USDA

United States Department of Agriculture

South of Route 9 Integrated Resource Project

Decision Notice and Finding of No Significant Impact

Forest Service | Green Mountain National Forest | Manchester Ranger District | October 2016

For More Information Contact:

Jay Strand, Forest Planner/Environmental Coordinator
Rochester Ranger District
99 Ranger Road
Rochester, Vermont 05767
(802) 767-4261 x522
FAX (802) 767-4777
Email: jstrand@fs.fed.us

This document can be made available in large print.
Contact Jay Strand (802) 767-4261 x522 or
email: jstrand@fs.fed.us

TABLE OF CONTENTS

DECISION NOTICE
and
FINDING OF NO SIGNIFICANT IMPACT

South of Route 9 Integrated Resource Project
Environmental Assessment

USDA Forest Service
Green Mountain National Forest - Manchester Ranger District
October 2016

1. DECISION NOTICE

1.1 INTRODUCTION

This document describes my decision and the rationale for the implementation of the management activities proposed for the South of Route 9 Integrated Resource Project (South of Route 9 project). The project is located on the Manchester Ranger District, Green Mountain National Forest within the towns of Bennington, Pownal, Readsboro, Stamford, Woodford, and Whitingham in Bennington and Windham Counties, Vermont, and in the Towns of Clarksburg, Florida, and North Adams, Berkshire County, Massachusetts. The Decision Notice and Finding of No Significant Impact are based on the *South of Route 9 Integrated Resource Project Environmental Assessment* (South of Route 9 project EA) dated August 2016 documenting the analysis of the proposed action and no-action alternatives.

The South of Route 9 project was designed to achieve multiple resource benefits consistent with direction in the 2006 Green Mountain National Forest Land and Resource Management Plan, or Forest Plan. The South of Route 9 project EA was prepared by an interdisciplinary team of Forest Service resource specialists following the implementing regulations for the National Environmental Policy Act. It describes the project purpose and need, the alternatives considered for detailed analysis, and the potential environmental effects for each alternative.

The South of Route 9 project has been designed to achieve desired conditions across the forest landscape such as improving wildlife and fish habitat, restoring soils and wetlands, improving a network of sustainable roads and trails, increasing the quality of recreation opportunities in the area, and protecting heritage resources. The proposal also includes the harvesting of timber to provide wood products to the local and regional economy, enhance forest health and diversity, and create more diverse plant and wildlife habitat.

The South of Route 9 project EA analyzes the following two alternatives:

- Alternative 1 - No Action
- Alternative 2 - Proposed Action

I believe the range of alternatives adequately addresses the project purpose and need, issues raised during the initial scoping process, and comments received during the 30-day comment period for the *South of Route 9 Integrated Resource Project Environmental Assessment for Public Comment* dated April 2016. One other alternative action was considered but eliminated from detailed analysis as discussed in the South of Route 9 project EA at Chapter 2, Section 2.2.1, page 33.

1.2 PUBLIC INVOLVEMENT

Public issues and management concerns related to the Proposed Action were identified by reviewing Forest Plan direction for the South of Route 9 project area and by contacting interested and affected members of the public in a process called "scoping". Scoping is required per the Council on Environmental Quality (CEQ) regulations for implementing the NEPA (40 CFR 1500-1508, specifically 1501.7 on scoping).

Formal public involvement for the South of Route 9 project started on October 10, 2014. A scoping notice package was sent to 307 individuals, organizations, towns and agencies. The notice solicited comments with a response date of November 13, 2014. The scoping information was available during the comment period on the Green Mountain National Forest website:

http://data.ecosystem-management.org/nepaweb/nepa_project_exp.php?project=43088

The project was listed in the quarterly Green Mountain National Forest Schedule of Proposed Actions in January 2014, and the project status was updated quarterly since that time. The Forest Service received 11 comment responses on the scoping document. The comments from those responses were analyzed and documented in the *South of Route 9 Integrated Resource Project: Scoping Comments Content Analysis and Response to Comments* report dated April 2016 which is available in the project record.

The *South of Route 9 Integrated Resource Project Environmental Assessment for Public Comment* was available for a 30-day public review period from April 23 to May 23, 2016. The comment period was initiated by the publication of a legal notice in the *Rutland Herald* newspaper on April 22, 2016. The notice for comment was sent to 340 individuals, organizations, towns and agencies. The environmental assessment was available for review on the Green Mountain National Forest website, and copies were sent to each town office within the South of Route 9 project area. The Forest Service received 20 comment responses on the environmental assessment. The comments were analyzed and documented in the S*outh of Route 9 Integrated Resource Project Environmental Assessment for Public Comment - Comments Content Analysis and Response to Comments* report dated August 2016 which is available in the project record.

Comments submitted during the South of Route 9 project EA public comment 30-day period were used to identify remaining issues with the proposal or associated environmental analysis. These comments resulted in some changes to the proposed action and environmental analysis documented in the environmental assessment (South of Route 9 project EA, Chapter 2, Section 2.1.2)

All public suggestions, input, and feedback provided during project development, as well as formal comments received during the initial scoping and South of Route 9 project EA comment periods, were all considered when making my decision for the South of Route 9 project. Additional details related to the public involvement process and the issues identified for the analysis are found in the South of Route 9 project EA, Chapter 1, Sections 1.4 and 1.5, pages 7 to 12.

The *Draft Decision Notice and Finding of No Significant Impact* for the South of Route 9 project was subject to a 45-day objection period from September 3 to October 17, 2016. No objections were filed during this period.

1.3 DECISION AND RATIONALE FOR THE DECISION

1.3.1 Decision

This decision is based on the results of the analysis documented in the South of Route 9 project EA, supporting information in the project planning record, and comments received during initial scoping

(October 10 to November 13, 2014), and the South of 9 project EA 30-day comment period (April 23 to May 23, 2016). It is my decision to select Alternative 2, Proposed Action for implementation. The South of Route 9 project EA fully describes the selected actions and their site-specific locations at Chapter 2, Section 2.1.2, pages 13 to 33; and associated maps (Maps 2a-2e, Proposed Action Vegetation and Watershed; and Map 3, Proposed Action, Recreation and Transportation). My decision also includes the adoption of mitigation measures and monitoring requirements that were developed to address resource concerns associated with the Proposed Action and included as Appendix A with this decision notice.

1.3.2 Rationale

Alternative 2, Proposed Action best meets the purpose and need for the project (see South of Route 9 project EA, Chapter 1, Section 1.3, pages 3 to 7) while still addressing issues and concerns identified during the public involvement process (see South of Route 9 project EA, Chapter 1, Section 1.5, pages 8 to 12). The selected alternative also stays below acceptable environmental effect thresholds as disclosed in the South of Route 9 project EA and supporting project planning record.

I selected Alternative 2 because it will meet the Forest Plan goals and objectives for the project area in a more comprehensive way compared to Alternative 1, No Action. Alternative 2 will also move the existing resource conditions within the project area toward the desired future conditions as described in the Forest Plan. Specifically, Alternative 2 will do the following:

- Meet the purpose and need related to forest habitat and timber resources with management activities that include:
    - Promoting healthy and more resilient forests
    - Increasing habitat diversity by improving the composition and age class structure of forest stands
    - Enhancing key forest habitats such as oak, aspen, and apple orchards
    - Providing permanent upland openings
    - Increasing the quality and diversity of wildlife habitat
    - Providing forest products to the local and regional economy
- Improve rare plant habitat
- Improve aquatic habitat with the placement of large wood in streams and replacement of traditional culverts along roads with aquatic organism passage structures
- Improve soil and wetland conditions associated with roads and trails throughout the project area
- Increase recreation opportunities including the year-round use of the Dutch Hill area and designation of new summer off road vehicle, snowmobile, and non-motorized trails
- Maintain and enhance scenic viewing opportunities
- Improve forest road safety, align road infrastructure with future needs, improve and maintain forest access, close unauthorized non-system forest roads, and create a sustainable transportation network
- Protect and enhance heritage resources

1.3.3 Management Actions

The following sections provide a detailed description of management activities for each resource category included in Alternative 2, Proposed Action. Refer to the South of Route 9 project EA, Maps 2a-2e, Proposed Action Vegetation and Watershed Map 3, Proposed Action, Recreation and Transportation; and Appendix B, Proposed Timber and Forest Habitat Treatments as part of my decision.

Forest Habitat and Timber Resources

Alternative 2 includes a variety of activities to address the purpose and need related to forest habitat and timber resources. Table 1 below provides a summary of management activities as they relate to forest habitat and timber resources. See the South of Route 9 project EA, Appendix B and the Proposed Action Vegetation and Watershed Maps 2a-e for additional information.

Table 1. Summary of management activities relative to forest habitat and timber resources

Management Activity	Amount
Timber Harvest Treatments	
Uneven-aged harvest method[1]	
Single tree and group selection	1,764 acres
Improvement cuts with groups	1,175 acres
Group selection	1,333 acres
Total uneven-aged harvest	***4,272 acres***
Even-aged harvest method[1]	
Regeneration - Shelterwood establishment (two-cut treatments)	585 acres
Regeneration - Shelterwood with reserves	143 acres
Regeneration - Overstory removal	42 acres
Regeneration - Seed tree	31 acres
Regeneration - Clearcut	137 acres
Total regeneration harvest treatments	***938 acres***
Intermediate - Thinning	744 acres
Intermediate - Improvement cuts	629 acres
Intermediate - Sanitation cuts	8 acres
Total intermediate harvest treatments	***1,381 acres***
Total even-aged harvest	***2,319 acres***
Grand Total Timber Harvest Treatments (Uneven-aged Plus Even-aged Totals Above)	**6,591 acres**
Other Treatments	
Other treatments to enhance oak habitat (compliments timber harvest treatments[1])	1,024 acres
Other treatments to enhance oak habitat (with no timber harvest treatments)[2]	127 acres
Land clearing to convert forest to permanent upland openings[3]	220 acres
Land clearing to expand existing permanent upland opening[3]	1 acre
Prescribed fire to enhance blueberry production[2]	4 acres
Maintain apple trees[3]	13 sites, 344 acres
Protect and enhance areas of special significance	2 sites
Timber stand improvement[4]	87 acres
Post-Harvest Treatments	
Site preparation for natural or artificial regeneration[5]	5,210 acres
Tree planting[5]	Where needed
Plant American chestnut seedlings[5]	100+ seedlings
Maintenance of permanent upland openings	221 acres
Timber harvest transportation network	Defined by harvest plan

1 Appendix B-2 (South of Route 9 project EA, Table 31) lists the harvest treatments, number of harvest acres for each Compartment/Stand, and the actual treatment acres for each harvest method; Appendix B-3 (South of Route 9 project EA, Table 32) summarizes the harvest treatments including all uneven-aged and even-aged methods; timber treatments increase regenerating/early successional, mixedwood/softwood, aspen, and oak habitats

2 Includes a combination of prescribed fire, mechanical treatments, and application of herbicide (glyphosate); Appendix B-6 (South of Route 9 project EA, Table 35) lists these treatments for each stand to promote oak woodlands and prescribed fire only to enhance blueberry production

3 Appendix B-1 (South of Route 9 project EA, Table 30) lists treatments designed to primarily benefit wildlife

4 Appendix B-4 (South of Route 9 project EA, Table 33) lists stand improvement activities (TSI) for timber stands which have not yet reached commercial timber size

5 Appendix B-5 (South of Route 9 project EA, Table 34) lists a summary of reforestation activities including site preparation for natural or artificial regeneration proposed for all stands receiving regeneration cuts

Timber Harvest Treatments

Timber harvest treatments within the project area include a total of 6,591 acres of uneven-aged and even-aged harvest treatments using a variety of silvicultural methods. This does not include the 220 acres of land clearing for permanent upland openings. These various harvest treatments are designed to increase the amount of regenerating/early successional, mixedwood and softwood forest, aspen and oak habitats throughout the project area (South of Route 9 project EA, Appendices B-2, Table 31 and B-3, Table 32):

- There are 4,272 acres of uneven-aged harvest treatments including individual tree and group selection cuts.
- There are 2,319 acres of even-aged harvest treatments including regeneration cuts on 938 acres (shelterwood, seed tree, and clearcut) and intermediate cuts on 1,381 acres (thinning, improvement cuts, and sanitation cuts).

The timber harvest activities will be implemented with commercial timber sales:

- There will be multiple timber sales of various sizes implemented within a 5 to 7 year period.
- There will be an estimated 25 million board feet or 42,000 hundred cubic feet of sawlogs and pulpwood estimated from the timber sales; the breakdown of wood products is approximately 17,000 hundred cubic feet, or 10 million board feet of sawlogs; and 25,000 hundred cubic feet, or 32,000 cords of pulpwood.

Increase Regenerating/Early Successional, Mixedwood/Softwood, Aspen, and Oak Habitats

The 6,591 acres of timber harvest treatments are designed to address forest habitat composition and age class composition objectives (South of Route 9 project EA, Maps 2a-e, Proposed Action Vegetation and Watershed). The South of Route 9 project EA, Appendices B-2, Table 31 and B-3, Table 32 provide a breakdown of the amount of acres within the project area that will:

- Increase regenerating/early successional habitat.
- Address the over-abundance of northern hardwoods by increasing mixedwood/ softwood habitats.

Of the 6,591 acres of timber harvest treatments (not including 220 acres of land clearing to create permanent upland openings), there is an emphasis to increase and enhance the aspen/birch and oak habitats within the project area (South of Route 9 project EA, Appendix B-1, Table 30; Appendix B-2, Table 31; and Appendix B-3, Table 32; and Maps 2a-e, Proposed Action Vegetation and Watershed):

- Clearcut 11 acres to regenerate and increase aspen habitat in two stands (Compartment 120, Stand 29; and Compartment 169, Stand 34).
- Enhance oak habitat on 1,024 acres using a variety of uneven-aged and even-aged timber harvest treatments primarily in Compartments 163, 165 and 169.

Enhance Oak Habitat with Other Treatments

The project will include other oak enhancement activities on the 1,024 acres proposed for harvest treatments designed to enhance oak. These activities will be applied in an adaptive management approach combining prescribed fire, mechanical treatments, and herbicide (glyphosate) treatments to increase the success of oak species regeneration, and include:

- Prescribed fire on an as needed basis to reduce vegetation competing with oak regeneration and expose a mineral soil seed bed for acorns.

- Mechanical treatment to remove non-commercial competing vegetation, primarily beech and maple, on appropriate sites.
- Summer/fall logging on appropriate sites to enable machinery to scarify the soil surface and ensure contact of acorns with mineral soil.
- Cut-surface application of glyphosate on competing vegetation, particularly beech, with emphasis on those stems either infected by beech bark disease or connected via root systems to infected trees.

The prescribed fire, mechanical treatment, and cut-surface application of glyphosate described for the harvest treatment areas will also be used to restore 127 acres of dry oak forest and woodland in Compartment 169, Stands 26 and 36 (South of Route 9 project EA, Appendix B-6, Table 35; and Map 2a, Proposed Action Vegetation and Watershed). These stands will be contained within a safety perimeter that is bounded by existing woods roads and trails that surround the two stands and will also include additional dry-mesic oak forest areas surrounding those stands. A portion of this area will not be treated at all and will serve as a control or reserve. The various treatments that will occur within this landscape unit will incorporate knowledge and understanding gained through monitoring and adaptive management to enhance oak habitats within the unit and the broader region, and include:

- Maintaining 93 acres of dry oak forest and woodland in Compartment 169, Stands 26 and 36 east of The Dome Trail as a control area that will not be treated.
- Using prescribed fire three to four times over the next 10 to 15 years to restore dry oak woodland and forest.
- Using prescribed fire once every five to 30 years to maintain existing and restored dry oak woodland and forest.
- Using adaptive management to monitor the effects of fire, mechanical, and glyphosate treatments west of The Dome Trail for comparison to the area east of The Dome Trail to evaluate success and adapt treatments as needed.

Increase Permanent Upland Openings

Alternative 2 includes the initial harvest of trees to convert existing forest to permanent upland openings on 12 separate stands for a total of 220 acres (South of Route 9 project EA, Appendix B-1, Table 30; and Maps 2a-e, Proposed Action Vegetation and Watershed) by:

- Creating 8 new permanent upland openings and expanding one existing opening by one acre for a combined total of about 137 acres in 12 stands (some small areas within individual stands will be combined to form an individual opening); openings range in size from 3 to about 32 acres in size, and are mostly located near roads. See the Recreation Opportunities at Dutch Hill discussion in Section 1.3.3.5, Recreation of this decision document.
- Creating an 83-acre open area at the former Dutch Hill ski area in Compartment 120, Stand 19 consisting of a mix of upland openings, blueberries, and patches of trees to enhance wildlife habitat; this will also provide hiking and backcountry skiing opportunities.
- Using prescribed fire on four acres within the Dutch Hill opening to regenerate and enhance blueberry production (South of Route 9 project EA, Appendix B-6, Table 35).

The initial timber harvest will be followed by further clearing to complete the process to convert areas of forested stands to permanent upland openings for early-successional habitat. This will include:

- Removing all timber vegetation including small non-merchantable trees with the intent of not regenerating trees.

- Leaving stumps in the openings and slash left from clearing activities will be piled and/or burned.
- Creating a diversity of habitat for wildlife in the cleared areas by leaving interspersed patches of uncut trees.

Maintain Apple Trees

Alternative 2 includes the release and pruning of apple trees at 13 known sites within the project area (South of Route 9 project EA, Appendix B-1, Table 30; and Maps 2a-e, Proposed Action Vegetation and Watershed). If more apple trees are discovered during project planning and implementation, they will be included for release and pruning. Treatment will include removal of over-topping trees that shade the apples, as well as small saplings and pole-size trees near or under the canopy of individual apple trees.

Protect and Enhance Areas of Special Significance

Treatments include the repair and prevention of damage to sites that are designated as both a state of Vermont significant area and a Green Mountain National Forest Ecological Special Area (South of Route 9 project EA, Maps 2a-e, Proposed Action Vegetation and Watershed). The damage has been primarily caused by unauthorized summer off-road vehicle use. The details of these repair and prevention activities for Stamford Meadows may be found in the Stamford Meadows discussion in Section 1.3.3.4, Soil and Wetlands of this decision document.

The details pertaining to addressing similar damage to the Thendara Camp Fen may be found in the Forest Trail 391 discussion in the Section 1.3.3.4, Soil and Wetlands, and in the Corridor 9/Forest Trail 391 discussion in Section 1.3.3.5, Recreation of this decision document. Part of the remedy for addressing damage to the Fen caused by unauthorized summer off-road vehicle use on Forest Trail 391 and the Old Stage Road will be relocating two portions of Forest Trail 391 adjacent to the fen to locations further away and in less steep areas, to the north and east of the fen (South of Route 9 project EA, Map 3, Proposed Action Recreation and Transportation).

Timber Stand Improvement

Alternative 2 includes timber stand improvement (pre-commercial thinning) on four separate stands for a total of 87 acres to improve the composition, structure, condition, health and growth of young even-aged stands (South of Route 9 project EA, Appendix B-4, Table 33; and Maps 2a-e, Proposed Action Vegetation and Watershed):

- Within these stands, crop trees of desired species will be selected on a spacing of about 16 x 16 feet.
- Less desirable competing trees touching the crowns of the crop trees will be cut away to allow for better growth of crop trees selected to become part of a future commercial harvest.

Post-Harvest Activities

The following activities are connected actions after completion of initial timber harvest treatments to address forest habitat and timber resource needs:

Site Preparation for Natural or Artificial Regeneration

Alternative 2 includes 5,210 acres of site preparation to provide for natural or artificial regeneration of harvested stands (South of Route 9 project EA, Appendix B-5, Table 34):

- Within stands harvested by the shelterwood, seed tree, single/group selection, overstory removal, and clearcut methods, saplings one to six inches diameter at breast height will be cut that may be bent or broken, not commercially valuable, or less desirable.

- Treatment implementation will be within one year following the harvest.

Tree Planting

Tree stocking surveys will be conducted following the first and third year of harvest to monitor regeneration success in all stands with regeneration treatments. If stocking surveys determine natural regeneration is not adequate in any of the regenerated harvest treatment areas, tree planting by hand will be necessary:

- Plant a mix of native softwood species on 4 x 4 foot spacing in areas proposed for regeneration to softwoods or mixedwood.
- In areas to be regenerated to hardwoods, desired species will be planted.
- In the case of clearcuts, quaking aspen and paper birch are the desired hardwood species.
- Direct seeding through broadcast or aerial means is another option to hand planting.

Enhance American Chestnut

Plant 100 or more blight resistant American chestnut seedlings in areas where natural chestnut trees are found to promote a future source of healthy chestnut habitat:

- Focus planting primarily in Compartment 169 close to The Dome area although other areas with appropriate habitat may also be considered.

Maintenance of Permanent Upland Openings

Alternative 2 includes the maintenance of the newly created permanent upland openings to promote early successional habitat on 220 acres within the project area. Maintenance will include:

- Cutting saplings one to six inches diameter breast height that are not retained for wildlife.
- Conducting maintenance of newly created permanent openings through mechanical mowing; cutting with chainsaws, brush saws, or hand tools; prescribed burning; or a combination of these treatment methods.
- Treating openings one to three times over a period of five to seven years.
- Continuing to maintain 15 existing powerline corridor openings under special use permits.

Transportation Network

Harvest zones have been identified as part of timber harvest planning (South of Route 9 project EA, Maps 2a-e, Proposed Action Vegetation and Watershed) to determine areas where log landings, skid routes and other transportation infrastructure may be established to implement timber harvest activities. A harvest zone is an area within which landings, skid routes and other actions related to harvest activities may be established. Specific locations for new landings and skid roads/skid trails will be mutually agreed to by the timber sale purchaser and the Forest Service. Specifically:

- Town roads, Forest roads and existing or newly created skid roads/trails will be used for log truck access and logging equipment access to existing log landings.
- Approximately 12 existing log landings will be used, and 32 new log landings will be constructed; landings are typically between one-quarter and one-half acre in size.

- Construction of temporary haul roads, and improvement and/or maintenance needs associated with the existing transportation network to support timber harvest activities. See the Temporary Haul Roads discussion in the Section 1.3.3.7, Transportation (Roads) of this decision document.

1.3.3.1 Botanical Resources

Table 2 below provides the management activities included in Alternative 2 to improve rare plant habitat within the project area.

Table 2. Activities to improve rare plant habitat

Rare Plant	Location	Proposed Activity
Poke milkweed (*Asclepias exaltata*), sweet joe-pye weed (*Eupatorium purpureum*), perfoliate bellwort (*Uvularia perfoliata*), large yellow lady's-slipper (*Cypripedium parviflorum* var. *pubescens*), and pignut hickory (*Carya glabra*)	Dome Limy Seep; Compartment 169, Stand 9	Non-commercially cut and leave a small number of trees and saplings away from the rare plants; leave all pignut hickories
Showy lady's-slipper (*Cypripedium reginae*)	On private land adjacent to Compartment 163, Stand 27	Remove a few conifers along the National Forest System side of the boundary to facilitate its potential to spread back onto National Forest System lands
Perfoliate bellwort (*Uvularia perfoliata*)	Along Old Military Road where it intersects with an old logging road that heads east	Construct barriers such as stone walls between Old Military Road and the bank where it grows; close off the old logging road with boulders, earthen berms, or vegetation
Mountain laurel (*Kalmia latifolia*); two small individuals	One is off the Brook Road extension; the other is on private land	Construct a deer exclosure for the plant on National Forest System lands; work with the private landowner to protect the plant on non-National Forest System lands

1.3.3.2 Fisheries and Water

Alternative 2 includes the placement of large woody debris in streams to improve aquatic habitat (South of Route 9 project EA, Maps 2a-e, Proposed Action Vegetation and Watershed). Alternative 2 will also provide fish passage through culverts along roads within the project area (South of Route 9 project EA, Map 3, Proposed Action Recreation and Transportation).

Placement of Large Woody Debris

Total large woody debris placement will be done in approximately 13.3 miles of stream (nine sections and tributaries of six streams) within the project area. To increase existing instream large woody debris amounts from an average of 20 pieces per mile to approximately 175 pieces per mile, up to 2,061 trees and/or tree sections will be placed in stream channels in portions of Roaring Branch, Broad Brook, Cardinal Brook, Nunge Brook, Roaring Brook, and Crazy John Stream and their tributaries (see Table 3). Specifics of these activities include:

- Of the trees to be felled, about half will be a minimum of 12 inch diameter at breast height with the other half between 8 to 12 inches diameter breast height.
- The primary placement of trees will be accomplished through directional felling with chain saws.

- In the largest stream channels, a grip hoist will be used to pull over trees so that roots remain attached and reduce the potential for flood flows to move them downstream.
- A grip hoist or log carrier may be used to assist in placing the trees in desired stream locations.
- Heavy equipment (tracked excavator) may be used to place large woody debris into Roaring Brook where it is next to the road; use of heavy equipment will allow for secure anchoring of trees so their movement will not jeopardize Forest Road 264.

Table 3. Streams with large woody debris placement

Stream Name	Miles of Large Woody Debris Placement	Number of Large Woody Debris Pieces
Roaring Branch	0.7	108.5
Broad Brook Un-named Tributary	1.1	170.5
Broad Brook	4.3	666.5
Cardinal Brook	1.5	232.5
Nunge Brook	1.2	186.0
Roaring Brook	1.5	232.5
Roaring Brook Unnamed Tributary	1.3	201.5
Crazy John Stream	0.9	139.5
Crazy John Stream Tributary	0.8	124.0
Total in Project Area	***13.3***	***2,061.5***

Provide Fish Passage

Three existing culverts will be replaced or retrofitted to provide upstream aquatic organism passage along the following roads:

- Forest Road 73 at approximate mile post 1.55 crossing Mud Pond stream, a tributary to the West Branch of the Deerfield River. See the Forest Road 73 discussion in Section 1.3.3.7, Transportation (Roads) of this decision document.
- Forest Road 264 at approximate mile post 0.30 crossing an un-named tributary to Roaring Brook. An additional culvert that is not currently a barrier to fish passage will also be replaced. See the Forest Road 264 discussion in Section 1.3.3.7, Transportation (Roads) of this decision document.
- Forest Road 273 at approximate mile post 2.8 crossing an un-named tributary of Stamford Stream. See the Forest Road 273 discussion in Section 1.3.3.7, Transportation (Roads) of this decision document.

Fish passage improvement work at culverts may require the use of heavy equipment where access and stream size will render such activities feasible and necessary. Project work will include completion of existing condition assessments, design of retrofits to existing structures or replacement crossing structures in the same location, and constructing the retrofits or replacements to Forest Service Stream Simulation Design standards. Replacement structures will be bottomless arches, buried culverts or bridges.

1.3.3.3 Soil and Wetlands

Alternative 2 includes the management activities listed below to improve soil and wetland conditions associated with road and trails within the project area. Soil and wetland rehabilitation work will be

integrated into several recreation and transportation proposed activities. See the discussion in Section 1.3.3.5, Recreation and Section 1.3.3.7, Transportation in this decision document for more details. Refer to the South of Route 9 project EA, Maps 2a-e, Proposed Action Vegetation and Watershed for soil and watershed improvement projects and Map 3, Proposed Action Recreation and Transportation for road and trail projects.

Forest Trail 391

- Install earthen berms or boulders to discourage unauthorized summer off-road vehicle use.
- Install water bars and drainage structures on the section of Forest Trail 391 just south of the Old Stage trail proposed for closure, in conjunction with a trail reroute around the fen.
- Estimated length of trail to be improved is 1.0 mile.
- Estimated length of parallel trail needing soil restoration is 0.1 mile.

Sucker Pond Trail

- Install erosion and drainage control structures in conjunction with trail restoration and planning.
- Estimated length of road to be improved is 3.1 miles.

Stamford Meadows (Old Skid Roads)

- Install water bars to stabilize soils, reducing the risk of sediment reaching the stream.
- Install signs and/or physical barriers at several closures to identify appropriate road uses (for example, hiking and cross country skiing); this is intended to help stop unauthorized summer off-road vehicle use, and allow the soil and vegetation to be restored.
- Remove culverts and install water bars.
- Estimated length of skid road to be closed and rehabilitated is 5.1 miles.

Stamford Meadows Southeast ("Loop Road")

- Rehabilitate rutted sections of road.
- Install water bars and adequate drainage structures, mulch and seed, and remove the bridge in the northeast corner.
- Install styles, gates, signs, berms, and/or boulders to control unauthorized summer off-road vehicle and 4-wheel drive truck use.
- Road closure and/or rehabilitation measures will be done in conjunction with vegetation management.
- Estimated length of road to be improved is 2.5 miles.

The Dome Trail (Proposed Hiking Trail)

- Install water bars and drainage ditches to address existing erosion and minimize potential future erosion, in conjunction with proposed vegetation management and recreation activities.
- Estimated length of trail to be improved is 1.1 miles.

Dutch Hill (Old Ski Area Work Roads and Ski Trails)

- Close roads/trails using an earthen berm or boulders, at the top and bottom of National Forest System ownership.

- Work with the town of Readsboro on soil restoration on Legal Trail 1 under their jurisdiction.
- Install water bars and drainage ditches to reduce erosion.
- Place large woody debris across ski area work roads and trails to reduce erosion and discourage summer off-road vehicle use; seed and mulch as needed.
- Remove some old pieces of equipment from the site.
- Work will be done in conjunction with proposed vegetation management projects.
- Estimated length of roads/trails to be closed is 2.3 miles.

Old Stage Trail

- Install drivable water bars and drainage ditches to minimize current and future erosion.
- Estimated length of road to be improved is 0.7 miles.

Stamford Pond Trail (Forest Trail 394, Snowmobile Trail)

- Install water bars and drainage structures to stabilize soils.
- Install gates to control summer off-road vehicle use; gates will be opened to allow snowmobile use.
- Estimated length of trail to be improved is 3.0 miles.

Heartwellville Access Road

- Install a road closure device (styles, gate, berm, or boulders) at the entrance from State Route 100 to prevent entry by 4-wheel drive vehicles into the wetland and its protective strip.
- Estimated length of road to be improved is 0.25 miles.

Roaring Brook Road (Forest Road 264)

- Install drivable water bars and drainage ditches to minimize current and future erosion.
- Estimated length of road to be improved is 1.5 miles.

1.3.3.4 Recreation

Alternative 2 includes management activities to provide increased recreation opportunities within the project area including year-round use at the Dutch Hill area, and designation of summer off-road vehicle, snowmobile and non-motorized trails. Refer to the South of Route 9 project EA, Map 3, Proposed Action Recreation and Transportation for the locations of recreation activities.

Recreation Opportunities at Dutch Hill

An 83-acre portion of the former Dutch Hill ski area in Readsboro (Compartment 120, Stand 19) will be managed for year-round recreation opportunities. Existing vegetation will be cut to create a permanent upland wildlife opening at this location. See the Increase Permanent Upland Openings discussion in Section 1.3.3.1, Forest Habitat and Timber Resources in this decision document.

- The open area will be predominantly located around the old trails named Dutch Meadow, Meadow Extension, Connector, and Yankee Doodle, and the upper part of Dyke; these trail areas will be widened.

- The opening will allow for tubing, sledding and skiing on the lower portion of Dutch Hill, and backcountry/cross country skiing, snowshoeing and hiking on the old ski trails.
- Maintenance of backcountry ski lines may be conducted by an interested partner group or volunteers.
- The opening will connect with another opening proposed to be created to the south of the ski area summit (Compartment 120, Stand 21) to enhance the existing vista at that location.

Summer Off-Road Vehicle Use Trails

Alternative 2 includes designation of existing non-system trails on National Forest System lands within the project area for summer off-road vehicle use that will provide a connection to existing and planned summer off-road vehicle trail systems located off National Forest System lands (South of Route 9 project EA, Map 3, Proposed Action Recreation and Transportation). Summer off-road vehicle use is not authorized until all required improvements needed to protect soil and water resource conditions are complete.

Risky Ranch Connector Trail

Develop a 0.4 mile connecting trail between Risky Ranch Road at the Stamford-Pownal town line and County Road on the abandoned town road on National Forest System lands in Pownal to complete the loop summer off-road vehicle trail system that already exists on Class 4 Town Roads in Stamford and Pownal:

- Manage the trail for summer off-road vehicle and all non-motorized uses.
- Work to bring the connector trail to standard will include drainage work, trail tread stabilization, and brush removal.
- Trail reconstruction will be done using a tractor/excavator to add material as needed to improve the surface.

Sucker Pond Trail

Rehabilitate the existing 4.3 mile non-system trail/road from the Stamford/Woodford town lines to County Road. The trail will connect the existing Vermont All-Terrain Vehicles Sportsman's Association trails in Pownal and Woodford and is already part of the Vermont Association of Snow Travelers statewide snowmobile trails system. This trail will provide important connections to trails on Class 4 Town Roads and Legal Trails in Stamford, Pownal, and Woodford.

- Manage the trail for summer off-road vehicle, snowmobile and all non-motorized uses.
- Install drainage structures, particularly in wet areas.
- Grading will be done as needed and one bridge installed.
- Trail reconstruction will be done using a tractor/excavator to add material as needed to improve the surface.
- Designate trailheads for the intersection of County Road and the Sucker Pond Trail (off Town Highway 12) providing access from the south and in an open area known as Rose Barn on Forest Road 363 Burgess Road (Town Highway 7) to provide access from the north.
- The trail will continue to provide full-size vehicle access for landowners that have camps near Lake Hancock (aka Sucker Pond) with existing easements or rights of ways.
- Barriers will be installed on the north and south ends to prevent unauthorized vehicle access by full-size vehicles not associated with existing camps.

- Barriers will be created along the trail where needed to prevent unauthorized use in areas where this has previously occurred.

Corridor 9 / Forest Trail 391

Designate 14 miles of Forest Trail 391 for summer off-road vehicle use that will connect a planned summer off-road vehicle trail system in Readsboro at the existing trailhead on Forest Road 73 with the existing Class 4 Town Roads and Legal Trails in Stamford, Pownal, and Woodford beginning at Forest Road 363.

- Manage the trail for summer off-road vehicle, snowmobile and all non-motorized uses.
- Barriers will be installed on the east at the end of maintenance for Forest Road 73, just east of the private land inholding near Forest Road 273, and at the Forest Trail 391 terminus where it intersects Forest Road 363 to prevent unauthorized vehicle access.
- A trailhead will be constructed at the end of maintenance on Forest Road 273, off Forest Road 273 in Woodford.
- Portions of the trail will receive drainage structures and erosion control.
- Trail rehabilitation activities will be done using a tractor/excavator and other mechanized/motorized methods.
- Relocate about 0.3 mile of the trail away from Thendara Camp Fen to the east of the Fen on higher ground in order to eliminate the resource damage that has been occurring to the Fen from sedimentation and rutting caused by unauthorized summer off-road vehicle use.
    - Water bars and drainage structures will be installed on the closed section of trail just south of the Old Stage Road.
    - Earthen berms or boulders will be used to discourage summer off-road vehicle use along the closed sections of trail.
- A portion of the trail just east of Forest Road 273 will be improved on about 0.1 mile where erosion and poor drainage has caused a wet area within the trail tread. A portion of this section of trail is within a private land inholding. Collaborate with the private landowner and trail user groups to agree on specific activities prior to implementation.
    - Place fill material along the trail and construct water bars and drainage structures to improve drainage.
    - Remove or lower boulders that impede the flow of water.
    - The trail improvement will be implemented using a tractor/excavator and other mechanized/motorized methods.

Snowmobile Trails

Alternative 2 includes the following designation of existing non-system trails on National Forest System lands for snowmobile and non-motorized uses within the project area (South of Route 9 project EA, Map 3, Proposed Action Recreation and Transportation).

Hoosac Ridge Trail

Rehabilitate and relocate as needed the 3.5 mile existing unmanaged trail between Smith Road and Readsboro Town Legal Trail 1 on Dutch Hill. Trail segments to be relocated will be in locations that are not on National Forest System lands, or where the trail is adjacent to or traverses wetlands.

- Manage the trail for snowmobile and all non-motorized uses.

- The existing trail tread will be rehabilitated where necessary.
- Relocations will use skid trails created during the proposed timber harvesting to the extent possible.
- A trailhead will be constructed at the south end of the trail off of Smith Road (Town Highway 18) in Readsboro at about mile 0.7, on National Forest System lands.
- Trail rehabilitation and relocation will be done using a tractor/excavator and other mechanized/motorized methods.

Wiley Mountain Trail

Rehabilitate a 2.0 mile existing unmanaged trail and relocate 0.4 mile of the unmanaged trail connecting the proposed Hoosac Ridge Trail and Stamford Town Legal Trail 4 off of Wiley Mountain Drive. The Wiley Mountain Trail will provide a connection between Massachusetts and Vermont snowmobile trail systems. Trail segments to be relocated will be in locations that are not on National Forest System lands, or where the trail is adjacent to or traverses wetlands.

- Manage the trail for snowmobile and all non-motorized uses.
- The existing trail tread will be rehabilitated where necessary.
- Trail rehabilitation and relocation will be done using a tractor/excavator and other mechanized/motorized methods.

Non-motorized Trails

Alternative 2 includes the following designation of existing non-system trails on National Forest System lands within the project area (South of Route 9 project EA, Map 3, Proposed Action Recreation and Transportation).

The Dome, Agawon and Broad Brook Trails

Rehabilitate portions of the 2.5 mile The Dome Trail from the White Oaks Road trailhead to the National Forest System boundary near the top of The Dome.

- Manage the trail for hiking, snowshoeing and cross country skiing.
- A small part of The Dome Trail near the top of The Dome will be relocated out of a wet area and stream bed.
- Rehabilitation activities will include drainage work, trail tread stabilization, and the creation of suitable crossings such as puncheon in wet areas.
- Improve the trailhead to accommodate approximately six automobiles off of White Oaks Road (Town Highway 35) in Pownal for users of The Dome, Agawon and Broad Brook Trails.
- Establish a new trailhead at the intersection of County Road and the Sucker Pond Trail providing access from the north.
- Work will be completed using hand tools and where necessary and feasible, small tractors and excavators.

Relocate portions (1.26 miles) of the 3.4 mile Broad Brook Trail southwest of the Agawon Trail to eliminate difficult stream crossings, move the trail onto National Forest System land, and connect the trail with The Dome Trailhead.

- Manage the trail for hiking, snowshoeing and cross country skiing.

- Relocation activities will include drainage work, trail tread stabilization, and brush removal completed by hand tools and where necessary and feasible, with small tractors and excavators.

Switchbacks or climbing turns will be created on the steep portions of the 0.76 mile Agawon Trail to create a less erosive and more sustainable trail tread that connects The Dome Trail and Broad Brook Trail, thereby creating a loop trail for hikers. The switchbacks will be short in length and only placed where needed.

- Manage the trail for hiking, snowshoeing and cross country skiing.
- Trail reconstruction will be done using a small tractor/excavator where feasible, and hand tools on most areas of the trail due to the terrain.

West Hill Trail

Maintain the existing 0.7 mile trail south and west of the proposed Hoosac Ridge and Wiley Mountain Trails.

- Manage for hiking, biking, snowshoeing and cross country skiing loop trail.
- This will provide a shorter loop opportunity on an old skid trail that needs basic drainage and trail tread maintenance.
- Maintenance will be done with hand tools and/or a small tractor.

Seth Warner Appalachian Trail/Long Trail Shelter

The Forest Service in partnership with the Green Mountain Club will relocate and reconstruct the Seth Warner Shelter and accessible privy along the Appalachian Trail/Long Trail at a new location north of County Road on the hillside south of the beaver pond at the base of Scrub Hill.

- The shelter site will be less accessible by vehicle and will have a water source.
- The new shelter will accommodate 15 people and will also replace the Congdon Shelter and privy when it reaches its life expectancy and is in need of replacement; the Congdon Shelter will continue to be available until that time.
- Construction materials will likely be airlifted into the site.

1.3.3.5 Visual Quality

Alternative 2 includes scenery management treatments to maintain and enhance viewing opportunities within the project area (South of Route 9 project EA, Map 3, Proposed Action Recreation and Transportation). The treatments will enhance viewing opportunities at a number of vista sites described below through selective cutting of trees, brush, and limbs. View maintenance and enhancement will be completed using hand tools and chain saws. Some enhancement may be accomplished through proposed vegetation treatments.

The Dome Trail

Enhance and maintain views just off the proposed Dome Trail:

- Views of Mount Greylock from the huckleberry opening in Compartment 169, Stand 26.

Forest Trail 1 (Appalachian/Long Trail)

Enhance and maintain views along the Appalachian/Long Trail north of County Road:

- Views of Mount Greylock looking south from the Appalachian/Long Trail in Compartment 148, Stand 14.
- Views to the west from the high plateau in Compartment 148, Stand 35.
- Views looking north from the plateau in Compartment 148, Stands 35 and 45.
- Views looking north from at a location approximately 20 feet north of the trail intersection with Forest Trail 391 in Compartment 129, Stand 39.

Hoosac Ridge Trail

Enhance and maintain views along the proposed Hoosac Ridge Trail:

- Views of the valley and ridgeline from a high point along the trail located north of Case Lane in Compartment 130, Stands 21 and 18.

Dutch Hill

Enhance and maintain views from the Dutch Hill area:

- Views from two existing vista points on the summit of Dutch Hill in Compartment 120, Stands 19 and 21.
- Some maintenance will be completed along with upland opening prescribed burning.

1.3.3.6 Transportation (Roads)

Alternative 2 includes activities that will provide a sustainable transportation network to meet public access needs and complete project implementation within the project area. Transportation activities will improve forest road safety, align road infrastructure with future needs, improve and maintain forest access, and close unauthorized non-system forest roads. The South of Route 9 project EA, Maps 2a-e, Proposed Action Vegetation and Watershed shows a portion of the road network as it pertains to vegetation management activities. The South of Route 9 project EA, Map 3, Proposed Action Recreation and Transportation best shows the road network projects. All road activities will be implemented using customary mechanized power equipment and machinery, as needed, unless noted otherwise.

Improve Forest Road Safety

Alternative 2 includes the following activities to improve forest road safety for National Forest System Roads (Forest Roads) within the project area:

- Assign an Objective/Operational Maintenance Level appropriate for each road to ensure the Forest's ability to maintain roads according to Highway Safety Act standards. Objective/Operational Maintenance Level are defined in Appendix C.
- Removal of any non-compliant traffic and route marker signing on all existing or new project area Forest roads and replace them with new, more highly visible (retro-reflective) signing.
- Add any new signing as required by the current edition of the Manual on Uniform Traffic Control Devices.

Align Road Infrastructure with Future Needs

Alternative 2 includes the following activities to align Forest Road infrastructure (roads and parking areas) with future needs so the Forest Service can maintain a sustainable road system within the project area.

Forest Road 73

- Increase maintenance level in Readsboro/Woodford to Objective/Operational Maintenance Level 3 to align with increased use and recent infrastructure improvements.
- Replace existing culvert that is a barrier to fish passage at Mud Pond stream crossing (mile post 1.55) with a new aquatic organism passage structure. See the Provide Fish Passage discussion in Section 1.3.3.3, Fisheries and Water in this decision document.
- Make bridge repairs including re-decking and replacing cap beams and bearings on bridge over West Branch of Deerfield River (mile 1.0).
- A gate is proposed at mile 0.2 along Forest Road 73 to protect the road during spring mud season. Installation of a gate at this location or alternative location on Forest Road 73 is dependent on agreement with the town of Readsboro or town of Woodford as necessary. The gate will be closed from April 15 (end of snowmobile season) to May 15, but actual dates would be subject to specific road conditions on an annual basis. Multiple gate locks will be used so the towns will be able to access the road for emergency purposes, and private property owners will be able to access their inholdings behind the gate during closure periods.

Forest Road 264

- Make needed improvements to this road in Stamford through timber management and sales, stewardship agreements, and possible cooperative work with the Town and/or private landowners along the road.
- Continue to maintain as an open 4-wheel drive (high clearance) road with emphasis on drainage structures (ditches, bridges and culverts), prevention of sedimentation of nearby Roaring Brook, and storm resiliency.
- Replace/retrofit two existing culverts along lower section of road (near mile 0.3) with aquatic organism passage structures. One is currently a barrier to fish passage. See the Provide Fish Passage discussion in Section 1.3.3.3, Fisheries and Water in this decision document.

Forest Road 265

- Make needed improvements to this road in Stamford through timber management and sales, stewardship agreements, and possible cooperative work with private landowners along the road.
- Continue to maintain as an open 4-wheel drive (high clearance) road with emphasis on drainage structures (ditches and culverts), prevention of sedimentation of nearby streams, and storm resiliency.

South of Forest Road 265

- Develop a gravel pit at a finger shaped landform to the south of the Forest Road 265 and north of Cardinal Brook.
- This gravel will primarily be used to improve Forest roads and trails in the project area and south of State Route 9.

Forest Road 273

- Increase maintenance level of this road to Objective/Operational Maintenance Level 3 in Woodford and Stamford to align with increased use due to loss of access to area via Dunville Hollow Road to the west.
- Install a gate at end of the Maintenance Level 3 section of the road at mile 2.82.
- Make needed improvements through partnerships and agreements with private landowners.
- Replace the existing culvert at mile post 2.8 to increase storm resiliency and provide aquatic organism passage. See the Provide Fish Passage discussion in Section 1.3.3.3, Fisheries and Water in this decision document.
- Make needed drainage improvements to the section of road closed to public highway legal vehicles to ensure future trail and administrative use.

Forest Road 363 (Town Highway 7, Burgess Road)

- Improve the road for 0.6 mile from the beginning of Woodford Town Highway 7 to the trailhead parking to be established at Rose Barn.
- Improvement includes reshaping the road template, resurfacing, and drainage improvements (culverts and ditching).
- Collaborate with the Town of Woodford, adjacent landowners, and trail user groups to agree on specific activities prior to implementation.

Trailhead Parking

Alternative 2 provides the following activities to improve and designate parking areas at existing and new trailheads in coordination with towns and private landowners:

- Off Burgess Road (Town Highway 7) in Woodford at an open area known as Rose Barn.
  - Improve for multiple use trailer parking to allow for up to 5 trailer units (would only be implemented pending improvements to Town Highway 7 in collaboration with the town, adjacent landowners and trail user groups).
- Off Smith Road (Town Highway 18) in Readsboro at about mile 0.7.
  - Improve for snowmobile parking to allow for up to 5 trailer units.
- Off White Oaks Road (Town Highway 35) in Pownal at about mile 0.5.
  - Improve for the proposed Dome Trail trailhead parking for up to six automobiles.
- Off County Road (Town Highway 12) in Stamford at about 1.0 mile from the Pownal town line.
  - Improve for multiple use trailer parking to allow for up to 5 trailer units.
- Off Forest Road 273 in Woodford at about mile 2.82.
  - Improve for multiple use trailer parking to allow for up to 5 trailer units.
- Off Forest Road 73 in Readsboro at about mile 0.1.
  - Make small repairs to improve the parking at the existing trailhead.

Temporary Haul Roads

Alternative 2 includes the following transportation management activities to construct temporary haul roads in coordination with the Vermont Department of Transportation, towns, and private landowners to provide access for timber harvest treatments within the project area. Temporary haul roads are built to allow truck access to timber cutting units and landings. These roads will be constructed and used for each individual timber sale only and will be deactivated after use. Temporary haul roads won't be completely obliterated after use. Actions taken to deactivate use include restoring natural drainage, mulching, seeding and installing barriers to prevent unauthorized vehicle use. Depending on the season of harvest, construction could include using a dozer or excavator or both to smooth the ground. This will include removing rocks and shaping ground as well as providing drainage and stream crossings. Summer harvesting may include hauling and placing gravel to harden the surface to reduce erosion. All roads will be rehabilitated after use with seeding, mulching, and blocking off access as desired.

The following temporary haul roads will be used:

- Compartment 127: Use access provided by Forest Road 73 and construct temporary haul roads off of Forest Road 73 as needed.
- Compartment 120: Use access provided by State Route 8, State Route 100, Howe Pond Road, Daubneys Drive, Rue Madeline, and construct temporary haul roads off these roads as needed.
- Compartment 130: Use access provided by Case Lane, Daubneys Drive, and construct temporary haul roads off these roads as needed.
- Compartment 165: Use access provided by Smith Road, Wiley Mountain Drive, and construct temporary haul roads off these roads as needed.
- Compartment 148: Use access provided by Forest Road 264 and Forest Road 265, Maltese Road, County Road, and construct temporary haul roads off these roads as needed.
- Compartment 135: Use access provided by County Road and Risky Ranch Road, and construct temporary haul roads off these roads as needed.
- Compartment 138: Use access provided by County Road and construct temporary haul roads off these roads as needed.
- Compartment 163: Use access provided by Risky Ranch Road, Benedict Road, and construct temporary haul roads off these roads as needed.
- Compartment 169: Use access provided by County Road, Benedict Road, Old Military Road, Henderson Road, and construct temporary haul roads off these roads as needed.

Improve and Maintain Forest Access

Alternative 2 includes an effort to renew the 1973 Cooperative Road Agreement with the town of Woodford and enter into a Cooperative Road Agreement with the towns of Readsboro, Stamford, Bennington, and Pownal. The purpose of the agreements is for the Forest Service and towns to cooperate on any associated road improvement or maintenance needs where funding is available and there is a mutual interest.

Close Unauthorized Non-System Roads

Alernative2 includes activities to close unauthorized non-system forest roads and skid trails at or near any main road entrances by:

- Placing large boulders (or similar physical barrier).

- Replanting native vegetation.
- Re-establishing the main road template and/or ditch-line as needed.
- Until the vegetation is established, small temporary travel management signing may be installed to discourage unauthorized use.
- Small, single car pull-off areas may be created (when needed) at existing unauthorized road entrances.
- Pull off areas will only be provided where they can be located by extending the shoulder of the main road (without cuts or fills) and where they will not be separated by ditches or drainage structures.
- Law enforcement and Forest Service personnel will monitor the various locations for illegal use.

1.3.3.7 Heritage Resources

Alternative 2 includes management activities to protect and enhance heritage resources within the project area. Proposed activities associated with heritage resources include the following:

Investigate and Inventory the Niles Cemetery

- Currently one stone (Polly Niles) is identified, but possible field stone markers also are visible.
- Clearing the ground vegetation, probing, and possible remote sensing techniques (e.g., ground-penetrating radar) could reveal more extensive remains which we will seek to protect.

Stabilize and Protect Historical Features

- Cut and remove with hand tools excess brush and small saplings and poles growing in or near select historical sites such as foundations of homes or mills, stone walls, and charcoal kilns.
- The cut vegetation, or down woody debris habitat, will be left on site and placed in such a way as to provide nesting, foraging, and travel habitat for small mammals, reptiles and amphibians.

Charcoal Kilns

- Clean up and stabilize two sets of stone charcoal kiln remains in the northwestern part of the project area.
- Remove small trees growing out of the remains of these significant industrial sites as well as removal of dead-and-down trees.

Historic Mill and Tavern

- Clean up and stabilize the historic mill and tavern remains located along the Appalachian/Long Trail north of the Stamford Stream wetlands.

Old Stage Road and Albany/Military Road

- Work with local partners to produce a National Register nomination for the Old Stage Road (which defines the northern boundary of the project area).
- Uncover and/or conduct more research on the Albany/Military Road (Pownal).

Pre-contact Sites

- Conduct pre-contact site inventory and research activity; the potential for the presence of pre-contact Native American sites is high in selected areas. Consultation with the Stockbridge-Munsee Mohican will take place prior to the development and implementation of any research associated with the potential discovery of pre-contact sites.
- One large site along the Appalachian/Long Trail is known and one surface-find has been recovered during broad-scale survey.

Dutch Hill

- Investigate to determine whether there are any structural, landscape, or archaeological remains of the Dutch Hill ski area which warrant preservation for their historic value.

The Dome

- Determine to what extent The Dome is deemed significant by Native American tribes.

1.4 OTHER ALTERNATIVES CONSIDERED

1.4.1 Alternative 1, No Action

Alternative 1 provides a baseline for comparing the environmental effects of any action alternatives analyzed in detail. There would be no implementation of any of the management activities associated with the Proposed Action under this alternative. Management activities that have been previously approved under other National Environmental Policy Act decisions would still be implemented such as maintenance of existing permanent upland openings and apple trees. Other ongoing routine management activities associated with existing infrastructure would also continue such as road and trail maintenance.

I did not select Alternative 1, because it does not meet the resource objectives as provided by the South of Route 9 project purpose and need and would not move the project area toward Forest Plan desired future conditions (see South of Route 9 project EA, Chapter 1, Section 1.3, pages 3 to 7). Selection of the no action alternative would result in the following:

- No increase in habitat diversity associated with forest type composition and age class
- No availability of forest products for the local or regional economy
- No enhanced rare plant habitat
- No improvement to soil or wetland conditions
- No improvement of aquatic habitat
- No increased recreation opportunities
- No creation of vistas for viewing the landscape
- No improvements to the transportation network (roads, trails and parking)
- No protection, restoration or maintenance of heritage sites

1.5 OTHER ALTERNATIVES CONSIDERED BUT DISMISSED FROM FURTHER ANALYSIS

There was one additional action alternative considered by the South of Route 9 project interdisciplinary team to address public resource concerns identified from scoping. This alternative was eliminated from detailed analysis for reasons provided below in section 1.5.1.

1.5.1 No Prescribed Fire at The Dome Alternative

Vermont Agency of Natural Resources staff expressed concern relative to the proposed use of prescribed fire in The Dome area. The concern was the burning from the prescribed fire could kill existing oak seedlings, and thus, the desired objectives to enhance oak habitat would not be met. The exclusion of prescribed fire within The Dome area was considered as an alternative to address this concern. Discussions with the State resulted in the development of an adaptive management approach to burning in The Dome area and is included as part of the Proposed Action (South of Route 9 project EA, Chapter 2, Section 2.1.2.1, Forest Habitat and Timber Resources, pages 17 and 18, and associated mitigation measures in Appendix A, Forest Habitat Mitigation, page 155). For these reasons, the consideration of excluding prescribed fire in The Dome area was eliminated as an alternative for detailed analysis.

1.6 FINDINGS REQUIRED BY LAW AND REGULATION

This section provides my findings associated with the South of Route 9 project in regards to compliance with appropriate laws and regulations.

1.6.1 National Forest Management Act

Forest Plan Consistency; 16 U.S.C. 1604(i) (Section 6)

The National Forest Management Act (NFMA) requires the development of long-range land and resource management plans and all site-specific project activities be consistent with direction in those plans. The Forest Plan was completed and approved in 2006 as required by the NFMA and provides the direction for all resource management activities on the Green Mountain National Forest. The South of Route 9 project implements the Forest Plan.

The Forest Plan has been reviewed in consideration of this project. I have determined the actions included in Alternative 2 are consistent with Forest Plan direction including goals, objectives, and Forest-wide standards and guidelines (Forest Plan, Chapter 2, Section 2.2, pages 10 to 18; and Section 2.3, pages 19 to 45). Alternative 2 will specifically move the project area toward the desired future condition for the Diverse Forest Use, Diverse Backcountry, Ecological Special Areas, Appalachian National Scenic Trail, and Eligible Wild, Scenic and Recreational Rivers Management Areas (Forest Plan, pages 47, 58, 66 and 67, 94 and 95, and 105 to 107, respectively; and South of Route 9 project EA, page 2). The project is also consistent with standards and guidelines for these Management Areas (Forest Plan, pages 48, 58 and 59, 67 to 72, 95 to 97, and 108 and 109, respectively). This decision tiers to the Record of Decision for the Green Mountain National Forest Land and Resource Management Plan Final Environmental Impact Statement dated February 2006. All of the expected impacts from this project are consistent with, and within the range of, the impacts disclosed in the Final Environmental Impact Statement.

My decision is based on the best available science, including a review of the record that shows a thorough review of relevant scientific information, a consideration of responsible opposing views, and the acknowledgment of incomplete or unavailable information, scientific uncertainty, and risk. My decision implements the Forest Plan. As required by the NFMA at 16 U.S.C. 1604(i), I find this project to be

consistent with the Forest Plan including goals, objectives, desired future conditions, and Forest-wide and Management Area standards and guidelines.

Lands Suitable for Harvest; 16 U.S.C. 1604(k) (Section 6)

I have determined that the land on which harvesting will be done is suitable for timber production.

1. The land included for harvesting is on forest land defined as suitable for timber production (Forest Plan, Appendix D, pp. D-1 to D-3; Forest Plan Final Environmental Impact Statement, page 3-280 and Appendix B). This has been verified through on-the-ground examination of the stands proposed for harvest. Documentation of these examinations is found in the South of Route 9 project planning record.

2. Technology is available to ensure timber production from the land without irreversible resource damage to watershed conditions. This is documented in the South of Route 9 project EA at Chapter 3, Section 3.5, Fisheries and Water, pages 101 to 105; and Section 3.6, Soil and Wetlands, pages 106 to 114).

3. The lands proposed for timber harvest have not been withdrawn from timber production by an Act of Congress, the Secretary of Agriculture, or the Chief of the Forest Service.

4. The land has not been deemed inappropriate for timber production due to assignment to other resource uses or considerations of cost efficiency.

Appropriateness of Even-Aged Timber Management; 16 U.S.C. 1604(f) (Section 6)

Even-aged management has been selected as an appropriate method to meet the vegetation management and forest habitat diversity objectives in the South of Route 9 project area. The following reasons were used to determine the appropriateness of even-aged management:

1. Even-aged silvicultural systems can be applied to suitable lands to provide a variety of habitat conditions for wildlife and create a balanced distribution of age classes to meet timber objectives (Forest Plan, page 11).

2. Harvesting trees with the application of even-aged silvicultural methods (regeneration and intermediate cuts) are appropriate to achieve resource objectives (Forest Plan, page 24).

3. Forest Plan direction for the Diverse Forest Use Management Area states that "[m]anagement practices will include both even-aged and uneven-aged silvicultural systems…to meet timber, wildlife, ecological, visual, and recreation objectives" (Forest Plan, page 47); the Diverse Backcountry Management Area states that "the primary silvicultural system will be even-aged…to provide a mix of wildlife habitats supplied by more mature forests, early successional forests, and both permanent upland and temporary openings" (Forest Plan, page 58); and the Eligible Wild, Scenic and Recreational Rivers Management Area specific to Recreational river segments states that "[t]he choice of even-aged or uneven-aged silvicultural systems will depend primarily on the objectives of the Management Areas through which the stream passes" (Forest Plan, page 109).

4. The selected silvicultural methods for each stand identified in Alternative 2 are consistent with the rationale for using these methods provided for in the Forest Plan (Forest Plan, page 23; and South of Route 9 project EA, Chapter 1, Sections 1.3.1 and 1.3.2, pages 3 to 5; Chapter 2, Section 2.1.2.1,

pages 15 to 20, and Appendix B). A certified Silviculturist has reviewed and prepared each stand prescription.

Optimality of Clearcutting; 16 U.S.C. 1604(f) (Sec. 6)

In accordance with Forest Plan direction (Forest Plan, page 24), I have determined that clearcutting is the optimum harvest method for nine stands for a total of 137 acres. This includes Compartment 120, Stands 26 and 31; Compartment 127, Stand 15; Compartment 138, Stand 1, 6 and 7; and Compartment 165, Stand 2 to regenerate northern hardwood forest habitat that are low quality and high risk for insect infestation and disease; and Compartment 120, Stand 29; and Compartment 169, Stand 34 to regenerate aspen-birch forest habitat. I have also determined that clearcutting is the optimum harvest method for a total of 220 acres on 11 stands to convert existing forest habitat to create permanent upland openings. This includes Compartment 120, Stands 19 and 21; Compartment 128, Stands 25 and 52; Compartment 130, Stands 12 and 19; Compartment 138, Stand 14; Compartment 148, Stand 37; Compartment 165, Stand 18; Compartment 169, Stand 1; and Compartment 180, Stand 8. Refer to the South of Route 9 project EA, Chapter 2, Section 2.1.2.1, pages 15 to 18; Chapter 3, Section 3.2.4.2, page 76; and Appendix B, pages 169 to 177.

Field surveys indicate that aspen clones are dispersed among the dominant northern hardwoods or that aspen is in danger of dying out and succeeding to other forest species due to its old age (South of Route 9 project EA, Chapter 3, Section 3.1.3.1, page 49; and the habitat management unit analysis and silvicultural prescriptions in the project planning record). Clearcutting is the optimum method in these instances to increase the amount of aspen/birch through regeneration and retain these habitat types for forest habitat diversity (Forest Plan, page 24). Clearcutting will also take advantage of opportunities to remove diseased, damaged, or high risk portions of these stands (Forest Plan, page 24; and South of Route 9 project EA, Chapter 3, Section 3.2.4.2, page 76).

Clearcutting of aspen stimulates root suckering and increases stocking and early growth. Aspen is a very shade intolerant species and will not regenerate under the shade of other trees. Research has shown that for effective sprouting to occur, there must be full sunlight. Other harvest systems would not provide the conditions needed for optimal aspen regeneration. Shelterwood harvest methods (standard and delayed) were considered. However, these methods would not leave the area in the desired "open" condition to the same extent as clearcutting. The shade of the residual overstory that would remain with these techniques would hinder, and most likely prohibit, the adequate regeneration of the aspen clones found on the site.

Clearcutting is the optimal method in northern hardwood stands where conditions are low quality and have a high risk for dying (Forest Plan, page 24). Other silvicultural harvest methods would not provide the desired open site conditions needed for the full regeneration and subsequent health of these stands (silvicultural prescriptions in the project planning record). Clearcutting is also the optimal method to create permanent upland openings from existing forest for better vegetative diversity and improved wildlife habitat (Forest Plan, page 24). Other silvicultural harvest methods would not be able to create the desired site conditions needed for conversion of existing hardwood or mixedwood stands to provide for permanent early successional habitat (silvicultural prescriptions in the project planning record).

Other Vegetative Manipulation Requirements including Assurance of Restocking; 16 U.S.C. 1604 (Section 6)

Based on my review of the South of Route 9 project EA, I find that the selection and location of the desired harvest treatment methods, the application of Forest Plan standards and guidelines, and site-specific design criteria will ensure the vegetative management activities in this project will comply with

the requirements of 16 U.S.C. 1604, and the Forest Plan. According to these requirements, projects involving manipulation of tree cover shall:

1. Be best suited to the multiple use goals established for the area, with potential environmental impacts, being considered in this determination. I find that the South of Route 9 project EA and supporting analysis demonstrate that Alternative 2 is consistent with the multiple use goals and objectives stated in the Forest Plan (South of Route 9 project EA, Chapter 1, Section 1.2, page 2; Section 1.3, pages 3 to 7; Chapter 2, Section 2.1.2, pages 13 to 33; and Chapter 3, pages 43 to 149).

2. Occur on lands where adequate restocking within five years can be assured. All silvicultural prescriptions for treating stands were approved by a certified Silviculturist and meet direction of the Forest Plan. Review of forest stocking records has clearly shown successful restocking by applying the standard silvicultural and site preparation methods identified in this analysis. Soil conditions, moisture regimes, and present vegetative stocking levels are the same or very similar to other areas on the Forest where restocking has been successful.

3. Not be chosen primarily because they will give the greatest dollar return or the greatest output of timber, although these factors shall be considered. Alternative 2 was chosen based on a combination of factors including the protection of other resource values, management to achieve Forest Plan goals and objectives, maintaining safe public access, providing recreational opportunities, providing a diversity of vegetative age classes and tree species types, improving forest health and wildlife/fish habitat conditions, protecting soil/water and historic areas, and commodity output needs, as well as economic considerations. Refer to the Sections 1.3.1 and 1.3.2 in this decision document. Refer also to the South of Route 9 project EA, Chapter 3, Section 3.2.4.2, pages 77 and 78 for details associated with the economic analysis for the project.

4. Be chosen after considering potential effects on residual trees and adjacent stands. To the degree that they are related to specific South of Route 9 project issues, effects on vegetation are disclosed in the South of Route 9 project EA, Chapter 3, Section 3.1.4.2, pages 61 to 72; Section 3.2.4.2, pages 76 and 77; and Section 3.4.4.2, pages 93 to 100. In particular, the discussion of forest habitat diversity cumulative effects (South of Route 9 project EA, Section 3.1.5, pages 69 to 72) takes into consideration the actions occurring on, and effects to, stands adjacent to those being manipulated, both on National Forest System lands and private lands. The general effects of activities on vegetation are disclosed in the Forest Plan Final Environmental Impact Statement, pages 3-48 to 3-97).

5. Avoid permanent impairment of site productivity and ensure conservation of soil and water resources. Refer to the South of Route 9 project EA, Chapter 3, Section 3.5.4.2, pages 103 to 105 for the fisheries and water resources; Section 3.6.4.2, pages 108 to 114 for the soil and wetlands resources; Appendix A, pages 161 and 162 for project mitigation measures specific to soil and wetlands, and Forest Plan standards and guidelines for Soil, Water, and Riparian Area Protection and Restoration (Forest Plan, Section 2.3.2, pages 20 to 22).

6. Provide the desired effects on water quantity and quality, wildlife and fish habitat, regeneration of desired species, recreation uses, aesthetic values, and other resource yields. These considerations are addressed throughout Chapter 3 of the South of Route 9 project EA, pages 43 to 149.

7. Be practical in terms of transportation and harvesting requirements, and total costs of preparation, logging and administration. I am basing this determination on the fact that the selected activities are consistent with Forest Plan direction and are similar to those that have been or are currently being practiced on the Green Mountain National Forest. All harvest activities are close to existing roads and will require no extraordinary investments or expenditures in order to complete harvest operations

(South of Route 9 project EA, Chapter 2, Section 2.1.2.7, pages 28 to 32; and Chapter 3, Section 3.2.4.1, pages 77 and 78).

1.6.2 Endangered Species Act; 16 U.S.C. 1531-1536, 1538-1540

The Endangered Species Act (ESA) requires that federal activities do not jeopardize the continued existence of any species federally listed or proposed as threatened or endangered, or result in adverse modification to such species' designated critical habitat. In accordance with Section 7(c) of this Act, a report of the listed and proposed, threatened, or endangered species that may be present in the project area was reviewed.

Biological Evaluations for wildlife and plants were completed for proposed, threatened or endangered species specifically for the South of Route 9 project. The conclusions of the Biological Evaluation analyses are summarized in the South of Route 9 project EA at Chapter 3, Section 3.3.3.1, page 83; and Section 3.3.4.2, pages 87 and 88 for wildlife; and at Chapter 3, Section 3.4, page 91 for plants. There are no plant species on the Green Mountain National Forest that are federally listed as threatened or endangered.

The Biological Evaluation for wildlife indicates the likelihood for occurrence for threatened or endangered species (eastern cougar, gray wolf, and Canada lynx) in the South of Route 9 project area or on the Green Mountain National Forest is low. The Green Mountain National Forest has only historic occurrence records for these species and their occurrence on the Forest in the near future is unlikely. Indiana bats do occur on and near the Green Mountain National Forest, although they are unlikely to occur in the project area due to the elevation and distance from known Indiana bat hibernacula. Consequently, the South of Route 9 project will have "no effect" on eastern cougar, gray wolf, Canada lynx, or Indiana bat (South of Route 9 project EA, Chapter 3, Section 3.3.4.2, page 87).

On 2 April 2015, the U.S. Fish and Wildlife Service published a Final Rule listing the northern long-eared bat as Threatened (80 Federal Register 17974). On 14 January 2016, the U.S. States Fish and Wildlife Service finalized a rule under the authority of Section 4(d) of the Endangered Species Act that provides measures that are necessary and advisable to promote the conservation of the northern long-eared bat (81 Federal Register 1900).

The South of Route 9 project management activities have been found to have a "May Affect, Not Likely to Adversely Affect" or "May Affect, Likely to Adversely Affect" determination depending on the specifics of the activity although they do not cause prohibited take (South of Route 9 EA, Chapter 3, Section 3.3.4.2, pages 87 and 88). In these cases, the Forest Service is able to implement the Final 4(d) Rule using the voluntary framework identified in the U.S. Fish and Wildlife Service range-wide Biological Opinion dated 12 November 2015. Compliance with Section 7(a)(2) of the Endangered Species Act for these project activities requires that the Forest Service enter into informal consultation with the U.S. Fish and Wildlife Service before project activities begin. If the U.S. Fish and Wildlife Service does not respond within 30 days, project activities may be implemented.

1.6.3 Regional Forester's Sensitive Species

Forest Service Manual 2670 direction requires analysis of potential impacts to sensitive species, those species for which the Regional Forester has identified population viability is a concern. These species are listed as Regional Forester's Sensitive Species. The Biological Evaluations prepared for this project have included the consideration of wildlife and plant Regional Forester's Sensitive Species and the conclusions of the their analyses can be found in the South of Route 9 project EA at Chapter 3, Section 3.3.3.2, pages

84 and 85; and Section 3.3.4.2, page 89 for wildlife; and Section 3.4.3 pages 91 and 92; and Section 3.4.4.2, pages 93 to 96 for plants.

The Biological Evaluations completed for wildlife and plants both conclude that Alternative 2 will not likely cause a trend towards federal listing or loss of viability for any wildlife or plant listed as a Regional Forester's Sensitive Species within the project area (South of Route 9 project EA, Chapter 3, Section 3.3.4.2, page 89 for wildlife; and Section 3.4.4.2, pages 98 and 99 for plants).

1.6.4 National Environmental Policy Act

The National Environmental Policy Act requires public involvement and consideration of potential environmental effects. The entirety of documentation for this decision supports compliance with this Act including Council on Environmental Quality (CEQ) and Forest Service National Environmental Policy Act implementing regulations (40 CFR 1500 -1508; and 36 CFR 220).

1.6.5 Clean Water Act

The intent of the Clean Water Act is to restore and maintain the integrity of waters. The Forest Service complies with this Act through Forest Plan standards and guidelines, and South of Route 9 project design criteria and mitigation measures to ensure protection of soil and water resources (South of Route 9 project EA, Chapter 3, Section 3.5.4.2, pages 103 to 105 for the fisheries and water resources; Section 3.6.4.2, pages 108 to 114 for the soil and wetlands resources; and Appendix A, pages 161 and 162 for project mitigation measures specific to soil and wetlands).

1.6.6 National Historic Preservation Act; Archeological Resources Protection Act; and Native American Graves Protection and Repatriation Act

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effect of a project on any district, site, building, structure, or object that is included in, or eligible for inclusion in the National Register. It also requires federal agencies to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment.

The Archaeological Resources Protection Act covers the discovery and protection of historic properties (pre-contact and historic) that are excavated or discovered on federal lands. It affords lawful protection of archaeological resources and sites that are on public and Indian lands.

The Native American Graves Protection and Repatriation Act addresses the discovery and protection of Native American human remains and objects that are excavated or discovered on federal lands. It encourages avoidance of archaeological sites that contain burials or portions of sites that contain graves through "in situ" preservation, but may encompass other actions to preserve these remains and items.

The South of Route 9 project is in compliance with these Acts. Alternative 2 will not have an adverse effect on any historic or potential pre-contact Native American sites within the project area (South of Route 9 project EA, Chapter 3, Section 3.10.4.2, page 138; and Appendix A, pages 162 to 165 specific to heritage resources).

1.6.7 Wilderness Act

The Wilderness Act established a National Wilderness Preservation System to be composed of federally owned areas designated by Congress as "wilderness areas". These areas are administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and

enjoyment as wilderness. The Act provides for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness.

The South of Route 9 project is in compliance with this Act. There are no management activities that will be implemented within the Wilderness Management Area. Alternative 2 will not result in any adverse effects to the wilderness resource (South of Route 9 project EA, Chapter 3, Section 3.8.4.2, pages 129 and 130).

1.6.8 Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act institutes a national wild and scenic rivers system that includes selected rivers which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. It provides for them to be preserved in a free-flowing condition, and that they and their immediate environments will be protected for the benefit and enjoyment of present and future generations.

The South of Route 9 projects is in compliance with this Act. There are no management activities that will adversely affect the outstandingly remarkable values of Stamford Stream that would preclude it from future consideration as a Recreational River as part of the National Wild and Scenic River System (South of Route 9 project EA, Chapter 3, Section 3.8.4.2, page 129).

1.6.9 Wetlands (Executive Order 11990)

Executive Order 11990 directs the agency to avoid to the extent possible the adverse impacts associated with the destruction or modification of wetlands, and to avoid support of new construction in wetlands wherever there is a practical alternative.

The South of Route 9 project is in compliance with this Executive Order. There will be no adverse effects associated with wetlands from management activities included in Alternative 2 (South of Route 9 project EA, Chapter 3, Sections 3.6.4.2 and 3.6.5.1, pages 108 to 112).

1.6.10 Floodplains (Executive Order 11988)

Executive Order 11988 directs the agency to avoid to the extent possible the adverse impacts associated with the occupancy and modification of floodplains, and to avoid support of floodplain development wherever there is a practical alternative.

The South of Route 9 project is in compliance with this Executive Order. There will be no adverse effects associated with floodplains from management activities included in Alternative 2 (South of Route 9 project EA, Chapter 3, Section 3.5.4.2, pages 103 to 105; and Section 3.6.4.2, pages 108 to 112).

1.6.11 Environmental Justice (Executive Order 12898)

Executive Order 12898 requires consideration of whether projects would disproportionately impact minority or low-income populations. This decision complies with this Executive Order. Public involvement occurred for this project, the results of which I have considered in this decision. Public involvement did not identify any adversely impacted local minority or low-income populations (South of Route 9 project EA, Chapter 1, Section 1.5, pages 8 to 13; and project planning record). This decision is not expected to adversely impact minority or low-income populations.

1.6.12 Other Relevant Laws

I have considered other relevant laws and regulations that this decision may affect. I have fully considered the effects of this decision on the public, as well as the public's issues and concerns brought forward during the comment periods and feel that these issues have been adequately addressed in the South of Route 9 project EA, its appendices and in this Decision Notice. I have determined that my decision to implement Alternative 2 meets all applicable laws, regulations, and policies, as well as Forest Service direction and guidance as outlined in the Forest Service Manuals and Handbooks.

2. FINDING OF NO SIGNIFICANT IMPACT (FONSI)

I have determined the selected activities described in Alternative 2, Proposed Action are not a major federal action, individually or cumulatively, and will not significantly affect the quality of the human environment. Therefore, an environmental impact statement is not needed. This determination is based on the context and intensity of the activities:

2.1 CONTEXT - 40 CFR 1508.27(a)

The analysis of Alternative 2 was conducted on a localized area with implications only for this area. All potential irreversible resource commitments and irretrievable losses of resources are limited to the immediate South of Route 9 project area and do not have effects beyond the immediate locale. The cumulative effects of past, present and reasonably foreseeable future actions combined with the actions of Alternative 2 are displayed by the various resource sections throughout the Affected Environment and Environmental Effects section (Chapter 3) of the South of Route 9 project EA. As a result of the analysis of those effects, I feel the context of this decision, both from a physical, biological and social standpoint, is localized. I realize that some wildlife species, for example large mammals and migratory birds, range outside of the South of Route 9 project area boundary. Considering this, my decision is consistent with the management direction outlined in the Forest Plan, and with the Forest Plan Final Environmental Impact Statement that analyzed, at a larger scale, the effects of the type of activities that will be implemented through this decision.

2.2 INTENSITY - 40 CFR 1508.27(b) (1-10)

Intensity is a measure of the severity of effects and is based on determinations for the following ten factors:

2.2.1 Impacts that may be both beneficial and adverse.

Impacts associated with my decision are disclosed in the Affected Environment and Environmental Effects section (Chapter 3) of the South of Route 9 project EA. Both beneficial and adverse effects have been taken into consideration when making this determination of significance. Each impact, beneficial or adverse, was considered individually, and no beneficial impact was considered to offset any adverse effect in determining severity and significance. There are no direct, indirect or cumulative adverse impacts that are significant in their effect upon other resources, as they pertain to the relevant issues analyzed in the South of Route 9 project EA. Impacts from this decision are not unique to this project alone. Previous projects having had similar activities and effects were also taken into consideration when measuring severity and significance.

2.2.2 The degree to which the proposed action affects public health or safety.

There is no indication based on the environmental analysis and implementation of projects similar to the South of Route 9 project in the past that there will be serious implications to public health or safety. The selected alternative makes extensive effort to address safety issues by including improvements to the transportation (roads, trails and parking) network within the project area (South of Route 9 project EA, Chapter 2, Section 2.1.2.5, pages 23 to 27; and Section 2.1.2.7, pages 28 to 32). Mitigation measures also reduce safety risks associated with timber harvest activities that may impact users of the road and trail network (South of Route 9 project EA, Appendix A, pages 165 and 166). The project does not involve or have any implications to National Defense or Security.

2.2.3 Unique characteristics of the geographic area.

The South of Route 9 project EA did not identify any unacceptable impacts to any unique geographic areas. According to the CEQ Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Part 1508.27(b) (3)), unique characteristics are defined "such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas."

A general cultural resource inventory overview has been completed for the South of Route 9 project area and there are no known resources that will be adversely affected by any management activities (South of Route 9 project EA, Chapter 3, Sections 3.10.4.2 and 3.10.5, pages 138 and 139). A complete site specific inventory will be conducted in a phased approach per agreement with the Vermont State Historic Preservation Office. The potential for impacting yet undiscovered sites is adequately addressed with mitigation measures (South of Route 9 project EA, Appendix A, pages 162 to 165) and in the standard Forest Service timber sale contract provisions.

There are no park lands or prime farmlands on National Forest System lands within the South of Route 9 project area.

Wetlands in the South of Route 9 project area vary in size and location. There are approximately fifty wetlands equal to or greater than 0.5 acres in size in identified harvest zones (South of Route 9 project EA, Maps 2a-e, Proposed Action Vegetation and Watershed), which are potentially in or adjacent to planned harvest activities. Approximately one quarter of these wetlands are State Class II Wetlands, which have special protection under the State Wetlands Rules. Numerous other small wetlands are scattered throughout the analysis area. These are State Class III Wetlands, which have no special protection under state laws. These small wetlands occur in concave landscape positions as small openings in the forest, dominated by forbs, ferns and/or sedges.

Design of project activities, adherence to Forest Plan standards and guidelines, and implementation of mitigation measures will minimize impacts to wetlands and maintain wetland functions (South of Route 9 project EA, Chapter 3, Section 3.6.4.2, pages 108 to 112; and Appendix A, pages 161 and 162). It is my conclusion that there will be no significant environmental effects to wetland areas, in particular, where commercial timber harvest or trail construction will occur.

Stamford Stream is eligible to be further considered for addition to the National Wild and Scenic River System as a Recreational River, but has not been congressionally designated. Stamford Stream was deemed eligible as a Recreational River due to its outstandingly remarkable botanical and ecological values (Forest Plan, page 107). There will be no adverse effects to the outstanding remarkable values of the Stamford Stream that would impact its future consideration to be added to the National Wild and Scenic River System as a Recreational River (South of Route 9 project EA, Chapter 3, Section 3.8.4.2, page 129).

Ecologically critical areas are those areas that exhibit unique ecological characteristics or, if altered, may affect the viability of threatened or endangered plant or animal species. Botanical and wildlife surveys were conducted throughout the South of Route 9 project area and Biological Evaluations were completed for threatened, endangered, and sensitive wildlife and plants (South of Route 9 project planning record). The wildlife and plant Biological Evaluations found that Alternative 2 will not adversely affect any threatened, endangered or sensitive species (South of Route 9 project EA, Chapter 3, Section 3.3.3.1, page 83; and Section 3.3.4.2, pages 87 and 88 for wildlife; and Section 3.4, page 91 for plants). The only exception is the “Likely to Adversely Affect” northern long eared bat, but management activities do not

cause prohibited take. Refer also to Sections 1.6.2 and 1.6.3 of this decision document for more information related to threatened, endangered, and sensitive wildlife and plants.

There are a number of wetlands recognized by the State of Vermont as significant natural communities in the South of Route 9 project area including the Stamford Meadows, Stamford Stream Wetland Complex and Thendara Camp Fen Ecological Special Areas (South of Route 9 project EA, Chapter 1, Section 1.2, Table 2, page 2). These areas will be protected from all ground disturbing management activities. Restoration will occur from the rerouting of Forest Trail 391 near Thendara Camp Fen, and to other parts of the project area through control of unauthorized trail use (South of Route 9 project EA, Chapter 3, Section 3.1.4.2, pages 68 and 69).

The South of Route 9 project area also includes The Dome, an area with a variety of oak natural communities including mesic red oak-northern hardwood forests, mesic maple-ash-hickory-oak forest, dry oak forest and woodland. Collectively, the drier versions of these communities are considered part of the Central Appalachian Pine-Oak Rocky Woodland and Central Appalachian Dry Oak-Pine Forest ecological systems. This area of oak and pine-dominated forests and woodlands is recognized by the State of Vermont Natural Heritage Inventory as ecologically significant, and is ranked as "A", the highest rank in terms of quality and with excellent prospects at persistence. This area will be carefully managed to regenerate and enhance the oak component, and maintain its value as a unique ecosystem on the Green Mountain National Forest (South of Route 9 project EA, Chapter 2, Section 2.1.2.1, page 16 and 17; and Chapter 3, Section 3.1.4.2, pages 62 to 64).

Based upon these considerations, I conclude there will be no significant effects on unique characteristics within the geographic area.

2.2.4 The degree to which the effects on the quality of the human environment are likely to be highly controversial.

In the context of the National Environmental Policy Act, controversy refers to a substantial dispute in the scientific community regarding the effects of an action. Forest Service resource specialists did not identify any scientific controversy regarding the direct, indirect, or cumulative effects of this project (South of Route 9 project EA, Chapter 3; and the South of Route 9 project planning record). The interdisciplinary team for this project considered available scientific literature (South of Route 9 project EA, References, pages 143 to 153; and the South of Route 9 project planning record) and found no controversy related to the predicted effects.

The South of Route 9 project EA is tiered to the Forest Plan Final Environmental Impact Statement and Record of Decision signed by the Regional Forester in April 2006 (South of Route 9 project EA, Chapter 1, Section 1.2, page 2). Forest-wide effects of actions similar to those of Alternative 2 have been disclosed in the Forest Plan Environmental Impact Statement. All actions are of a similar type and intensity to activities that have occurred in the past throughout the Forest and in this area, and have not shown to be scientifically controversial to the extent that the quality of the human environment is significantly impacted.

Twenty (20) comments were received in response to the South of Route 9 project EA for public comment. The number of public comments or differing opinions does not, in and of itself, make an issue controversial. I expect this decision will not be acceptable to everyone. However, based on the comments received, and the involvement of Forest Service resource specialists and experts from other agencies, it is my determination that the effects of the management actions in Alternative 2 are not thought to represent a scientifically controversial impact upon the quality of the human environment.

2.2.5 The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The actions included in my decision are similar to past actions in other areas across the Green Mountain National Forest. Forest Service resource specialists have considerable on-the-ground experience with the types of activities to be implemented in this project, under similar conditions. The interdisciplinary team that conducted the analysis encountered nothing that would indicate a unique or major unknown risk to the human environment. The effects of these actions as disclosed in Chapter 3 of the South of Route 9 project EA are within the range of effects disclosed at a broader scale in the Forest Plan Final Environmental Impact Statement, are similar to effects of other like actions, and are reasonably predictable. I conclude that there are no unique or unusual characteristics about the area, which have not been previously encountered, that would constitute an unknown risk to the human environment.

Comprehensive literature reviews by resource specialists concluded that changes to local conditions from global climate change have been minimal or non-existent to date, and that substantial change is not within the analysis timeframe for this project. The response of tree, herbaceous plant, and wildlife species to proposed management from climate change will depend on changes in on-the-ground conditions from timber harvest, prescribed fire, and other activities (South of Route 9 project EA, Chapter 3). Therefore, the effects disclosed in the South of Route 9 project EA and project planning record is appropriately based on our extensive knowledge of how resources on the Green Mountain National Forest have responded to similar management in recent years. Literature and stocking surveys on the Forest both indicate that harvested areas should regenerate with the desired species and meet the project purpose and need (South of Route 9 project EA, Chapter 3, Sections 3.1.4.2 and 3.1.5, pages 61 to 72; and Section 3.2.4.2, pages 76 and 77).

2.2.6 The degree to which the action may establish a precedent for future actions with significant effects, or represents a decision in principle about a future consideration.

This is not a precedent setting decision. Similar actions occur regularly across the Green Mountain National Forest. The effects of Alternative 2 are within the range of effects of these other similar actions and within the range of effects disclosed in the Forest Plan Final Environmental Impact Statement. The implementation of Alternative 2 does not make a commitment to do anything in other areas on the Green Mountain National Forest or any other national forest. It will not set a regional or national precedent. For these reasons, I have determined this action does not establish a precedent for future actions with significant effects. All actions are consistent with the Forest Plan so this is not a decision in principal.

2.2.7 Whether the action is related to other actions with individually insignificant but cumulative significant impacts.

The Affected Environment and Environmental Effects section of the South of Route 9 project EA (Chapter 3) discusses the combined effects of Alternative 2 with other past, present, and reasonably foreseeable future actions. None of the actions from Alternative 2 are severe enough to create an unacceptable and significant impact when considered with other actions. The interdisciplinary team chose cumulative effects analysis areas and timeframes that would most thoroughly examine and predict effects. Based on the disclosure of effects in the South of Route 9 project EA, I conclude that there are no significant cumulative impacts associated with Alternative 2.

2.2.8 The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, or may cause loss, or destruction of significant scientific, cultural, or historical resources.

There are numerous known heritage resource sites (or areas with potential to contain sites) within the South of Route 9 project area. Design of management activities, adherence to Forest Plan standards and guidelines, and the implementation of mitigation measures provide for the protection of these resources (South of Route 9 project EA, Chapter 3, Sections 3.10.4.2 and 3.10.5, page 138 and 139; and Appendix A, pages 162 to 165).

There are no standing historic structures, extensive cultural landscapes, or areas identified by American Indian Tribes as traditional use or sacred areas. Alternative 2 will have no effect on historic properties, and will provide an opportunity to enhance and stabilize several of the historic period archaeological sites.

No significant impacts will occur to any proposed or listed National Historic Place nor will there be any loss or destruction of scientific, cultural, or historic resources.

2.2.9 The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

The Endangered Species Act requires that federal activities not jeopardize the continued existence of any species federally listed or proposed as threatened or endangered, or result in adverse modification to such species' designated critical habitat. As required by this Act, potential effects of this decision on listed species have been analyzed and documented in Biological Evaluations for wildlife and plants (South of Route 9 project EA, Chapter 3, Section 3.3, page 82 for wildlife; Section 3.4, page 91 for plants; and the South of Route 9 project planning record). Alternative 2 will not jeopardize the continued existence of any endangered or threatened species or result in adverse modifications to designated critical habitat (South of Route 9 project EA, Chapter 3, Section 3.3.4.2, pages 87 to 89). See Endangered Species Act Compliance Section 1.6.2 in this decision document.

2.2.10 Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The activities of Alternative 2 are consistent with, and follow the management direction and standards and guidelines mandated by the Forest Plan. The Forest Plan Final Environmental Impact Statement and Record of Decision document the consistency of the Forest Plan with laws and requirements imposed for environmental protection. Alternative 2 is in compliance with Federal, State and local laws and regulations, and other resource protection requirements (see Section 1.6 in this decision document in regards to compliance with appropriate laws and regulations). Any required permits will be obtained before implementation occurs. The actions do not threaten a violation of federal, state, or local environmental protection laws.

3. ADDITIONAL INFORMATION

3.1 FINAL DECISION AND IMPLEMENTATION DATE

No objections were filed within the 45-day time period for the draft Decision Notice ending on October 17, 2016. My decision occurs after five (5) business days following the end of the objection filing period (36 CFR 218.12(c)(2)).

Implementation of the South of Route 9 project cannot occur before informal consultation is completed with the U.S. Fish and Wildlife Service regarding determination of effects and concurrence of adequate mitigation measures for the northern long-eared bat. Actual implementation is anticipated to begin in November 2016.

3.2 INFORMATION CONTACT

For information concerning the South of Route 9 project EA and supporting documentation, my decision, and/or the Forest Service objections process, please contact Jay Strand, Rochester Ranger District, 99 Ranger Road, Rochester, VT 05767; 802-767-4261 ext. 522 (voice); 802-767-4777 (Fax); or jstrand@fs.fed.us (email).

The detailed planning record for the South of Route 9 project EA is available for public review at the Manchester Ranger District, 2538 Depot Street, Manchester Center, VT 05255.
.

/s/ *David Francomb* October 26, 2016

David Francomb Date
Responsible Official
District Ranger, Manchester Ranger District

4. APPENDIX A – MITIGATION MEASURES

The Green Mountain National Forest Land and Resource Management Plan (Forest Plan) established Forest-wide and Management Area standards and guidelines to mitigate potential adverse effects of management activities (Forest Plan, Chapter 2, Section 2.3; and Chapter 3). South of Route 9 project has been designed to be consistent with all Forest Plan standards and guidelines. Although standards and guidelines are usually implemented without any need for repetition in site-specific National Environmental Policy Act documents, there are occasions when their emphasis specific to a project is needed to ensure compliance with the Forest Plan. Mitigation measures have also been developed specifically for the South of Route 9 project to address resource concerns beyond those addressed by Forest Plan standards and guidelines. Listed below are relevant emphasized standards and guidelines, and mitigation measures for Alternative 2 by resource area. Required monitoring is stated separately in each resource area when applicable.

Forest Habitat Mitigation

1. At the vista associated with the huckleberry opening on the east side of The Dome Trail, Forest Service recreation and ecology staff will meet prior to project implementation to discuss and agree on the dimensions of the vista and any trees and shrubs that will be removed to create and maintain the vista.
2. Preparation of the Prescribed Fire (Burn) Plan for implementing the use of prescribed fire to achieve oak habitat restoration and management objectives will be done collaboratively by Forest Service fire, ecology, and timber staff using the best available science to ensure that this use is applied to maximize potential for success while minimizing impacts to timber and rare plant resources and protecting those control acres excluded from the proposed burn for adaptive management purposes.
3. Maintain a 100-foot buffer around each of the Stamford Meadows pocket swamps (State-significant wetlands). Ensure that skid trails are not constructed through them unless absolutely necessary. Any skid trail constructed through wetland areas will be located to minimize impact (narrow and/or well drained) and hardened by winter use (frozen or sufficiently snow-covered ground).
4. For thinning, single tree and group selection, and overstory removal treatments in stands with wetlands, a shade buffer will be left around the wetland to maintain water levels and temperatures for amphibian habitat.
5. Maintenance of permanent upland openings will not be done between May 15 and August 1. If maintenance is needed during that time period, surveys will be completed prior to project implementation to ensure that nesting birds can be protected.

Forest Habitat Monitoring

6. At Thendara Camp Fen, the Forest Service Ecologist will monitor for unauthorized summer off-road vehicle use on the abandoned trail adjacent to the fen. Any unauthorized use will be immediately reported to Forest Service law enforcement and additional necessary management action will be taken to protect the wetland area. Monitoring will occur annually until the Forest Service Ecologist deems the area secure and stable enough to monitor on a longer term frequency.

Wildlife Threatened, Endangered, and Sensitive Species Mitigation

7. Designate caves and mines that are occupied by bats as smoke-sensitive targets. Avoid smoke entering these caves and mines any time of the year when threatened, endangered, or sensitive bats are present.
8. Within 0.25 miles of known, occupied northern long-eared bat hibernacula, timber harvests will be designed to maintain, enhance, or restore swarming, staging, roosting, and foraging habitat. The desired future condition is that these areas will feature structurally complex, resilient forest communities with a continuous supply of snags, culls, cavities, and other quality roosts.
9. Application of herbicides and other pesticides will be planned to avoid or minimize direct and indirect effects to known, occupied threatened, endangered, or sensitive bat hibernacula and maternity roosts.
10. Before old buildings, wells, cisterns, bridges, and other man-made structures are structurally modified or demolished, they will be surveyed for bats. If roosting threatened, endangered, or sensitive bats are found, demolition or modification of these structures will not occur when bats are present and the need for alternative roosts will be evaluated.
11. Avoid cutting or destroying known, occupied northern long-eared bat maternity roost trees unless they are an immediate safety hazard.

Non-native Invasive Plants Mitigation

All non-native invasive plant treatments listed in this section including specific control methods available are authorized by the Forest-wide Non-native Invasive Plant Control Project Decision Notice dated October 2010.

12. To reduce the potential for negative effects during the creation and maintenance of permanent openings (C= compartment and S=stand):
    a. Any wheeled or tracked equipment used to access the site or implement proposed activities must be clean prior to arriving at the site.
    b. Prior to converting C138, S14 to an opening, inventory the utility corridor on its north edge, rate the risk of non-native invasive plants spreading into the proposed new opening, and develop treatment plans as needed or consider not creating this opening.
13. To reduce the potential for negative effects during other vegetation management activities:
    a. In the following log landings, treat non-native invasive plants at least once prior to use for vegetation management, except for the two landings that are heavily infested, which will be treated at least twice, or dropped from proposed use:
        1. Proposed landings: H1L2, H2L1, H19L1,
        2. Existing landings: H1L3, H1L5, H9L1
        3. Existing landings that are heavily infested: H3L1, H9L1

        NOTE: H represents harvest zones and the L represent the landing number as identified on the layer file used for project spatial review. For example: H1L2 = harvest zone 1, landing 2.
    b. Along roads that will be used as temporary haul roads (existing or new) during vegetation management:
        1. Treat non-native invasive plants at least once prior to use for proposed activities, where those infestations occur on National Forest System land.
        2. For infestations on private land:

- Seek permission to treat infestations on private land along roadsides to a width greater than that of the equipment expected to be using the road, OR
- Be sure wheeled or tracked equipment can travel the infested section of the road without coming in contact with seeds or other plant propagules of non-native invasive plants, OR
- Consider not using that road.

c. In all stands proposed for vegetation management that overlap with known infestations of non-native invasive plants (primarily, but not exclusively, at The Dome):

1. Treat known infestations at least once prior to implementation in the following stands, listed by harvest zone.

Harvest Zone	Compartment	Stand
1	169	32, 33, 34, 35
2	163	26, west edge
5	169	15, 16, 117
6	148	44, on existing road to proposed landing 2
7	148	40, on existing road; 59 (tiny infestation)
8	169	On the trail between stand compartment 169/stand 10 and compartment 135/stand 4
9	135	6, on edge, along Risky Ranch Road
10	148	43, on edge, along County Road
11	148	39, at entrance to road that accesses proposed new landing 1
15	148	26, on edge on Forest Trail 394
18	120	13, on west edge on town highway
20	120	19, base of old ski slope, near Route 100
21	127	1 and 33, along Old Stage Road
23	165	30, on existing woods road that accesses landing 1

2. Forest botanical staff will monitor these infestations post-treatment and prior to project implementation; and retreat as needed.
3. At The Dome, if treatments prior to implementation don't have an efficacy rating of at least 76 to 90 percent (equals good; treatment was successful in killing most of the target species population), consider dropping the most heavily infested areas from the proposed action (south and southwest slope – see infested stands listed above for harvest zone 1).

d. Any wheeled or tracked equipment used to access the site or implement proposed activities:

1. Must be clean prior to arriving at the site.
2. To the extent feasible, work in un-infested areas before working in infested areas, based on maps of known infestations.

14. To minimize the chance of spreading Japanese knotweed from the Rose Barn site, treat the infestation at least two seasons in a row prior to using this site for trail access to Forest Road 363.

15. To minimize the chance of spreading Japanese knotweed from a small infestation on private land along Burgess Road (Woodford Town Highway 7), treat the infestation at least two seasons in a row prior to implementation of road improvements if permission from the landowner is obtained. Otherwise, mark it and work around the infestation to avoid spreading stem fragments.

16. To minimize the extent that non-native invasive plants will be dispersed along trails proposed for summer off-road vehicle use, educate trail users by adding signage to trailheads about cleaning vehicles before and after riding trails.

17. To reduce the potential for known non-native invasive plants to spread along the trails proposed for summer off-road vehicle use, treat the following infestations prior to implementing the project:

    a. On the proposed connector trail between Risky Ranch and Country Roads: Morrow honeysuckle.

    b. On the proposed Sucker Pond Trail: glossy buckthorn near Sucker Pond, multiflora rose in the vicinity of the Stamford Meadows Wildlife Management Area, and Morrow honeysuckle on the middle parcel of private land, if permission can be obtained.

Plant Threatened, Endangered, and Sensitive Species Mitigation

18. All rare plants (including Regional Forester Sensitive Species and species tracked by the state of Vermont) that will be protected by the following mitigation measures will be marked, flagged, or identified on the ground by Forest Service botanical staff prior to project implementation.

19. To protect rare plants during vegetation management for either forest habitat or the timber resource (C= compartment and S=stand):

    a. In C169, S32d and 32e (proposed for improvement cut with groups, S33 (proposed for improvement cut), S38 (proposed for shelterwood with reserves), S35 (proposed for thinning) and S32c (proposed for two-cut shelterwood), in locations that overlap large whorled pogonia, limit logging to after October 1 so that plants of large whorled pogonia are either senescing (late summer/autumn) or protected by frozen or snow-covered ground (winter). Seasonal limitations may be waived in consultation with the Forest Botanist in C169/S38 to learn more about the effects of seasonality of harvest for this species. Do not place any groups directly over large whorled pogonia plants. (A shape file for large whorled pogonia is available.)

    b. In C169, S32e (proposed for improvement cut with groups), do not locate any groups directly over large whorled pogonia plants, which occur in the southeastern-most 1.3 acres of this stand.

    c. In C169, S32c (two-cut shelterwood proposed), retain at least 50 percent canopy cover in the southeastern-most 2.4 acres that overlap with large whorled pogonia.

    d. In C169, S32e, do not drive equipment over or fell logs on top of the two small saplings of pignut hickory, one of which is in the old telephone line corridor, and another is about 300 feet further east in the woods.

    e. In C169, S26, S29, S32a-c, S34, S34b-c, S35, S36, S37, and S38, do not harvest sassafras. Avoid it to the extent feasible when driving equipment through the area. No mitigations are needed for sites proposed for prescribed fire, since this species generally responds favorably to fire.

    f. In C169, S30a do not cut the showy mountain ash: one large tree occurs three to four feet west of the trail at around 2,400 feet elevation (and others may occur further into the woods) and there are four saplings that occur on the rocky slabs along the trail, just below The Dome summit.

    g. In C169, S32d, do not drive equipment over or fell trees onto perfoliate bellwort, which occurs on approximately 10 square feet of ground 10 to 20 feet east of Military Road, on the south edge of the trail that heads east through the stone wall.

h. In C 169, S32d and S35, do not place canopy gaps directly over the three small known sub-populations.

i. In C169, S34c do not cut any healthy butternut during the clearcutting of this stand; the two that were documented to occur there are diseased, but others may occur there that are healthy and were not previously reported.

j. In C169, S33 do not drive through, fell trees on top of, or open the canopy directly over the small sub-populations (less than 10 square feet each) of large yellow lady's slipper plants on the north and south edges of this stand, referred to as the Agawon and Seep 6 subpopulations, respectively.

k. In HZ1, along Broad Brook, use the existing woods road after October 1 when the poke milkweed in the road will have gone to seed, or in winter when the plants will be underground.

l. When using the Old Military Road:

   1. Use the eastern more-travelled route in places where there are two parallel options, to protect poke milkweed growing in the western less travelled route.
   2. Do not disturb road edges where perfoliate bellwort occurs, and where possible, avoid disturbing roadside edges or banks in places where three-leaved rattlesnake root, large-whorled pogonia, and sassafras overlap with the road.
   3. If accessing from the south, seek permission to access National Forest System lands from Town Highway 49, so that logging equipment does not drive through the garlic mustard infestation.
      - Alternatively, treat the garlic mustard on the south end of the Old Military Road in the growing season immediately prior to harvest and then only use this road when covered with snow so that no seeds can be dispersed from mature plants or the seedbank in the soil.
      - An alternative to snow-covered ground will be to cover the infestation that's in the road with at least two inches of gravel, to prevent vehicle tires or tracks from picking up and dispersing seeds.

m. In C169, S34b, where single tree and group selection are proposed, do not fell trees into or drive equipment through the fen (through which flows the unnamed tributary of Broad Brook, formerly known as James Brook) where roundleaf goldenrod and Huron orchid occur. This small fen is just east of Old Military Road, about 350 feet north of its trail head.

n. In C163, S8, mark and avoid the seepy edges of an intermittent stream where long-bract green orchis occurs. Maintain shade within a radius of approximately one tree length in all directions.

o. In log landing H2L1 in C163, S26, do not use the back edge of the landing where pointed blue-eyed grass occurs.

p. During thinning of C163, S29, do not drive equipment over or fell trees on top of broad beech fern, located just south of the stand.

q. Before using the existing woods road that comes north from Henderson Road out of Massachusetts, mark the locations of mountain laurel and long-fruited snakeroot and ensure trucks or motorized equipment do not accidentally drive over them (they are within 1 to 3 feet of the edge of the road).

r. When using the existing woods road that overlaps with the lower southwest section of The Dome Trail, mark the locations on the ground and measure to see if wheeled or tracked equipment can travel this road without destroying the poke milkweed, large whorled pogonia,

and wood lily growing on the immediate edge of the road. It is recognized that road drainage work and ground disturb even during winter logging might harm individual plants.

1. If the road is not wide enough, and if it is compatible with the harvest schedule, limit use of the existing woods road to after October 1 so these rare plants will have senesced for the season.
2. Rerouting the road around these plants will require additional environmental analysis and likely result in different mitigations needed for different rare plants.
3. It is recognized that road drainage work and ground disturb even during winter logging might harm individual plants.

20. To protect rare plants during fisheries projects:
    a. Do not trample or implement large woody debris placement in the small fen just east of Old Military road and about 350 feet north of its trail head, to protect roundleaf goldenrod and Huron orchid that occur there. The unnamed tributary to Broad Brook, also known as James Brook, flows through this fen.
21. To protect rare plants during soil and water projects and recreation projects:
    a. Along The Dome Trail (proposed hiking trail, and erosion mitigation activities), avoid: poke milkweed, large whorled pogonia, wood lily, three-leaved rattlesnake root, sassafras, and northern mountain-ash.
    b. Along the Broad Brook Trail (proposed hiking trail), avoid: poke milkweed, hay sedge (may be out of the way, unless trail rerouted from current location), large yellow lady's-slipper, sweet joe-pye weed, large whorled pogonia, three-leaved rattlesnake root, sassafras, and pignut hickory.
    c. Along the Agawon Trail, avoid large yellow lady's-slipper.
    d. During the Stamford Pond Trail (Forest Trail 394) proposed soil and water activities, ensure that no activities adversely affect the north and east shoreline or water quality of the pond at Camp Casino, where green arrow-arum occurs.
    e. At Dutch Hill:
        1. Do not use a seed mix or mulch unless necessary to prevent erosion as a result of the proposed soil and water work. Instead, allow fall dropseed muhly and smooth agalinis to reseed naturally. If mulch is needed, use either weed-free straw or inert mulch.
        2. To minimize damage to plants of fall dropseed muhly and smooth agalinis, avoid driving equipment over the known locations of these plants to the extent feasible during implementation.
22. To protect rare plants during proposed vista maintenance on The Dome, avoid trampling three-leaved rattlesnake root.
23. To protect rare plants during the closing of unauthorized non-system roads, Forest Service botanical staff will compare each location, once known, to maps of known occurrences and develop mitigations to avoid them during implementation.
24. To protect rare plants during the implementation of any proposed heritage resource activities that will involve trampling, ground disturbance, or cutting vegetation, Forest Service botanical staff will compare proposed activity locations to maps of known occurrences of rare plants and develop mitigations to avoid them during implementation.
25. To limit competition between rare plants and non-native invasive plants, the following actions are necessary:

a. For any wheeled or tracked equipment involved in project implementation, clean the equipment prior to accessing the site, and if the equipment is used in or travels through infestations, clean it again on site prior to leaving the project. Cleaning methods can be whatever is feasible on site, including stiff brooms and pressurized water.

Soils and Wetlands Mitigation

26. A small number of stands have dominantly well drained soils, and road and landing access suited to summer harvest operations. These stands are available for harvest in the driest part of the summer, when soil moisture levels are such that compaction and rutting will be minimal. Given a normal summer in terms of temperature and rainfall, this typically occurs between mid-July and late September. These stands are listed in the table below. A small number of additional stands may be identified by the soil scientist as suited to summer harvest, if for example, more suitable haul/skid routes are identified, special harvest equipment is proposed for use, or there is an unusually dry summer.

Stands with Soils Suited to Summer Harvest	
Compartment	**Stands**
120	5, 7, 20, 21, 25, 26, 31, 34, 36
125	9
128	24, 29, 31, 33
130	13, 11, 12, 18, 25
135	2
138	1, 2, 3, 6, 9–14
148	7, 8, 13, 16, 17, 18, 28, 29, 31, 39, 41, 56
163	26, 29
165	2, 7
169	8, 17, 21, 22, 23, 29–33, 35, 37, 38

27. Bole-only harvesting will be done in all stands except those planned for conversion to permanent upland openings or those that will be converted to native softwood species. This measure limits nutrient removal associated with harvesting.

28. To maintain soil productivity, commercial harvesting will be avoided in areas of shallow and/or steep soils, greater than approximately 1/4 acre in size. Shallow soils are less than 20 to 25 inches deep over bedrock. Steep slopes have a slope gradient of over 50 percent.

29. Prescribed burning will be done only when overall mineral soil heating is low, and the soil organic layer will only be partially consumed during burns. In general, bare mineral soil will not be exposed (to prevent erosion, gullies, and slope instability). This will minimize soil nutrient losses. In addition, burning will not be done in areas dominated by outcrops and soils less than 12 inches deep over bedrock.

30. To minimize the effects on steep, shallow, or unstable soils along the trail, locations of trails will be reviewed by the Forest soil scientist once specific locations are delineated on the ground, but prior to finalizing trail design and beginning trail construction.

Soils and Wetlands Monitoring

31. National Best Management Practices for Water Quality Management on National Forest System Lands Monitoring Protocols will be followed for at least two timber sales in the project (USDA-FS. 2012b). This will be coordinated by the Forest Service Soil Scientist.
32. Forest Soil Disturbance Monitoring Protocols will be followed for a representative number of harvest units before and after harvest to determine the level of effects relative to soil compaction, rutting, erosion, and loss of organic matter (USDA-FS. 2009b). This will be coordinated by the Forest Service Soil Scientist.

Heritage Mitigation

33. Please note that proposed activities in the South of Route 9 project area require some standard mitigation measures that will be referred to as HM1 and HM2, and are defined as follows:
    a. HM1. Historic period archaeological sites will have a buffer zone to protect the site from physical disturbance. This buffer zone may be customized to reflect the kind of site; its associated features, location, and/or level of prior use and disturbance; and the nature of the proposed activity. In the absence of a customized buffer (or the inadvertent discovery of a site during project layout or implementation), the Vermont Division for Historic Preservation has determined that the default buffer is 200 feet in every direction. Alternately, customization may be implemented to harvest activities within the site area under circumstances that minimize disturbance and maximize benefit to the overall condition of the site. These types of measures are agreed to by the Forest Service Archaeologist and project proponent or Timber Sale Administrator.
    b. HM2. A standard mitigation measure for historic period stone walls/fences generally states that there will be no disturbance. However, exceptions may be made when there is a clear need to breach a wall (for example, to move between timber sale units). The location and manner in which this will be done will be determined by the Forest Service Archaeologist in conjunction with the activity project proponent/program manager or Timber Sale Administrator for harvest activities.
34. General mitigation measures for areas sensitive for the location of prehistoric Native American sites will be applied to ensure that disturbance to the subsurface soil horizon in which these sites do, or may, exist is avoided or minimized. These measures include avoidance of the area altogether, operating over-snow (8 to 12 inches) or on frozen ground conditions, and the use of alternative harvest technologies such as tracked feller bunchers or helicopters. In the project area, many of the stands and areas where proposed activities will take place may require this treatment but specific measures would be determined by the Forest Service Archaeologist as needed prior to and during implementation.
35. Timber harvest treatments, opening creation and maintenance, and land clearing will require the use of existing log landings and old logging roads; and the creation of new landings, temporary haul roads, skid roads, and other ground disturbance activities. The specific locations of newly proposed temporary haul roads and skid roads that require disturbance below the ground surface such as clearing and grading will be coordinated with the Forest Service Archaeologist prior to implementation to ensure heritage resources are avoided. The following table is a summary of known sites arranged by compartment and stand as well as the required mitigation measures for the various activities. A map will be provided to appropriate personnel prior to any approved project implementation.

Table 1. Site identification and mitigation by compartment and stand

Compartment	Stand	Harvest Method	Total Heritage Sites and Locations	Site Numbers:	Mitigation
120	16	Improvement cut	7, central part of stand	RSO-036.00,.01, .02,.03,.04,.05,.06	HM1,HM2
120	32	Group Selection	1, north central part of stand	RSO-044.01	HM1
120	34	Group selection	1, northwest side of stand	RSO-075.01	HM1
120	42	Single tree and group selection	2, north central portion of stand	RSO-045., RSO-045.03	HM1,HM2
125	9	Single tree and group selection	1, exact location not known	SMD-095.	HM1
128	53	Thinning	1, exact location unknown, southern part of stand?	SMD-065.	HM1,HM2
130	12	Land clearing and group selection	3, 2 located south of unnamed trail, 1 exact location not known	RSO-061., .00, .01	HM1,HM2
130	13	Group selection	2, 1located in the eastern portion of stand, 1 exact location not known	RSO-039., 39.00	HM1, HM2
148	20	Improvement cut	3, 1 exact location not known, 2 located in southern portion of stand	SMD-053., .01, .02	HM1, HM2
148	26	Group selection	1, exact location not known	SMD-065.	HM1
148	37	Land clearing, permanent opening	1, located in northwest portion of stand adjacent to trail	SMD-067.00	HM1,HM2
148	44	Two-cut shelterwood, group selection	1, located in northern portion of stand	SMD-82.00	HM1,HM2
163	7	Group selection	1, located in ESE portion of the stand	SMD-054.03	HM1,HM2
163	8	Improvement cut	1, located in south central portion of the stand	SMD-054.01	HM1,HM2
165	8	Improvement cut with groups	1, located in westernmost portion of the stand	RSO-062.01	HM1,HM2
165	13	2 cut shelterwood	1, located in west central portion of the stand, near boundary for stand 12	RSO-023.03	HM1,HM2
165	14	Improvement cut with groups	1, located in the southern portion of the stand	RSO-023.	HM1, HM2
165	15	Improvement cut with groups	1, located in the central (isthmus) portion of the stand	RSO-023.07	HM1,HM2

Compartment	Stand	Harvest Method	Total Heritage Sites and Locations	Site Numbers:	Mitigation
165	17	Improvement cut with groups, soft wood/oak release	5, located throughout central and southern portion of the stand	RSO-023., 023.00, 023.01, 023.04, 023.06	HM1, HM2
165	18	Land clearing for permanent wildlife opening	1, located in the northern portion of the stand	RSO-023.02	HM1
165	20	Thinning	1, located in the central southern portion of the stand	RSO-023.	HM1
169	10	Two cut shelterwood	2, located in the far eastern portion of the stand near the boundary of stands 1 and 4	PWL-023., 023.00	HM1,HM2
169	17	Improvement cut with groups	2, located on southern boundary of stand, adjacent to compartment 163 boundary and east west trending trail	PWL-015., 045.00	HM1,HM2
169	32	Two cut shelterwood, improvement cut with groups (two blocks each)	3, sites located along southern portion of stand along western compartment boundary road	PWL-011., 011.01, 011.03	HM1,HM2
169	34	Clear cut for aspen-birch	1, site located in central portion of stand along trail and adjacent to western boundary of stand 101, possible sites in southern end of stand as well	PWL-006.02	HM1,HM2

36. For activities regarding non-native invasive plants and other botany related activities, no mitigation measures are anticipated. However, should the use of mechanical or hand tools become necessary and the resulting ground disturbance is greater than 1 meter, consult with the Forest Service Archaeologist regarding any site specific mitigation measures.

37. For fisheries activities, heritage sites have been documented along Broad Brook in the vicinity of Benedict Road, as well as other undocumented sites likely to be present along Broad Brook and near Roaring Brook (adjacent to Forest Road 265). Apply measure HM1 and use care to ensure that felled trees do not damage archaeological or historical features. Consultation with the Forest Service Archaeologist will be required in areas where a grip hoist is used to pull over trees so that roots remain attached or in areas outside of roads where heavy equipment will likely be operating.

38. For activities on the proposed Sucker Pond Trail (recreation resource), there are some documented heritage resources adjacent to the project area along with other suspected potential sites. Project activities need to implement measure HM1 and further ensure that constructed drainage structures do not divert water and runoff towards heritage sites. These sites are located at the junction of County Road and to the north for the first mile. Consult with the Forest Service Archaeologist for details.

39. For non-motorized trail activities (recreation resource):

    a. For documented sites near the junction of the Broad Brook and Dome Trails, as well as other potential sites not yet “field truthed”, use care when developing drainage features in the

vicinity of these sites to ensure that water and runoff does not drain into the features (apply measure HM1). Consult with the Forest Service Archaeologist for details.

b. Consult with the Forest Service Archaeologist prior to developing various trail reroutes along this same portion of The Dome Trail north of the Broad Brook Trail Junction.

c. For work on the West Hill Loop non-motorized trail, avoid the numerous heritage sites located along the South Branch Deerfield River (apply measure HM1). The Forest Service Archaeologist can provide maps or work with project proponents to ensure that drainage features are properly constructed.

d. The Seth Warner Shelter is officially 50 years and is thus considered historic. Discussion of construction methods and other work related activities may need to be done in consultation with Vermont Division for Historic Preservation to ensure that adverse effects will be avoided if the period of significance for this shelter (Forest Service style) is considered to be a valid contributing element to the National Register of Historic Places eligibility of the Appalachian/Long Trail. Consult with the Forest Service Archaeologist for details.

40. For transportation and road related activities:

a. For gravel pit development south of Forest Road 265, north of Cardinal Brook, apply measure HM1 and consult with the Forest Service Archaeologist prior to implementation.

b. For work on Forest Road 273 where heritage sites are documented, any road widening or drainage improvement activities will apply measure HM1 and further avoid historic features adjacent to the road. A map with these documented resources can be provided. Consult with the Forest Service Archaeologist for details.

c. Apply measure HM1 when improving and designating parking areas/trail heads in coordination with Towns and private landowners at the following locations: Burgess Road (TH7), Smith Road (TH18), White Oaks Rd (TH35), County Road (TH12), Forest Road 273 (multiple use trailer parking improvements). The Burgess Road and Smith Road locations have heritage sites in the vicinity. Consult with Forest Service Archaeologist prior to implementation.

d. Apply measures HM1 and HM2 to the development of temporary haul roads in coordination with Vermont Department of Transportation, Towns, and private landowners to complete access needs to these compartments: 127,120, 130, 165, 148, 135, 138, 163, and 169. Temporary haul roads will need to be developed in consultation with the Forest Service Archaeologist to ensure that heritage resources are avoided to the extent practicable.

Recreation Mitigation

41. Any trail tread (recreation trails) disturbed during harvest operations will be restored to its original pre-harvest conditions or improved.

42. No trails are anticipated to be closed during timber harvest operations. Timing of harvest operations and use of temporary reroutes will be done so as to allow trails to remain usable by the public as much as possible.

43. Tree harvesting adjacent to trails will be done to protect the health and safety of the trail users. Logging operators will post notices to alert users of felling and skidding operations in coordination with the Forest Service Timber Sale Administrator and Recreation staff.

44. So far as practicable, trees will be felled away from the trail prism to reduce slash immediately adjacent to the trail.

45. Slash piles and debris will be placed across the width of the skid road adjacent to where it intersects the trail to a height of two to three feet and a distance back of six to eight feet from the intersection.

46. Temporary haul roads, skid trails and log landings that intersect with Forest System Roads and Forest System Trails will be physically blocked as needed after completing harvest operations in each unit to deter unauthorized motorized uses.

Recreation Monitoring

47. Forest Service recreation staff will monitor Forest Trail 391 along Aiken Wilderness at least twice a year for unauthorized summer off-road vehicle use trails into the wilderness. Unauthorized use will be reported to Forest Service law enforcement and needed remedial management actions developed accordingly.

Visual Quality Mitigation

(C= compartment and S=stand)

Views to ridgelines and side slopes from State Route 8 and State Route 100:

48. In the proposed group selection, improvement cut with groups, and single tree and group selection treatment units in C120, S3; C120, S43; C120, S20; C120, S07; C120, S44; and C120, S31:
    a. Limit size of group to less than one acre and locate in a linear shape with the contour where needed in consultation with the Forest Service Landscape Architect so the harvest is not evident from State Route 8 and State Route 100.
49. In the proposed shelterwood units in C120, S34 and C120, S43:
    a. Work with the Forest Service Landscape Architect to layout the cutting units to meet the Retention Visual Quality Objective in areas within 1/2 mile from State Route 100 and State Route 8 and upper ridge areas visible from State Route 8 and State Route 100.
    b. Trees will be harvested using traditional shelterwood on the natural benches within the stands, and will be retained (some thinning within the bands could occur) perpendicular to the slope in bands located on portions of the side slopes.
    c. Use a feathering technique to ease in and out of the bands of trees that are retained.
    d. The intention is that the shelterwood treatments will not be visible from State Route 8 and State Route 100 (to the casual Forest visitor) since the bands will screen the remaining parts of the stand from view.

Upland Opening and Vista Maintenance:

50. In the proposed recreation and permanent upland opening unit in C120, S19 on Dutch Hill, work with the Forest Service Landscape Architect to layout the opening and tree islands to enhance the visual quality of the unit from off-site.
51. Retaining some existing mature trees or recruiting some young trees is desirable along the edge of the road or trail where it meets the vista or permanent upland opening to enhance the view. This need not be done in each stand but will be implemented where visual quality can be enhanced. Specific mitigation measures at each site will be coordinated between Forest Service timber staff and the Landscape Architect prior to implementation.
52. Along West Hill and Smith Road retain trees along the private property line on the south side of C165, S18 for the aesthetic of the view for the private property owner.

Clearcut and Shelterwood Treatments (including permanent openings) along Roads and Trails:

53. Units that have recreation trails and roads adjacent to them and are prescribed for clearcut and shelterwood harvests will be designed and marked to meet the visual condition for moderate viewer sensitivity guidelines (Table 2.3-3 in Forest Plan). This mitigation measure will be coordinated between Forest Service timber staff and the Landscape Architect prior to implementation. Mark the remaining stand to leave enough trees to create a visual buffer for a minimum depth of 100 feet with at least 1,000 feet between openings in the following situations:
    a. Where the length of harvest along trails exceeds 200 feet for clearcut and shelterwood units
    b. Where the length of harvest along roads exceeds 200 feet for clearcut units
    c. Where the length of harvest along roads exceeds 400 feet for shelterwood units

Slash Treatments:

54. Where timber harvest takes place adjacent to recreation trails and maintained residential areas, lop and scatter remaining slash within 25 feet of the residential boundary and each side of recreation trails to within two feet of the ground so as not to create an unnatural windrow of slash.
55. For all roads maintained for passenger vehicle travel, all slash resulting from timber harvest within 15 feet of the road edge will be pulled back and then lopped and/or scattered so as not to create an unnatural windrow of slash. Beyond 15 feet, slash visible from the road will be lopped and scattered so as to lie no higher than two feet above the ground for a distance of 100 feet from the road's edge or until no longer visible.
56. Specifically for State Routes 8 and 100, beyond 15 feet, all slash visible from the road will be lopped and scattered so as to lie no higher than two feet above the ground for a distance of 150 feet from the road's edge, or until no longer visible.

Visual Quality Monitoring

57. For the proposed shelterwood units in C120, S34 and C120, S43:
    a. The Forest Service Landscape Architect will monitor the harvest unit after the first harvest and before prescribing the site preparation for these stands in case portions of the stand will best meet Visual Quality Objectives with more stems left in place.