

2.0 Alternatives, Including the Proposed Action

2.1 INTRODUCTION

This chapter describes 1) the alternative development process, including how public comments help formulate the alternatives, 2) alternatives considered but eliminated from detailed study, and 3) alternatives considered in detail. Alternatives were designed with an interdisciplinary approach considering the size and scope of the project, the purpose and need, the unresolved issues, and the expected environmental impacts. The alternatives include mitigation measures and monitoring requirements. This chapter also provides a brief comparison of the alternatives. This information, along with the disclosure of projected environmental consequences in Chapter Three, provides the decision-maker with the information necessary to make a reasoned choice between alternatives.

2.2 ALTERNATIVE DEVELOPMENT PROCESS

2.2.1 Scoping

Scoping is the process of gathering comments about a site-specific proposed federal action to determine the scope of issues to be addressed and for identifying the unresolved issues, which are related to a proposed action (40 CFR 1501.7).

The Upper Williams River Interdisciplinary (ID) Team conducted an analysis, documented in the Upper Williams River Watershed Assessment, to determine how to best implement the Monongahela Land and Resource Management Plan (Forest Plan) while maintaining ecosystem functions. During this analysis process, resource specialists from various disciplines inventoried and analyzed information concerning the Upper Williams River area. Opportunities were identified that would move the Upper Williams River area from existing conditions towards desired future conditions identified in the Forest Plan, while maintaining ecosystem functions identified in the Watershed Assessment. Field trips were held with members of the public prior to developing a proposed action.

Comments on the proposed action, potential concerns, and opportunities from managing the Upper Williams River area were solicited from Forest Service employees, members of the public, other public agencies, adjacent property owners, and organizations. Comments were requested through a legal notice published in the *Pocahontas Times* on August 14, 2001 and a mailing to interested parties. The mailing was sent to an estimated 270 interested parties. Twenty six letters, e-mails, or phone contacts were received during the scoping process. Comments were used to define unresolved issues, to develop alternatives, and to identify environmental consequences.

2.2.2. Issues Used to Formulate Alternatives

The purpose of soliciting comments during the scoping period is to determine whether there are any significant issues based on the proposed action. An issue is generally a point of discussion, considered in determining the final unresolved issues. Not all issues are significant issues.

Issues are significant because of the extent of their geographic distribution, the duration of their effects, or the intensity of interest or resource conflict. Once identified, the significant issues are used to formulate alternatives, prescribe mitigation measures, or analyze the environmental effects. Identified significant issues determine the scope (40 CFR 1508.25) of the environmental analysis. The disposition of comments received during the scoping period is found in Appendix A. The unresolved issues are described below.

2.2.2.1 Soil and Water

There are several areas within the Upper Williams watershed that have highly erosive soils. These soils are also prone to mass wasting and slippage. Management activities related to conventional logging (i.e. skidding, landings, road work) can escalate natural processes on these soils. These impacts can also occur on steep slopes. This increased soil movement can result in impacts to water quality and trout fisheries.

Units of measure used to evaluate this issue will be:

- Acres of conventional harvest (acres disturbed) on highly sensitive soils and slopes over 30 percent.
- Miles of road decommissioning or storage (acres improved)
- Influence on water yield (changes in basal area)

Conventional harvest methods result in higher levels of soil compaction. This compaction can result in reduced productivity resulting in slower recovery of the vegetative component of the harvested area.

Units of measure to evaluate this issue will be:

- Acres of conventional harvest (acres disturbed) on highly sensitive soils
- Miles of road decommissioning or storage (acres improved)

2.2.2.2 Clearcutting and Two-Aged Harvest

Concerns were expressed that the proposal included too much clearcutting and suggested that an alternative be developed that does not include clearcutting. This issues centers on the negative feelings individuals have towards clearcutting in general and concerns that clearcutting causes impacts to the viewing landscape. Although clearcutting was specifically mentioned in the comments, two-aged treatments have been included with the concern over clearcutting because they produce similar impacts to the viewing landscape.

Units of measure used to evaluate alternatives:

- Acres of clearcutting and two-aged harvest
- Units not meeting prescribed visual quality objectives (VQOs)

2.2.2.3 Beech Bark Disease Management

Concerns were expressed that proposed treatment of stands containing the beech bark disease would result in a severe decrease in beech across the drainage. This issue centers around a concern that beech provide important habitat for wildlife species, such as cavity nesters, and beech is an important mast-producing species for animals such as deer, squirrel, and turkey.

Units of measure used to evaluate alternatives:

- Acres of treatment for beech bark disease management
- Qualitative discussion of impacts to beech distribution in stands proposed for beech disease management

2.2.2.4 Economics

While not an impact on the resources on the ground, there were concerns expressed as to whether extensive helicopter logging was economically expedient. Helicopter yarding, while less impactful to many of the resources, is measurably more expensive than conventional logging.

Units of measure used to evaluate the alternatives:

- Present Net Value

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

The following is a summary of an alternative considered by the interdisciplinary team but eliminated from detailed study, along with the rationale for dismissal.

2.3.1 Uneven-aged Management

An alternative was considered, but eliminated from detailed study, that would focus entirely on using uneven-aged management. This alternative would mean that stands would be entered on a regular basis, removing individual trees scattered across the stand or small group selections. This alternative was developed as one method to address the issue related to clearcuts and two aged harvests.

Much of the soils in the Upper Williams area are highly erosive and sensitive to ground disturbance. To protect the soil and water resources, much of the Upper Williams area is proposed for helicopter logging. It would not be economically feasible to enter the stands on a regular basis using helicopter yarding because of the small amount of volume that would be removed at each entry. In addition, the use of conventional ground skidding would cause ground disturbance at regular intervals over a larger area as uneven-aged management usually requires entry into each stand every 10 to 15 years. Even-age management usually requires only 1 (minimum) to 4 (maximum) entries during the entire rotation cycle (120 to 200 years). The economic infeasibility of using helicopter logging for uneven-aged management and the unacceptable disturbance to the soil and water resources caused this alternative to be eliminated from detailed study.

2.3.2 Watershed Restoration

This alternative was considered to address several requests received from the public to develop an alternative that focuses only on restoration of the water and fisheries resources. Many of the activities considered in this alternative were also included in the original proposed action based on the original purpose and need scoped in 2001.

This alternative included placement of large woody debris, placement of stream structures, riparian planting, and armoring drainage channels on an abandon mine site. No commercial timber harvest or non-commercial treatment of timber stands would occur under this alternative. No wildlife habitat improvement or recreation enhancement projects would take place.

While much of this activity is within the same planning area, this alternative was beyond the scope of this analysis. Many of these activities are being reviewed for site specificity and will be addressed in a separate document. However, the effects of these activities will also be considered in the cumulative effects discussions for affected resources in Chapter 3.

2.3.3 Original Proposal

An original proposed action and purpose and need were scoped in 2001. This alternative included vegetative management, watershed improvements, wildlife improvements, and recreational enhancement activities. Further field reviews identified proposed activities that were not needed, required further review for site specificity, or that were more appropriately analyzed in a separate NEPA document. Those that would be better addressed in separate NEPA documents were related to recreation projects, wildlife improvement projects and watershed improvement projects. These activities will be included in the cumulative effects discussion in Chapter 3.

2.4 ALTERNATIVES GIVEN DETAILED STUDY

The following section gives a detailed description of each alternative given detailed study, including a description of features common to alternatives. The numbers of acres or miles identified for activities have been identified from mapping and should be considered estimates.

2.4.1 Alternative A- No Action

The National Environmental Policy Act (NEPA) requires that an EA include a “no action” alternative to serve as a baseline to compare action alternatives. The no action alternative is based on the premise that ecosystems change, even in the absence of active management. This alternative provides the decision-maker with a clearer basis for a reasoned choice among the alternatives studied in detail.

With the “no action” alternative, neither the proposed action nor any of the alternatives analyzed would be implemented. Management activities such as road maintenance, fire suppression, and routine maintenance of facilities would continue to occur within the planning area.

2.4.2 Features Common to All Action Alternatives (except where noted)

Road decommissioning and storage, would occur under all alternatives to some degree, except under Alternative A, the “no action” alternative. The following is a description of each activity, including activity objectives.

On roads and landings where soils have been disturbed, limestone and fertilizers will be added prior to revegetation to help establish vegetation in order to stabilize the soils.

Spacing of the cross drains on roads used for hauling would follow Forest Plan standards and guidelines for temporary roads (Forest Plan pp M-14).

2.4.2.1 Road Decommissioning and Storage

Road decommissioning and road storage are proposed to help remove chronic sources of sediment and to improve the health of the water and soil resources over the long term. Roads or portions of roads proposed for decommissioning or storage would be needed to allow for timber harvesting. The decommissioning or storage of the roads would occur after the harvest activities are completed.

Road Decommissioning: A Roads Analysis was completed for the Upper Williams River watershed, which determined that roads proposed for decommissioning would not be needed for long-term management of the area. Decommissioned roads would be removed from the official records. The Roads Analysis is available at the Monongahela NF Supervisors Office.

Decommissioning activities would focus on allowing the road to function in a more natural condition. Depending on the road, activities may include removing culverts, outsloping, ripping the surface to a depth of about 12 inches, and seeding with vegetation. These roads would be blocked off from access by using natural barriers.

Road Storage: The Roads Analysis identified roads proposed for storage as being needed for long-term management of the area, but not needed for this entry period. Roads proposed for storage would remain on the official records.

Storage of roads would include activities that would remove chronic sources of sediment and would be made maintenance free. Depending on the road, activities may include culvert removal or placing large drain dips in front of culverts. The large drain dips would intercept water running towards the culverts, avoiding the risk of a plugged culvert causing a road failure. Some roads may also be ripped to a depth of approximately 12 inches and seeded. Roads put into storage status would be closed using a natural barrier or a gate.

2.4.2.2 Timber Harvest (Silvicultural Prescriptions)

All action alternatives propose timber harvesting to varying degrees. All harvesting would take place on lands identified as suitable for timber production according to the Forest Plan and current stand records. This section describes each treatment type. Appendix B contains a description of detailed silvicultural prescriptions describing the existing stands, treatment methods, and desired stand composition after treatments.

Timber would be removed through commercial timber sales under either even-aged silvicultural systems or commercial thinning systems, as described below. Accomplishing these treatment objectives through commercial timber sales will provide forest products to local and regional communities.

Regeneration Harvest (Clearcut): The objective of clearcutting is to improve age class diversity and species diversity across the forested stands in the Upper Williams watershed. It would also provide early seral habitat and allow for a continued supply of mast production across the watershed over time.

Clearcutting is proposed for stands with high components of striped maple and/or beech in the understory. Striped maple and beech grow well in shaded areas so removal of the overstory canopy would allow shade intolerant to moderately tolerant species such as black cherry, red oak, white ash, and yellow poplar to become established in the understory. The intent is not to eliminate striped maple and beech from the understory, but to decrease the competition from striped maple and beech to allow other species to regenerate and grow. Only wildlife reserve trees would remain after harvest. Site preparation with hand tools, along with prescribed fire or herbicide treatment would also occur in these stands to further aid regeneration.

Regeneration Harvest (Two-Age): The objective of two-aged harvesting is to improve age class diversity and species diversity across the forested stands in the Upper Williams watershed. It would also provide early seral habitat and allow for a continued supply of mast production across the watershed over time.

Two- aged harvest has been prescribed for stands with high numbers of trees with good form and health that are expected to live until the next entry, estimated at 60 to 100 years. These stands contain a high component of shade intolerant to moderately tolerant species with low numbers or scattered patches of striped maple or beech. Most of the overstory would be removed, leaving some good quality trees 8-16 inches in diameter to provide mast and seed for regeneration. Good quality trees are commercial timber species free of disease and able to produce a fairly straight stem of sawlog size quality. High quality trees are found in the dominant or co-dominant crown class (overstory), although some trees in the intermediate crown class (mid-story) may also be included.

The residual trees and the low number of beech and maple are not expected to hinder the establishment of regeneration. Site preparation with hand tools, along with prescribed fire or herbicide treatment may occur in these stands to further aid regeneration.

Intermediate Harvest (Thinning): The objective of thinning is to promote healthy, vigorous trees in existing stands by removing low quality, poorly formed, overmature, and diseased trees, which would allow the remaining healthy well-formed trees to grow larger. Thinning would also help to ensure a continued supply of mast across the watershed over time.

Thinning is proposed in stands with the potential to increase growth and improve quality in the residual trees by freeing them from competition for light, water, and nutrients. The number of residual trees left after harvesting would vary, depending on stand conditions, but a general average would be estimated at 60-120 trees per acre of residual trees ranging in size from 6 to 28 inches in diameter.

Intermediate Harvest (Thinning) with Scattered Patch Cuts: These stands would resemble a thinning described above with 0.125 to 0.50 acre openings interspersed. The objective of this is

to develop a variety of canopy layers within the same stand to provide optimum nesting and foraging cover for songbirds. Scattered patch cuts will not occur with Alternative C.

Overstory Removal: The objective of overstory removal is to improve age class diversity and species diversity across the stands in the Upper Williams watershed. It would also provide early seral habitat, structural diversity within the stand, and allow for a continued supply of mast production across the watershed over time.

Stands proposed for overstory removal contain a healthy seedling and sapling understory. Most of the overstory would be removed to release the existing understory. Typically the entire overstory is removed; however, some overstory trees would be retained to lessen the impact to the viewing landscape.

2.4.2.3 Road Reconstruction

Road reconstruction is proposed to varying degrees for all action alternatives to ensure proper road drainage and safety. The following is a description of road reconstruction.

Road Reconstruction: Road reconstruction would occur on roads that need work beyond what is considered maintenance. Road reconstruction would include such activities as adding culverts, relocating or improving the road bed, brushing, cleaning ditches, and cleaning existing culverts. Road reconstruction would occur prior to harvesting units located along the road.

2.4.2.4 Pre-Harvest and Post-Harvest Activities

Activities such as prescribed fire, site preparation with hand tools, and planting would take place once harvesting is completed, depending on the stand. Vine control and herbicide use would usually take place prior to harvest. The following is a description of each of these activities.

Prescribed Fire: Prescribed fire would be used in some stands prescribed for clearcutting and two-aged harvest, except in Alternative E. The objective would be to enhance oak regeneration by killing tops of competing vegetation. Oak seedlings put most of their early growth in their roots and are able to re-sprout after fires and out-compete other seedlings that put most of their early growth in their tops.

Site Preparation with Hand Tools for Natural Regeneration: Once stands have been clearcut or two-aged harvested, site preparation with hand tools would occur to encourage natural regeneration. The objective of site preparation is to enhance germination, sprouting, and survival of natural regeneration. Site preparation includes cutting down residual trees between 1 and 5 inches in diameter, except red spruce, hemlock, white pine, dogwood, and serviceberry. This treatment opens up the forest floor to increased sunlight to improve seed germination potential, promotes sprouting of cut trees, and reduces shading that could inhibit the growth of shade intolerant and moderately tolerant species.

Herbicide Use: Herbicide use is proposed in some proposed clearcut and two-aged cut stands to inhibit striped maple and beech competition in the regeneration. The EPA-approved herbicide “tricopyr” would be applied to individual trees by using either a backpack sprayer or a hatchet and squirt bottle. All treatments would follow label guidelines and would be supervised by a State-certified applicator. There would be no mechanized equipment or broadcast spraying used.

Planting: Planting is proposed in some stands to improve species diversity. Competition for sunlight, moisture, and soil nutrients is intense when a stand is regenerated. Planting seedlings in protective shelters takes place to ensure some tree species remain a viable component of the stand. A tree shelter acts like a mini greenhouse, providing increased temperatures over longer time periods than in open conditions causing an increased survival rates and overall growth of the planted seedlings. Tree shelters also protect the seedlings from deer browse.

Vine Control: Camphor vines and grape vines interfere with the growth of trees, causing decreased growth, deformity, and broken tops. Broken tops allow entrance for insect and diseases, decreasing the vigor of a stand. Only camphor vines would be cut under this proposal, preferably prior to harvest. Grape vines would be retained because of their value to wildlife.

2.4.2.5 Stand Improvement Treatments

Beech Bark Disease Treatment: Treatment for beech bark disease would involve cutting or girdling large beech trees infected with the beech bark disease. Herbicide would then be sprayed on the stumps or injected in the girdling marks to deter sprouting. Only those trees infected with the disease or appear to be highly susceptible to the disease will be treated.

Once beech die of beech bark disease, the trees re-sprout, forming dense thickets of beech regeneration. These dense patches prevent the regeneration of other hardwood or conifer species. The purpose of the treatment is not to eliminate beech from these stands, rather to allow other species to regenerate in these stands in addition to beech.

2.4.3 Alternative B- Proposed Action

Alternative B is the proposed action that was presented to the public during the public scoping period and amended following further analysis. Alternative B was developed to meet the purpose and need for action described in Chapter 1. A visual display of the activities described in the following section can be found on Map 2-1 on page 2-9.

2.4.3.1 Commercial Timber Harvesting and Pre-Harvest and Post-Harvest Activities

This alternative proposes an estimated 2,255 acres of timber harvest totaling 10.5 million board feet (MMBF) or 17,510 hundred cubic feet (ccf). The proposed timber harvesting would include an estimated 1,429 acres of commercial thinning, 79 acres of thinning with patch cuts, 413 acres of two-age harvesting, 252 acres of clearcuts, and 82 acres of overstory removal. The proposed timber harvesting would be accomplished by helicopter logging 1,953 acres and conventional logging (ground-based skidding) 302 acres. It is anticipated that this would occur in about 3-5 sales over a period approximately 3-5 years.

Pre-harvest and post-harvest activities would include about 665 acres of site preparation, 101 acres of planting, 115 acres of prescribed fire, 106 acres of vine control, and 419 acres of herbicide use.

Appendix B, Table 4 describes the silvicultural treatments for commercial timber harvesting, including pre-harvest and post-harvest activities, and logging method for each unit under Alternative B.

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2.4.3.2 Road Management

Alternative B includes approximately 11.2 miles of road reconstruction to allow for timber hauling. An estimated 10.0 miles of road is proposed for storage with an additional 3.6 miles proposed for decommissioning. Some roads are proposed for more than one action, for example, 0.5 miles of M143 will be reconstructed and then placed in storage after the timber harvest and associated activities have been completed.

Appendix B, Table 3 provides a detailed description of the road management plan proposed under Alternative B.

2.4.3.3 Forest Health Vegetation Treatments

Approximately 302 acres of treatment for beech bark disease are proposed under Alternative B. Appendix B, Table 2 provides a description of the beech bark treatment prescribed for each unit.

2.4.4 Alternative C

This alternative was developed to address the issue related to costs of helicopter logging in some areas since it is no longer required as a protection measure for the Indiana bat. Prior to the Forest Plan amendment, winter logging was required as an extra precaution to impacts to the bat. This would have precluded the ability to log conventionally. In addition, One of the goal statements in the Forest Plan includes “Manage the vegetation on the Forest, according to sound professional procedures, in order to provide a sustained yield of timber, benefit other resources, and support the local economy with concern for environmental protection and cost efficiency. (Forest Plan page 38)

A visual display of the activities described in the following section can be found on Map 2-2 on page 2-11.

2.4.4.1 Commercial Timber Harvesting and Pre-Harvest and Post-Harvest Activities

This alternative proposes an estimated 1,854 acres of timber harvest totaling 8.5 million board feet (MMBF) or 14,185 hundred cubic feet (ccf). The proposed timber harvesting would include an estimate of 1,302 acres of commercial thinning, 329 acres of two-age harvesting, 207 acres of clearcuts, and 57 acres of overstory removal. The proposed timber harvesting would be accomplished by helicopter logging 1,589 acres and conventional logging (ground-based skidding) 306 acres.

Pre-harvest and post-harvest activities would include about 536 acres of site preparation, 101 acres of planting, 106 acres of prescribed fire, 115 acres of vine control, and 339 acres of herbicide use.

Units 11, 17-19, 22, 37-40, 44, and 65-67 were dropped from consideration under this alternative compared to the proposed action. Units 20, 41-43, 45-49, 51-62, and 68-70 would be conventionally logged rather than helicopter logged. Units 3 and 4 would be reduced in size and helicopter logged. Unit 32 has been changed from a clearcut to a two-aged treatment and Unit 49 and 62 have been reduced in size.

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Appendix B describes the silvicultural treatments for commercial timber harvesting, including pre-harvest and post-harvest activities, and logging method for each unit under Alternative C.

2.4.4.2 Road Management

Alternative C includes approximately 10.3 miles of road reconstruction and to allow for timber hauling. An estimated 9.1 miles of road is proposed for storage with an additional 3.3 miles proposed for decommissioning. Some roads are proposed for more than one action, for example 0.5 miles of M143 will be reconstructed and then placed in storage after the timber harvest and associated activities have been completed.

Roads proposed for reconstruction would be placed in storage once harvest activities are completed, except for FR438, which would be maintained over the long term because it provides access to private land.

Appendix B, Table 3 provides a detailed description of the road management plan proposed under Alternative C.

2.4.4.3 Forest Health Vegetation Treatments

Approximately 302 acres of treatment for beech bark disease are proposed under Alternative C. Appendix B provides a description of the beech bark treatment prescribed for each unit.

2.4.5 Alternative D

Alternative D was developed to address the issue relating to soil and water. The intent of this alternative is to minimize impacts to the water resources while still moving toward a mosaic of forested stands, improving forest health, and providing forest products. Harvest units along roads systems that are the highest concern for sedimentation, primarily along Road 115 and 115A, were dropped from consideration and the roads were identified for decommissioning. This alternative focuses on minimizing ground disturbance, which contributes to sedimentation and road management since roads are the primary factor influencing sedimentation in the Upper Williams River Watershed. A visual display of the activities described in the following section can be found on Map 2-3 on page 2-13.

2.4.5.1 Commercial Timber Harvesting and Pre-Harvest and Post-Harvest Activities

Since ground-based skidding on erosive soils can increase sedimentation, each unit proposed for conventional logging was reviewed to determine if helicopter logging would be feasible. Units farther than an estimated 1-mile radius of an available helicopter landing site were dropped from consideration in this alternative, unless the unit had a component of high value species, which would economically support helicopter logging at longer yarding distances. Units within an estimated 1-mile radius would be harvested using helicopter logging instead of conventional logging.

Units 3-8, 22, and 64 were dropped from consideration under this alternative, as compared to Alternative B. Units 21, 23-26, 35, 36, and 63 would be harvested using helicopter logging instead of conventional logging. Unit 26 would decrease in size from 31 acres to 22 acres. Unit 38 increased in size from 28 to 53 acres.

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Alternative D includes an estimated 2,071 acres of timber harvest totaling 9.0 MMBF or 14,967 ccf. The timber harvesting would include an estimated 1,359 acres of commercial thinning, 79 acres of thinning with interspersed patch cuts, 340 acres of two-age harvesting, 211 acres of clearcuts, and 82 acres of overstory removal. The timber harvesting would be accomplished by helicopter logging the entire 2,071 acres.

Pre-harvest and post-harvest activities would include about 551 acres of site preparation, 80 acres of planting, 107 acres of prescribed fire, 98 acres of vine control, and 331 acres of herbicide use.

Appendix B, Table 8 has a detailed description of the silvicultural treatments for commercial timber harvesting, including pre-harvest and post-harvest activities, and logging method for each unit under Alternative D.

2.4.5.2 Road Management

Alternative D includes approximately 5.2 miles of road reconstruction to allow for timber hauling. An estimated 4.0 miles of road is proposed for storage with an additional 9.8 miles proposed for abandonment.

Differences between the proposed action and Alternative D in road management occur on roads FR 115, FR 115A, FR 437A, FR 889, FR 999B, FR 1797, M 135, and M169. Please refer to Appendix B for a detailed description of the road management proposed for Alternative D.

2.4.5.3 Forest Health Vegetation Treatment

The same beech bark disease treatments proposed under Alternative B (302 acres) are proposed for Alternative D. Appendix B provides a description of the beech bark treatments.

2.4.6 Alternative E

Alternative E was developed to address the issue relating to clearcutting. Units proposed for clearcutting and two-aged harvest under Alternative B were reviewed and, based on the species composition within the stands, the harvest prescriptions were changed to thinning. If thinning would not meet silvicultural objectives (see Appendix B), then the unit was dropped from consideration under Alternative E. This commercial timber harvest in this alternative is made up of proposed thinning units only. A visual display of the activities described in the following section can be found on Map 2-4 on page 2-15.

2.4.6.1 Commercial Timber Harvesting and Pre-Harvest and Post-Harvest Activities

To develop this alternative, each proposed clearcut and two-aged harvest was reviewed to determine if modifying the silvicultural prescription would still move the stand towards meeting silvicultural objectives. Stands proposed for clearcutting or two-age harvest which contain greater than 33% basal area of species intolerant to shade, such as black cherry, red oak, white ash, or yellow poplar, were dropped from consideration in this alternative. Treating these stands with prescriptions other than clearcutting or two-age harvest would decrease intolerant species regeneration, changing the species composition to shade tolerant species, such as beech and maple. This would decrease the species diversity in the stands and would not meet silvicultural

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objectives (see Appendix B). Intermediate harvesting, or thinning, was proposed for stands with less than 33% basal area of intolerant species. Prescription for units 2, 9, 11, 18, 19, 21, 23, 24, 28, 29, 32, 34, 44, 49, 52, and 58 were changed from clearcut or two-aged harvest to thinning under Alternative E. Units 3-6, 12-17, 20, 22, 25, 35-37, 40-43, 47, 48, 53, 60-64, and 66-70 were dropped from consideration under Alternative E. Units 18 and 19 would use conventional logging because the volumes in the stands would not support helicopter logging, as is proposed under Alternative B. Unit 27 would be decreased by 55 acres while units 23 and 24 would be combined into one intermediate harvest unit and acres would be increased to a total of 81 acres.

Alternative E includes an estimated 1,265 acres of timber harvest totaling 3.9 MMBF or 6,644 ccf. The timber harvesting would include an estimated 1,265 acres of thinning, and 60 acres of thinning with interspersed patch cuts. The timber harvesting would be accomplished by helicopter logging 1,081 acres and conventional logging 184 acres.

There would be no prescribed fire, vine control, herbicide use, planting, or site preparation associated with the commercial timber harvest for Alternative E.

Appendix B, Table 10 describes the silvicultural treatments for commercial timber harvesting and logging method for each unit under Alternative E.

2.4.6.2 Road Management

Alternative E includes approximately 7.7 miles of road reconstruction to allow for timber hauling. An estimated 9.3 miles of road is proposed for storage with an additional 3.6 miles proposed for decommissioning.

The road management plan is the same as Alternative B, except for FR 437A, FR 889, FR 999B, M 135, and M 169. Table 3 in Appendix B provides a detailed description of the road management plan proposed under Alternative E.

2.4.6.3 Forest Health Vegetation Treatment

The same beech bark vegetation treatments proposed under Alternative B (302 acres) are proposed for Alternative E. Appendix B, Table 11 provides a description of the beech bark treatments.

2.4.7 Alternative F

Alternative F was developed to address the the concern about beech bark disease management. This alternative was also designed to lessen the impacts to the soils, water quality and fish habitat as compared to the proposed action.

A visual display of the activities described in the following section can be found on Map 2-1 on page 2-17.

2.4.7.1 Commercial Timber Harvesting and Pre-Harvest and Post-Harvest Activities

Harvest units proposed in stands greater than 100 years old were dropped from consideration in this alternative. Areas that proposed the highest concentration of harvest units were reviewed and units were dropped from consideration to decrease the amount of proposed harvest.

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Units 1-8, 17-19, 22, 27, 28, 35, 37-44, 48, 60-62, and 66 were dropped from consideration under Alternative F. Units 21, and 22-26 would use helicopter logging instead of conventional logging, as proposed under Alternative B.

Alternative F includes an estimated 1,303 acres of timber harvest totaling 6.1 MMBF or 10,106 ccf. The timber harvesting would include an estimated 807 acres of thinning, 60 acres of thinning with interspersed patch cuts, 211 acres of two-age harvesting, 168 acres of clearcuts, and 57 acres of overstory removal. The timber harvesting would be accomplished by helicopter logging 1,263 acres and conventional logging 40 acres.

Pre-harvest and post-harvest activities would include 379 acres of site preparation, 37 acres of planting, 115 acres of prescribed fire, 82 acres of vine control, and 225 acres of herbicide use.

Appendix B, Table 12 describes the silvicultural treatments for commercial timber harvesting and logging method for each unit under Alternative F.

2.4.7.2 Road Management

Alternative F includes 6.5 miles of road reconstruction to allow for timber hauling. An estimated 9.5 miles of road is proposed for storage with an additional 3.6 miles proposed for decommissioning.

Differences between the proposed action and Alternative D in road management occur on roads FR 115A, FR 437A, FR 889, FR 999A, M 143, and M169. Table 2 in Appendix B displays the road management plan for these roads.

2.4.7.3 Forest Health Vegetation Treatment

Stands proposed for beech bark disease treatment in Alternative B were dropped from consideration under Alternative F.

2.5 MITIGATION MEASURES AND PROJECT DESIGN FEATURES

Herbicide Use - Triclopyr would not be applied within 50 feet of any continuous stream channel, spring, or seep. Applications of herbicide would not be made during periods of precipitation, or when the soil is saturated. Use of triclopyr would be strictly according to label instructions, and supervised by a certified applicator as required by West Virginia State law. Rates of application would not exceed, on the average, 1 lb/ac for Garlon 3A, and 4 lb/ac for Garlon 4. The proposed method of treatment is by hand tools and backpack sprayers. No mechanized equipment or broadcast spraying would be employed.

Aspen Release: Aspen is a relatively short-lived species with growth beginning to decline from age 40 to 70. Aspen provides food for species such as grouse, purple finch, rabbits, deer, and small rodents. A disturbance dependent species, aspen grows in clones by sprouting from the roots when it is cut, as long as reproduction is not inhibited by overhead shade. The aspen stand proposed for release is located in a portion of a proposed two-age harvest unit in alternatives B, C, D, and F and as a proposed thinning in alternative E so the overstory would be removed through commercial timber harvest. The aspen would then be cut to stimulate re-sprouting.

Site Preparation for Natural Regeneration - Do not cut trees in site preparation activities within 66 feet of any continuous stream channel in harvested units. Trees not cut and removed in the commercial timber sale would be left standing to provide for future large woody debris, except for those trees considered to be unsafe or hazardous to the public.

Planting – In stands proposed for planting red oak and/or disease resistant American chestnut seedlings, no culls will be left to allow for the maximum growth of the seedlings. The tree shelters that protect the seedlings from deer browse also act as greenhouses allowing the seedlings to outgrow other competitive tree species. Increased shading by cull trees would reduce the ability for the seedlings to survive and outgrow the competition.

Prescribed Burning - All prescribed burns would comply with a Prescribed Burning Plan approved by the District Ranger. Control lines constructed for the burn that expose mineral soil would have drainage structures (waterbars or dips) installed to limit soil loss. Spacing of the drainage structures would depend on the slope and proximity to a stream channel.

Highland Scenic Highway (HSH) - No log trucks or other commercial trucks associated with the timber sale would be allowed on the HSH, except for the section from the helicopter log landing adjacent to the HSH to the Williams River Road (FR 86), without prior written permission from the District Ranger.

Helicopter flying and truck hauling operations along the HSH would not occur until after fall color season. Flag person(s) would be stationed near the helicopter log landing adjacent to the HSH for traffic control. Helicopters are prohibited from flying directly over the HSH while loaded with trees/logs.

Helicopter landing zones would be completely cleared of debris along the Highlands Scenic Highway

Road cut slopes should be revegetated where needed to eliminate the distraction of exposed soil and erosion within the immediate foreground, and to reduce the color contrasts of the road cuts when seen in background, as from the Williams River Valley Overlook.

Trails should be posted during any harvesting activities to inform trail users of any potential safety concerns.

Trails should be protected by: (1) minimizing or eliminating trail crossings by vehicles or harvesting equipment during harvesting operations (2) A sufficient number of trees should be maintained along the trail corridor to permit signing/ blazing and to provide shade to minimize undergrowth (grasses/brush, etc.)

Portions of proposed Timber Stand Improvement units inside the ¼ mile corridor of the Upper Williams eligible Wild and Scenic Study River should be marked to protect the visual resource from the river.

Recreation - The dispersed campsite adjacent to the entrance to FR 171 would be closed to public use during helicopter logging operations. Signs would be posted closing off the timber

sale area to public use during felling and flying operations in the sales requiring helicopter logging.

Riparian protection – Riparian protection for the Upper Williams project will follow the guidelines identified in Appendix C (Upper Williams Riparian Guidelines).

In Unit 2, slash would be left across the slope to reduce the amount of sediment generated on the clear cut.

In Unit 5 a filter strip would be left around the helicopter landing as well as positioning slash from clearing the landing on the down slope side.

Cultural Resources: Known cultural resource sites would be marked and avoided during project implementation. Avoidance could occur through either directional felling away from the site or a buffer comprising the height of the nearest possible fell, plus one-half the height.

As the timber is cruised and marked, and during the course of project implementation, Forest Service staff should be aware of the potential for locating additional historic and prehistoric sites in the project area, particularly rockshelters along the Princeton sandstone formation along the western and southwestern edge of the project area and around the middle slopes of Big Spruce Knob. If a site is located, then the Forest Archaeologist would be notified and an appropriate avoidance strategy determined.

2.6 COMPARISON OF ALTERNATIVES

NOTE – This is a partial comparison of the alternatives. A final comparison will be completed upon completion of the analysis.

Table 2-1 – Summary Comparison of Alternatives

Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Commercial timber harvest						
Total Volume (MMBF/CCF)	0	10.5/	8.5/	9.0/	3.9/	6.1/
Total harvest (acres)	0	2,255	1,895	2,071	1,265	1,303
Two-aged harvesting (acres)	0	413	329	340	0	211
Clearcut (acres)	0	252	207	211	0	168
Overstory removal (acres)	0	82	57	82	0	57
Commercial Thinning (acres)	0	1,429	1,302	1,359	1,205	807
Thinning with patch cuts (acres)	0	79	0	79	60	60
Helicopter logging (acres)	0	1,953	1,589	2,071	1,081	1,263
Conventional logging (acres)	0	302	306	0	184	40
Helicopter landings	0	12	8	12	8	9
Prescribed fire (acres)	0	115	115	107	0	115
Site preparation	0	665	536	551	0	379

Action	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
(acres)						
Herbicide (acres)	0	419	339	331	0	225
Planting (acres)	0	101	101	80	0	37
Vine control (acres)	0	106	82	98	0	82
Forest Health						
Beech bark disease treatment (acres)	0	302	302	302	302	0
Road Management						
Reconstruction (miles)	0	10.5	9.7	5.2	7.7	6.5
Storage (miles)	0	9.3	4.4	4.0	9.3	9.3
Decommission (miles)	0	3.6	0.5	9.8	3.6	2.9