in association with log hauling every 10 to 15 years depends on the frequency of maintenance.

Effects to Individuals – The upgrade and maintenance activities could kill or injure any green salamanders or Diana fritillaries that are present on the railroad grade at the time the activities take place. Adult Diana fritillaries are more mobile than green salamanders and thus are more likely to be displaced rather than killed or injured. Log hauling activities are not likely to kill or harm individuals of these two species because prior to log hauling, upgrade and maintenance activities will remove habitat features that are attractive to these species. These two species are not known to be particularly sensitive to nearby human activity, so individuals that are near the railroad grade may not be disturbed by the upgrade, maintenance, and log-hauling activities. Pickup truck traffic could strike and kill Diana fritillaries if any happen to be flying across the upgraded railroad grade at a time when pickups are using it.

Goshawks have keen senses and are highly mobile, thus they are likely to flee the area in response to upgrade, maintenance, and log hauling activity. Therefore, it is very unlikely that any goshawks would be directly harmed or killed. However, the noise and visual disturbance likely would be intolerable to goshawks for some distance away from the railroad grade. Because of the goshawk's large nesting territory requirements, disturbance from upgrade and maintenance activity could keep the north side of the canyon from being included in a successful nest territory for any season in which upgrade, maintenance, or log hauling activity occurs. Pickup traffic could disturb any goshawks that may be nesting on the lower part of the north side of the canyon, but the extent and severity of disturbance is difficult to predict due to lack of information on the expected frequency of pickup use.

Cumulative Effects

Effects to Habitat – The removal of herbaceous and shrubby vegetation along the railroad grade would cause a small reduction from the current cumulative amount of potential nectaring habitat for the Diana fritillary, and may cause a slight cumulative reduction in potential prey base diversity for goshawks. However, because of the roads, skid trails, and small openings associated with recent thinning and selection harvesting on private land in the canyon, much more of this habitat probably is available on the south side of the canyon than would be lost along the railroad grade. Because additional thinning and selection harvesting is planned for the private land in the foreseeable future, a net cumulative increase in this habitat in the canyon is likely, despite the loss of habitat along the grade.

Loss of potential green salamander habitat on outcrops along the grade would contribute to a cumulative loss of habitat within the canyon. However, due to lack of information on the amount of habitat present in the canyon and the potential for future timber management on private land to affect habitat, the magnitude of the cumulative loss of habitat cannot be assessed.

Effects to Individuals – Any harm or mortality of Diana fritillaries or green salamanders caused by the upgrade and maintenance activities would be additive to any harm and mortality caused by reasonably foreseeable future actions in the canyon. The primary reasonably foreseeable action with the potential to harm individuals of these species would be the planned timber management activities on private land. Thus, upgrade and maintenance activities could cause a cumulative increase in harm or mortality of these two species. However, the magnitude of cumulative harm and mortality cannot be predicted due to lack of information on population levels in the canyon and along the railroad grade, lack of information on the amount and location of potential habitat on private land, and lack of information on the extent of future timber management activity on private land.

Disturbance to goshawks due to the upgrade, maintenance, and log hauling activities would cause an increase in cumulative disturbance in the canyon. If upgrade or maintenance occurs during the same breeding season as timber management activities on private land in the canyon, the cumulative disturbance could preclude goshawk breeding in the canyon for that season.

Population Viability – Population-level effects on forested-habitat RFSS are possible within Blackwater Canyon, but population viability at the Forest-wide scale would not be affected. Blackwater Canyon contains only 0.7 percent of the mature forest habitat 65 years old or older on the MNF, thus any population-level effects within Blackwater Canyon likely would not be measurable at the Forest-wide scale.

Species Sensitive to Human Disturbance

Affected Environment

One RFSS that could occur in the vicinity of the old railroad grade is particularly sensitive to human disturbance. The timber rattlesnake (*Crotalus horridus*), which occurs in a wide variety of forested and brushy habitats, is particularly vulnerable to human persecution. Because it is venomous, it is often killed on sight. Timber rattlesnakes often use rocky areas exposed to sunlight as basking or denning areas. Such areas tend to concentrate several rattlesnakes in one area, which tends to further expose the species to local extirpation through hunting.

Three rattlesnake den sites are known from the north side of the canyon. Rattlesnakes could be attracted to the exposed rocks associated with cut-and-fill slopes along the railroad grade. However, current recreational use of the railroad grade may discourage basking and denning by rattlesnakes.

Direct and Indirect Effects

Effects to Habitat – Upgrade and maintenance activities involving the clearing of encroaching herbaceous vegetation, shrubby vegetation, overhanging tree limbs, and cutting of occasional mature trees along the railroad grade would enlarge the existing linear opening along the grade. Grading and surfacing would replace the encroaching herbs and shrubs with aggregate. Removal of this vegetation could reduce the diversity of the prey base for rattlesnakes by removing habitat for small mammals. Vegetation removal also could reduce hiding cover for any rattlesnakes that may bask on the railroad grade. These effects may be partially offset by the increased edge effect in the adjacent forest, which should stimulate herb and shrub growth. Vegetation removal on the grade could increase potential basking habitat by exposing rocks on cut-and-fill slopes to sunlight. However, disturbance levels on the grade could preclude rattlesnakes from using this habitat.

Effects to Individuals – Any rattlesnakes that may be present on the railroad grade during upgrade, maintenance, log hauling, or pickup truck use could be killed or harmed by trucks or heavy equipment. Rattlesnakes do not always retreat when faced with a disturbance, so the low speed of travel of log trucks and heavy equipment does not eliminate the potential for striking a basking snake. Additionally, any rattlesnakes present on the grade could be intentionally killed by truck drivers and equipment operators.

Snakes do not have external ears, so noise disturbance of rattlesnakes adjacent to the railroad grade will not occur. Snakes can sense vibrations, however, so any rattlesnakes that are basking or sheltering immediately adjacent to the railroad grade during upgrade, maintenance, or log hauling activities may be displaced from the immediate area. Such displacement may or may not be harmful to the individuals involved depending on the availability of alternative basking and sheltering sites.

Cumulative Effects

Effects to Habitat – The removal of herbaceous and shrubby vegetation along the railroad grade would cause a small reduction from the current cumulative habitat diversity, which could cause a small cumulative decline in the potential prey base and hiding cover for rattlesnakes. However, because of the roads, skid trails, and small openings associated with recent thinning and selection harvesting on private land in the canyon, much more of this habitat probably is available on the south side of the canyon than would be lost along the railroad grade. Because additional thinning and selection harvesting is planned for the private land in the foreseeable future, a net cumulative increase in this habitat in the canyon is likely, despite the loss of habitat along the grade.

Effects to Individuals – The direct disturbance effects outlined above will contribute to the cumulative level of disturbance due to ongoing recreational use of the railroad grade and expected future timber management on private land in the canyon. However, the magnitude of cumulative harm and mortality cannot be predicted due to lack of information on population levels in the canyon and lack of information on the extent of future timber management activity on private land.

Population Viability – Population-level effects on timber rattlesnakes are possible within Blackwater Canyon, but the likelihood and extent of population effects are difficult to predict due to lack of information. Population viability at the Forest-wide scale would not be affected. Timber rattlesnakes potentially can occur anywhere in shrubby or forested habitat on the MNF. Blackwater Canyon contains only 0.6 percent of the shrubby and forested habitat on the MNF, thus any population-level effects within Blackwater Canyon likely would not be measurable at the Forest-wide scale.

Riparian Species

Affected Environment

Only one terrestrial animal RFSS that occurs primarily in riparian habitat has the potential to occur within Blackwater canyon. The southern water shrew (*Sorex palustris punctulatus*) occurs in high elevation, cool, moist, shaded locations, usually not far from permanent water (NatureServe Explorer 2004, NatureServe 2002). It prefers heavy vegetative cover and plentiful logs, rocks, crevices, or other sources of shelter that offer high humidity and overhead protection (Wilson and Ruff 1999). This species has been recorded near Blackwater Falls and could occur in the riparian zones of small streams that are crossed by the old railroad grade. Within the area of the proposed easement, the grade crosses five perennial streams that are identified on USGS topographic maps. Streams that cross the railroad grade are contained in culverts or stone arches, so there is little riparian habitat within the footprint of the existing railroad grade. However, not all culverts extend out to the edge of the railroad grade footprint on the upstream side, so there is some potential for a very small amount of riparian habitat to occur within the area to be affected by the upgrade activities.

Direct and Indirect Effects

Effects to Habitat – Assuming vegetation and ground disturbance will stay within the footprint of the existing railroad grade, there is very little potential to affect habitat for the southern water shrew. However, a small amount of riparian habitat could be temporarily or permanently lost due to culvert replacement associated with improving the railroad grade for log truck traffic. The amount of potential riparian habitat loss has not been measured, but would almost certainly be much less than 1 acre. If new culverts increase the rate of drainage, they could dewater additional small amounts of riparian habitat upstream of the culverts. Assuming periodic maintenance of the upgraded travel way, these effects would be expected to persist for the life of the easement.

Effects to Individuals – Should any water shrews be present in the small areas of riparian habitat that could be affected by drainage structure replacement, they likely would be killed or displaced. It is not possible to estimate the amount of mortality or displacement due to lack of information on species occurrence along the streams to be affected and population density in the canyon. However, given the very small amount of potential habitat that could be affected, the likelihood of mortality or displacement of water shrews is considered very low.

Cumulative Effects

Given the very small scale of potential direct and indirect effects to riparian habitat, the contribution of the upgrade and maintenance activities to cumulative loss of riparian habitat in Blackwater Canyon likely would not be measurable. Likewise, given the low likelihood of direct and indirect effects to individuals, a substantial contribution to cumulative effects to individuals throughout the canyon is not expected. Because a measurable contribution to cumulative effects at the scale of the canyon is not expected, there would be no effect on population viability at the Forest-wide scale.

Rocky Habitat Species

Affected Environment

Three RFSS that could be affected by the project require rocky habitats. These species have a diversity of habitat requirements in addition to their preference for rocky habitats. Eastern small-footed bats (*Myotis leibii*) forage in a variety of wooded habitats and over ponds and streams. Allegheny woodrats (*Neotoma magister*) depend on hard and soft mast for food. Southern rock voles (*Microtus chrotorrhinus carolinensis*) are generally found in the higher elevations and in moist habitats.

Rocky habitats occur in association with cut-and-fill slopes in numerous areas along the old railroad grade. Rocky habitats also are known to occur at various locations throughout the canyon, but accurate quantification of these habitats is not possible based on existing information.

Direct and Indirect Effects

Effects to Habitat – Upgrade and maintenance activities likely would remove encroaching and overhanging vegetation from most of the rock outcrops on the cut slopes along the railroad grade. Vegetation removal could dry out these outcrops and render them unsuitable for southern rock voles, which prefer moist habitats and dense herbaceous vegetation. Clearing and stabilizing rocky cut slopes could eliminate microhabitat features used by any of the three rocky habitat RFSS.

Effects to Individuals – Should any individuals of these three species be present during upgrade activities, they would be killed or displaced. Individuals of these three species would be unlikely to be struck by log trucks or pickup trucks because they probably would not use the upgraded surface of the railroad bed, and likely would not cross it during the day when log trucks would use it. Any individuals present immediately adjacent to the railroad grade during upgrade, maintenance, and log hauling could be disturbed and displaced.

Cumulative Effects

Loss or degradation of rocky habitats along the railroad grade would contribute to cumulative loss and degradation of such habitats within Blackwater Canyon. Likewise, mortality and displacement of individuals along the grade would contribute to cumulative disturbance of rocky habitat RFSS species in the canyon. However, the extent of these contributions relative to the total amount of rocky habitat and species population levels in the canyon cannot be quantified due to lack of information on the amount of habitat in the canyon and the potential for reasonably foreseeable future actions to affect that habitat. Because of this uncertainty, it is not possible to address population-level effects. However, because the proposed easement affects such a small amount of total habitat, population viability would be maintained.

Birds of Conservation Concern

This section of the EIS has been prepared in response to the President’s Executive Order 13186 “Responsibilities of Federal Agencies to Protect Migratory Birds” of January 10, 2001. Pursuant to this Executive Order, the U.S. Fish and Wildlife Service developed a list of BCC for the Appalachian Mountain Bird Conservation Region (USFWS 2002). This section addresses the impacts of the proposed action and alternatives on BCC.

Affected Environment

The Monongahela National Forest and the State of West Virginia occur within the Appalachian Mountain Bird Conservation Region (BCR). Twenty-seven species of birds are listed as BCC for the BCR. Four of these species are not applicable to the MNF: the black-capped chickadee (*Poecile atricapillus*) and the red crossbill (*Loxia curvirostra*) are considered BCC only in the portion of the BCR to the south of West Virginia, while the MNF is outside of the normal range of the chuck-wills-widow (*Caprimulgus carolinensis*) (Buckelew and Hall 1994) and the buff-breasted sandpiper (*Bartramia longicauda*). These four species will not be addressed further in this analysis. Another species, peregrine falcon (*Falco peregrinus*), was addressed during preparation of the Likelihood of Occurrence table for the RFSS analysis. This species was determined to be unlikely to occur in the area to be affected by the easement and will not be discussed here. For the remaining 23 BCC species, a Likelihood of Occurrence table was prepared, which is filed in the project record. Only those species that were determined to have the potential to occur in the area to be affected by the proposed easement were carried forward into this analysis. Nine BCC species that occur in mature forested habitat were determined to have the potential to occur (table 3.4). Because most of these species occur in the same broad habitat type, mature deciduous forests, this analysis is not broken down into habitat groupings.

Table 3.4: Birds of Conservation Concern that could be Affected by the Allegheny Wood Products Easement in Blackwater Canyon.

Species	Key Habitat Features	Potential for Occurrence
Kentucky warbler (<i>Oporornis formosus</i>)	Dense understory of mature, moist deciduous forest	May occur; potential habitat exists throughout much of the canyon
Louisiana waterthrush (<i>Seiurus motacilla</i>)	Stream banks and channels in mature deciduous or mixed forests	May occur; small amounts of potential habitat occur where the railroad grade crosses perennial streams

Swainson's warbler (<i>Limnothlypis swainsonii</i>)	Dense understory of mature deciduous forest, primarily rhododendron and mountain laurel thickets	May occur; no breeding records from northeastern West Virginia, but small amounts of potential habitat occur where rhododendron thickets adjoin the railroad grade
Worm eating warbler (<i>Helmitheros vermivorum</i>)	Mature deciduous forests with patches of dense shrubs on moderate to steep slopes	May occur; potential habitat exists throughout much of the canyon
Cerulean warbler (<i>Dendroica cerulea</i>)	Mature to old-growth deciduous forests with tall, large-diameter trees and an uneven canopy	May occur; potential habitat exists throughout much of the canyon
Wood thrush (<i>Hylocichla mustelina</i>)	Deciduous forests with a well-developed deciduous understory	May occur; potential habitat exists throughout much of the canyon
Acadian flycatcher (<i>Empidonax virescens</i>)	Moist, mature deciduous forest with tall, closed canopy and relatively open understory	May occur; potential habitat exists throughout much of the canyon
Northern saw-whet owl (<i>Aegolius acadicus</i>)	Spruce and spruce-hardwood forests in areas of low human activity	May occur; small amounts of potential habitat occur near the railroad grade in the north fork of the canyon
Black-billed cuckoo (<i>Coccyzus erythrophthalmus</i>)	Deciduous forest with a dense understory and midstory	May occur; potential habitat exists throughout much of the canyon

Direct and Indirect Effects

Effects to Habitat - Essentially all of the proposed easement would pass through mature forest habitat, which is possible habitat for the nine BCC with the potential to occur in Blackwater Canyon. Upgrade and maintenance activities would remove an estimated 13 acres of encroaching herbaceous vegetation, shrubby vegetation, overhanging tree limbs, and occasional mature trees. This would cause a small reduction in the dense understory vegetation preferred by Kentucky warblers (*Oporornis formosus*), Swainson's warblers (*Limnothlypis swainsonii*), worm eating warblers (*Helmitheros vermivorum*), wood thrushes (*Hylocichla mustelina*), and black-billed cuckoos (*Coccyzus erythrophthalmus*). The increased edge effect due to removal of overhanging limbs and occasional mature trees would partially offset this effect by stimulating shrubby growth. However, the net effect probably would be a slight loss of habitat for all nine species because forest songbirds may not include open-canopied roads in their territories (Ortega and Capen 2002). The increased edge effect itself likely would slightly decrease habitat for the Acadian flycatcher (*Empidonax virescens*), which prefers a closed canopy. It is unclear whether the increased canopy opening would be beneficial or detrimental to cerulean warbler (*Dendroica cerulea*) habitat. This species is known to use habitats with scattered canopy gaps, but information is lacking on the preferred types, sizes, and shapes of canopy gaps. Habitat loss for the Louisiana waterthrush (*Seiurus motacilla*) likely would be negligible because there is so little existing forested stream bank habitat within the boundaries of the proposed easement.

Effects to Individuals - Should upgrade or maintenance activities occur during the nesting season, any nests that are present in the easement area, along with any eggs or young in the nests, would be destroyed. Nests immediately adjacent to the easement could be abandoned due to visual and auditory disturbance from upgrade, maintenance, and log hauling activities. Adult birds are unlikely to be killed by these activities because the equipment is slow-moving and the birds are mobile enough to escape. However, they would be displaced from nesting territories on and immediately adjacent to the grade. Pickup truck traffic along the upgraded travel way could

disturb nesting activity in immediately adjacent habitat, but traffic likely would need to be frequent (e.g., several times a day) to cause nest failure. If these activities occur during the spring or fall migration seasons, adult or immature birds could be disturbed, but because they do not occupy specific territories or home ranges in these seasons, they likely would just be displaced into nearby habitat.

Cumulative Effects

Effects to Habitat - The direct habitat loss outlined above would cause a very small cumulative loss of habitat for BCC when compared with current total amounts of habitat within Blackwater Canyon (0.25 percent of 5,160 acres in the canyon). The manner in which this small amount of habitat loss would interact with habitat changes from reasonably foreseeable timber harvest on private land would differ by species. For the species that prefer a shrubby understory (Kentucky warbler, Swainson's warbler, worm eating warbler, wood thrush, black-billed cuckoo), thinning and selection harvests on private land likely would create much more of the broken canopy and patchy shrubs preferred by these species than would be lost due to the railroad grade, resulting in a net cumulative increase in potential habitat for these species. The degree to which the combined effects of increased canopy opening along the grade and increases in canopy gaps on private land would be beneficial or detrimental to potential cerulean warbler habitat is not known. The cumulative increase in canopy openings likely would be detrimental to Acadian flycatcher habitat, but the contribution of the easement to this cumulative effect likely would be very small. The negligible loss of potential streamside habitat for the Louisiana waterthrush along the grade would not make a measurable contribution to any cumulative change in streamside habitat at the scale of the canyon.

Effects to Individuals - The loss of nests, eggs, and nestlings due to upgrade, maintenance, and log hauling activities would be additive to such losses due to reasonably foreseeable timber harvest on private land if the activities on the railroad grade occur during the same nesting season as the timber harvest. Even if they do not occur in the same nesting season, any resulting population impacts from the activities on the grade would be additive to any losses from other activities in the canyon because lost nest territories along the railroad grade probably would not be recolonized, unless maintenance is infrequent enough to allow vegetation on the grade to recover. However, the contribution of the easement to any cumulative effects is likely to be small given the small amount of habitat to be affected by the easement (13 acres in the 5,160-acre canyon) versus the amount of private land in the canyon that is potentially available for timber harvest (2,950 acres).

Aquatics

Scope of The Analysis

This report discloses the effects to **the water and aquatics resources** from action alternatives considered within the EIS. There were no issues identified concerning water and aquatic resources from either the public or internally. However, this report will address general concerns about sedimentation and any potential effects from proposed activities.

Impacts related to runoff, streamflow, flooding, and large woody debris recruitment will not be discussed in this report. These issues are usually associated with activities that involve timber removal and construction of skid roads. There are no proposed harvest activities or skid road construction on NFS land within the project area. Some vegetation may need to be removed as a result of bringing the grade up to haul road standards. However, the amount of vegetation removed will not be enough to measurably alter the level of runoff or streamflow. No timber harvest on NFS lands would occur in the foreseeable future, so there will be no direct, indirect, or cumulative effect to streamflows or effects to flood flows. The level of harvesting off-Forest is not anticipated to be enough to change the existing flow conditions in the Blackwater River watershed. Any openings created on-Forest would be associated with natural events such as fire, disease or windstorms. In addition, large woody debris recruitment to stream channels will not be impacted within the project area.

Spatial Boundary

The spatial boundary used to evaluate direct and indirect consequences to water and aquatic resources was defined as the easement area itself as described in each alternative and the area below the easement down to the Blackwater River. This area is used because it spatially encompasses the Blackwater River directly below the project area as well as any tributaries to the Blackwater River that intersect the project area. All of the measurable direct and indirect effects to water and aquatic resources will be encompassed in this spatial boundary which is approximately 320 acres (See Figure 3-1). Once sediment enters the Blackwater River, the direct and indirect impacts related to this project would be difficult to detect and separate from other activities within the Blackwater River watershed.

The spatial boundary used to address cumulative impacts is the smallest watershed that includes the entire project area using the Blackwater River as the southern boundary (See Figure 1). Other activities in this sub-watershed could have a measurable effect when combined with effects from granting the easement.

Temporal Boundary

Effects to the water and aquatic resource are expected to last as long as the railroad grade is in existence. Short-term effects from any new soil disturbance are expected to last less than three years. However, long term effects associated with sedimentation from a maintained road could last indefinitely.

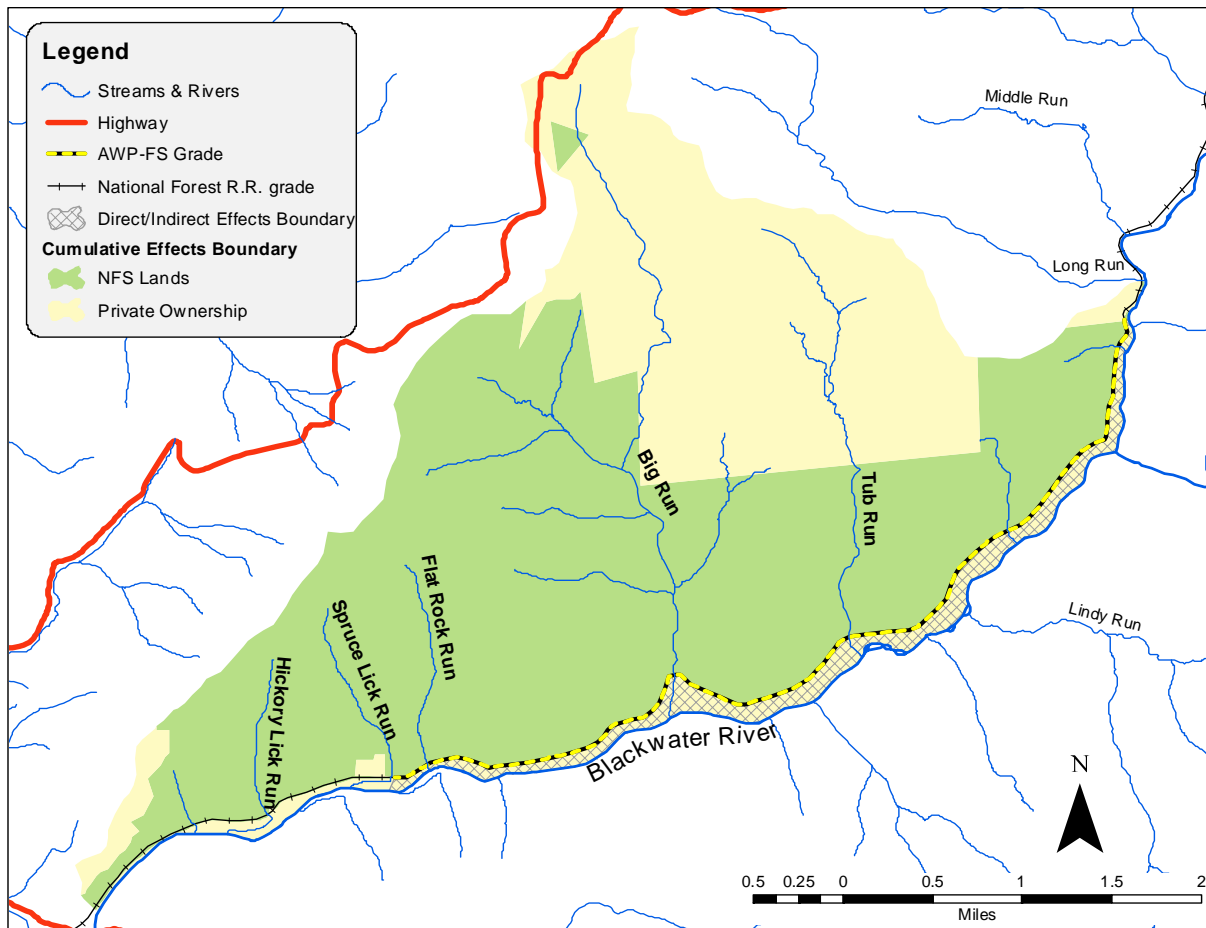
No additional activities are expected on this easement in the future except for maintenance. Activities from granting this easement would include timber harvest on private land which is addressed in the cumulative effects section of this report.

Methodology

The impacts to water quality and aquatics have been described based on the amount of soil disturbance that would occur from bringing the grade up to haul road standards as well as how

this activity is connected to stream channels. A GIS was used to help determine how and where these activities might produce sediment and how this sediment might enter the stream.

Figure 3-1: - Boundaries used for effects analysis.



Affected Environment

The Blackwater River watershed is drained by approximately 267 miles of streams mapped at 1:24000. The largest stream in the watershed is the Blackwater River. Blackwater River is tributary to Black Fork, which then flows to the Cheat, Monongahela, and Ohio Rivers. The Blackwater River watershed is primarily a cold-water stream system that typically supports biota associated with native brook trout (*Salvelinus fontinalis*) communities. Some stream reaches, particularly those at lower elevations, are transitional areas better suited for cool-water aquatic communities characteristic of smallmouth and rock bass communities. Water quality in these cool-water transitional areas may be too stressful for cold-water biota during much of the year but these areas can offer important seasonal habitat for cold-water biota during winter months.

Streams within the Blackwater River watershed are inhabited by 23 fish species representing Cyprinidae (minnow), Catostomidae (sucker), Salmonidae (trout), Centrarchidae (bass), and Percidae (perch) fish families. There are 21 native fish species (2 non-native) including 1 species that is peripheral to its range and is on the Regional Foresters sensitive species list - reidside dace (*Clinostomus elongatus*). Fish species that are federally listed under the Endangered Species Act (ESA) are not known to occur in the watershed.

Approximately 66% (92 miles²) of the Blackwater River watershed is classified as forested land use by the West Virginia Gap Analysis Project (WV-GAP). Streamside areas delineated by buffering 100 feet on each side of all mapped streams indicate nearly 7% (10 miles²) of the watershed is occupied by these streamside buffer areas. Only 36% (3.5 miles²) of these streamside areas are classified as forested land although wetlands account for a considerable percentage of the streamside areas. Canaan Valley State Park and the town of Davis are located in this watershed.

Almost 36% (50 miles²) of the Blackwater River watershed is composed of surficial geology (mostly of the Pocono and Pottsville Groups) that is rated high for sensitivity to acid deposition. This geology is dispersed throughout the watershed as sizable, consolidated patches. The remaining surficial geology in the watershed consists primarily of a mixture of the Conemaugh Group, Mauch Chunk Group, and Greenbrier Group (all having a low rating for sensitivity to acid deposition). Approximately 27% (72 miles) of streams in the watershed are draining from geology with high sensitivity to acid deposition. No streams in the watershed are currently listed as pH impaired. However, approximately 9.4 miles (3.5%) of stream in the watershed are listed as benthic macro-invertebrate impaired and 21.3 miles (8.0%) are listed as aluminum/mercury impaired (Section 303d of the Federal Clean Water Act) by the State of West Virginia. This information along with stream water chemistry data collected by the MNF suggest aquatic communities may be at risk in portions of this watershed. Given the arrangement and composition of the different geologies in the Blackwater River watershed, other streams in this system are capable of supporting aquatic biota.

The Project Area

The easement proposed in this Environmental Impact Statement encompasses approximately 5.5 miles of railroad grade that follows the Blackwater River northeast of the town of Hendricks, WV. The grade crosses several perennial stream channels including Hickory Lick Run, Spruce Lick Run, Flat Rock Run, Big Run, and Tub Run. These crossings are adequate with respect to water quality and aquatic resources. Several other smaller stream crossings exist along the grade. These crossings are generally in good condition, but opportunities may exist to improve them when the grade is reconstructed. There are many cross drain culverts that are current sources of sediment and in need of repair or replacement. Opportunities exist to improve drainage along the grade where culverts are inadequately spaced.

The railroad grade is currently used as a hiking and biking trail and is in fairly good condition. There are no signs of rutting or above normal amounts of sediment being generated on the trail. There is some exception to this at the beginning of the trail where a section of the trail has been

blown out by a large storm event. The water head cut back into the trail on the private land side of the trail and crossed over to NF system land.

Upslope and downslope of the railroad grade, there are numerous areas along the route that have had mass wasting and slumping failures. These areas are recovering as vegetation is re-established.

Many of the culverts that have been installed have been undermined by years of sedimentation. In spite of this, the upslope ditchline appears to be relatively stable. Very few areas of active ditch erosion were observed on our site visit. Many of the culverts that have not been undermined are eroding soil at the outlet and are likely sources of sediment to nearby streams. The North Fork of the Blackwater River is adjacent to a small portion of the AWP project area. The North Fork is listed on the state 303d list for dissolved aluminum. The Blackwater River drains into the Dry Fork River just downstream of the project area near the town of Hendricks, WV. The Dry Fork is listed on the state 303d list for mercury. The actions of this easement will have no effect on either aluminum or mercury in these rivers.

The recently completed Monongahela National Forest Roads Analysis lists the Blackwater River as the drinking water source for seven municipalities. All of the intakes for these seven municipalities are upstream from the project area and will not be affected by actions related to this Environmental Impact Statement. The Blackwater River drains into the Dry Fork River just downstream of the project area near the town of Hendricks, WV. The Hamrick Public Service District has a water intake located on the Dry Fork River, however, this intake is located upstream of the confluence of the Blackwater River and The Dry Fork River. Therefore, water quality at the Hamrick Public Service District will not be affected by the actions of this easement.

There is one underground mine permit that affects the Blackwater watershed. The mine is on private land owned by Mettiki Coal WV-LLC. The permit for the Mettiki E coal mine (permit #U-2001-04) is in the Beaver Creek drainage, a tributary to the Blackwater River. The mine has only progressed about 100 feet underground as of mid September 2005. The West Virginia mine permitting process includes an assessment of the Probable Hydrologic Consequences (PHC) of the proposed mining. The PHC for the Mettiki E Coal mine predicted no adverse hydrological effects from this mine. Although there were concerns about effect to water quality in Beaver Creek and Little Beaver Creek, the analysis done for the PHC concluded there would not be a resulting adverse affect to the impacted watersheds (personal communication, Linda Tracy, Forest Geologist, 9/12/2005).

Environmental Consequences Common to All Action Alternatives

All action alternatives would grant an easement for the use of motorized vehicles on the railroad grade. This would result in reconstruction of the grade to the minimum standard needed to ensure safe passage of either pick-up traffic or log truck traffic prior to use by these vehicles. The direct and indirect effects of reconstructing the grade will be discussed in this section as they are the same among all action alternatives.

The reconstruction of the grade would require soil disturbance and possibly cut and fill of the existing grade to bring the grade up to haul standards. Disturbance would also occur when cleaning existing ditches, creating new ditches, replacing existing culverts, and installing new culverts, and the creation of new ditch lines. These effects are likely to add some sediment to the ditchline. Proper culvert installation, size, and spacing will help dissipate this runoff and distribute it across the slope. The effects of this activity are expected to be short term and will likely return to baseline levels or below within three years as the disturbed areas re-vegetate. It is likely that the long term sedimentation effects from this road grade would be less than the current level due to the benefits of improved drainage from the installation and repair of culverts along the grade.

The railroad grade surface would initially need to be graded in order to remove the accumulation of vegetation and associated organic matter. This would amount to up to three inches of material being graded away. This soil material and fill material is highly erosive and unstable. Forest plan standards for mulching and seeding would be applied. The potential short term effect from these soil disturbing activities would be a short term pulse of sediment added to the watershed downslope and to tributary streams where ditch lines flow into those streams. The long-term effects from these activities would be negligible for sediment concerns. The areas of soil disturbance would be graveled or revegetated and not provide a source of sediment above background levels.

The short term effects of adding sediment to stream channels could produce a longer term effect on aquatic resources downstream. Once sediment is in the stream network, it can take years to flush it out. However, it should not take long for the sediment to work its way down to the Blackwater River. At that point in time, it would be difficult to detect any measurable effect to sedimentation and turbidity in the Blackwater River, given the size of the Blackwater River watershed and baseline levels of sediment. In addition, riparian areas downhill of the grade will not be affected by activities on the grade itself. However, activities on private land below the grade could have an effect on riparian areas.

The short term pulse of sediment in the tributaries of the Blackwater River should have little effect on the populations of fish and other aquatic species. The aquatic populations in these streams are typically limited by low pH levels and not sedimentation. Actions identified in the AWP Environmental Impact Statement will have no effect on pH levels in these streams, and thus will not have an effect on populations of fish and other aquatic species.

The overall effect of both Alternative 2 (Proposed Action) and Alternative 3 (Reciprocal Easement) on sedimentation in the Blackwater River is expected to be an improvement over existing conditions. The Proposed Action includes activities to correct existing sources of sediment and new soil disturbances are minimal. In the short term, upgrading the grade to a road will produce a short term pulse of sediment when the work is implemented. In the long run, this work should reduce the number of chronic sediment sources in the watershed and reduce the potential for large volumes of sediment associated with road failures.

Direct/Indirect Environmental Consequences by Alternative

Direct effects are those activities that have a direct impact on stream channels in the project area and occur at the time the project is implemented. The primary activities in the action alternatives that will have direct effects on channels include stabilizing existing slumps and installing or removing culverts when the grade is reconstructed.

Indirect effects are effects that occur at a later time or place from when and where the project is implemented. Indirect effects can be caused by activities that change runoff patterns, erosion rates or riparian characteristics. In the case of a reconstructed road, direct effects occur where the road crosses a channel, but indirect effects can occur as sediment is transported downstream over time.

Alternative 1 – No Action

Alternative 1, the No Action alternative, would neither create new sources of sedimentation nor correct existing sources. This area would continue to recover from recent mass wasting and slumping failures. The section of the grade that has blown out would continue to be a source of sediment and may continue to erode for many years. Culverts that are current sources of sediment would not be repaired or replaced. Sedimentation would likely increase as new sediment sources along the grade appear where there are inadequate drainage structures.

Alternative 2 – Proposed Action & Alternative 3 – Reciprocal Easement

From a water and aquatic resource perspective there is little difference in the effects between Alternative 2, the Proposed action and Alternative 3, the Reciprocal Easement. The effects that are the same in both alternatives are discussed together in the *Environmental Consequences Common to All Action Alternatives* section of the report.

The only difference between the action alternatives that could have an effect on the water resource is the fact that no snow plowing would be allowed in Alternative 3, the Reciprocal Easement. The effects of snow plowing on runoff and sedimentation would be so minute that they would be not be measurable. It is expected that there will be no difference in effects between the action alternatives with respect to the water and aquatic resource.

Cumulative Impacts

The spatial boundary used to address cumulative impacts is the smallest watershed that includes the entire project area using the Blackwater River as the southern boundary (See Figure 1). Other activities in this sub-watershed could have a measurable effect when combined with effects from granting the easement. The only direct and indirect effect of granting this easement was sedimentation. Therefore, the cumulative effects analysis will only look at sedimentation. Effects to the water and aquatic resource are expected to last as long as the railroad grade is in existence. Short-term effects from any new soil disturbance are expected to last less than three years. However, long term effects associated with sedimentation from a maintained road could last indefinitely.

Cumulative effects address the environmental consequences from all activities implemented in the past, present and reasonably foreseeable future. The combination of activities on NFS, state and private lands can create an effect at a watershed scale that otherwise may not be noticeable at the project, or subwatershed scale. The analysis area is the watershed upstream of where the Blackwater River intersects Hendricks, WV using the Blackwater River as one boundary. This analysis area is 7,411 acres in size of which approximately 64% is in National Forest System lands and 36% is privately owned.

The existing conditions of the aquatic resources in this area reflect the cumulative effects of past and present actions. Sediment levels are elevated in many streams due to natural sources and past and present management activities. There are only 6 units on NFS lands within the cumulative effects boundary that have a year of origin date of 1973 or later. The most recent year of origin date is 1985. Two of these units were harvested, 1 was part of a Fernow Study, 1 was wind throw, and the other 2 are unknown. These 6 units make up approximately 108 acres of the analysis area. It is unlikely that past actions in these units are contributing measurably to sedimentation. These units have likely revegetated and recovered from whatever action reset the year of origin. Past actions on private land with regard to harvest activities are speculative. It is assumed that private land owners are implementing West Virginia Best Management Practices (BMPs). Ground disturbance and road building associated with conventional timber harvest on private lands are likely to be contributing to baseline sedimentation levels in this watershed. Regarding reasonably foreseeable future activities, most of the NFS land in this area is in management prescriptions 3.0, 6.1, and 6.3, where timber harvest is the primary means for achieving desired conditions for age class distribution. However, no harvest activity has occurred in this area and there are no planned harvests in the reasonably foreseeable future.

Assuming the activities on state and private lands remain relatively constant, existing watershed and stream conditions within those areas should persist in the foreseeable future. Roads and unstable banks will continue to be sources of sediment. Continued logging will create additional ground disturbance, but implementation of West Virginia's Best Management Practices (BMP's) can help to reduce the level of erosion. The hydrologic response of the watershed was modified years ago with the conversion of forest to pasture lands and the extensive clearcutting that occurred around the turn of the last century. The watershed and stream channels have adjusted to these disturbances through time and current practices should not result in any expected changes to the current level of sedimentation in the Blackwater River.

On NFS lands, it is anticipated that the implementation of actions identified in the AWP Environmental Impact Statement will generally have little effect on this watershed. The following cumulative effects analysis on each alternative addresses the overall influence of land use activities in the analysis area on sedimentation. Actions taken now and in the foreseeable future generally have minimal effects (positive or negative) in the short term. It assumes the baseline conditions in the analysis area are generally good. Streams draining private lands generally show a higher level of impairment and will remain that way into the foreseeable future. Given that constant, actions taken on NFS lands can either contribute to sedimentation, or reduce the effects and improve conditions in the long run.

Alternative 1

The No Action alternative will have no direct or indirect effects, therefore it can have no cumulative effect. The No Action alternative, would neither create new sources of sedimentation nor correct existing sources. This area would continue to recover from recent mass wasting and slumping failures. The section of the grade that has blown out would continue to be a source of sediment and may continue to erode for many years. Culverts that are current sources of sediment would not be repaired or replaced. New sources of sediment could appear if inadequate drainage structures fail.

Alternatives 2 & 3

Assuming the activities on state and private lands remain relatively constant, existing watershed and stream conditions within those areas should persist in the foreseeable future. The overall effect of both Alternative 2 (Proposed Action) and Alternative 3 (Reciprocal Easement) on sedimentation in the Blackwater River is expected to be an improvement over existing conditions. The Proposed Action includes activities to correct existing sources of sediment and new soil disturbances are minimal. In the short term, upgrading the grade to a road will produce a short term pulse of sediment when the work is implemented. In the long run, this work should reduce the number of chronic sediment sources in the watershed and reduce the potential for large volumes of sediment associated with culvert failures.

Whether or not there will be a cumulative effect on sedimentation as a result of granting the easement and reconstructing the grade will depend on the actions of Allegheny Wood Products. While AWP has requested to use the easement for resource management including commercial thinning, the Forest Service has no knowledge of when or in what locations this activity will occur, so any analysis related to the effects would be speculative. Allegheny Wood Products could decide to harvest the area below the grade extensively. Logging on private land will likely create additional ground disturbance and impact drainage patterns. This could result in sedimentation effects on the Blackwater River and its tributaries. It is unknown if the improvements in drainage along the grade would offset any activity on private land. Implementation of West Virginia's Best Management Practices (BMP's) can help to reduce the sedimentation effects of logging on private land.

It is likely that reconstructing the grade will not result in a cumulative effect with respect to sedimentation. However, the easement may make it more likely that actions will occur on private land below the grade that could have sedimentation effects on the Blackwater River and its tributaries.

Social and Economic

Scope of the Analysis

This analysis will analyze the effects primarily to the two towns at either end of the trail (Hendricks and Thomas). While it is acknowledged that scoping resulted in comments from all over the country, most of those concerns were addressed in other places in this document. The environmental Justice discussion incorporated all of Tucker County because of the populations proximity to the trail and thus its availability for recreational experiences.

Affected Environment

The railroad grade connects the towns of Hendricks and Thomas. Hendrix has a population of 319 persons. Key occupations are sales and office, production, transportation and material moving, and management, professional occupations. The primary industry in Hendrix is manufacturing. (2000 census). Thomas has a population 452 persons. Key occupations in Thomas are service, management, and sales and office. The primary industry in Thomas is Arts, entertainment, recreation, accommodation and food services (2000 census). With its proximity to Blackwater State Park and Canaan Valley State Park and its winter skiing opportunities, Thomas relies heavily on tourism.

Environmental Consequences

There should be no measurable impact to Hendricks with implementation of any action alternative. While a lumber mill is in the town, AWP mills its own lumber and is not expected to provide materials to the local mill. Due to the potential impacts discussed in the Recreation section above, a minor impact may occur due to a possible reduction in hikers on the trail from logging disturbances. This impact would be temporary and about once every 10 to 15 years. While there may be some disturbance to hikers if they encounter a pickup truck on the road, it is not expected to alter hiking use on the trail measurably. With Alternative 3 the granting of a reciprocal easement would allow the Forest Service to maintain the trail to a higher level as well as advertise it without the concern of a trespass to private property by hikers. However, during advertised logging operations, it is possible that some tourist revenue may be lost, especially to the city of Thomas which gears much of its industry to tourism, some of which is related to hiking on the railroad grade. This would occur approximately 10-15 years and would only occur for a short period while the operations are occurring if this grade is used.

Cumulative Effects

The construction of Corridor H identified in table 3.1 contributes to the cumulative effects of this proposal. The placement of Corridor H is expected to result in either a reduction or an increase in the number of tourists visiting Thomas depending on the alternative selected. Currently an estimated 95 percent of the visitors to the area come from the north via US 219 or from the south via WV 32 (WV Dept. of Trans., 2002, p.III-2 – III-7). While the primary final destination is usually either the ski areas or state parks, some of the traffic may stop in Thomas (primarily from the north). This traffic is expected to be reduced by 15 percent with the construction of alternative 2 thus adding to the reductions discussed above. If one of the Blackwater Avoidance Alignment alternatives was selected, traffic through Thomas is expected to increase by 30 percent thus more than offsetting the economic impact of this proposal.

Environmental Justice

This section discloses the impacts of proposed activities on minority and low income populations per Executive Order 12898.

There are no known community-identified environmental justice related issues. Recent data indicate that Tucker County, the county in which the AWP Easement project area is located, does not demonstrate ethnic populations or income percentages greater than two times that of the State average (U.S. Census Bureau, Census 2000). None of the alternatives would pose disproportionately high or adverse impacts on minority or low income populations. Affected communities have been provided opportunities to comment during the planning process (see Public Involvement section in Chapter 2).

Other Required Disclosures

Unavoidable Adverse Effects

There would be unavoidable impacts with both action alternatives. These are discussed in depth above and are related to the Heritage, Recreation, and to a smaller extent soils and aquatics.

Short-Term Use vs. Long-Term Productivity

There will be no change in the productivity of the FS managed lands because all activities are on an existing railroad grade.

Irreversible or Irretrievable Commitment of Resources

Irreversible and irretrievable commitments of resources are defined in Forest Service Handbook 1909.15, Environmental Policy and Procedures (9/21/92).

Irreversible commitments of resources mean the consumption or destruction of nonrenewable resources, such as minerals or cultural resources, or the degradation of resources such as soil productivity, which can be renewed only over long periods of time.

Irretrievable commitments of resources are opportunities foregone; they represent tradeoffs in the use and management of Forest resources. Irretrievable commitments of resources include expenditure of funds, loss of production, or restrictions on resource use. When one alternative produces less of a natural resource (such as timber volume) or offers fewer opportunities for use (such as motorized recreation) than another alternative, the difference represents an irretrievable commitment of resources.

There will be no irreversible or irretrievable commitment of resources. There is no transfer of management direction (i.e. changes in management areas) and all activities on National Forest lands occur within the roadbed and adjacent ditches.

Energy Requirements and Conservation Potential

This proposal is not expected to change any requirements for energy nor have any potential for conservation of energy.

Prime Farmland, Rangeland, and Forestland

There is no prime farmland, rangeland, or forestland in the project area.

Effects on the Human Environment

Effects on the human environment are documented throughout Chapter 3 of this EIS. Further documentation can be found in the project record. Effects related to Environmental Justice are found in the Social and Economic section of Chapter 3.

Threatened and Endangered Species

Potential effects to species listed under the Endangered Species Act can be found in Chapter 3 of this EIS (Threatened and Endangered Species section) and in the specialist reports in the Project File. Prior to making a final decision, consultation with U.S. Fish and Wildlife will be concluded.

Wetlands and Floodplains

There are no wetlands or floodplains that would be impacted on National Forest System lands. Except for maintenance of the culverts and ditch cleaning, all activities will occur on the railroad grade bed.

Conflicts with Other Agency or Government Goals or Objectives

Contact, review, and public involvement with other federal and state agencies have indicated no major conflicts between this project and the goals and objectives of other governmental entities.

Chapter 4- List of Preparers

The following individuals are primarily responsible for developing the analysis and the document. They have been listed in alphabetical order.

John Calabrese	
Position:	Forest Archeologist
Education:	B.A., Latin American Studies, The College of the University of Chicago; M.A., Anthropology, University of Kentucky; PhD, Archaeology, University of the Witwatersrand (Johannesburg, South Africa)
Experience:	3 years with private archaeological consulting firms, US Northeast and Middle Atlantic; 5 years as university Lecturer, concurrent with five years as private archaeological consultant, southern Africa; 4 years with USDA, Forest Service, Archeologist
Contribution:	Heritage Resources

Stephanie Connolly	
Position:	Forest Soil Scientist
Education:	B.S. Agronomy, West Virginia University; M.S. Agronomy with an Emphasis in Soil Chemistry, Colorado State University
Experience:	1 year Pocahontas County Economic Development Authority- Floodplain Mitigation Coordinator; 3 years with USDA Natural Resource Conservation Service, Soil Survey Division (Idaho and North Carolina); 3.5 years with USDA Forest Service, Forest Soil Scientist
Contribution:	Soil Resources

Michele Jones	
Position:	Planning Staff Officer
Education:	B.S. Forest Management, Oregon State University
Experience:	14 years USDA Forest Service as Presale Forester, Timber Sale Administrator, Logging Systems/Sale Planner, NEPA Coordinator, NEPA Team Leader, 3 years USDI Fish and Wildlife Service as Land Protection Planner
Contribution:	Policy Guidance, Writing/Editing, NEPA Review

Kent Karriker	
Position:	Wildlife Biologist
Education:	B.S. Fisheries and Wildlife Sciences, North Carolina State University; M.S. Wildlife Biology, North Carolina State University
Experience:	2 years USDA Forest Service as a Wildlife Biologist; 10 years with a private consulting firm as a Biological Technician, Biologist, Project Manager, and Senior Scientist
Contribution:	Wildlife Habitat

Sam Lammie	
Position:	GIS Program Manager
Education:	B.S. Forest Science, Pennsylvania State University; BS Computer Science, Clarion University; M.A. Geographic Information Systems (GIS), State University of New York at Buffalo
Experience:	5 years as GIS Program Manager USDA Forest Service; 7 years as GIS Specialist with National Park Service
Contribution:	GIS Support, Digital and Hardcopy GIS Map Products

Don Palmer	
Position:	Recreation and Wilderness Program Manager
Education:	A.A.S. Recreation Management, Butler College
Experience:	29 years USDA Forest Service primarily in Recreation and Wilderness Management
Contribution:	Recreation and Scenery Management

Bill Shields	
Position:	Forest NEPA Coordinator
Education:	B.S. Humbolt State University
Experience:	26 Years Forest Service, 15 Years NEPA Coordinator
Contribution:	Team Leadership, Writing/Editing, NEPA Review

Melissa Thomas-Van Gundy	
Position:	Forest Ecologist
Education:	B.S. Pre-Forestry, Davis and Elkins College, M.S. Resource Management (Silviculture), State University of New York - College of Environmental Science and Forestry
Experience:	15 years USDA Forest Service as Forester, Timber Management Assistant, Silviculturist, Fire Planner, Forest Ecologist
Contribution:	Non-native Invasive Species and Listed and Sensitive Plants

Jay Vestal	
Position:	Hydrologist
Education:	B.S. Environmental Science, Water Resources, Oklahoma State University
Experience:	5 years USDA Forest Service as Hydrologist
Contribution:	Hydrology

Chapter 5- Consultation and Coordination

This chapter provides a listing of the local, state, and federal agencies, legislative representatives, and organizations who received copies of the Draft Environmental Impact Statement. In addition, an estimated 4,500 individuals were contacted and offered copies of the document. The list of these individual names is on file and the Monongahela National Forest Supervisor's Office.

The document was made available in hard copy and also posted on the Monongahela National Forest website at www.fs.fed.us/r9/mnf/.

Federal Agencies

- Advisory Council on Historic Preservation
- Federal Aviation Administration, Eastern Region
- Federal Highway Administration
- Ohio River Basins Commission
- US Army Engineer, Great Lakes and Ohio Division
- US Coast Guard (USCG)
- USDA APHIS PPD/EAD
- USDA National Agriculture Library Head, Acquisitions and Serials Branch
- USDA Natural Resource Conservation Service
- USDA Office of Environmental Policy and Compliance
- US Department of Energy Director
- US Environmental Protection Agency US Environmental Protection Agency, Region III
- USDI Fish and Wildlife Service

Congressional Delegation

- Representative Shelley Capito
- Representative Alan Mollohan
- Representative Nick Rahall II
- Senator Robert Byrd
- Senator John Rockefeller IV

Tribal Governments

It should be noted that there are no tribal trust or ceded lands within the Forest or the State of West Virginia. However, we recognize the importance of the deep historical relationship that American Indian Nations have with the region. These groups have asked for notification and consultation regarding any items falling under the Native American Graves Protection and Repatriation Act (NAGPRA). This project has none at this time but should any items be uncovered, the Forest will notify and consult with these groups.

- Absentee-Shawnee Tribe of Oklahoma
- Eastern Shawnee Tribe of Oklahoma
- Cayuga Indian Nation

- Cherokee Nation of Oklahoma
- Delaware Nation
- Delaware Tribe
- Eastern Band of Cherokee Indians
- Oneida Indian Nation of New York
- Onondaga Nation
- Seneca-Cayuga Tribe of Oklahoma
- Seneca Nation of Indians, Cattaragus Reservation
- Shawnee Tribe
- Tonawanda Band of Senecas
- Tuscarora Nation

State of West Virginia

- West Virginia Department of Agriculture
- West Virginia Department of Abandoned Mines and Reclamation
- West Virginia Department of Environmental Protection
- West Virginia Department of Public Transportation
- West Virginia Division of Forestry
- West Virginia Division of Highways
- West Virginia Division of Natural Resources
- West Virginia Division of Natural Resources, Water Resources Division
- West Virginia Division of Tourism
- West Virginia Forestry Association
- West Virginia State Rail Authority
- Blackwater Falls State Park

West Virginia State Legislature

- Ray Canterbury
- Thomas Campbell
- Bill Hartman
- Walt Helmick
- Harold Michael
- Sarah Minear
- Randy White

Counties and Local Governments

- City of Elkins
- City of Thomas
- Randolph County Commissioners
- Randolph County Development Authority
- Tucker County Commissioners
- Tucker County Development Authority

Interest Groups, Businesses, Organizations

- Charleston Gazette
- Coastal Lumber Company
- Friends of Blackwater
- Heartwood
- The Inter Mountain
- Mountaineer Audubon
- Sierra Club
- The Nature Conservancy
- The Parsons Advocate
- The Wilderness Society
- Trout Unlimited
- West Virginia Forestry Association
- West Virginia Mountain Bike Association
- West Virginia Rivers Coalition
- West Virginia Wilderness Coalition

Appendix A- References

- Adam, M. D., M. J. Lacki and T. G. Barnes. 1994. Foraging Areas and Habitat Use of the Virginia Big-Eared Bat in Kentucky. *Journal of Wildlife Management*, Vol. 58, No. 3. Pp. 462-469.
- Britzke, E. R., M. J. Harvey and S. C. Loeb. 2003. Indiana Bat, *Myotis sodalis*, Maternity Roosts in the Southern United States. *Southeastern Naturalist*, Vol. 2 Pp. 235-242.
- Brody, A. J. and M. R. Pelton. 1989. Effects of roads on black bear movements in western North Carolina. *Wildl. Soc. Bull.* 17:5-10.
- Buckelew, A. R. and G. A. Hall. 1994. *The West Virginia Breeding Bird Atlas*. University of Pittsburgh Press, Pittsburgh, PA, 215 pp.
- Buford, L. S., and M.J. Lacki. 1995. Habitat Use by *Corynorhinus townsendii virginianus* in the Daniel Boone National Forest. *Am. Midl. Nat.* 134:340-345.
- Callahan, E.V., R.D. Drobney, and R.L. Clawson. 1997. Selection of Summer Roosting Sites by Indiana Bats (*Myotis sodalis*) in Missouri. *Journal of Mammalogy*, Vol 78, No. 3, pp 818-825.
- Condon, C., Lego, B., Criswell, C. 1999. *County Data Profile Pocahontas County*. Bureau of Economic Research, West Virginia University, July 1999. 49 pp.
- Dalton, V.M., D.M. Leslie Jr, and C. Williams. 1989. Foraging ecology of the Virginia big-eared bat: Performance report, p. 32-4. In: Unpubl. Rep. Va. Department of Conservation and Recreation. Richmond, VA.
- DeJong and Associates 1999. *Pocahontas County Schools Background Report*, February 25, 1999. 14 pp.
- DeNicola, A. J., K. C. VerCauteren, P. D. Curtis, and S. E. Hyngstrom. 2000. Managing White-tailed Deer in Suburban Environments: A Technical Guide. Cornell Cooperative Extension, the Wildlife Society – Wildlife Damage Management Working Group, and the Northeast Wildlife Damage Research and Outreach Cooperative. Cornell University, Media and Technology Services Resource Center, Ithaca, NY. 56 pp.
- Draft Wild and Scenic River Study Report and Environmental Impact Statement on Twelve Rivers in the Monongahela National Forest*, July 1995, page 3-6 and 3-7.
- Evans, D. E., W. A. Mitchell, and R. A. Fischer. 1998. Species profile: Indiana bat (*Myotis sodalis*) on military installations in the southeastern United States. Technical Report SERDP-98-3, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

- Everett, D. D., Jr., D. W. Speake, and W. K. Maddox. 1985. Habitat use by wild turkeys in northwest Alabama. *Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies* 39:479-488.
- Feder, M.E. 1983. Integrating the ecology and physiology of plethodontid salamanders. *Herpetologica* 39(3):291-310.
- Feder, M.E. and F.H. Pough. 1975. Temperature selection by the red-backed salamander, *Plethodon c. cinereus* (Green) (*Caudata:Plethodontidae*). *Comp. Biochem. Physiol.*, 50A:91-98.
- Gardner, J. E., J. D. Garner and J. E. Hofmann. 1991. Summer Roost Selection and Roosting Behavior of *Myotis sodalis* (Indiana bat) in Illinois. Final Report. Illinois Natural History survey. Illinois Dept. of Conservation, Champion IL. 56 p.
- Geostat Geospatial & Statistical Data Center. *County Business Patterns County Data*. 4/10/00. Online posting. <http://fisher.lib.virginia.edu/cgi-local/cbpbin/go.cgi>. 5 pp.
- Heatwole, H. and K. Lim. 1961. Relation of substrate moisture to absorption and loss of water by the salamander *Plethodon cinereus*. *Ecology* 42(4):814-819.
- Kiser, J. D. and C. L. Elliot. 1996. Foraging habitat, food habits and roost tree characteristics of the Indiana bat (*Myotis sodalis*) during autumn in Jackson County, Kentucky. Unpublished report, Eastern Kentucky Department of Fish and Wildlife Resources, Frankfort, KY. 65 p.
- Kochenderfer, J. and Edwards, P. 1997. *Hydrologic Impacts of Logging an Appalachian Watershed Using West Virginia's Best Management Practices*. *North. J. Appl. For.* 14(4) 207-218.
- Koprowski, J. L. 1994. *Sciurus carolinensis*. *Mammalian Species* 480:1-9.
- Kramer, P., N. Reichenbach, M. Hayslett, and P. Sattler. 1993. Population dynamics and conservation of the peaks of otter salamander, *Plethodon hubrichti*. *J. Herpetol.* 27(4):431-435.
- Kurta, A. K. Williams, and R. Mies. 1996. Ecological, Behavioral, and Thermal Observations of a Peripheral Population of Indiana Bats (*Myotis sodalis*). In *Bats and Forests Symposium* (R.M.R. Barclay and R.M. Brigham, eds.) Research Branch, British Columbia Ministry of Forest, Victoria, B.C., Canada. Working Paper 23:1-292. pp.102-117.
- Kurta, A., D. King, J.A. Teramino, J.M. Stribley, and K.J. Williams, Eastern Michigan University. 1993. Summer Roosts of the Endangered Indiana Bat (*Myotis sodalis*) on the Northern Edge of Its Range. *American Midland Naturalist*, pp. 132-138.
- Lewis, R. L. 1998. *Transforming the Appalachian Countryside: Railroads, Deforestation, and Social Change in West Virginia, 1880-1920*. The University of North Carolina Press, Chapel Hill, NC 348 pp.
- Menzel, J. A., J. M. Menzel, T. C. Carter, W. M. Ford and J. W. Edwards. 2001. "Review of the Forest Habitat Relationships of the Indiana Bat (*Myotis sodalis*). Gen. Tech. Rep. NE-284.

Newtown Square, PA; U.S. Department of Agriculture, Forest Service, Northeastern Research Station. 21p.

Menzel, J. M., W. M. Ford, J. W. Edwards and M. A. Menzel. 2004. Nest Tree Use by the Endangered Virginia Northern Flying Squirrel in the Central Appalachian Mountains. *American Midland Naturalist*, Vol. 151, Pp. 355-368.

NatureServe. 2002. Species Viability Database Version 2.31. Unpublished database provided by NatureServe, Arlington, VA.

NatureServe. 2004. NatureServe Explorer: An online encyclopedia of life [web application]. Version 1.8, NatureServe, Arlington, VA. Available at <http://www.natureserve.org/explorer> (accessed various dates between January and April 2004).

Ortega, Y. K. and D. E. Capen. 2002. Roads as edges: effects on birds in forested landscapes. *Forest Science* 48:381-390.

Pack, J. C., R. P. Burkert, W. K. Igo, and D. J. Pybus. 1980. Habitat utilized by wild turkey broods within oak-hickory forests of West Virginia. Pp. 213-224 in: J. M. Sweeney (ed.) *Proceedings of the Fourth National Wild Turkey Symposium*. March 2-5, 1980, Little Rock, AR. Sponsored by Arkansas Chapter, The Wildlife Society in cooperation with National Wild Turkey Federation and Arkansas Game and Fish Commission.

Pauley, B. A. and T. K. Pauley. 1997. Range and distribution of the Cheat Mountain salamander, *Plethodon nettingii*: an update. *Proceedings of the West Virginia Academy of Science*. Vol. 69, No 1. Pp. 3.

Pauley, T.K. 1991. Cheat Mountain Salamander (*Plethodon nettingii*) recovery plan. U.S. Fish and Wildlife Service: Northeast Region, Newton Corner, MA. 31 pp.

Pauley, Thomas K. 1980. The Ecological Status of the Cheat Mountain Salamander (*Plethodon nettingii*). Unpublished report to the U.S. Forest Service, Elkins, West Virginia. 160 pp.

Pelton, M. R. 1989. The impacts of oak mast on black bears in the southern Appalachians. Pp. 7-11 in: C. E. McGee (ed.) *Proceedings of the Workshop: Southern Appalachian Mast Management, August 14-16, 1989*. Univ. of Tenn., Knoxville and U. S. Department of Agriculture, Forest Service, Cherokee National Forest. 85 pp.

Personal Communication (email), "Re: Mettiki Mini info request", Linda Tracy, Forest Geologist, 9/12/2005.

Romme, R.C., K.Tyrell and V.Brack. 1995. Literature summary and habitat suitability index model; components of summer habitat for the Indiana bat, *Myotis sodalis*. Indiana Endangered Species Program Project E-1-7, Study No. 8. 38p.

Ryan, C. W., J. C. Pack, W. K. Igo, J. C. Rieffenberger, and A. B. Billings. 2004. Relationship of mast production to big-game harvests in West Virginia. *Wildl. Soc. Bull.* 32:786-794.

Soil Survey of Pocahontas County, 1998, USDA-NRCS in cooperation with USDA Forest Service, and WVU Agricultural and Forestry Experiment Station, and Pocahontas County Commission.

Squires, J. R., and R. T. Reynolds. 1997. Northern Goshawk (*Accipiter gentilis*). In *The Birds of North America*, No. 298 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

Steffen, D. E., N. W. Lafon, and G. W. Norman. 2002. Turkeys, acorns, and oaks. Pp. 241-255. in: W. J. McShea and W. M. Healy (eds.) *Oak Forest Ecosystems: Ecology and Management for Wildlife*. The Johns Hopkins University Press, Baltimore MD, 432 pp.

Stihler, C. 13 September 2005. Personal communication regarding AWP bat surveys in Blackwater Canyon. WVDNR Wildlife Biologist, Elkins, WV.

Stihler, C. 1994a. Radio Telemetry Studies of the Endangered Virginia Big-Eared Bat (*Plecotus townsendii virginianus*) at Cave Mountain Cave, Pendleton County, West Virginia. Report in fulfillment of a Challenge Cost Share agreement between the WVDNR and USFS, Monongahela National Forest.

Stihler, C. 1995. A Radio Telemetry Study of Female Virginia Big-Eared Bats (*Corynorhinus (=Plecotus) townsendii virginianus*) at a Maternity Colony in Cave Mountain Cave, Pendleton County, West Virginia. Report in fulfillment of a Challenge Cost Share agreement between the WVDNR and U.S. Forest Service, Monongahela National Forest, Elkins, West Virginia.

Stihler, C. 2000. Personal communication regarding gray bat in West Virginia. WVDNR Wildlife Biologist, Elkins, WV.

Stihler, C. 6 January 2000. Letter to Lynette Otto. WVNDNR, Elkins, WV.

Stihler, C. 1994c. Endangered Species Federal Assistance Performance Report, Project E-1-11. WV Div. Nat. Resources. 107pp + Appendices.

Stihler, C. W., J. L. Wallace, E. D. Michael, and H. Pawelczyk. 1995. Range of *Glaucomys sabrinus fuscus*, a Federally Endangered Subspecies of the Northern Flying Squirrel, in West Virginia. *Proceedings of the WV Acad of Science*, Vol. 67, No. 2, 3, 4, pp13-20.

Stihler, C.W. 1994b. Letter to P. Nickerson, U.S. Fish and Wildlife Service, Hadley, MA.

Stihler, C.W. March, August, October, and December 1999. Personal communication. Endangered species biologist, WVDNR, Elkins, WV.

U.S. Census Bureau. *Profile of General Demographic Characteristics: 2000*. Hendricks town, West Virginia.

U.S. Census Bureau. *Profile of General Demographic Characteristics: 2000*. Thomas city, West Virginia.

U.S. Census Bureau. *Profile of General Demographic Characteristics: 2000*. Tucker County, West Virginia.

U.S. Fish and Wildlife Service (USFWS). 1999. Agency Draft Indiana Bat (*Myotis sodalis*) Revised Recovery Plan. Fort Snelling, Minnesota. 53 p.

U.S. Fish and Wildlife Service. 1983. Recovery Plan for the Indiana Bat. Minneapolis, Minnesota. 21 pp.

U.S. Fish and Wildlife Service. 1997. Preliminary Version of the Agency Draft of the Indiana Bat Recovery Plan. U.S. Department of Interior, U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 2001. "Appalachian Northern Flying Squirrels (*Glaucomys sabrinus fuscus* and *Glaucomys sabrinus coloratus*) Recovery Plan (updated)." Newton Corner, MA. 53 p.

U.S. Fish and Wildlife Service. 2002. Birds of conservation concern 2002. Division of Migratory Bird Management, Arlington, VA. 99 pp. [Online version available at <http://migratorybirds.fws.gov/reports/bcc2002.pdf>]

USDA Forest Service. 1986. *Land and Resource Management Plan, Monongahela National Forest*. USDA Forest Service, Eastern Region, Milwaukee, WI.

Unpublished article. 1960. *Shales in Appalachian Geology*, Cooper B.N. Dept. of Geological Sciences, VA Polytechnic Institute, Blacksburg VA.

West Virginia Department of Transportation. *Appalachian Corridor H. Parsons-to-Davis SDEIS*. 2002

Appendix B- Snow Plowing Guidelines

The intention of these guidelines is to complete snow plowing in a manner to preserve and protect the railroad grade to the extent necessary to insure safe and efficient transportation, and to prevent excessive erosion damage to the railroad grade and streams.

Snow removal work would include:

- Removal of snow from entire surface width including turnouts.
- Removal of snow slides, earth slides, fallen timber, and boulders that obstruct normal railroad grade bed/surface width.
- Removal of snow, ice, and debris from culverts so that the drainage system will function efficiently at all times.
- All snow removal should be done currently as necessary to insure, safe, efficient transportation.
- Debris that is removed from the road surface and drainage ditches, except snow and ice, should be deposited away from stream channels at agreed locations.
- Back slopes and banks should not be undercut during snow removal operation, nor should gravel or other selected surfacing material be bladed off the railroad grade bed/surface.
- Drainage ditches and culverts should be kept functional during and following use of the railroad grade.
- Snow berms should not be left on the railroad grade bed/surface. Berms left on the shoulder of the road should be removed and/or drainage holes should be opened and maintained. Drainage holes should be spaced as required to obtain satisfactory surface drainage without discharge on erodible fills.
- Snow must not be removed to the surface of the railroad grade. The blade should be equipped with skid shoes to prevent loss of surfacing and damage to the road. A minimum of 2 inches must be left on the railroad grade surface in order to protect the road bed.