United States Department of Agriculture

Otter

Vegetation Management Project

Scoping Document

Forest Service | Allegheny National Forest | Elk County, Pennsylvania | December 2018

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Cover photo: Coarse woody debris and glossy buckthorn in the Otter project area, photo taken by Scott Ion, Archaeological Technician

Who is proposing the project?

The Forest Service, U. S. Department of Agriculture, Allegheny National Forest is initiating an environmental analysis for the proposed Otter Vegetation Management Project pursuant to the National Environmental Policy Act of 1969.

What are we proposing to do?

We are proposing to manage the proposed treatment areas on the Marienville Ranger District to achieve a diversity of desired forest trees, a healthy and resilient ecosystem, and diminish the risks and consequences of forest health threats.

This project implements the Allegheny National Forest Land and Resource Management Plan (or Forest Plan) (USDA-FS 2007) (see the Management Direction section).

The project is subject to pre-decisional objection consistent with the Consolidated Appropriations Act of 2012 (P.L. 112-74) as implemented by subparts A and B of 36 CFR Part 218.

Where is the project located?

The Otter project area includes National Forest System lands in Compartments 865, 866, 870, 871, 882, 883, 884, 885, 886, 897, and 898. The project is located in Warrants 1568, 1778, 1783, 1830, 1858, 1863, 2038, 3232, 3251, 3252, 3254, 3265, 3278, 3283, 3284, 3656, 4537, 4846, 4847, 4848, 4849, 4856, and 4857 in Highland, Jones, and Ridgway Townships, Elk County Pennsylvania and is located northwest of Ridgway, Pennsylvania in portions of the Bear Creek and Big Mill Creek watersheds. The Big Mill Creek watershed is a municipal watershed. The project area consists of approximately 12,052 acres with approximately 5,130 acres in Management Area 2.2 and 6,922 in Management Area 3.0.

When would the project be implemented?

A decision on the proposal or an alternative proposal is expected during 2019. While initial activities would occur in 1 to 5 years, following the decision, some activities are anticipated to occur over a 20-year period.

Why here and why now?

Purpose and Need

Increasing early structural habitat

The Allegheny National Forest Land and Resource Management Plan (Forest Plan) identified desired vegetation structural distribution for the Forest for the year 2020. As shown in the Forest's 2008–2013 monitoring report, there is a vegetation structural imbalance across the Forest (USDA-FS 2014, p. 120). While mid and late structural stages are well-represented and meeting desired conditions, stands in early structural stages are falling far short of desired conditions. Only 3.8 percent of the Forest exists as

early structural forest in 2015. This amount is less than half of the desired 2020 condition (USDA-FS 2007, p. 19, Errata). Currently, approximately 1 percent of the project area is in the zero to 20 age class (early structural habitat). An additional 1.5 percent of the project area was approved in previous decisions for regeneration harvests but have not been harvested yet.

The Forest Plan's early structural vegetation objective will be met or exceeded once all of our proposed and recently approved projects are implemented. However, full implementation will take time due to a reliance on natural seedling establishment for regeneration. Since most of the forest does not already contain adequate advanced tree regeneration, we rely on a sequence of treatments to create growing conditions conducive for seedling establishment. Final harvest treatments can only occur once adequate tree regeneration is established. As a result, there can sometimes be a five, ten, or even twenty year lag between signing a project decision and completing all final harvests. As stands on the Allegheny National Forest continue to age and early structural vegetation constantly develops into mid-structural vegetation, it is important to continue creating early structural vegetation in order to sustain this component over time. This proposal would create an additional 1,449 acres (12 percent of the project area) of early structural habitat and would help maintain the overall age class distribution described in the Forest Plan desired condition.

Creating suitable conditions for the establishment and development of desired tree seedlings

A number of challenges exist for establishing desired tree seedlings on the Allegheny National Forest. These include dense shade cast by overstory, midstory, and interfering understory vegetation, preferential browsing by deer, periodic seed crops, and variable seed viability, and in some cases, the decline of potential seed trees. Desired tree seedlings do not develop in sufficient quantities on the Allegheny National Forest without intensive forest management. Interfering understory vegetation frequently outcompetes tree seedlings as a result of decades of selective deer browsing (Horsley, Stout, and deCalesta 2003). Management actions create suitable conditions for the establishment and development of desired tree seedlings, in order to maintain important ecological structure, function, and processes.

Addressing the decline of American beech, black cherry, white ash, and eastern hemlock

This project is needed to address present and potential future decline of American beech, black cherry, white ash, and eastern hemlock, due to non-native and native insects and diseases and other factors discussed below. If no action is taken, forest stocking levels may be reduced and could potentially result in areas with few seed trees, with forest understories dominated by interfering vegetation, including thickets of beech, striped maple, ferns, and glossy buckthorn. In some areas, few to no seed trees would remain. Stands with reduced stocking due to insects and diseases are more vulnerable to damage from windthrow, storms, and other general injury to tree crowns.

Vegetation management can affect forest health through a variety of overstory and understory treatments. Declining, mature, or poorly stocked stands can be regenerated to vigorous well-stocked young forest stands through a combination of timber harvest and reforestation treatments. Managing and regenerating declining stands now would promote natural regeneration of a diversity of desired trees. It would sustain healthy, well-stocked

forested stands over the long-term. This project is designed to address forest health concerns by regenerating stands before natural regeneration opportunities are further reduced. Deferring action of these stands would likely increase the difficulty of successfully restocking them with diverse tree seedlings that would result in a more resilient future forest.

Providing a diversity of vegetation structural stages, age classes, and forest types

Forest Plan desired conditions include providing a diversity of vegetative structural stages, age classes, and forest types across the landscape within the context of multiple use management. The purpose of this project is to sustain a desirable mix of tree species to ensure a healthy, diverse, and resilient forest. The dominant forest types on the Allegheny National Forest are upland and Allegheny hardwoods, primarily consisting of black cherry, red maple, black birch, and tulip poplar, and white ash. American beech, eastern hemlock, yellow birch, and cucumbertree are common associates.

The uniformity of second growth forest across the Allegheny National Forest increases vulnerability to damage from repeated natural stresses and exotic insects and diseases. Beech bark disease[1] is an introduced insect-fungus complex which has resulted in substantial American beech mortality across the Forest and in the project area. The fungus complex, introduced from Europe, results in the death of mature American beech trees. Once mortality of mature beech trees occurs, a dense thicket of beech suckers, or beech brush, is produced. As these suckers are genetically identical to the mature beech that died from the disease complex, they are also susceptible to the disease and will succumb to the disease complex in the next couple of decades. The dense regeneration of beech within the understory of infested stands prevents the establishment of other tree seedlings and creates a virtual monoculture that lacks the benefits of natural forest biodiversity (Forrester and others. 2003; Hane 2003; Latty and others 2003).

In addition to mortality of beech, the health and abundance of white ash and hemlock is a growing concern on the Forest. Emerald ash borer[2] is responsible for the rapid mortality of millions of ash trees across their range in the eastern United States, and was detected on the Allegheny National Forest in 2013. The project area contains very few ash trees and most of these trees are infested with emerald ash borer and have perished. Hemlock woolly adelgid[3] was also confirmed on the Forest in 2013. It is much slower spreading than emerald ash borer, but is expected to similarly result in high mortality levels to eastern hemlock beginning in the coming decade.

Black cherry crown health has been declining in many areas on the Allegheny National Forest. The reasons for this decline are not entirely clear, but it is thought that decline is linked to a number of interacting factors including insect defoliations, other canopy disturbances such as wind events and loss of American beech trees to beech bark disease, changing soil nutrient status, and potentially changing climate and weather patterns. Recent monitoring conducted on the Allegheny National Forest identified increases in black cherry decline and observed mortality on the Allegheny national Forest and on the Allegheny Plateau (Long and others, personal communication 2015 unpublished; PA

[1] For information on beech bark disease visit http://na.fs.fed.us/fhp/bbd/
[2] For information on emerald ash borer visit http://na.fs.fed.us/fhp/eab/
[3] For information on hemlock woolly adelgid visit http://www.na.fs.fed.us/fhp/hwa/

Bureau of Forestry 2015 unpublished). Specifically, the proportion of stand dead black cherry stems on 97 intensive forest health monitoring plots containing black cherry on the Allegheny National Forest has increased from less than 10 percent in the 1998–2001 measurement cycle to more than 22 percent in the 2014–2015 measurement cycle. Similarly, continuous forest inventory data collected on the Pennsylvania High Plateau (Allegheny National Forest region) noted an increase from around 3 percent dead black cherry stems in the 1997–2000 measurement cycle to more than 30 percent in the 2009–2013 measurement cycle.

Cherry scallop shell moth is a defoliator of black cherry, and occasionally other native cherries. The moth is a native insect to Pennsylvania and the eastern United States. The moth larvae fasten margins of leaves together and form an elongated nest, within which they feed on the upper tissues of the leaves. Once feeding is complete, the larvae will move on to construct more feeding nests. Damage to black cherry trees range from a loss of radial growth, partial crown mortality to total tree mortality, depending upon the severity (percentage of the crown) of the defoliation and the duration (how many years) of defoliation. Currently the Allegheny National Forest is in the fifth year of a cherry scallop shell moth outbreak and each year the outbreak area has increased in size. The Forest Service is monitoring cherry scallop shell moth defoliation and associated effects on overall black cherry crown health.

Non-native invasive glossy buckthorn (*Frangula alnus*) has grown from known small populations in 1990s to infestations over tens of thousands of acres in 2018. The expanding population that may impact hundreds of thousands of acres in the foreseeable future if left unchecked. These thickets can impede hunters, hikers, and wildlife moving through the forest, as well as exclude other shrubs, trees, and native herbaceous plants from establishing or remaining on site. Wherever they dominate the shrub layer, they can grow so thickly that they prevent the establishment of native species and reduce any opportunity for plant diversity. Dense thickets of buckthorn also increase shade (which reduces tree seedling growth and survival) and increase competition for water and nutrients. In all cases, the presence of the prolific buckthorn retards natural patterns of genetic variation in native species. It also threatens to impede the range of silvicultural and reforestation practices available to the Allegheny National Forest to promote a diversity of tree seedling of good quality, form, and health and maintain high quality hardwood sawtimber. Interference from non-native invasive plants is a threat to forest health and native plant communities. Monitoring and controlling the spread of invasive plant species is an important component of providing a healthy, sustainable forest ecosystem.

Potential old growth

As per the Forest Plan standard (page 115) for Management Area 3.0, a set of currently identified and mapped potential old growth areas is maintained for Management Area 3.0–Even-aged Management and these areas may be revaluated and adjusted during project planning. There are seven stands in Management Area 3.0 within the Otter project area that were previously designated as potential old growth. Three of these stands 871049, 871073, and 885024 are being proposed for regeneration harvests due to forest health concerns.

Stand 871049 currently has a healthy relative density (viable seed source) covering 45 percent of the stand. The stand has been thinned in the past (1979 and 1991) and is

composed mostly of red maple and black cherry. The mature black cherry overstory is showing significant crown dieback, and the understory has a significant component of beech brush impacting over half of the stand. The beech brush is a remnant of a beech overstory component that was killed by beech bark disease, and this understory will be equally susceptible to beach bark disease as it ages. This stand is not sustainable under its current conditions, and treatments are needed to provide for regeneration of the stand with a stronger potential for future species diversity and a healthy overstory.

Stand 871073 currently has a healthy relative density (viable seed source) covering 30 percent of the stand. The stand has had no prior treatments and is composed mostly of red maple and black cherry. The mature black cherry overstory is showing significant crown dieback, and the understory is almost completely impacted by beech brush. The beech brush is a remnant of a beech overstory component that was killed by beech bark disease, and this understory will be equally susceptible to beach bark disease as it ages. This stand is not sustainable under its current conditions, and treatments are needed to provide for regeneration of the stand with a stronger potential for future species diversity and a healthy overstory.

Stand 885024 currently has a healthy relative density (viable seed source) covering 70 percent of the stand. The stand has had no prior treatments and is composed mostly of red maple and black cherry. The mature black cherry overstory is showing significant crown dieback, and the understory has a significant component of beech brush impacting over two-thirds of the stand. The beech brush is a remnant of a beech overstory component that was killed by beech bark disease, and this understory will be equally susceptible to beach bark disease as it ages. This stand is not sustainable under its current conditions, and treatments are needed to provide for regeneration of the stand with a stronger potential for future species diversity and a healthy overstory.

For all of these stands, glossy buckthorn is in the understory of adjacent or nearby stands, and presents an additional impediment to stand diversity and health when the beech brush succumbs to beech bark disease. And for all three stands, the need for salvage and regeneration treatments would make it unlikely that they would retain any potential for old growth characteristics.

Enhancing wildlife habitat

Inventory data and field surveys indicate a variety of habitat conditions in differing amounts occur throughout the project area. Multiple vegetative age classes occur providing cover and structure for a variety of wildlife species. Predominately maturing forest over-story trees exist, but varied vegetative conditions occur in the forest understory. Small tree and shrub conditions occur in the understory, but are also present in riparian areas and herbaceous openings throughout the project area. These shrubs include mainly witch hazel, Juneberry, and muscle-wood. Vegetative wetlands and riparian areas contain varied amounts of those species as well as species associated with wetland conditions. Conifer cover is mainly in the form of hemlock and occupies the riparian areas as well as drier hilltop site conditions. Plantations of red pine, tamarack, and occasional white pine exist in some locations. Herbaceous openings, both constructed from historic management and those occurring in wetland and riparian environments exist. Snags, den trees, and coarse wood occur in some of the area providing structure and den sites for wildlife species. Non-native invasive plant species, mainly glossy buckthorn

are widespread and influence the area's condition. There is a need to enhance or create wildlife habitat for a variety of wildlife species where the conditions exists or are absent.

Reducing interference from non-native invasive plant species

The project area is undergoing a variety of changing habitat conditions. Field surveys indicate that forest health, which includes all vegetation, is being affected by a variety of non-native invasive insects, disease, and mortality, natural disturbances such as wind and storm events, and selective deer browsing in some species and some places. Non-native invasive plants are quickly adapting to changing conditions and establishing themselves in areas where native vegetation had predominately existed. Both climatic and seasonal changes will occur in both the short term and long term that will also affect wildlife habitat. Although the project area contains a variety of non-native invasive plants, glossy buckthorn is the primary threat to wildlife habitat. Because of its adaptability and proliferation abilities in a variety of growing conditions, it is present in all forms of habitat and dominates site conditions, crowding out and influencing native vegetation. There is a need to reduce non-native plant species to ensure native plant diversity and health.

Improving stream conditions

Stream habitat monitoring found that many streams in the project area lack habitat diversity that would contribute to improved habitat for aquatic animals and enhanced recreational experiences for anglers. Pools and slow water habitat are present but lack cover and pools are generally shallow. Also, large wood monitoring on several streams shows streams lack sufficient large wood to create quality pools, slow flood flows, or store sediment and organic debris.

Many streams are also lacking adequate vegetation to provide shading and to provide an adequate supply of large wood in the future.

Improving soil and water quality

Waterways in the Big Mill Creek and Bear Creek watersheds are susceptible to acid precipitation due to their location, shallow soils and parent geology with low buffering capacity (USDA-FS-2007b, p. 3-27). There are 5.9 miles of streams in Otter project area that fail to meet Commonwealth water quality standards and are listed as impaired. These streams' listings note "do not attain protected water uses" due to low pH from "Atmospheric Deposition". The waters include Bloody Run and Rocky Run within the Big Mill Creek and Bear Creek Watersheds. As acid precipitation contacts with watershed soils it releases and mobilizes dissolved aluminum from the soil. The transport of dissolved phases of aluminum from watershed soils and through stream systems is toxic to fish and other aquatic life at low concentrations. There is a need to apply lime throughout Big Mill Creek and Bear Creek watersheds where it would be beneficial to soil and water resources, and in the long-term benefiting the aquatic resources. The lime would help neutralize the acidity with in soil pore water and increase pH and alkalinity of soil stormwater runoff, surficial groundwater, and waterways.

There are numerous dispersed camping sites within the project area. Many of these sites are in riparian areas. Soils and vegetation in riparian areas are very sensitive and loss of vegetation and compaction of the soil can occur rapidly. There is a need to close some dispersed campsites and improving others to mitigate the impacts to soils and water quality and to create a more sustainable dispersed camping experience.

Illegal ATV use occurs in several places across the project area, usually on powerlines and other utility corridors. Illegal riding causes soil compaction, soil erosion, and loss of vegetation. There is a need to block illegal ATV access points within the project area to reduce or eliminate impacts to soils and water quality.

How are we proposing to take action?

Proposed Action

A silvicultural system is a planned series of treatments by which we establish, grow, manage, and regenerate a forest stand for a specific purpose. This process includes all practices necessary for replacement and development of the forest stand.

Even-aged silvicultural systems are being proposed in this project to meet the overall objectives and desired future condition of management area direction. Under an even-aged silvicultural system, stands are managed with harvest methods and associated reforestation treatments that regenerate trees of a single age class at the time of regeneration harvest. In all cases, areas managed using even-aged systems retain trees that provide ecological function and structure inherited from past ecosystems and important in recovery of the biological community. Under an uneven-aged silvicultural system, stands are managed with harvest methods and associated reforestation treatments that regenerate trees of multiple age classes that have three or more age classes within that stand. Most of the stands that are proposed for an even-aged or uneven-aged treatments have understory vegetation that interferes with the establishment of new seedlings; therefore, reforestation treatments are often required to provide adequate conditions for seedlings to germinate and grow.

The Allegheny National Forest is divided into geographic subdivisions known as compartments and then further divided into smaller units known as stands. The silvicultural methods and reforestation activities proposed for this project are summarized in the table below. Successful regeneration of the forested stands identified in this project typically involves a combination of the proposed treatments implemented over a six to twenty year time period.

Summary of proposed activities

Even-aged Vegetation Management (without forest health concerns) (acres)	
Shelterwood seed cut (1st entry)/Shelterwood removal (2nd entry)	437
Shelterwood removal)	7
Delayed overstory removal	52
Even-aged Vegetation Management (with forest health concerns) (acres)	
Shelterwood seed cut (1st entry)/Shelterwood removal (2nd entry)	697
Shelterwood removal	45
Overstory removal	24
Delayed overstory removal	187
Uneven-aged Vegetation Management (acres)	
Intermediate thinning to accelerate mature forest conditions (AMFC)	70
Single tree selection (1st entry)/group selection (2nd entry)	68
Understory Vegetation Treatments (acres)	
Herbicide–reforestation	1585
Site preparation	1585
Herbicide–reforestation (follow up treatment if needed)	1515
Site preparation (follow up treatment if needed)	1515
Fence construction (optional)	1487
Tree shelter installation	482
Tree planting for species diversity	482
Release for species diversity	1543
Non-native invasive plant species treatments (herbicide and manual)	67
Wildlife Management	
Opening rehabilitation (acres)	22
Prescribed burning (acres)	16
Planting (acres)	71
Fencing (acres)	67
Structure installation (number)	76
Brush pile creation (number)	35
Aquatic Habitat Treatments	
Large wood introductions (place in streams - up to 170 trees/mile) (miles)	30.2
Riparian Planting (acres)	24
Soil and Water Quality Improvement (acres)	
Lime Application of Select Vegetation Management Stands	272
Recreation Improvements (number)	
Improve dispersed camping sites	21
Convert dispersed camping site to parking area	1
Close dispersed camping sites	8
Block illegal ATV use	4 sites

Travel Management (miles)	
Road construction – new corridor	1.2
Road construction – existing corridor	1.0
Road reconstruction – realignment	1.5
Road maintenance	35
High quality (limestone) road surfacing (within 300 feet of a stream)	14.3
Road decommissioning	11.0
Road management changes from open to restricted (Forest roads 135A and 237B) and from closed to restricted (Forest road 385)	4.6
Install new gates (number)	8

Note: Additional non-native invasive plant species treatments approved in the Marienville Buckthorn Treatment decision will also be implemented within the project area.

Timber Harvests

Five timber harvest treatments are proposed for the project area:

- ***Shelterwood seed cut/Shelterwood removal cut*** is a multiple-step regeneration harvest in which approximately one-third of the overstory is removed in the initial (shelterwood) seed cut to provide sunlight on the ground to encourage tree seedling development. After adequate tree seedlings develop, the shelterwood removal cut follows, in which nearly all of the overstory trees are removed, allowing full sunlight to reach the established seedlings.

- ***Overstory removal cuts*** are being proposed where adequate advanced regeneration is already established in the understory. Overstory trees would be removed to allow full sunlight to reach and release the established seedlings.

- ***Delayed overstory removal cuts*** are being proposed where there are not enough overstory trees to support a shelterwood seed cut followed by a shelterwood removal. Reforestation activities, such as site prep and herbicide application, would occur during the first entry to help desirable seedlings become established. After adequate desirable regeneration is established, the overstory would be removed to release the seedlings into full sunlight.

- ***Accelerate mature forest conditions*** are intermediate thinnings to accelerate development of mature forest conditions in Management Area 2.2. Specifically, this treatment is designed to more rapidly develop larger trees and provide large woody debris on the forest floor, while increasing structural diversity by introducing canopy gaps and greater variation in overstory tree stocking.

- ***Group selection to restore understory mature forest conditions*** is designed to accelerate the transition of even-aged hardwood stands to uneven-aged stands. It normally begins with a ***single-tree selection*** harvest in which approximately 30 to 40 percent of the trees are removed to increase light levels on the forest floor to promote the establishment of tree seedlings, shrubs, and herbaceous vegetation. A group-selection harvest is then implemented, typically within 3 to 15 years, to release the newly established seedlings. Ideally, these treatments should be repeated every 20 to 40 years until the stand has been converted to a multi-aged condition.

In some areas, proposed regeneration harvests will create temporary openings that will exceed 40 acres in size. Our analysis will examine the effects to vegetation and other resources from the proposed temporary openings greater than 40 acres. The resulting temporary openings larger than 40 acres would ensure adequate stocking levels in stands affected by declining health of black cherry, beech bark disease complex, and other forest health concerns. As with all proposed activities, Forest Plan standards and guidelines will be followed for temporary openings created by the application of even-aged silviculture (USDA-FS 2007, p.68). The proposal to create these large openings will receive Regional Forester review and concurrence. Proposed harvest treatments would be staggered over time so that less than 25 percent of any small watershed area would be in the 0 to 5-year age class at any given time.

The following list shows the combination of stands that when treated, would result in openings (areas or blocks) over 40 acres in size (please see map 3 for their location).

Temporary blocks over 40 acres in size

Block	Stands	Total Acres
135C North	886008, 886016, 886017, 886018, 886025, 886037, 8860055, 8860056, 886057, 886058, 886068	222 acres
135C South	8860026, 8860027	54 acres
170	865025 and 865074	48 acres
237 North	865012, 865066, 865071, (865067)	80 acres
237F	871028, 871033, 871049, 871064, 871069, 871071,871073, (871101), [871018], [871051], [871066], [871068]	283 acres
297	871108, [871008], [871045], 871046], [871063] [871092], [871096]	93 acres
385 South	870012, 870013, 870014, 870015, 870016, 870017, 870043, 870046, 870049	260 acres
385A	870003, 870030, 870033, 870082	109 acres
385B	870005, 870038, 870080	47 acres
385E	866002, 866003, 866007, 866008, 866044, (866045), [866006],	168 acres

Note: Stands without parentheses or brackets are proposed for regeneration harvest in the Otter project. Stands in ( ) are stands that were approved for regeneration harvest in other projects and have recently been cut. Stands in [ ] are stands that with were approved for regeneration harvest in other projects but have not been cut yet.

Reforestation Activities

- ***Herbicide treatments*** remove or reduce undesired understory vegetation in stands contain a dense ground cover of grasses, fern, beech root suckers and striped maple that interfere with desired tree seedling establishment and growth. Herbicides approved for use by the Forest Plan, includes glyphosate in the form of Rodeo® and sulfometuron methyl in the form of Oust®.

- ***Manual site preparation*** is used when mid-story trees and brush cast shade that interferes with the development of tree seedlings. Chainsaws or brush saws would be used to remove or reduce competing vegetation by felling mid-story non-preferred species in order to increase sunlight levels to the forest floor.

- Where deer browsing impacts are high, ***area fencing*** *and/or* ***tree shelters*** are installed and maintained to exclude deer and reduce browsing on desired seedlings. It promotes tree seedling growth and understory plant diversity. Fences and tree shelters are removed when objectives have been met.
- ***Tree planting*** is prescribed in areas where planned natural regeneration has failed, or where it is desirable to supplement natural tree seedling establishment in order to improve species diversity.
- ***Release*** involves the non-commercial, manual cutting of tall-growing woody vegetation that interferes with the growth and survival of desired tree seedlings, saplings, or shrubs in young stands (age class 20 years or less). Release promotes tree species diversity

Acronyms and abbreviations used in proposed silvicultural treatments table below

Objective

Grn = Green (emphasis on standing live trees)
LST = Late structural (emphasis on creating or maintaining late structural forest habitat)
Salv = Salvage (emphasis on salvage dying, diseased, or dead trees)

Silvicultural Treatments (1st Entry, 2nd Entry, 3rd Entry)

AMFC	*Thinning to Accelerate Mature Forest Conditions*
DLY	*Delay*
GS	*Group Selection to Restore Understory Mature Forest Conditions*
OR	*Overstory Removal*
STS	*Single Tree Selection*
SWC	*Shelterwood Seed Cut*
SWR	*Shelterwood Removal*

Note: The six-digit stand number listed in this table consists of the compartment number (first three digits) and the stand number (last three digits). For example, stand 636001 is stand 1 in compartment 636.

Proposed silvicultural treatments

Stand	Management Area	Acres	Objective	1st Entry Proposed Treatment	2d Entry Proposed Treatment	Herbicide	Site preparation	2d Entry Herbicide (If Needed)	2d Entry Site Preparation (If Needed)	Fence	Tree Shelter	Plant	Release
865012	3	21	Salv	SWC	SWR	21	21	21	21	21	2	2	21
865018	3	16	DLY Salv	-	OR	16	16	16	16	16	16	16	16
865025	3	37	Grn	SWC	SWR	37	37	37	37	37	3	3	37
865033	3	18	Grn	SWC	SWR	18	18	18	18	18	2	2	18
865066	3	33	Grn	SWC	SWR	33	33	33	33	33	3	3	33
865071	3	8	Grn	SWC	SWR	8	8	8	8	8	1	1	8
865072	3	18	Salv	SWC	SWR	18	18	18	18	18	2	2	18
865074	3	12	DLY Salv	-	OR	12	12	12	12	12	12	12	12
865078	3	19	Grn	SWC	SWR	19	19	19	19	19	2	2	19
866002	3	13	Salv	SWR	-	13	13	13	13	13	13	13	13
866003	3	24	Salv	SWC	SWR	24	24	24	24	24	2	2	24
866007	3	15	Salv	SWC	SWR	15	15	15	15	15	15	15	15
866008	3	19	Grn	SWC	SWR	19	19	19	19	19	2	2	19
866044	3	24	DLY	-	OR	24	24	24	24	24	24	24	24
870003	3	44	DLY Salv	-	OR	44	44	44	44	44	44	44	44
870005	3	23	DLY Salv	-	OR	23	23	23	23	23	23	23	23
870012	3	28	Salv	SWC	SWR	28	28	28	28	28	3	3	28
870013	3	44	DLY Salv	-	OR	44	44	44	44	44	44	44	44
870014	3	26	Salv	SWC	SWR	26	26	26	26	26	3	3	26
870015	3	35	Grn	SWC	SWR	35	35	35	35	35	3	3	35
870016	3	29	Salv	SWC	SWR	29	29	29	29	29	3	3	29
870017	3	20	Grn	SWC	SWR	20	20	20	20	20	2	2	20
870022	3	24	Salv	OR	-	24	24	24	24	24	24	24	24
870030	3	14	Grn	SWC	SWR	14	14	14	14	14	2	2	14
870033	3	32	Salv	SWC	SWR	32	32	32	32	32	3	3	32
870038	3	15	Salv	SWC	SWR	15	15	15	15	15	2	2	15
870043	3	24	Salv	SWC	SWR	24	24	24	24	24	2	2	24
870046	3	14	Grn	SWC	SWR	14	14	14	14	14	2	2	14
870049	3	43	Salv	SWC	SWR	43	43	43	43	43	4	4	43
870059	3	12	Salv	SWC	SWR	12	12	12	12	12	1	1	12

Stand	Management Area	Acres	Objective	1st Entry Proposed Treatment	2d Entry Proposed Treatment	Herbicide	Site preparation	2d Entry Herbicide (If Needed)	2d Entry Site Preparation (If Needed)	Fence	Tree Shelter	Plant	Release
870080	3	10	Salv	SWC	SWR	10	10	10	10	10	1	1	10
870082	3	22	Salv	SWC	SWR	22	22	22	22	22	2	2	22
871028	3	22	DLY Salv	-	OR	22	22	22	22	22	22	22	22
871033	3	9	Grn	SWC	SWR	9	9	9	9	9	1	1	9
871049	3	38	Salv	SWC	SWR	38	38	38	38	38	4	4	38
871064	3	34	Salv	SWC	SWR	34	34	34	34	34	4	4	34
871069	3	29	DLY	-	OR	29	29	29	29	29	29	29	29
871071	3	27	Salv	SWC	SWR	27	27	27	27	27	3	3	27
871073	3	30	DLY Salv	-	OR	30	30	30	30	30	30	30	30
871099	2.2	10	Salv	SWC	SWR	10	10	10	10	10	1	1	10
871108	3	22	Salv	SWC	SWR	22	22	22	22	22	2	2	22
882062	3	14	Salv	SWC	SWR	14	14	14	14	14	1	1	14
882095	3	11	Salv	SWC	SWR	11	11	11	11	11	1	1	11
885016	3	19	Grn	SWC	SWR	19	19	19	19	19	2	2	19
885024	3	10	Grn	SWC	SWR	10	10	10	10	10	1	1	10
885053	3	15	Grn	SWC	SWR	15	15	15	15	15	2	2	15
885080	3	11	Salv	SWC	SWR	11	11	11	11	11	1	1	11
886008	3	23	Salv	SWC	SWR	23	23	23	23	23	2	2	23
886013	3	18	Salv	SWC	SWR	18	18	18	18	18	2	2	18
886016	3	17	Grn	SWC	SWR	17	17	17	17	17	2	2	17
886017	3	25	Salv	SWC	SWR	25	25	25	25	25	3	3	25
886018	3	22	Salv	SWC	SWR	22	22	22	22	22	2	2	22
886020	3	46	Grn	SWC	SWR	46	46	46	46	46	4	4	46
886025	3	23	Grn	SWC	SWR	23	23	23	23	23	2	2	23
886026	3	32	Salv	SWC	SWR	32	32	32	32	32	3	3	32
886027	3	23	Salv	SWC	SWR	23	23	23	23	23	2	2	23
886037	3	23	Grn	SWC	SWR	23	23	23	23	23	2	2	23
886048	3	13	Grn	SWC	SWR	13	13	13	13	13	1	1	13
886049	3	9	Salv	SWC	SWR	9	9	9	9	9	1	1	9
886055	3	22	Salv	SWC	SWR	22	22	22	22	22	2	2	22
886056	3	34	Salv	SWC	SWR	34	34	34	34	34	3	3	34
886057	3	12	Grn	SWC	SWR	12	12	12	12	12	1	1	12
886058	3	10	Grn	SWC	SWR	10	10	10	10	10	1	1	10

Stand	Management Area	Acres	Objective	1st Entry Proposed Treatment	2d Entry Proposed Treatment	Herbicide	Site prep	2d Entry Herbicide (If Needed)	2d Entry Site Prep (If Needed)	Fence	Tree Shelter	Plant	Release
886068	3	18	Salv	SWC	SWR	18	18	18	18	18	2	2	18
897016	3	34	Grn	SWC	SWR	34	34	34	34	34	3	3	34
897020	2.2	23	Salv	STS	GS	23	23	23	23	23	23	23	23
897021	2.2	46	Salv	STS	GS	46	46	46	46	46	46	46	46
897032	2.2	70	LST	AMFC	-	70	70	-	-	-	-	-	-
897034	2.2	7	Grn	SWR	-	-	-	-	-	-	1	1	7
897038	3	26	Salv	SWR	-	-	-	-	-	-	3	3	26

Wildlife Habitat Improvements

The project area is capable of supporting a diverse assortment of soft and hard mast producing trees and shrubs, herbaceous openings, wetland and riparian environments, and supplemental but specific den and wildlife habitat structural component. Efforts will focus on rehabilitation of herbaceous wildlife openings, establishing mid-story and understory hard and soft mast-producing species in suitable areas for wildlife species that utilize mast, and installing a variety of manmade and natural wildlife den structures. Planting activity supplements reforestation treatments by establishing trees and shrubs that are desirable to wildlife and these trees and shrubs will be protected from deer browsing initially by fencing or tree shelters. These plantings will ultimately establish seed-sources that would help these species to become established. Wildlife enhancements (see map 3) being proposed include:

- **Rehabilitating 22 acres of herbaceous openings**. Includes site preparations to restore quality opening conditions in historic manmade herbaceous openings. Treatment may include non-native species control, herbicide, tilling, seeding warm or cool season grasses, wild flowers, tree and shrub planting, wildlife structure installation, or burning for specific objectives. Openings in the Otter project have been affected dramatically by buckthorn. Native shrubs are lacking. The opportunity exists to invest in a variety of treatments to reestablish openings with the greatest variety of habitat conditions, including habitat for pollinators, and forage and cover for species with viability concern, migratory bird species, and game species (USDA-FS 2007 pp.14-15, 20, 80-81).

- **Planting 71 acres with mast-producing trees and shrubs** is proposed to provide future forage and cover for a variety of wildlife species. Diverse soft and hard mast are absent in some areas of the project. Buckthorn and other non-native species are out-competing native trees and shrubs in a variety of habitat conditions. Non-native invasive species will be managed in these specific areas to aid in the establishment of native species. Under-planting of white pine will occur in some forested stands that lack a conifer component and for species diversity. Planting will occur in areas to both establish a new seed source and to supplement existing beneficial trees and shrubs. Some of these trees and shrubs planted will be promoted and adaptable for

both short and long term climate change conditions. (USDA-FS 2007 pp.14-15, 20, 80-81).

- **Installing fencing, cribs, or tree shelters is being proposed for 67 acres** to protect planted trees and shrubs from the effects deer browsing. The method utilized depends on the species, but will aid in short term and long term growth of the trees and shrubs that need to compete against non-native species such as aggressive buckthorn.
- **Installing 76 wildlife structures** (man-made) is proposed to provide nesting and roosting opportunities for cavity dwellers and other wildlife. These structures will be installed in areas where they are lacking or in specific habitat niches that support and benefit species with viability concern, and migratory bird species. Structures installed will benefit songbirds, bats, flying squirrels, waterfowl, and reptiles and amphibians. (USDA-FS 2007 pp.14-15, 20, 80-81).
- **Constructing 35 brush piles** is proposed on the perimeter of the herbaceous wildlife openings. Field surveys conducted in the project area revealed a general lack of structure on the forest floor aside from widely-scattered wind-thrown trees and large boulders. These brush piles would increase the amount of escape and concealment cover for a variety of wildlife species, including small mammals on the edge of these openings.

Proposed wildlife habitat improvements

Stand	Opening Rehabilitation (acres)	Plant (acres)	Fence (acres)	Install Structures (number)	Brush Piles (number)	Prescribed Burn (acres)
865028	-	-	-	2		
865083	3	3	3	3	5	3
866009	-	1	1	-		
866013	-	-	-	5		
866021	-	-	-	1		
866023	-	3	1	-		
866024	-	3	1	-		
866037	-	2	2	-		
866038	-	1	1	-		
866048	-	-	-	4		
866056	-	1	1	-		
870024	-	-	-	2		
870051	-	-	-	5		
870085	-	-	-	3		
870087	2	2	2	2	5	
870089	-	-	-	5		
871003	-	-	-	2		
871011	-	2	2	3		
871014	-	-	-	2		
871059	-	-	-	2		
871095	-	-	-	2		
871103	4	4	4	3	5	4
871105	3	3	3	3	5	3
883003	-	-	-	2		
883029	-	-	-	2		
883033	4	4	4	3	5	
885019	-	3	3	-		
885020	-	2	2	4		
885021	-	-	-	5		
885051	6	6	6	11	10	6
885057	-	1	1	-		
897020	-	10	10	-		
897021	-	10	10	-		
897032	-	10	10	-		
Totals	**22**	**71**	**67**	**76**	**35**	**16**

Aquatic Habitat Treatments

***Aquatic habitat treatments*:** This project proposes to fall up to 170 trees per mile into streams and onto floodplains. By doing so, stream processes such as ground water infiltration, discharge rates, and low flow rates as well as large wood functions such as creating pools, adding protective cover, trapping and sorting of spawning gravel can be restored or improved. Trees would be felled within the riparian area and would only occur where large woody debris is lacking and trees are available to be felled without reducing stream shading or bank stability. Trees would be placed at locations which would help stabilize eroding banks, improve pool habitat, and improve aquatic habitat. Trees would be of sufficient size and positioned so they are stable in the stream and floodplain. Three levels of treatment are being proposed for implementation.

- Level 1 consists of falling trees directly into the stream.
- Level 2 consists of falling trees into the stream as well as maneuvering them into place by use of a grip hoist or winch.
- Level 3 consists of uprooting trees, utilizing either a grip hoist or heavy equipment and utilizing those means to maneuver it into place in the stream.

Proposed aquatic habitat treatments locations

Stream Name	Large Wood Additions (miles)
Big Mill Creek (including unnamed tributaries)	11.3
Bloody Run (including unnamed tributaries)	3.5
Bunts Run (including unnamed tributaries)	1
Otter Run (including unnamed tributaries)	4.2
Pine Run (including unnamed tributaries)	1.5
Red Mill Run (including unnamed tributaries)	2.6
Rocky Run (including unnamed tributaries)	2.6
Spencer Run (including unnamed tributaries)	1.7
Total	**30.2**

Riparian planting is proposed to provide future shade and large wood for streams (24 acres) (see map 7). Planting would occur in areas to both establish a new seed source and to supplement existing beneficial trees and shrubs. Some of these trees and shrubs planted would be promoted and adaptable for both short and long term climate change conditions.

Soil and Water Quality Improvements

Lime application is being proposed on 16 stands (272 acres) in the Otter project area (see map 7). It is expected that not all of this area will be treated due to operability limitations. Stands were selected that would have the greatest benefit to stream water quality and soils with low buffering capacity. The lime application would focus on areas of the stands that contain: riparian areas, abundance of soil fragipans (dense soil layer that limits downward movement of water and results in the presence of a shallow water table and lateral water movement through the soil), drainage patterns, and/or wetland or riparian areas. Application to these stands would renovate acid precipitation as it enters the soil on the landscape prior to entering surficial water tables that move laterally above the

fragipan to discharge into streams and/or wetlands, therefore mitigating the effects of acidification of streams by treating it at the soil and precipitation interface and providing a trickle-down effect within the landscape. The lime would help neutralize the acidity with in soil pore water and increase pH and alkalinity of soil stormwater runoff, surficial groundwater, and waterways. The lime application would be a mixture of dolomite limestone ($CaMg(CO_3)_2$) and calcitic limestone ($CaCO_3$) sand applied using a modified skidder at a rate of 3-5 tons per acre. The lime will be spread using a skidder similar to that of fertilizer applications. It is expected that the level of soil disturbance from this activity will be similar and short-term.

List of stands proposed for lime application

Stand	Acres
865018	14
865072	7
870003	44
870005	23
870033	31
870082	4
871051	7
871064	10
871069	17
871073	8
886008	23
886020	46
886055	22
886056	15
886057	1
886058	3
Total	**272**

Non-native Invasive Plant Treatments

At least twenty-one (21) non-native invasive plant species of concern for the Allegheny National Forest have been documented along roads, streams, and within forested stands and openings in the project area. As discussed, the primary threat in the Otter project area is glossy buckthorn (*Frangula alnus*). A highly aggressive invasive plant that dominates and influences a wide variety of habitat and vegetative conditions, often crowding out native trees and shrubs that produce nutritional hard and soft mast. With fruit that has little or no nutritional value, buckthorn has begun to displace native shrubs that provide wildlife with the nutrients needed for their life cycle. As a result the Marienville District has begun implementation of the recently signed Buckthorn Treatment decision in some areas on the district and will continue to implement it in conjunction with and to supplement the non-native invasive plant species treatments proposed within the Otter project area.

Other non-native species of concern within the project area in varying amounts include multiflora rose (*Rosa muliflora*), Japanese barberry (*Berberis thunbergii*), tartarian

honeysuckle (*Lonicera tatarica*), autumn olive (*Elaeagnus umbellata*), Japanese stiltgrass (*Microstegium vimineum*), and garlic mustard (*Alliaria petiolata*). Historically, some of these species were planted from 1970 through 1990 for management of game species on the Allegheny National Forest. Other smaller components of invasive plants were planted as ornamentals at camps, have surfaced along roads where yard waste dumping is present, or are spread by wildlife and motorized vehicles into various habitats.

List of known non-native invasive plant species in the project area

Genus	Species	Common name
Berberis	*thunbergii*	Japanese barberry
Centaurea	*stoebe ssp. micranthos*	Spotted knapweed
Cirsium	*arvense*	Canada thistle
Cirsium	*vulgare*	Bull thistle
Daucus	*carota*	Queen-Anne's lace
Elaeagnus	*umbellata*	Autumn olive
Frangula	*alnus*	Glossy buckthorn
Lonicera	*tatarica*	Tartarian honeysuckle
Microstegium	*vimineum*	Japanese stiltgrass
Phalaris	*arundinacea*	Reed canarygrass
Rosa	*multiflora*	Multiflora rose
Securigera	*varia*	Crown vetch
Tanacetum	*vulgare*	Common tansy
Tussilago	*farfara*	Coltsfoot
Verbasum	*thapsus*	Common mullein
Vinca	*minor*	Common periwinkle
Alliaria	*petiolata*	Garlic mustard
Hedera	*helix*	English Ivy
Pachysandra	*terminalis*	Japanese pachysandra
Aegopodium	*podagraria*	Goutweed
Melilotus	*officinalis*	White sweet clover

Non-native invasive plant species treatments would occur on approximately 67 acres throughout the project area using a combination of manual, mechanical, and herbicide treatments (see map 4). Manual treatment could include pulling, and digging. Mechanical treatment would include brush-cutting, mowing, or removal by motorized equipment. Herbicide treatment would include the use of glyphosate, sulfometuron methyl, or both, and would be applied in accordance with Forest Plan standards and guidelines using several different application methods that would remove the invasive plant species and protect native plant species.

These combinations of treatments could occur several times during a growing or dormant season, or over a period of several years until the infestations have been effectively treated. Due to the nature of non-native invasive plants, additional infestations and species from the Allegheny National Forest Invasive Plant Species of Concern list could be treated if found within the project area, consistent with applicable Forest Plan direction.

Proposed non-native invasive plant species treatments

Stand	Estimated Treatment Acres	Targeted non-native invasive plant species
865020	1.0	Remove barberry, glossy buckthorn, and ornamentals
865068	1.0	Remove barberry at the head of a spring. Also multi-flora rose
865083	3.0	Remove scattered glossy buckthorn, honeysuckle, multiflora rose from opening
866009	0.25	Remove several large multiflora rose and scattered glossy buckthorn from around the well
866013	0.25	Remove glossy buckthorn, barberry
866016	0.5	Remove barberry
866023	0.5	Remove barberry
866024	0.25	Remove barberry
866037	0.5	Remove barberry
866038	0.5	Remove barberry
866049	0.25	Remove one patch of periwinkle on roadside
866051	0.25	Remove glossy buckthorn
866056	0.25	Remove barberry
870039	1.0	Remove glossy buckthorn and barberry
870067	4.0	Remove glossy buckthorn
870087	2.0	Remove glossy buckthorn
871001	1.0	Remove glossy buckthorn
871003	1.0	Remove glossy buckthorn and a strip of multi-flora rose along stream
871011	0.5	Remove glossy buckthorn from riparian area
871102	0.5	Remove barberry, rose, glossy buckthorn, other non-native invasive plant species along road
871103	4.0	Remove glossy buckthorn, rose in opening
871105	3.0	Remove glossy buckthorn, rose on the edges of this opening
882074	5.0	Remove buckthorn from wetland.
883033	4.0	Remove glossy buckthorn and other non-native invasive plant species from around opening
885019	15	Remove glossy buckthorn and other non-native invasive plant species at Red Mill
885020	8	Remove glossy buckthorn and other non-native invasive plant species at Red Mill
885022	0.25	Remove one patch of multi-flora rose in the west edge of this opening
885051	6.0	Remove glossy buckthorn, rose, honeysuckle, from around tree/shrub plantings and food plots
885057	3.0	Remove glossy buckthorn from around older tree/shrub plantings made throughout the stand
898018	0.25	Remove ornamentals ivy, pachysandra, periwinkle along road
Total	**67**	

Note: Additional non-native invasive plant species treatments approved in the Marienville Buckthorn Treatment decision will also be implemented within the project area.

The primary focus of treatments proposed within the Otter project would be in areas to protect and preserve existing native plants, shrubs and trees, including unique plant communities, in and near wildlife herbaceous openings, old camps, pits, and along

roadway and riparian corridors. In conjunction with these treatments, some native trees and shrubs are proposed for planting and fencing.

For more information on glossy buckthorn see https://www.fs.fed.us/database/feis/plants/shrub/fraaln/all.html.

Recreation

Forest road 143 is a popular drive, connecting the west side of Ridgway to state route 948 along Big Mill Creek. From the beginning of trout season through hunting season, campsites are frequently occupied. This continual use can result in loss of vegetation, compaction of soil, loss of woody debris from collecting firewood, and litter. Many of dispersed sites are located within the riparian area of Big Mill Creek. Soils and vegetation in riparian areas are very sensitive and loss of vegetation and compaction of the soil can occur rapidly.

The Red Mill Pond area (Forest Road 860) was a developed campground at one time. Closed and decommissioned in the 1990s, people continue to camp in the area on both sides of Forest Road 143 because it is remote in feeling, small enough not to have too many neighbors, has access to Big Mill Creek and the constructed pond, and retains a single-unit sweet smelling toilet. The sweet smelling toilet was frequently vandalized until the mid-2010s when it was knocked askew on its foundation by a vehicle going off the road. However, it is still fully functional, safe, and provides modesty for users as well as continues its function in sanitation. Some modifications are proposed for the Red Mill Pond area to better manage impacts and access.

Forest Road 135 has five sites within the project area, Forest Road 237 has three sites, and Forest Road 297 has one site. These sites do not get as much use as the ones on Forest Roads 143 and 860, but the impacts are much the same. Vehicles driving off the road and into the site create the biggest impact. All of the sites noted as “keep” would have a parking area delineated by boulders and hardened with gravel, with access to the camping area blocked from motor vehicles.

Two sites associated with Nagel Bridge on Forest Road 135 are proposed for closure Repeated misuse of these sites, including leaving trash, driving into the site, and the dumping of home garbage and building materials has resulted in a loss of quality of the site for camping and fishing. Constant patrol of the area has not discouraged these illegal practices.

The following **recreational improvements** are being proposed to mitigate these impacts and create a more sustainable dispersed camping experience (see map 5).

Dispersed campsite proposals

Site Number	Keep /Close	Proposal
135-3	Close	Post as closed, disperse fire ring.
135-4	Keep	Delineate parking and block vehicle access to site with boulders, build parking pad. Reseed site with durable native vegetation.
135-5	Keep	Delineate parking and block vehicle access to site with boulders, build parking pad. Reseed site with durable native vegetation.
135-7 Nagel Bridge	Close	Sign closed to camping. Extend guard rail across access road.
135-8 Nagel Bridge	Close	Sign closed to camping. Extend guard rail across access road.
143-1	Keep	Define parking and surface. Block vehicle access to site. Re-seed site with hardy native species. Sign site as designated, foot travel only.
143-2	Keep	Identify site as designated dispersed campsite
143-3	Keep	Clean out and rehab steps – these are railroad tie with backfill tying into native rocks. Sign as designated dispersed site.
143-4	Keep	Expand road shoulder parking for 2-3 vehicles, build pedestrian ramp down to site, sign as designated dispersed site
143-5	Keep	Expand road shoulder parking for 2-3 vehicles, build pedestrian ramp down to site, sign as designated dispersed site
143-6	Keep	Block old road leading from parking to site. Route a trail from parking above floodplain to site. Sign as designated dispersed site
143-7	Close	Remove fire ring, scarify, seed with shade tolerant native species, post “No Camping”
143-8	Close	Post “No Camping”
143-9	Close	Do not re-tag. Site is self-closing
143-10	Close	Do not re-tag. Site is self-closing
143-11	Keep	Build steps down road bank for easier access. Check and rebuild steps to weir if necessary.
143-12	Keep	Choose 1 access point for parking area and build pad. Block other access to keep vehicles off the site
143-13	Keep	Possible access to Stands 025 and 074. Can re-establish site afterwards by delineating parking and blocking access onto site. If not used for timber access, block road at bottom to keep vehicles off muddy slope and delineate parking at bottom.
143-14	Keep	Level/build up a parking area, block access to rest of the site with boulders.
143-15	Keep	Block vehicle access to site. Repair ruts, turnpike a path to the site.
237-1	Keep	Delineate parking and block vehicle access to site with boulders, build parking pad.
237-2	Keep	Delineate parking and block vehicle access to site with boulders, build parking pad.
237-5	Keep	Delineate parking and block vehicle access to site with boulders, build parking pad deep and wide enough to accommodate RV use.

Site Number	Keep /Close	Proposal
297-2	Keep	Delineate parking and block vehicle access to site with boulders, build parking pad.
860-1 Red Mill	Close	Sign closed to camping. Allows west side campers to get to pond without cutting between campers.
860-2 Red Mill	Keep	Post site as designated within 50 feet' of sign, delineate a trail around site to pond (there used to be definite path, now overgrown and overtaken by buckthorn).
860-3 Red Mill	Keep	Post site as designated within 50 feet of sign, delineate a trail around site to Mill Creek (there used to be definite path, now overgrown and being overtaken by buckthorn). Add bulletin board near SST for dispersed camping regulations, safety messages, fire messages, etc.
860-4 Red Mill	Keep	Make tent-only, block from vehicles. Use Site 5 for parking area.
860-5 Red Mill	Convert	Rutted, often wet. Need to build up and harden, use for parking area for sites 4 and 6, 2 vehicles each.
860-6 Red Mill	Keep	Tent-only, park in Site 5. Keeps road open and avoids veg loss on site.

There are no trails in the Otter Project Area.

Illegal ATV use occurs in several places across the project area, usually on powerlines and other utility corridors. Illegal riding causes soil compaction, soil erosion, and loss of vegetation. The following access points in the project area are being proposed to be blocked the large utility corridor the crosses Forest Road143, the large utility corridor that crosses Grant Road on the east side of the project area just outside Ridgway, and the utility corridor that crosses Forest Roads 135 and 135B (see map 5 for locations).

Transportation Management

The Otter project area contains approximately 85 miles of roads – 38 miles of National Forest System roads, 7 miles of state and township roads, and 40 miles of non-system roads. The national forest system roads are managed for public motor vehicle use as follows: 20 miles are open year round, 5 miles are seasonally restricted, and 13 miles are closed year around. There are no mixed-use roads (roads being used as both roads and trails) in the Otter project area.

A safe and efficient transportation system is critical in meeting the diverse needs of the public and managers of the Allegheny National Forest. As a result of the transportation analysis process mandated by Subpart A of the Travel Management Rule, recommendations found in the Big Mill Creek and Pine Bear Travel Analysis Project Reports (September 2015) identify the most ecologically, economically and socially sustainable transportation system in terms of access for recreation, research and other land management activities. The Big Mill Creek and Pine Bear Travel Analysis Reports include a number of recommendations within the Otter Project planning area. This project will consider, analyze and make a decision considering those recommendations.

Management of the transportation system within the project area is needed to facilitate stands proposed for vegetation management over the life of the project. Approximately 2.1 miles of roads are proposed to be added to the Forest Service transportation system. This includes adding approximately 1.0 mile of existing non-system roads (not municipal

or part of the National Forest Service Road system), and new road construction of approximately 1.1 miles. An additional 1.5 miles of existing road are proposed for realignment to a more sustainable location, and will include subsequent decommissioning of the existing road location. High quality (limestone) road surfacing (14.3 miles) is proposed in areas adjacent or in close proximity to stream courses to reduce the risk of sedimentation. The transportation system activities prescribed for this project are summarized in tables below and displayed in Map 5.

To protect soil and water resources within the project area, **road decommissioning** is proposed for 11.0 miles of Forest Service system and non-system roads (see Map 5) that are no longer needed or are poorly located. Full obliteration, where practical, is being proposed for these roads.

The proposed road management change for Forest Road 385 from “closed” to “restricted” is to allow hunters access to these areas, which would aid in regeneration success by helping to controlling the deer herd. The proposed road management changes for Forest Roads 135A and 237B from “open” to “restricted” is to protect soil and water resources in these areas.

Proposed road construction would reduce the size of Unroaded Area #56 – Bloody Run (599 acres) identified in the Forest-wide Roads Analysis Process. Proposed road decommissioning would increase the size of Unroaded Area #29 – Rocky Run (1,005 acres) identified in the Forest-wide Roads Analysis Process.

Transportation proposals

Road Activity	Total Mileage	Proposed[1]/Existing Road Numbers (Miles)			
Road construction – new corridor[1]	1.1	Forest Road 135C extension[2]		0.8	
		Forest Road 385G		0.4	
Add existing non-system road corridor to the National Forest Transportation System (which may involve road reconstruction, construction, or realignment)[1]	1.0	Forest Road 300BA		0.2	
		Forest Road 385F		0.8	
Road reconstruction – realignment	1.5	Forest Road 135C[2]		1.1	
		Forest Road 170		0.4	
Road decommissioning – includes National Forest System road and non-system road corridors	9.6	Forest Road 135B		1.3	
		Forest Road 135C[2]		1.1	
		Forest Road 143A		0.7	
		Forest Road 170		0.7	
		Forest Road 238		0.2	
		Forest Road 303		0.9	
		Non-system roads[3]		4.8	
High quality road surfacing	14.3	Forest Road 135		3.0	
		Forest Road 135B		0.1	
		Forest Road 143		6.6	
		Forest Road 143E		0.4	
		Forest Road 170		< 0.1	
		Forest Road 237		1.8	
		Forest Road 297		0.9	
		Forest Road 300		0.3	
		Forest Road 385		1.3	
Road maintenance on potential timber haul roads	35	Various National Forest System roads			
Road management changes	4.6	Road Number	Existing Status	Proposed Status	Miles
		135A	Open	Restricted	0.6
		237B	Open	Restricted	1.4
		385	Closed	Restricted	2.6
New gate installation	8 gates	Forest Roads 170, 237B, 297A, 300A, 300B, 385B, 385C, and 385D			

[1] Proposed road numbers
[2] Forest road 135C realignment includes forest road 135D, sections of forest road FR 135C and new road construction sections. Forest road 135D will be renumbered to forest road 135C, retiring forest road 135D from the National Forest Transportation System.
[3] Non-system roads NS003701, NS013389, NS013390, NS016975, NS018474, NS023534, NS023911, NS030122, NS030260, NS035276, NS035277, NS035291, NS035292, NS035298, NS035306, NS036174, NS042760, NS046645 (see map 5)

How does the project implement the Forest Plan?

Management Direction

The Forest Plan provides a programmatic framework regarding allocation of National Forest System lands and the measures necessary to protect resources. It describes how the Allegheny National Forest should be managed and what resources should be provided by these lands now and into the future. Proposed activities are consistent with management direction in the Forest Plan. Specifically, the proposed action addresses the following Forest Plan goals and objectives (USDA-FS 2007, pp. 12–21):

- Develop and enhance the seedling, shrub, and herbaceous diversity to improve structural conditions (USDA-FS 2007, pp. 14, 19, A-1, A-2, and A-14). Provide a diversity of vegetation patterns across the landscape that represents well distributed habitats, a range of forest age classes and vegetative stages, a variety of healthy functioning vegetation layers, moderate to well-stocked forest cover, and the variety of vegetation species or forest types necessary to achieve multiple resource objectives and sustain ecosystem health (USDA-FS 2007, p. 14).

- Continue to implement and monitor a range of silvicultural and reforestation practices in order to be responsive to emerging issues and regenerate stands to a diversity of tree seedlings of good quality, form, and health (USDA-FS 2007, p. 14).

- Improve the overall health and sustainability of Allegheny National Forest ecosystems by reducing understory dominance of native invasive species such as beech brush, ferns, grass and striped maple, and non-native invasive species on 3,000 to 6,200 acres annually. Do this through direct treatments: site preparation, herbicide application, scarification, mechanical treatment, or fencing to encourage greater species diversity with a wider variety of herbaceous and woody plants or tree seedlings (USDA-FS 2007, p. 21).

- Provide a long-term, sustainable supply of large wood from riparian corridors to streams for aquatic habitat diversity; with an objective of 75 to 380 pieces per stream mile (USDA-FS 2007, p. 11).

- Provide a safe, efficient and economical transportation system that is responsive to public and administrative needs, while having minimal adverse effects on the natural forest ecosystem (USDA-FS 2007, p.16).

- Limit the further introduction and spread of non-native invasive plants and conserve forest resources in a manner that presents the least hazard to humans and maintains and restores forest resources (USDA-FS 2007, p.13).

- Provide a sustainable flow of commercial timber products that will contribute to the local and regional economy, contribute to the annual forest-wide allowable sale quantity, and maintain 10 to 12 percent of MA 3.0 in early structural habitat (0 to 20 years old) over time (USDA-FS 2007, pp. 8, 14, and 113).

Management Area Direction

Lands managed by the Allegheny National Forest are assigned a management area designation. This designation identified the suitable uses, desired conditions, and standards and guidelines for forest management. The project includes the following management areas:

Management Area 2.2 –Late Structural Linkages emphasize older, late structural forests that link relatively large areas of older forests (core areas) across the landscape. Vegetation management is directed to restoring late structural forest conditions with an emphasis on sustaining forest structure and forest continuity. Management Area direction is provided on pages 109-112 of the Allegheny Forest Plan.

Management Area 3.0 –Even-aged Management emphasizes even-aged management to provide a forest that is a mix of predominantly shade intolerant and mid-tolerant hardwood stands of various ages and associated understories and habitat for a diversity of plant and animal species. Management Area direction can be found on pages 113-115 of the Forest Plan.

The acres within each management area in the Otter project area are listed in the table below.

Acre distribution in project area

Management Area	Acres
2.2 – Late Structural Linkages	5130
3.0 – Even-aged Management	6922
Private lands	2455
Total	**14506**

Climate Change Adaptation

The Forest Adaptation Resources Workbook (Swanston and others 2016) was used to consider the impacts of climate change on the Otter project. The interdisciplinary team used the workbook to consider a variety of adaptation actions that may be needed within the project area. The interdisciplinary team concluded that the actions associated with purpose and need for the project, as well as those required by the Forest Plan, already provide necessary adaptation needs. For example, proposed vegetation management would promotes resistance to extreme weather (i.e., wind, drought) and insect and disease outbreaks. Healthy forests are more resilient to changing conditions and more resistant to disease, pests, fire, and extreme weather. These stresses are likely to increase with climate change. Adaptation actions are also addressed through project design features and Forest Plan standards and guidelines. Examples include the protection and enhancement of habitat of threatened and endangered species and Regional Forester sensitive species; non-native invasive species control; and restoration of native plant communities.

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