

White Mountain National Forest



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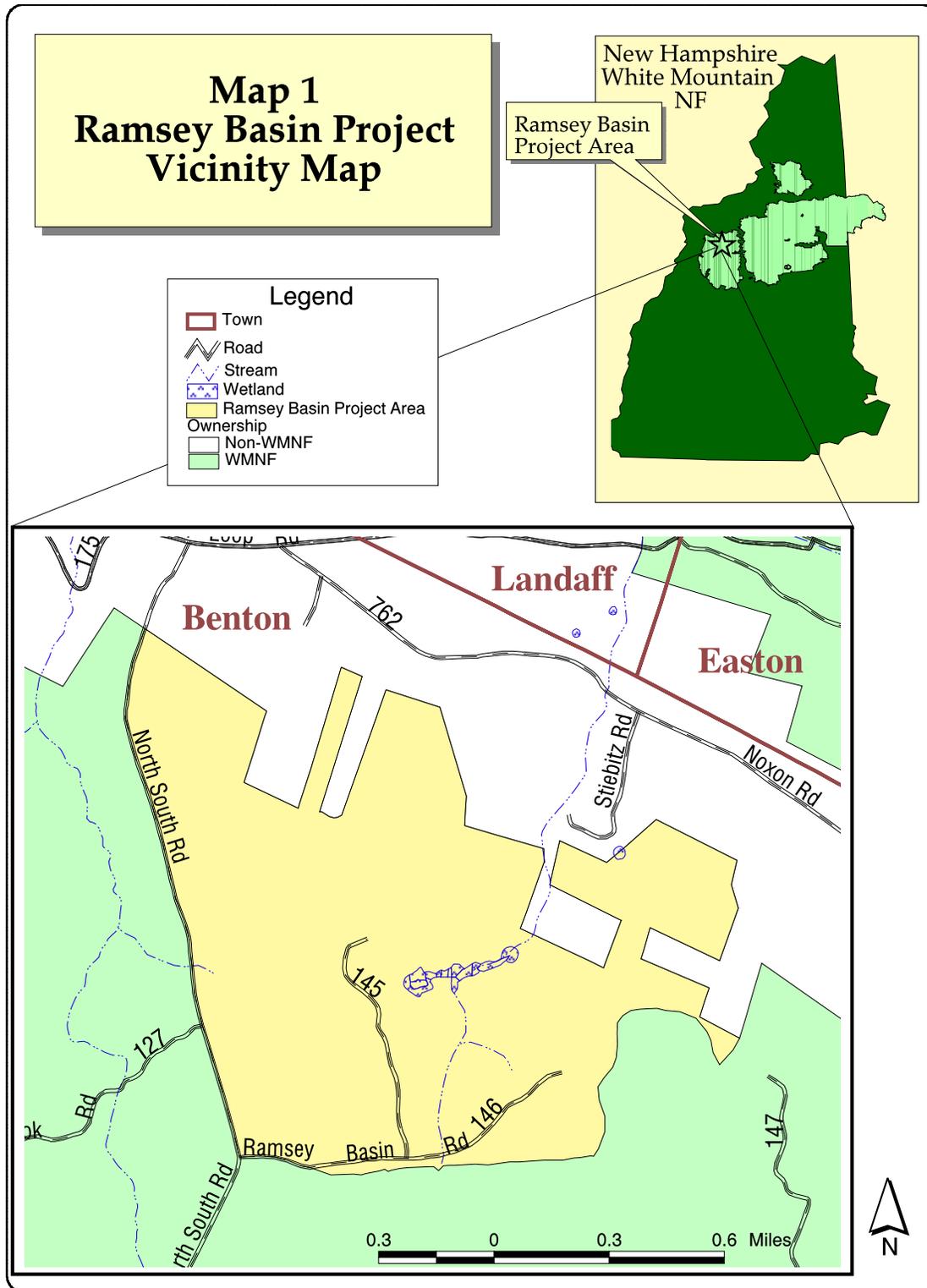
Ramsey Basin Project

**White Mountain
National Forest
Grafton County, NH**

Information for Notice and 30-Day Comment on Proposed Activities



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Cover Photo: View from the North South Road of an old log landing/wildlife opening in the Ramsey Basin Project Area. Stand 4 begins approximately 100 feet past the trees seen on the far side of the opening. In 1988, there was a shelterwood harvest in stand 4, and an overstory removal is planned for this stand in the Ramsey Basin Project/

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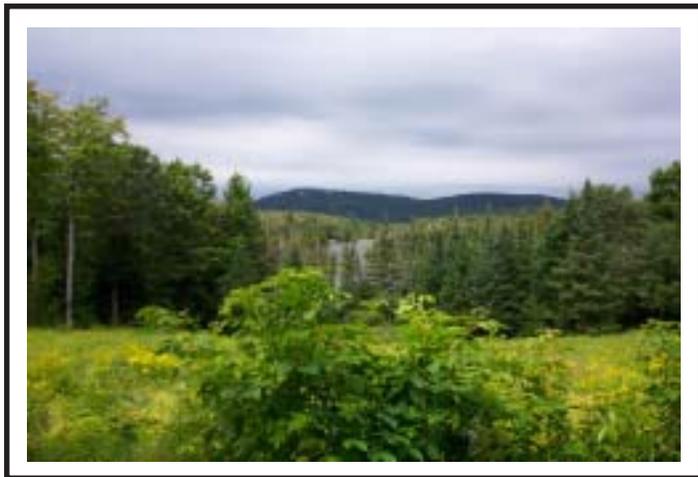


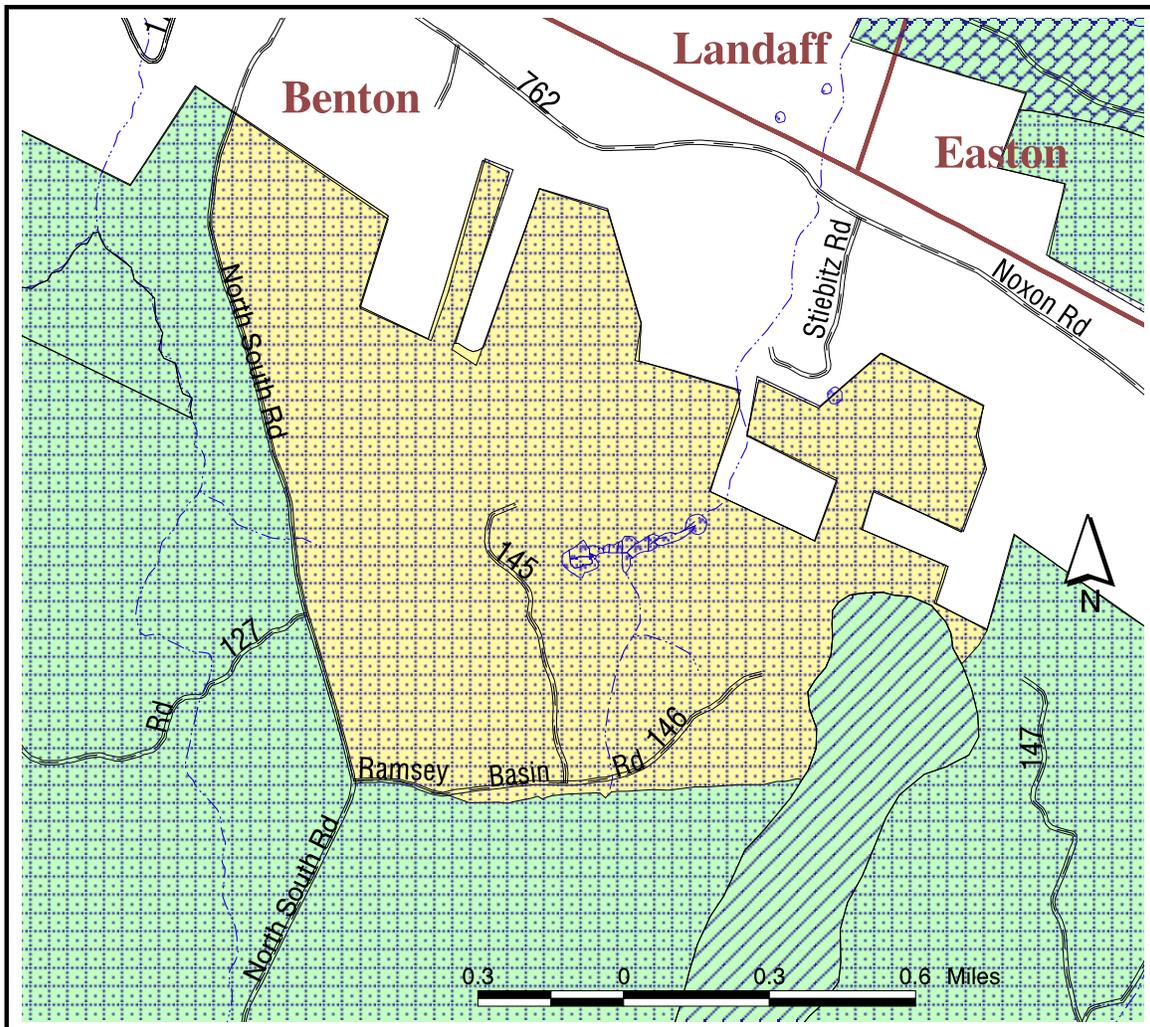
Photo 1: View from the North South road looking west across to Long Pond.

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Map 2 Ramsey Basin Project Management Areas

Management Area

-  2.1
-  3.1
-  6.1
-  Town
-  Stream
-  Road
-  Wetland
-  Ramsey Basin Project Area
- Ownership
-  Non-WMNF
-  WMNF



Where is the Ramsey Basin Project located?

The Ramsey Basin Project Area (800 Ac) is located in the Town of Benton, Grafton County, New Hampshire, on the Ammonoosuc/Pemigewasset Ranger District of the White Mountain National Forest (Map 1, p. 2).

What is the Forest Service proposing?

The Ammonoosuc/Pemigewasset Ranger District is considering the implementation of Alternative 3 (Modified Proposed Action, Map 5, p. 17) to meet the needs to increase early-successional habitat and the softwood component in Habitat Management Unit 118 and to supply a sustainable flow of forest products. See Alternative 2 (p. 17) for the Proposed Action that was Scoped (Map 4, p. 16, Table 2, p. 19).

Table 1 displays the actions proposed by the Forest Service that are compatible with the Standards and Guidelines for silvicultural treatments and meet the needs for change identified for the Ramsey Basin Project Area. See Endnotes for a list of applicable mitigation measures¹ and stand treatment acres, individual treatments and season of harvest².

Table 1: Activities in Modified Proposed Action

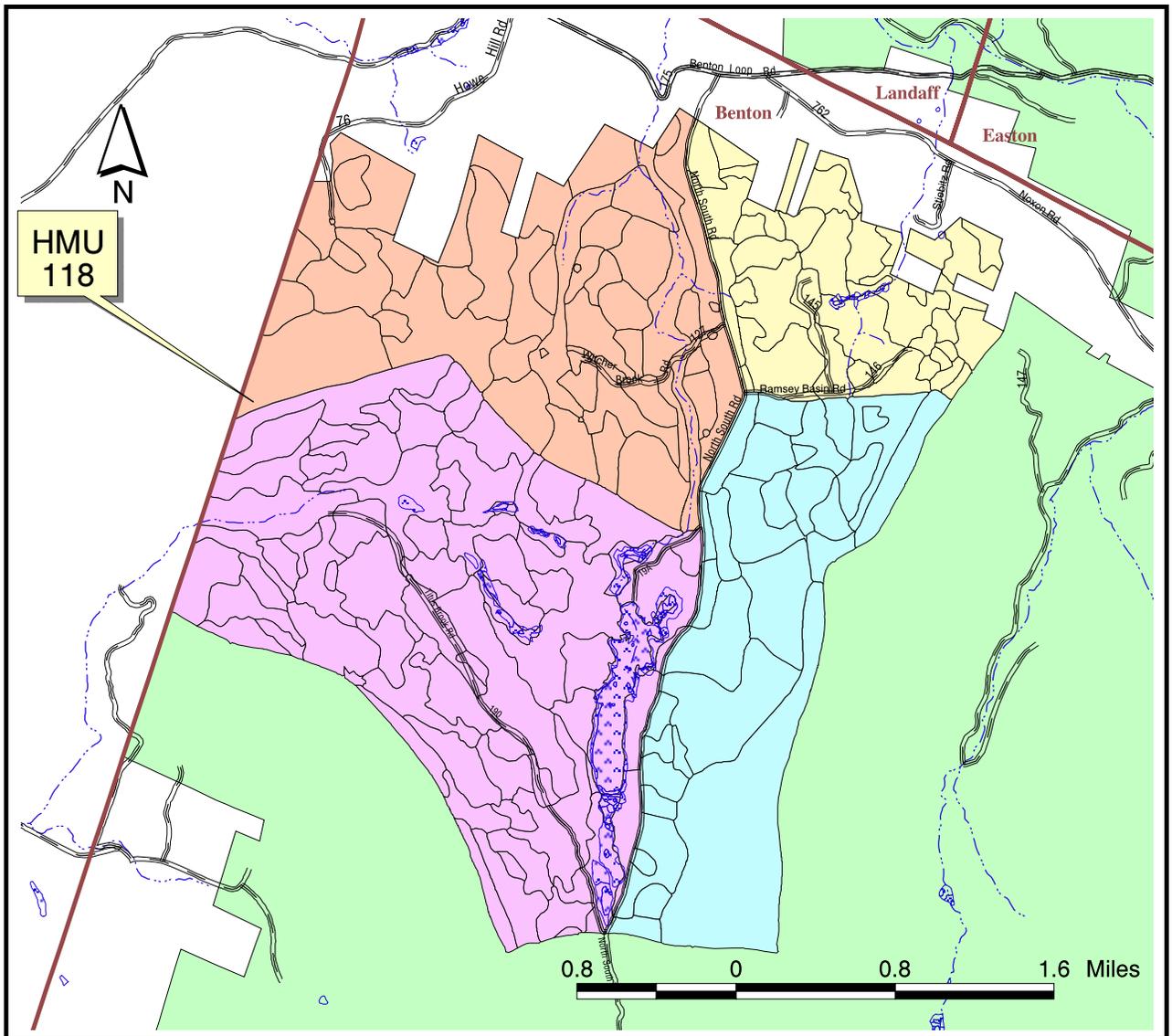
Activity	Amount	
Timber Harvesting:	Treatment Ac	Stand Ac
Even-Aged Management -		
Clearcutting (northern hardwood, mixed hardwood softwood)	40 Ac	44 Ac
Overstory Removal (spruce/fir)	23 Ac	
Uneven-Aged Management -		
Single-Tree Selection (approximately 25% of the stand basal area)	88 Ac	94 Ac
Group Selection (groups range in size from 1/10 to 2 Ac in size; 1/2 Ac average; represent approximately 20% of stand Ac)	28 Ac	137 Ac
Total	179 Ac	298 Ac
Transportation:		
Road Maintenance (North South Road, Forest Roads 145, 146),	1.6 Mi	
Approximate Volume:	1.4 MMBF	

An environmental assessment (EA) is being prepared that considers the site-specific needs for the Ramsey Basin Project Area, the activities and alternatives proposed to implement management direction as outlined in the

Map 3 Ramsey Basin Habitat Management Units

Legend

-  Town
-  Road
-  Stream
-  Wetland
- HMU 118 Compartments**
-  Comp. 44 Ramsey Basin Project
-  Comp. 45
-  Comp. 46
-  Comp. 47
- Ownership**
-  Non-White Mountain NF
-  White Mountain NF



White Mountain National Forest Land and Resource Management Plan, as amended (USDA, 1986 [Forest Plan]). The Ramsey Basin Ea documents in detail the expected effects that would result from implementing the different alternatives.

Background

Project areas are seen through the filtering lenses of management areas (MAs) and habitat management units (HMUs). For a discussion of general management direction and scales used in project planning, including management areas (MAs) and habitat management units (HMUs), see Summary of Landscape Scale Management Terms, p. 34, of this document.

What is the Ramsey Basin Project Area like?

The Ramsey Basin Project Area is approximately 800 acres of federal land within MA 3.1 (Map 2, p. 4) within HMU 118 (Map 3, p. 6). The Project Area is managed using both even-aged (55%) and uneven-aged (45%) silvicultural systems. The Ramsey Basin Project Area represents approximately 0.1% of the White Mountain National Forest.³

All soils in the Ramsey Basin Project Area are deep. About one half the area is a loose, well-drained, fine sandy loam till able to support a productive sugar maple-beech forest. The remaining area is moderately well-drained sandy loam till overlying a massive, firm hard pan able to support a rich, sugar maple forest in one part and a spruce-fir forest in another. There are no deep soil slump or dry debris slide hazards.

The headwaters of Davis Brook are the only stream courses in the Project Area (Map 1). There are some wetland areas surrounding the upper portions of Davis Brook.

The Project is bounded by the North South Road (Forest Road 19) on the west. The interior of the Project Area is accessed from the South by Forest roads (FR) 145 and 146, and from the north across a right of way between Stiebitz Road and National Forest. From previous timber harvesting activities, there is a network of skid trails and landings in place.

The Ramsey Basin Project Area is approximately 16% of HMU 118. Approximately 30% of the HMU is managed using even-aged silviculture. Over time, through management, lands being managed using uneven-aged silviculture will have a range of tree ages from regenerating through over-mature.

The Project Area contains mixed northern hardwood habitat suitable for common woodland plant and wildlife species found in the White Mountain National Forest. Site-specific field surveys documented common plants, shrubs, grasses, ferns, and trees and common wildlife species such as grouse, deer, moose, and bear. Database checks and field surveys also confirmed there are no known documented occurrences of federal or state-listed plant

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or wildlife species within the proposed harvest units. However, field surveys documented a northern goshawk nest located within the proposed Project Area, but located outside of proposed harvest units .

The cultural sites in the project area are a result of past settlement in the nineteenth century. Visible remains include cellar holes, foundations, and stonewalls in various states of disrepair. Vegetation growing in and around cellar holes and foundations and natural weathering can continue to cause these sites to collapse. Occasional visitors to these sites may also disturb the structures. When the historic bridge abutments were surveyed in 1982, the western abutment was collapsed. The historic abutments are five feet above the stream. The existing bridge at that site is supported on the banks back from and above the historic bridge abutments.

Recreation use in the Ramsey Basin Area has been and continues to be light. Camping occurs occasionally on old log landings and spur roads along the North South Road. A few visitors park at the gate on FR146 and walk the old skid roads in the Project Area. The North South Road is used for snowmobiling. Hunting small and large game is common in the area, and some people fish in Davis Brook.

The visual quality objectives of the lands adjacent to the North South Road in HMU 118, which includes the Ramsey Basin Project Area, are approximately 65% modification and 35% Partial Retention.⁴

Why is the Forest Service evaluating the Ramsey Basin Project Area now?

When forested areas are managed to produce wildlife habitats and wood products, growth in the size and density of the trees is important. Over time, stands that have been previously clearcut have become restocked with tree seedlings. When these stands reach sapling size, they no longer provide early-successional habitat. Also in stands that were partially cut to reduce stocking levels (area occupied by trees), tree growth has increased stocking levels to the point where competition for light, moisture, and soil resources result in reduced growth and stress for individual trees. Over time, stands age to the point where they are considered mature.

Analysis of an area every 15-20 years is the right interval for assessing habitat diversity and the potential need to harvest tree growth and regenerate stands to maintain a sustainable forest.

Vegetation management last occurred in Compartment 44 (Ramsey Basin Project Area) in the mid to late 1980s. Individual stand stocking levels have increased following the most recent harvest activities. Surveys conducted in Compartment 44 determined that some stands have reached maturity, competition between individual trees has slowed growth, crowded trees are stressed, which could cause mortality, and the regenerating age class has

grown into the young age class.

What past and future activities are relevant to the Ramsey Basin Project?

The most recent vegetation management in the Ramsey Basin Project Area was the Davis Brook Timber Sale Project (1984).

Part of the analysis process included looking at the effects of past, present, and reasonably foreseeable future projects in conjunction with the proposed activities. To assess those effects, you need to know what actions have occurred or might occur in a wider area that encompasses the project. For some cumulative effects analyses of the Ramsey Basin Project, the landscape area is HMU 118.

The Titus Brook II Timber Sale (west of the Project Area) was completed in the winter of 2003-4. The Howe Hill Timber Sale (southwest of the Project Area) was completed in 1997. The Boutin Corner Timber Sale is located north and east of the Project Area, but is separated by approximately 1/2 mile of private land and is located in HMU 117. Harvesting will be completed in the winter 2003-4.

A project similar to those in the Titus Brook II and the Howe Hill projects and proposed in Ramsey Basin is expected to be implemented in Compartment 45 within three years. There is also an additional project (Stark Falls) planned within the Town of Benton in the next several years, but it is not within HMU 118.

Purpose and Need

Why is the Forest Service proposing activities in the Ramsey Basin Project Area?

Management Area 3.1 is an MA on the White Mountain National Forest where the goals include increasing wildlife habitat diversity and providing large volumes of high-quality sawtimber and other forest products on a sustained yield basis (Forest Plan, p. III-36). To accomplish these goals, vegetation management may be practices with even-aged or uneven-aged silvicultural methods. In MA 3.1 even-aged management predominates, because it is the most efficient method of reaching the goals listed above.

The uneven-aged system may be used in MA 3.1 areas where soils are wet, where existing vegetation is shade tolerant and best suited to the site, or where other resource values conflict. Concern for visual quality is often one of the factors. Uneven-aged management favors the development of shade-tolerant species (sugar maple, American beech, and hemlock), which grow slowly and provides less habitat diversity than even-aged management. Management techniques include group and single-tree selection and a combination of the two. Of uneven-aged techniques, group selection provides

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the most species and habitat diversity. Seedling species that are medium to shade-intolerant can survive where the sunlight is the most intense in the openings created by the group harvests. Single-tree selection provides the least species diversity.

1. Maintaining and increasing the diversity of wildlife habitats:

The following needs have been identified for the Ramsey Basin Project Area.

Early-Successional Habitat -

A Forest Plan goal for MA 3.1 is to provide an array of habitats for wildlife, especially early-successional habitat (regenerating, 0-9 years) (Forest Plan, p. III-36). This dense growth of woody and herbaceous vegetation is used by a wide variety of wildlife species for at least part of their life cycle.

At the landscape level (HMU 118), the lands where vegetation management is practiced provide 5.1% early-successional habitat. Ideally, there should be 10% of the area in early-successional habitat (Forest Plan, p. III-13, VII-B-4, & VII-B-5;). Over the coming decade, as trees age, early-successional habitat will decline to 0% (for a detailed discussion see Endnote #⁵, p. 29).

Based on Forest Plan desired composition (10% 0-9 years), there is a need for increased early-successional habitat at the landscape level.

Lack of spruce/fir community type -

The Forest Plan envisions a variety of “ideal” habitat types at the landscape level (HMU 118) (Forest Plan, p. III-36). At the landscape level, there is a lack of the spruce/fir habitat type, especially on lands managed using both the even- and uneven-aged silvicultural systems. There is also an over abundance of the northern hardwood community type (For detail see Endnote #⁶, p. 30).

Based on Forest Plan desired compositions, there is a need for increased spruce/fir community type at the landscape level.

2. Maintaining a sustainable flow of forest products

A Forest Plan goal for MA 3.1 is to provide high-quality sawtimber, fiber, and other forest products on a sustained yield basis (Forest Plan, p. III-36).

Demand for forest products on the Ammonoosuc/Pemigewasset Ranger District of the White Mountain National Forest has been high. In FY '03, the District sold 10 million board feet (MMBF) of forest products for a total of 2.1 million dollars (average of \$161,740/MMBF), in five (5) timber sales. There were up to ten (10) bidders on the various sales. The products included high-quality sawtimber and round wood.

To maintain a sustainable, efficient, and even flow of forest products, stands need to be treated periodically. In compartment 44, some stands are mature and ready for harvest. They can be regenerated and ready for harvest again in 80-120 years. Other stands have stocking or soil conditions adaptable to uneven-aged management. These can receive a partial harvest, and the space

created will be available to young replacement trees. In some stands, this can be done so that softwood trees will become a greater part of the future stocking. Sawtimber and fiber produced through timber harvesting would provide the forest products envisioned in the Forest Plan.

Based on Forest Plan goals and existing stand conditions in the Ramsey Basin Project Area, there is a need for silvicultural treatments to provide a sustainable flow of forest products, a diversity of habitats, and a greater percentage of softwood stocking.

What can the Forest Service do to meet the needs identified for the Ramsey Basin Project Area?

To move toward the desired condition envisioned in the Forest Plan, changes in the existing condition can be accomplished by harvesting mature or low quality trees and regenerating new trees (Forest Plan, pp. III-3 & III-36). Stands would be harvested in accordance with the appropriate silvicultural guidelines (Forest Plan, Appendix C-1) and Forest Plan direction.⁷

Activities could include clearcutting, overstory removal, group selection, and single-tree selection. These activities would provide a variety of wildlife habitat types and conditions, and the by-product of these activities would provide sawtimber and wood fiber.

What decisions will be made?

The Ramsey Basin Project EA evaluates site-specific issues, considers alternatives, and analyzes the effects of the activities proposed in those alternatives. Based on the needs identified for the Ramsey Basin Project, the scope of the project is limited to decisions concerning vegetation and wildlife habitat management. The EA will provide the deciding officer (Ammonoosuc/Pemigewasset District Ranger) with the information necessary to make informed decisions with regard to the Ramsey Basin Project, and will provide the basis for determining:

- Which actions, if any would be approved (which alternative to implement) that would move the Ramsey Basin Project Area towards the desired condition per Forest Plan direction and addresses the needs and issues identified for this project?
- What mitigation measures and monitoring requirements should the Forest Service apply to the proposed activities?
- Does the proposed project have significant impacts that would trigger the need to prepare an Environmental Impact Statement?
- Will a Forest Plan amendment be required to implement this project?

If an action alternative is selected, implementation could begin during the dry summer conditions of 2004 and last for several years.

Public Involvement

How is the public involved in this decision?

The Forest Service mailed a Scoping letter to approximately 270 interested parties on July 23, 1998.

The proposal was relisted in the White Mountain National Forest Schedule of Proposed Actions (SOPA) beginning in December 2001.

Three (3) individuals commented on the proposed action during the formal Scoping process.⁸ Comments were used to define unresolved issues, to develop alternatives, and to analyze effects.

At this time the Forest Service is looking for substantive, site-specific comments on:

- How well the alternatives/proposed activities respond to the needs identified for the Ramsey Basin Project;
- How well the alternatives/proposed activities respond to the significant issues identified for the Ramsey Basin Project; and
- The anticipated effects of the activities associated with the alternatives/proposed activities proposed for the Ramsey Basin Project.

To be substantive, comments should be specific to the activities proposed for the Ramsey Basin Project and within the scope of the project: the need to move towards the Forest Plan goals of providing early-successional habitat and the spruce/fir community type in HMU 118 and to maintain the sustainability of the forested vegetation in Compartment 44 (pp.10-12).

Substantive comments will be used to refine the analysis in the Ramsey Basin EA and will provide the commentor with the right to appeal the Ramsey Basin decision in the future (36CFR215, published in Federal Register Vol. 68, No. 107, pages 33581-33602).

What significant issues were raised during Scoping for the Ramsey Basin Project?

The Forest Service separated issues into two groups:

- Issues addressed or resolved elsewhere or at a higher level (nonsignificant); or
- Issues used to develop alternatives (significant).

The Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) regulations require this delineation of issues in Sec. 1501.7, “. . . identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)...”

Nonsignificant issues were identified as those:

1. Outside of the scope of the proposed action - issues that didn't relate to

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the needs defined for the Ramsey Basin Project: early-successional habitat and the spruce/fir component;

2. Already decided by law, regulation, Forest Plan, or other higher-level decisions - such as whether clearcutting is appropriate on the National Forest;
3. Irrelevant to the decision being made - issues that would not be covered by the scope of the project as defined by the needs for change in the Ramsey Basin Project Area, such as develop a bike trail in the Project Area; or
4. Conjectural or not supported by factual evidence - issues disputing Forest Service findings that are based on opinions and not scientific facts.

Nonsignificant issues received during Scoping can be found in the Endnotes Section.⁸

Significant issues were defined as those directly or indirectly caused by implementing the proposed action.

The Forest Service identified the following two significant issues from Scoping responses:

1. Cumulative effects of even-aged management

The amount of clearcutting and overstory removal proposed in this project area will have negative effects on wildlife habitat and visual resources, especially when added to the clearcutting that has occurred on adjacent public and Private land (cumulative impact).

The measures used to evaluate how the alternatives address this issue will be:

Measurement 1a: The average early-successional habitat on MA 3.1 lands in HMU 118 provided this decade (through 2014) compared to the desired composition for an “ideal” HMU in the Forest Plan (10%; Forest Plan, III-13)

Measurement 1b: The clearcutting/overstory removals in a cumulative effects area consisting of HMU 118 and an additional 1/2-mile of private land to the north and west of HMU 118

Measurement 1c: The North South Road is the only viewpoint for the Ramsey Basin Project Area. The measurement would be the temporary openings visible from the North South Road in HMU 118 during this decade (through 2014).

2. Long-term Softwood Component in HMU 118

The vegetative Treatments in the Ramsey Basin Project Area will not increase the softwood component that is currently below the Forest Plan desired condition.

The measures used to evaluate how the alternatives address this issue will be:

Measurement 2a: The predicted long-term change in hardwood and spruce/fir habitat community in HMU 118 compared to the existing and desired

composition for an "ideal" HMU in the Forest Plan (LRMP, p. III-13).

Measurement 2b: The predicted long-term effect on wildlife from a change in hardwood and spruce/fir habitat community in HMU 118.

Alternatives

What alternatives are being considered for the Ramsey Basin Project?

The interdisciplinary team considered seven alternatives for the Ramsey Basin Project, including the Proposed Action and No Action Alternatives.

What alternatives were eliminated from detailed consideration?

The following discussion explains the alternatives that were eliminated from detailed consideration and why they are not being carried forward.

Create more early-successional habitat to more closely meet Forest Plan desired conditions

The Ramsey Basin Project identified the need for creating early-successional habitat in HMU 118 to meet the Forest Plan desired composition of 10%. The proposed Action would not achieve that amount of regeneration.

The ID team looked for additional opportunities within the Project Area to create more early-successional habitat.

The few paper birch or aspen stands in HMU 118 on MA 3.1 lands are currently in the regenerating or young age class, and it will be decided before they might need silvicultural treatment to sustain that habitat community.

The stands proposed for regeneration in this project are northern hardwoods that contain significant amounts of early-successional species (paper birch, aspen). These species mature earlier than northern hardwood species. Regenerating these stands now is silviculturally important to maintaining this species component.

The majority of the remaining stands managed under the even-aged system are, on average, 70-90 years old and have few early-successional species components. Currently these stands do not meet silvicultural guidelines for maturity.

No additional opportunities exist to create early-successional habitat in the Ramsey Basin Project Area at this time, and this alternative was eliminated from detailed study.

Mitigate logging operations for snowmobile use

The North South Road is used for snowmobiling during the winter season.

A commentor wanted the Forest Service to provide for joint use of the North South Road by snowmobiles and logging operations. Mitigation measures have been used on projects elsewhere on the district that restrict snowmobile use to weekends and holidays and logging operations to non-holiday weekdays.

The North South Road is not a well-used snowmobile corridor; most of the use is by nearby residents. Joint use would require that the road be plowed

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for hauling operations, and snowmobile use of the plowed road creates less than ideal conditions for log trucks.

This road has traditionally been closed during harvesting operations. Once hauling operations cease, the road would be reopened for snowmobiling. The Forest Service would notify clubs when the road would be closed, and the Operator would have to provide signs indicating that the road was closed for harvesting operations. Therefore, this alternative was eliminated from detailed consideration.

Avoid using FR762 (Noxon Road) for hauling activities

The Proposed Action stated that access to Stands 14 and 46 would be via a right of way to Stiebitz Road to a point on Stiebitz Road approximately two tenths of a mile south of the junction with the Noxon Road. An alternative could be to remove harvested timber from these units to the south. This would require a skidding distance of over a half mile, up a slope of over 20%, and over a ridge down to Forest Road 146. Skidding uphill along this route would require restrictive hauling measures and would be more expensive than hauling downhill across the right of way to Stiebitz Road. The Forest Service has used this haul route in the past, and has invested time and money in the right of way to Stiebitz Road. .

In addition, Stiebitz and Noxon Roads are public roads on which the Town of Benton has no winter hauling restrictions.

Whether or not log hauling is restricted on the Noxon Road is a matter for the Town of Benton and is a matter that is beyond the jurisdiction of the Forest Service.

Therefore, this alternative was eliminated from detailed consideration.

What alternatives are being considered in detail?

The following four alternatives are being considered for implementation in the Ramsey Basin Project Area.

If an action alternative is implemented, actual amounts of activities accomplished on the ground (measured in acres or miles) may differ slightly from current estimates. All variances would be evaluated to ensure that and effects are within the parameters of the effects analyzed in the Ramsey Basin EA and would be documented in the Ramsey Basin project file.

Management techniques, based on silvicultural science, can be used to change vegetation in a project area. The types of management activities proposed are dependent on the current conditions - forest types and other resource conditions such as soils and topography.

See Table 2, p. 19, for a summary comparison of the activities proposed for all the alternatives. See Endnotes for a list of applicable mitigation measures¹ and stand and treatment acres, individual treatments, and season of harvest.²

Alternative 1- No Action

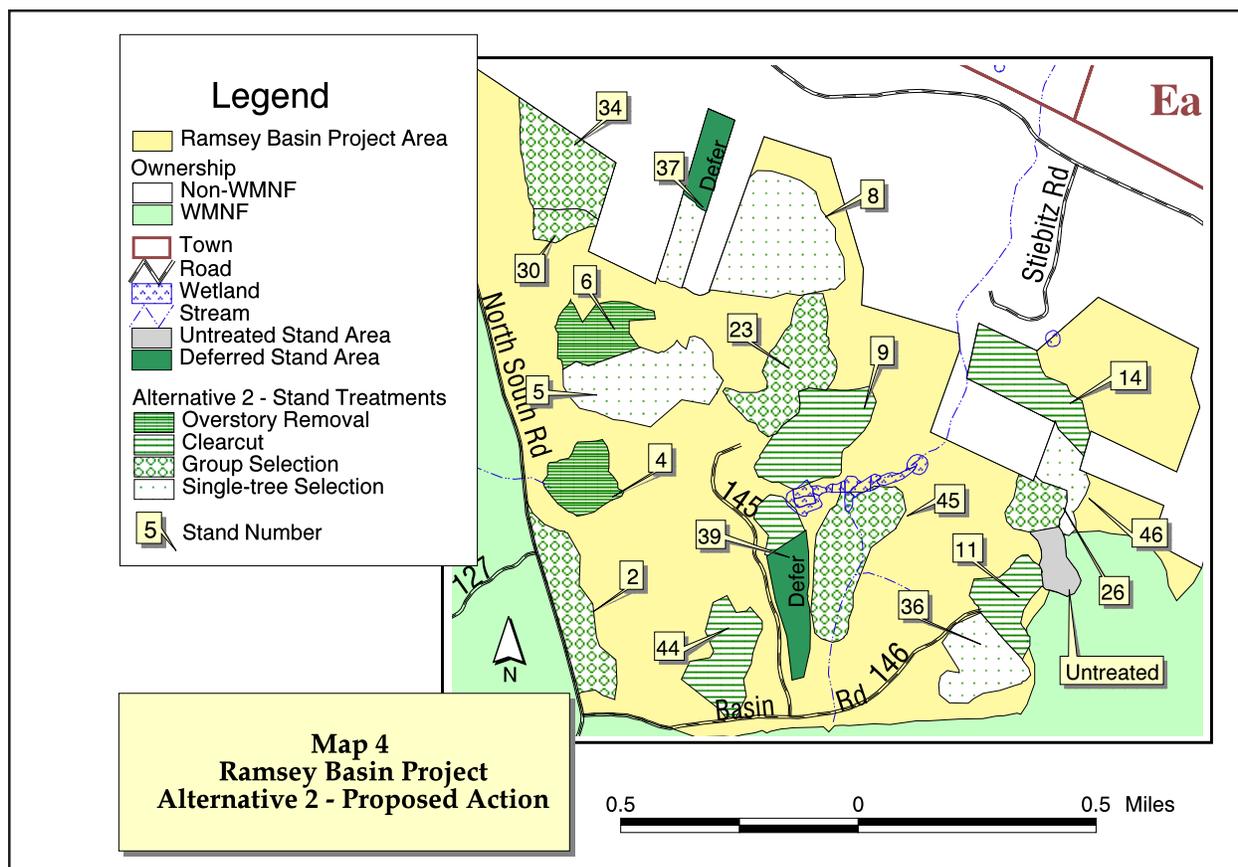
Under Alternative 1, current and on-going management activities would continue, but no new Forest Service vegetation management activities would be initiated during this entry. Changes might occur through current management direction (such as road maintenance), natural processes, or other

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Alternative 2 - Proposed Action - management decisions in the future. This alternative provides the foundation for describing and comparing the magnitude of environmental changes associated with the action alternatives.

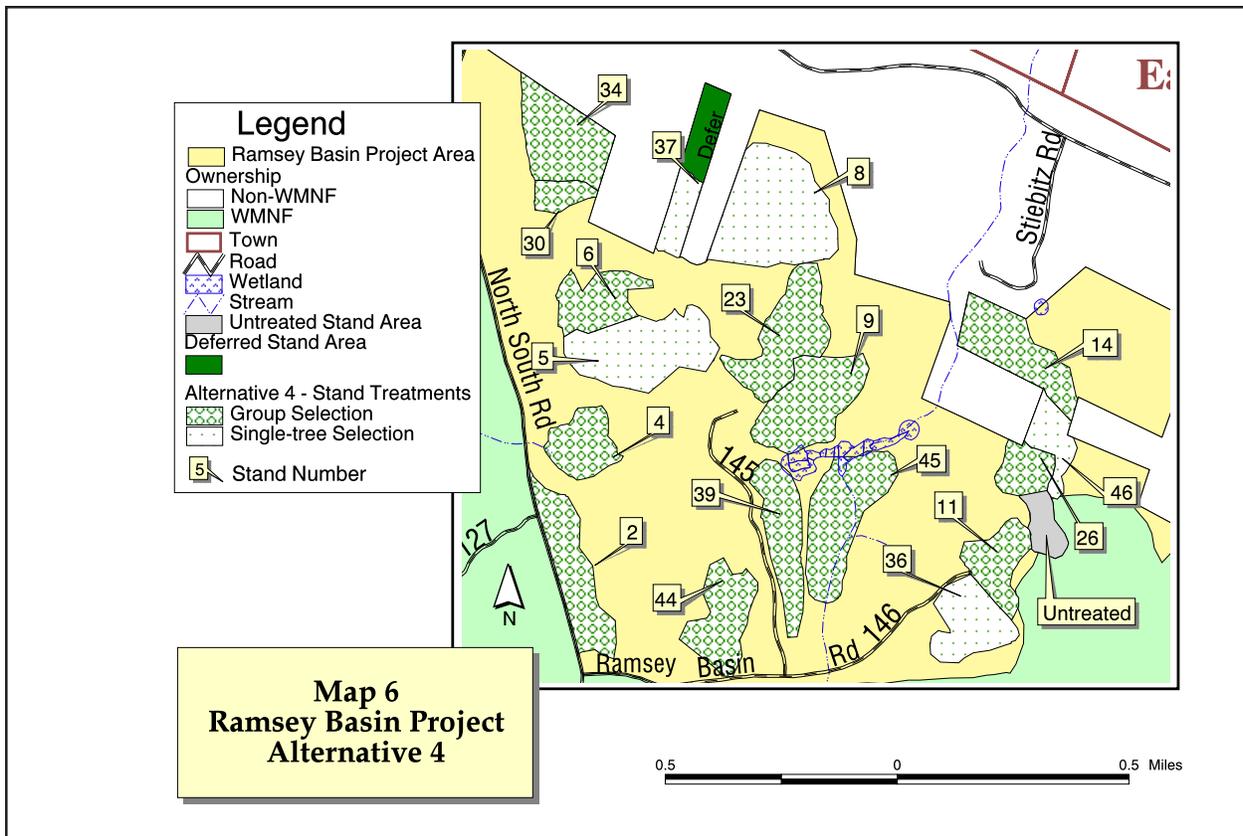
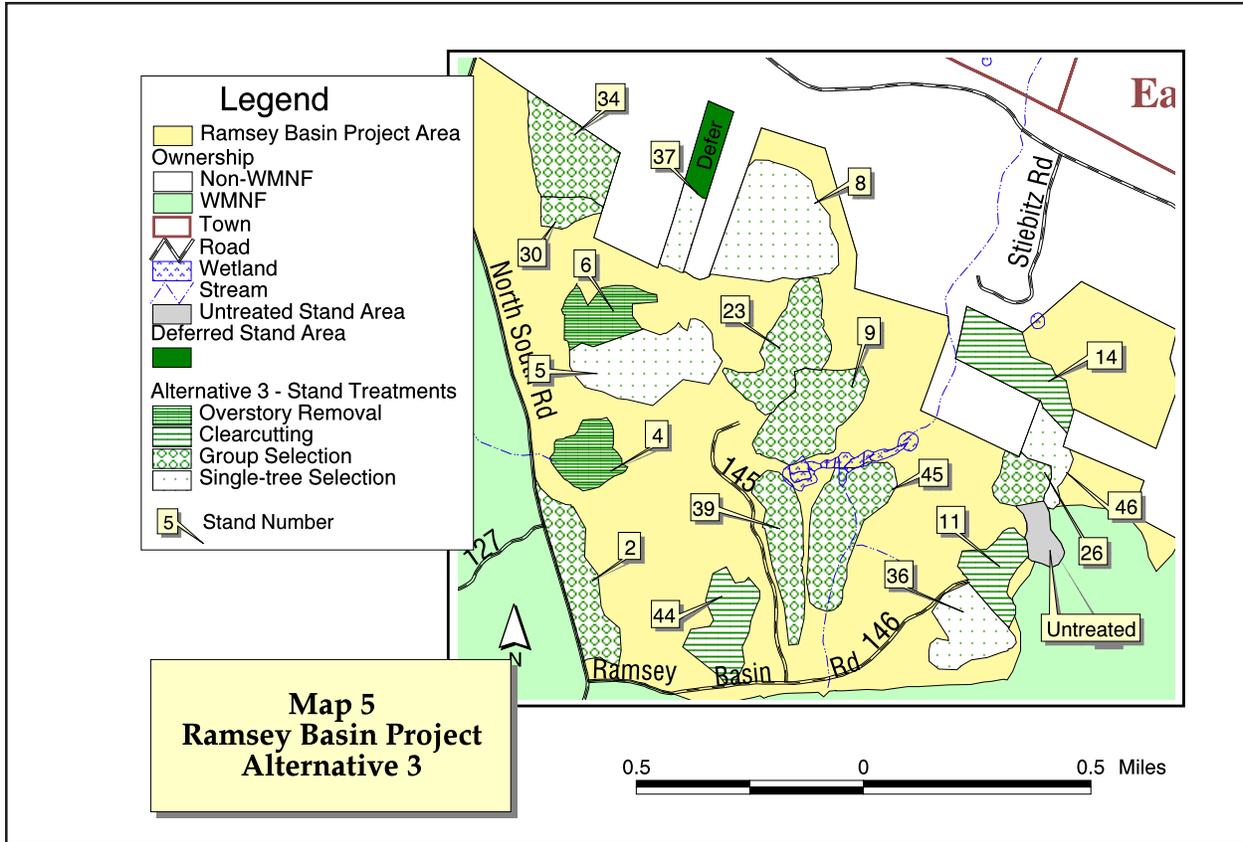
Alternative 2 is the Proposed Action that was Scoped during July 1998 (Map 4, ; Table 2, p. 19).

The proposed Action is a collection of possible vegetative treatments that use acceptable silvicultural practices, follow Forest Plan Standards and Guidelines, and have a high probability of successfully achieving the desired condition for wildlife habitat and forest management sustainability.



Alternative 3 - Modified Proposed Action (pp. 13-14). Alternative 3 (Map 5, p. 17; Table 1, p. 5; Table 2, p. 19) responds to Issue 2. The clearcutting prescription in Stands 9 and 39 have been changed in Alternative 3 to group selection and are intended to favor the long-term development of softwoods in these stands.

Alternative 4 - (Uneven-aged Management) Alternative 4 responds to Issue 1 (p. 13) and proposes only uneven-aged management (single-tree selection and group selection) (Map 6, p.17; Table 2, p. 19) in stands that had an even-aged management prescription in Alternative 2. This alternative was requested by the public.



How do the alternatives compare?

Comparison of alternatives by Forest Plan Direction, Needs, and Activities.

This section includes a comparison of alternatives considered in detail for the Ramsey Basin Project. This section also presents the alternatives in a in the past decade. No such conversion is proposed in the Ramsey Basin Project, and none is anticipated in the future.

The alternatives in the Ramsey Basin Project meet Forest Plan goals and objectives relevant to this project and the needs identified for this project at different levels. The following discussion explains how the activities associated with even- and uneven-aged management meet those Forest Plan goals and the project-specific needs.

Alternatives 2-4 use varying combinations of even- and uneven-aged silvicultural systems. Both management systems meet Forest Plan goals of: protecting soil and water; realizing the importance of a natural landscape; recognizing the importance of driving for pleasure; managing for wildlife and recognizing the demand for non-consumptive uses of wildlife; using timber management to achieve desired conditions and integrated resource objectives for certain management areas; provide large volumes of high-quality hardwood sawtimber and other timber products on a sustained-yield basis through intensive management (uneven-aged management is less intensive than even-aged management) and growing small-diameter trees for fiber production.

In addition, even-aged management also meets Forest Plan goals of: featuring northern hardwood management over softwoods, culture high-quality hardwoods, and assure a stable, reliable source of this material for community stability; ; increase wildlife habitat diversity for a full range of species with an emphasis on early-successional habitat; even-aged management will be the predominant silvicultural system, with uneven-aged management used on a sitespecific basis; and meet HMU goals for MA 3.1 lands.

For a more complete discussion of Forest Plan Goals and objectives that are pertinent to the Ramsey Basin Project, see Endnotes #³, p. 25?.

Various activities in this project meet the needs identified for the Ramsey Basin Project:

- Maintaining and increasing the diversity of wildlife habitats: early-successional habitat - Even-aged management;
- Maintaining and increasing the diversity of wildlife habitats: Lack of spruce/fir community type - Even- and uneven-aged management (see Comparison of Alternatives by Issues section, pp. 19-22); and
- Maintaining a sustainable flow of forest products - Even- and uneven-aged management

By comparing the amounts of activities in each alternative to the Forest Plan goals and the project specific needs, a comparison can be made as to how each alternative best meets those goals and needs (Table 2, p. 19).

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Table 2: Comparison of Alternatives by Activities

Activity	Alt 1	Alt 2		Alt 3		Alt 4	
Timber Harvesting:		Stand Ac	Trt Ac	Stand Ac	Trt Ac	Stand Ac	Trt Ac
<i>Even-Aged Management -</i>							
Clearcutting (northern hardwood, mixed hardwood/softwood)- <i>provides a diversity of wildlife habitats, especially early-successional habitat</i>	0 Ac	81 Ac	69 Ac	44 Ac	40 Ac	0 Ac	
Overstory Removal (spruce/fir))- <i>provides a diversity of wildlife habitats, especially early-successional habitat</i>		23 Ac					
<i>Uneven-Aged Management -</i>							
Single-Tree Selection (approximately 25% of the stand basal area)		90 Ac	88 Ac	90 Ac	88 Ac	90 Ac	88 Ac
Group Selection (groups range in size from 1/10 to 1 acres; 1/4 acre average; represent approximately 20% of the stand acres))- <i>provides some diversity of wildlife habitats, and some benefits of early-successional habitat</i>		100 Ac	21 Ac	137 Ac	28 Ac	208 Ac	41 Ac
Total		298 Ac	201 Ac	298 Ac	179 Ac	298 Ac	122 Ac
Road Maintenance (Forest Roads 146 and 147)	0 Mi	1.6 Mi					
Approximate Volume - <i>provides high quality sawlogs and wood fiber:</i>	0 MMBF	1.4 MMBF		1.1 MMBF		0.6 MMBF	

Comparison of alternatives by Issues

1. Cumulative effect of even-aged management

The amount of clearcutting and overstory removal proposed in this project area will have negative effects on wildlife habitat and visual resources, especially when added to the clearcutting that has occurred on adjacent public and Private land (cumulative impact).

The following measures are used to evaluate how the alternatives address this issue:

Measurement 1a: The average early-successional habitat on MA 3.1 lands in HMU 118 provided this decade (through 2014) compared to the desired composition for an “ideal” HMU in the Forest Plan (10%; Forest Plan, III-13)

None of the alternatives will meet the Forest Plan desired condition of 10%. Alternative 2 would come the closest with approximately 9%, followed by Alternative 3 with 7%, and Alternative 1 and 4 would provide only 3.1%.

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Measurement 1b: The clearcutting in a cumulative effects area consisting of HMU 118 and an additional 1/2-mile of private land to the north and west of the Project Area.

The distance across private land north of HMU 118 to the nearest National Forest lands directly north of the Ramsey Basin Project Area (Map 3, p. 6,) is approximately 1/2 mile. A cumulative effects area consisting of HMU 118 and an adjacent 1/2-mile of private land to the north and west was used to assess the cumulative effects of even-aged management on federal and private land on wildlife. Through on-the-ground observation by Forest Service employees and use of aerial photos, it was determined that no current even-aged management (clearcutting/overstory removals) is occurring on private land adjacent to HMU 118, and that there does not appear to be a trend of clearcutting on that private land.

There does, appear, however, to be a trend towards conversion of forested land to home sites on the private land adjacent to HMU 118. In HMU 118, there has been no conversion of forested land to permanent openings. *No clearcutting is occurring on the private land adjacent to HMU 118. Therefore, there is no cumulative impact in the HMU 118/adjacent private land cumulative effects area from the clearcutting proposed in the Ramsey Basin Project above that which will occur in HMU 118 (see #1a, p. 19).*

Measurement 1c: The North South Road is the only view point for the Ramsey Basin Project Area. The measurement would be temporary openings visible from the North South Road in HMU 118 during this decade (through 2014).

Temporary openings created by even-aged management (clearcutting and overstory removal) exist for approximately 20 years or until the regenerating trees reach sapling size, over 20 feet. After that harvested areas are considered sapling stands. There are some sapling stands along the North South Road, south of HMU 118, that were cut in the early 1980s and are now 25-30 feet tall (photo 2), there are currently no temporary openings adjacent to the North South Road in HMU 118. There is one nine-acre clearcut (Titus Brook II Sale) on a hillside west of Long is one nine-acre clearcut (Titus Brook II Sale) on a hillside west of Long Pond (Photo 1,

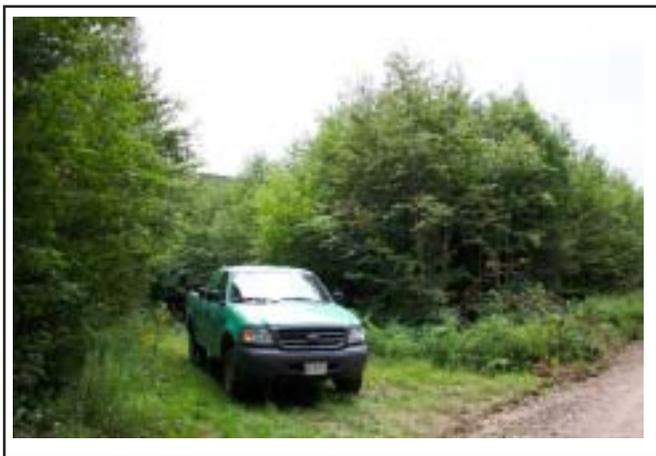


Photo 2: This vehicle is parked on the North South Road adjacent to a 25-year old clearcut. Saplings are 20-30 feet tall, and this stand is no longer considered a temporary opening.

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Photo 3: Two-year old clearcut in the adjacent Titus Brook II Sale.

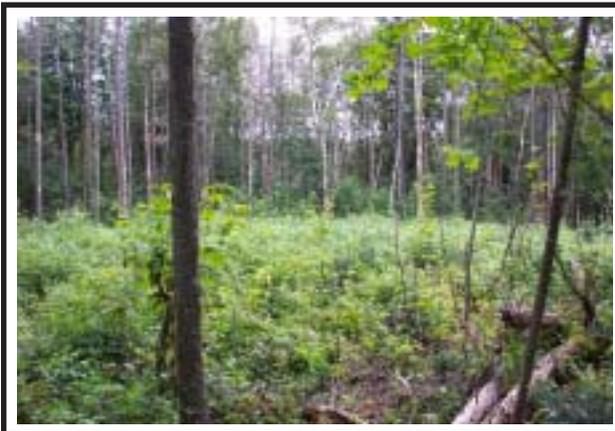


Photo 4: This view is from the North South Road looking into a two year-old group harvested in Titus Brook II.



Photo 5: View into a recently harvested group (Titus Brook II Sale) in a mixed hardwood/softwood stand seen from the North South Road

p.3). Because of the distance (approximately 2 miles) and the location of the stand on the hillside, only four acres are visible from the North South Road.

No clearcuts are proposed adjacent to the North South Road in any Ramsey Basin alternative. Stand 4 (Map 4, p. 9), is visible on the other side of a log landing on the North South Road. This stand is proposed for an overstory removal in Alternatives 2 and 3. However, an uncut stand will be left between the landing and the harvested area (cover photo). During leaf-off season some additional light may be visible from the road through the buffer of uncut trees. No clearcutting or overstory removals will be proposed along the North South Road in the future.

Approximately eighty percent (65%) of the lands adjacent to the North South Road have a visual quality objective of Modification, the rest (35%) is Partial Retention. Modification is a visual quality objective which means management activities may dominate the characteristic landscape but must, at the same time, utilize naturally established form, line, color, and texture. This includes even-aged management (clearcutting/overstory removal). Partial Retention is a visual quality objective which means management activities may be evident but remain subordinate to the characteristic landscape (group and single-tree selection).

While much of the lands adjacent to the North South Road has a visual quality objective of Modification, no clearcuts or overstory removals are proposed in the Ramsey Basin Project, and none are anticipated in the upcoming project in Compartment 44.

Therefore, the visual quality objectives along the North South Road in HMU 118 will be met.

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2. Long-Term
Softwood
Component in
HMU 118

The vegetative Treatments in the Ramsey Basin Project Area will not increase the softwood component that is currently below the Forest Plan desired condition.

The following measures are used to evaluate how the alternatives address this issue:

Measurement 2a: The predicted long-term change in hardwood and spruce/fir forest types in HMU 118.

At the landscape level, the softwood component in HMU 118 is limited.

The soil conditions in much of the project area would encourage a gradual shift toward softwood stocking. This is a gradual process of succession that occurs over a very long period of time. Over the foreseeable future, there would be no change in softwood compositions due to Alternative 1.

The treatments proposed in Alternative 2 would maintain the current levels of soft wood composition but would not increase them.

Under Alternative 3, clearcutting is replaced by group selection in 7 stands. These areas have an understory of softwood regeneration that would be encouraged through group selection. By the end of this decade 27 acres of northern hardwoods would be converted to a spruce/fir forest type. If the treatments are repeated in 20-year entries, spruce/fir will increase from 14 to 18% of HMU 118 within 60 years.

In Alternative 4, the remaining clearcuts and overstory removals would be replaced by group selection. The stands prescribed for overstory removal would remain a softwood type, but with a multi-age composition. The stands that would be clearcut in Alternative 3 do not have a softwood understory and would not result in and increase in softwood type.

Assuming that group selections proposed in this project were to be repeated through three additional entries, at the landscape level (HMU 118) the greatest long-term (60 years) increase in softwood component would be Alternative 3 or 4 at 20%. In addition if similar treatments were applied in other parts of the HMU, the softwood habitat type could be increased to match Forest plan goals. Increasing softwood habitat type would provide a more diverse and better balanced wildlife habitat mix.

Measurement 2b: The predicted long-term effect on wildlife habitat diversity from a change in hardwood and spruce/fir community type in HMU 118.

See discussion in section 2a above. Assuming that group selections proposed in this project were to be repeated through three additional entries, at the landscape level (HMU 118) the greatest long-term (60 years) increase in softwood component would be Alternative 4 at 20%.

Alternatives 1 and 2 do not increase softwood compositions. Alternative 3 increases softwood composition at the expense of clear cutting for early successional habitat. Alternative 4 produces no early-successional habitat through clearcutting. Alternative 3 provides a balance of habitats. This would come closest to the Forest Plan goal of 22%.

Table 3 Comparison of Alternatives by Potential Resource Effects

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Physical Environment				
Transportation				
<i>Direct/Indirect Effects:</i> Ramsey Basin Project Area - 3.1 Lands in Compartment 44; Approximately 800 Ac	Current road use will continue. Regular planned road maintenance will occur on the FR 19. Activities may include: smoothing, removing debris, cleaning ditches, posting signs and replacing culverts. With no activities taking place, there will be no direct/indirect effects.	Pre-haul maintenance on 1.6 miles of road 6 log landings (5 existing, 1 new; 2.5 ac) 2.7 miles of skid roads (1.6 miles existing, 2.1 miles new; 5.4 acres) Replacement of 1 temporary bridge Snowmobiling would be prohibited during timber harvesting operations		
<i>Cumulative Effects:</i> Compartments 44 & 45; Present - 2016; 1320 Acres	Pre-haul maintenance on 0-0.4 miles of road 2 log landings (0.5 ac) 1 miles of skid roads (1.8 acres) Snowmobiling would be prohibited during timber harvesting operations	Pre-haul maintenance on 1.6-2 miles of road 8 log landings (3 ac) 4.7 miles of skid roads (4.3 acres) Snowmobiling would be prohibited during timber harvesting operations		
Soil				
<i>Direct/Indirect Effects:</i> Ramsey Basin Project Area - 3.1 Lands in Compartment 44; Approximately 800 Ac	No change from the present	Low risk, minor erosion, mitigated by winter harvest and moderate terrain and no extraordinary soil hazards		
<i>Cumulative Effects:</i> Davis and Witcher Brook Subwatersheds; 1997-2016; 6047 Ac	Limited, on-site, surface soil erosion			
Water				
<i>Direct/Indirect Effects:</i> Ramsey Basin Project Area - 3.1 Lands in Compartment 44; Approximately 800 Ac	No change from the present	There is low risk of short-term, minor effects to water resources associated with temporary stream crossings, skid trails, and landings, because no accelerated soil erosion impact is expected (Direct and Indirect Effects on Soil, pp. ?, above). Because the potential for short-term effects is low, long-term effects to the water resources are also expected to be low (see Cumulative Effects on Water Resources -Alternatives 1-4).		
<i>Cumulative Effects:</i> Davis Brook Subwatershed (2157 Ac) & Witcher Brook Subwatershed (3890 Ac); 1997-2016	Clearcutting in neither the Davis Brook nor Witcher Brook subwatersheds exceeds 6% over two decades, which is well below the Forest Plan guideline of no more than 25% in one decade. Therefore there are no Cumulative effects to the water resource as a result of activities proposed in the Ramsey Basin Project.			
Air				
<i>Direct/Indirect Effects:</i> Ramsey Basin Project Area - 3.1 Lands in Compartment 44; Approximately 800 Ac	No change from the present	Because of the limited duration of operation of emission-generating equipment associated with timber harvesting, and because this equipment will generally be operated in the winter months, with some exceptions, it is unlikely that the proposed operations would exceed the NAAQS. These emissions may contribute to ground level ozone in the project area, but they would be short in duration and limited to the areas of operation on any given day.		
<i>Cumulative Effects:</i> Davis Brook and Witcher Brook Subwatersheds; Present-2016; 6047 Ac	Because of the limited duration of the operation of emission-generating equipment associated with harvesting activities, and because this equipment will generally be operated in the winter months, with some exceptions, it is unlikely that the NAAQS would be exceeded. New large sources of ozone in the cumulative effects area are unlikely since most of the cumulative effects area on the forest and remaining portion on private land is largely undeveloped.			

Table 3 Comparison of Alternatives by Potential Resource Effects cont.

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Biological Environment				
Vegetation				
<i>Direct/Indirect Effects: Project Area; 800 Ac</i>	Other than aging, no change from present unless from natural causes	Maximizes development of early-successional habitat, in appropriate stands, through even-aged management.	Combines the production of early-successional stands w/conversion of hardwood to increase softwood type.	Maximizes conversion to softwood, where appropriate, but no early-successional habitat is produced.
<i>Cumulative Effects: even-aged management, MA 3.1 lands, HMU 118; 1994-2014 1600 Ac</i>	A maximum of 3.1% in regenerating habitat through the end of the decade	A maximum of 8.8% in regenerating habitat through the end of the decade	A maximum of 7.0% in regenerating habitat through the end of the decade	A maximum of 3.1% in regenerating habitat through the end of the decade
<i>Cumulative Effects: HMU 118 (6100 ac) and an additional 1/2-mile of private land to the north and west of HMU 118 (3300 ac); 1994-2014; 9400 Acres</i>	Based on analysis of aerial photos, discussion with local loggers, and field observations, there is no clearcutting occurring on adjacent private land, and there is no trend towards clearcutting anticipated in the future. The only clearcutting in the cumulative effects area is occurring on federal land in HMU 118 .			
	Anticipates 20 ac of clearcutting/overstory removals on federal lands or 0.3% of the HMU 118 by the end of the decade.	Anticipates 112 Ac; provides 1.8% of HMU118 in early successional habitat by the end of the decade.	Anticipates 83 Ac; provides 1.4% of HMU118 in early successional habitat by the end of the decade.	Anticipates 20 ac of clearcutting/overstory removals on federal lands or 0.3% of the HMU 118 by the end of the decade.
	Anticipates 20 ac or 0.2% of clearcutting/overstory removals in the cumulative effects area by the end of the decade	Anticipates 112 ac or 1.1% of clearcutting/overstory removals in the cumulative effects area by the end of the decade	Anticipates 83 ac or 0.9% of clearcutting/overstory removals in the cumulative effects area by the end of the decade	Anticipates 20 ac or 0.2% of clearcutting/overstory removals in the cumulative effects area by the end of the decade
<i>Cumulative Effects HMU; 2003-2064; 6100 Acres</i>	There would be a slight increase in the proportions of spruce/fir forest type through natural selection but no measurable change in overall species or habitat type	Group selection in 5 stands would convert 20 acres of northern hardwoods EAM forest type to a spruce/fir UEAM forest type at the end of this decade and if treatments are repeated in 20-year entries, Spruce/fir will increase from 14 to16% of the HMU by 6 decades.	Group selection in 7 stands would convert 27 acres of northern hardwoods EAM forest type to a spruce/fir UEAM forest type at the end of this decade and if treatments are repeated in 20-year entries, Spruce/fir will increase from 14 to18% of the HMU by 6 decades.	Group selection in 8 stands would convert 30 acres of northern hardwoods EAM forest type to a spruce/fir UEAM forest type at the end of this decade and if treatments are repeated in 20-year entries, Spruce/fir will increase from 14 to 20% of the HMU by 6 decades
Terrestrial Wildlife				
<i>Direct/Indirect Effects: Project Area; 800 Ac</i>	There would be a slight increase in the proportions of spruce/fir habitat community type through natural selection but no measurable change in overall species or habitat type	Group selection in 5 stands would convert 20 acres of northern hardwoods habitat community type to a spruce/fir hardwoods habitat community type at the end of this decade. Forest Plan goal is 22%.	Group selection in 7 stands would convert 27 acres of northern hardwoods habitat community type to a spruce/fir hardwoods habitat community type at the end of this decade. Forest Plan goal is 22%.	Group selection in 8 stands would convert 30 acres of hardwoods habitat community type to a spruce/fir hardwoods habitat community type at the end of this decade. Forest Plan goal is 22%.
<i>Cumulative Effects: HMU 118, MA 3.1 lands, even-aged management; 2003-2014; 1600 Acres (see cumulative effects for spruce/fir forest type above)</i>	A maximum of 3.1% in early-successional habitat through the end of the decade and a slight increase in the softwood habitat community type.	A maximum of 8.8% in early-successional habitat through the end of the decade	A maximum of 7.0% in early-successional habitat through the end of the decade	A maximum of 3.1% in early-successional habitat through the end of the decade
<i>Cumulative Effects HMU 118, MA 3.1 lands, even-aged management; 2003-2014; 5970 Acres</i>	None of the alternatives would change the habitat community composition by the end of the decade.			
Aquatic resources				
<i>Direct/Indirect Effects: What is the direct/indirect effects area, and size?</i>	No direct or indirect effects to aquatic resources.	Very low potential for minor localized and short-term direct and indirect effects to headwater portions of Davis Brook.		
<i>Cumulative Effects: What is the cumulative effects area, time frame, and size?</i>	Would add adverse cumulative effect due to lost opportunity to increase open forest canopy for light and solar warmth reaching forest floor and increasing microhabitat for insect forage base for aquatic species.	Increasing open forest canopy for light and solar warmth reaching forest floor increases microhabitat for insect forage base for aquatic species.		

Table 3: Comparison of Alternatives by Potential Resource Effects cont

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Social Environment				
Heritage				
Direct/Indirect Effects: Ramsey Basin Project Area - 3.1 Lands in Compartment 44; Approximately 800 Ac	No change from present	Mitigation measures will protect known sites during implementation; any new sites will also be avoided and protected.		
Cumulative Effects: HMU 118, Compartments 44-47; present; 6940 Ac				
Recreation				
Direct/Indirect Effects: Ramsey Basin Project Area - 3.1 Lands in Compartment 44; Approximately 800 Ac	Group selection harvesting in Stand 2 would provide a minimal change in the character of the woods for people using the North South Road. The North South Road would be closed to snowmobiling during harvesting operations (2-4 years). The lack of early-successional habitat favors wildlife that depends primarily on mature and over-mature habitat and limits the species that depend on early-successional habitat (game species) for some part of their life cycle. Indirectly, this would reduce the hunting opportunities in the area as well as the ability of visitors to view these wildlife species	Group selection harvesting in Stand 2 would provide a minimal change in the character of the woods for people using the North South Road. The North South Road would be closed to snowmobiling during harvesting operations (2-4 years). Increase in early-successional habitat in Compartment 44 of 10.8% of Compartment 44 could indirectly increase the opportunity to hunt and view wildlife dependent on this habitat.	Group selection harvesting in Stand 2 would provide a minimal change in the character of the woods for people using the North South Road. The North South Road would be closed to snowmobiling during harvesting operations (2-4 years). Increase in early-successional habitat in Compartment 44 of 7.47% of Compartment 44 could indirectly increase the opportunity to hunt and view wildlife dependent on this habitat.	Group selection harvesting in Stand 2 would provide a minimal change in the character of the woods for people using the North South Road. The North South Road would be closed to snowmobiling during harvesting operations (2-4 years). The lack of early-successional habitat favors wildlife that depends primarily on mature and over-mature habitat and limits the species that depend on early-successional habitat (game species) for some part of their life cycle. Indirectly, this would reduce the hunting opportunities in the area as well as the ability of visitors to view these wildlife species
Cumulative Effects: HMU 118; 6940 Ac; 2003-2004	Short-term, minor effects to the visual character along the North South Road in Compartments 45-47 North South Road closed to snowmobiling 1-2 years. Decrease in early-successional habitat in HMU 118 from 1.2% in 2003 to 0.3% in could indirectly decrease the opportunity to hunt and view wildlife dependent on this habitat.	Short-term, minor effects to the visual character along the North South Road in Compartments 45-47 North South Road closed to snowmobiling 1-2 years. Decrease in early-successional habitat in HMU 118 from 1.2% in 2003 to 0.3% in could indirectly decrease the opportunity to hunt and view wildlife dependent on this habitat. Short-term, minor effects to the visual character along the North South Road in Compartments 44-47. North South Road closed to snowmobiling 2-5 years. Early-successional habitat in HMU 118 would increase to 2.2% in 2006 and decrease to 1.6% in 2014. Could indirectly maintain the opportunity to hunt and view wildlife dependent on this habitat.	Short-term, minor effects to the visual character along the North South Road in Compartments 45-47 North South Road closed to snowmobiling 1-2 years. Decrease in early-successional habitat in HMU 118 from 1.2% in 2003 to 0.3% in could indirectly decrease the opportunity to hunt and view wildlife dependent on this habitat. Short-term, minor effects to the visual character along the North South Road in Compartments 44-47. North South Road closed to snowmobiling 2-5 years. Early-successional habitat in HMU 18 would increase to 1.8% in 2006 and decrease to 1.2% in 2014. Could indirectly maintain the opportunity to hunt and view wildlife dependent on this habitat.	Short-term, minor effects to the visual character along the North South Road in Compartments 45-47 North South Road closed to snowmobiling 1-2 years. Decrease in early-successional habitat in HMU 118 from 1.2% in 2003 to 0.3% in could indirectly decrease the opportunity to hunt and view wildlife dependent on this habitat.

Table 3: Comparison of Alternatives by Potential Resource Effects

Resource	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Social Environment				
Visuals				
Direct/Indirect Effects: The portions of the North South Road adjacent to Compartment 44	No change in the VQO Over time, the continually maturing landscape, as seen the North South Road, would lose visual diversity (vegetative species and age classes).	No change in the VQO Group selection harvesting in Stand 2 would provide minor changes in the character of the landscape as seen the North South Road.		
Cumulative Effects: The North South Road in HMU 118; 1997-2016	The VQO of Partial Retention is maintained - no clearcuts visible from the road. Group selection harvesting in Compartments 45-47 would provide minor changes in the character of the landscape as seen the North South Road. No clearcutting (temporary opening) is expected to take place along the North South Road in HMU 118 or on private land north of HMU 118.	The VQO of Partial Retention is maintained - no clearcuts visible from the road. Group selection harvesting in Compartments 44-47 would provide minor changes in the character of the landscape as seen the North South Road. No clearcutting (temporary opening) is expected to take place along the North South Road in HMU 118 or on private land north of HMU 118.		
Community, Economic, & Environmental Justice				
Direct/Indirect Effects: Ramsey Basin Project Area - 3.1 Lands in Compartment 44; Approximately 800 Ac	Net to the US Treasury = -\$49,280 Potential Timber Tax generated for Town of Benton = \$0	Limited seasonal employment opportunities from timber harvesting activities Net to US Treasury. = \$114,853 Potential Timber Tax generated for Town of Benton = \$22,643	Limited seasonal employment opportunities from timber harvesting activities Net to US Treasury. = \$79,682 Potential Timber Tax generated for Town of Benton = \$17,791	Limited seasonal employment opportunities from timber harvesting activities Net to US Treasury. = \$20,991 Potential Timber Tax generated for Town of Benton = \$9,704

Endnotes

- The generally applicable Forest and Management area-wide Standards and Guidelines listed in the Forest Plan in sections III and appendix VIIB:18-22 and state Best management Practices (BMPs) are applicable to all action alternatives.

Table E:1 (pp., E-4 - E-6) contains mitigation actions for the activities proposed in the Ramsey Basin Project. This table displays the resource affected, the location to which the mitigation applies, the mitigation action and type, and the timing of the action.

The following key is used to describe the type of mitigation action being used and is shown in boldface following the actions :

Avoidance - Avoid the impact altogether by not taking a certain action or parts of an action.

Minimize - Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

Rectify - Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

Maintenance - Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action.

Monitor - Evaluate effects of an action.

Table E-1a: Mitigation Measures

Resource	Location	Mitigation Action and Type	When to Accomplish
Wildlife	All Units	Retain mast producing beech trees heavily used by black bear unless a safety hazard, or located in regeneration units. Avoidance	During marking
Wildlife	All Units	Retain existing large downed woody material in proposed harvest units on the forest floor where feasible. Avoidance	During marking and harvesting
Wildlife	All Units	All action alternatives would retain snags per USFWS BO Terms & Conditions and Forest Plan TES Amendment for the protection of Indiana bat unless a safety hazard. If snags are felled, retain as large woody material on the ground. As much as practicable within OSHA regulations. Avoidance	During marking and harvesting
Wildlife/ Vegetation	Group Selection Units	Retain some red oak for mast trees and species diversity. Avoidance	During marking and harvesting
Wildlife	Project Area	All action alternatives are consistent with applicable standards and guidelines outlined in the Canada Lynx Conservation Assessment and Strategy for the maintenance of suitable lynx habitat. Avoidance	Project planning & implementation
Wildlife	Sale area as applicable	All action alternatives would use non-invasive seed mix and straw mulch (where and when available) and as needed to prevent the introduction of invasive exotic plant species during revegetation closure work. Minimize	During implementation
Aquatic	All Units	Large coarse woody material on the ground in riparian area and outside of harvest units shall be left in place for amphibian and reptile habitat. Avoidance	During marking
Aquatic	Sale area as applicable	Designate major skid trails and minimize the number of stream crossings. Minimize	During project planning and implementation
Aquatic/ Soils & Water	Project Planning	Winter Harvesting where feasible. Minimize	Project planning and implementation
Aquatic	Project Planning	The wetland areas near stands 9, 39, and 45 will be protected.	Project planning and implementation
Heritage	Project Area	If, in the course of any project activities, previously unknown sites or artifacts are located, activities will stop immediately in that location. The district heritage paraprofessional and Forest archaeologist will be called in to evaluate the finds and make recommendations on how to proceed. Minimize, Avoidance	Project layout, During implementation
Recreation	FR 19	During winter operations, signs indicating "No Snowmobiling" will be posted at all entry points to Forest Road 19. These signs would be required by the sale contract. Coordination with snowmobile clubs will occur prior to sale activity. This coordination would be required in the sale contract. Avoidance	During implementation

Table E-1b: Mitigation Measures cont.

Resource	Location	Mitigation Action and Type	When to Accomplish
Visual	North South Road	Groups in Stand 2 will be placed no closer than 66 feet from the North South Road. Minimize	During marking and implementation
Vegetation	All Treatment Units	Indigenous, minority tree species or beech trees genetically resistant to scale complex would be encouraged in uneven-aged treatments by cutting trees around them that compete for space and resources. In even-aged regeneration treatments, these species would be protected and buffered with a group of other leaf trees. Minimize	Sale layout, marking, and administration
Vegetation	Timber Sales	Use native vegetation and straw (if available) during revegetation practices per Executive Order 13112, 23/99. Minimize	Sale Administration
Vegetation	Timber Sales	The location of log landings will be agreed upon in advance with district sale administrator. Minimize	Sale Administration
Vegetation	Timber Sales	If listed plants are found during project implementation, the sale administrator would alert the district biologist and botanist and protective measures would be taken. Avoidance	Sale Administration
Vegetation	Timber Sales	In clearcuts/overstory removals, a mix of residual trees would be left to improve wildlife habitat, modify the visual appearance of the stand and add diversity to the composition of the future stand. In clearcuts or group selection treatments, where residual understory plants interfere with the germination and development of desirable tree seedlings, a mechanical site preparation treatment would be used to control low shade. If seedlings develop, but are controlled by residual vegetation, a release treatment (TSI) would be applied by removing some of the interfering woody vegetation. Maintenance	Sale layout, marking, and administration
Vegetation	Timber Sales	Regeneration treatments, even- and uneven-aged, will be followed by surveys to determine the success of natural regeneration. If natural regeneration fails, then new trees grown from local seed sources would be planted. If species mix is not meeting objectives or if there are desirable, minority of wildlife trees being suppressed, a timber stand improvement (TSI) treatment will be used to release a desirable mix of young trees. Maintenance	Ecosystem Team
Vegetation & Soils & Water	Timber Sales	Winter harvest only. Avoidance	Sale Administrator
Soils & Water	Timber Sales	Use designated skid trails and landings. Minimize	Sale layout, Marking, and Administration

Table E-2: Comparison of Alternatives by Stand Prescriptions

Stand	Stand Acres	New Stand	New Stand Acres	Forest Type	Alt 2 Proposed Action	Treatment Acres	Alt 3	Treatment Acres	Alt 4	Treatment Acres	Season
2	18	2	19	Mixed Hardwood/Softwood	Group Selection (<1/5 Ac)	4	Group Selection (<1/5 Ac)	4	Group Selection (<1/5 Ac)	4	Winter
4	11	4	11	Spruce Fir	Overstory Removal	11	Overstory Removal	11	Group Selection (<1/5 Ac)	2	Winter
5	25	5	25	Northern Hardwood	Single-Tree Selection	25	Single-Tree Selection	25	Single-Tree Selection	25	Winter
6	11	6	12	Spruce Fir	Overstory Removal	12	Overstory Removal	12	Group Selection (<1/5 Ac)	2	Winter
8	30	8	34	Northern Hardwood	Single-Tree Selection	34	Single-Tree Selection	34	Single-Tree Selection	34	Winter
9	14	9	21	Mixed Hardwood/Softwood	Clearcut	21	Group Selection (<1/5 Ac)	4	Group Selection (<1/5 Ac)	4	Winter
10	16	44	15	Mixed Hardwood/Softwood	Clearcut	15	Clearcut	15	Group Selection (<1/5 Ac)	3	Winter
11	10	11	11	Northern Hardwood	Clearcut	11	Clearcut	11	Group Selection (<1/5 Ac)	2	Winter
14	14	14	18	Northern Hardwood	Clearcut	14	Clearcut	14	Group Selection (<1/5 Ac)	3	Winter
22	24	45	23	Mixed Hardwood/Softwood	Group Selection (<1/5 Ac)	5	Group Selection (<1/5 Ac)	5	Group Selection (<1/5 Ac)	5	Winter
23	20	23	20	Mixed Hardwood/Softwood	Group Selection (<1/5 Ac)	4	Group Selection (<1/5 Ac)	4	Group Selection (<1/5 Ac)	4	Winter
25	8	46	8	Northern Hardwood	Single-Tree Selection	8	Single-Tree Selection	8	Single-Tree Selection	8	Winter
26	13	26	13	Mixed Hardwood/Softwood	Group Selection (<1/5 Ac)	3	Group Selection (<1/5 Ac)	3	Group Selection (<1/5 Ac)	3	Winter
30	7	30	5	Spruce Fir	Group Selection (<1/5 Ac)	1	Group Selection (<1/5 Ac)	1	Group Selection (<1/5 Ac)	1	Winter
34	13	34	20	Mixed Hardwood/Softwood	Group Selection (<1/5 Ac)	4	Group Selection (<1/5 Ac)	4	Group Selection (<1/5 Ac)	4	Winter
36	14	36	14	Northern Hardwood	Single-Tree Selection	14	Single-Tree Selection	14	Single-Tree Selection	14	Winter
37	7	37	13	Northern Hardwood	Single-Tree Selection	7	Single-Tree Selection	7	Single-Tree Selection	7	Winter
39	8	39	16	Northern Hardwood	Clearcut	8	Group Selection (<1/5 Ac)	3	Group Selection (<1/5 Ac)	3	Winter
Total Stand Ac	263		298		Alternative 2 Total Treatment Ac	201	Alternative 3 Total Treatment Ac	179	Alternative 4 Total Treatment Ac	122	

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2. Table E-2, p. 25, displays the comparison of alternatives by individual stands, prescriptions and season of harvest.
3. Seventy-three percent (73%, 5,123 Ac) of HMU 118 is in MA 3.1 lands, where vegetation management can take place. The remaining portions of HMU 118 are MAs 6.1 (4%) and 6.3 (22%) lands, which are not subject to vegetation management. The proposed Ramsey Basin Project Area is located within the MA 3.1 lands of compartment 44 (2 %of HMU 118; 16% of the MA 3.1 lands in HMU 118).

Current regenerating habitat represents approximately:

- * 1.0% of HMU 118,
 - * 1.4% of the managed lands in HMU 118 (MA 3.1), and
 - * 5.2% of the MA 3.1 lands managed using even-aged silviculture (Forest Plan desired condition is 10%).
4. Visual Quality Objective - A desired level of scenic quality. Refers to the acceptable degree of alteration of the characteristic landscape:

Partial Retention - A visual quality objective which means that management activities may be evident but must remain subordinate to the characteristic landscape.

Modification - A visual quality objective which means that management activities may dominate the characteristic landscape but must, at the same time, utilize established form, line, color, and texture.

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5. On the lands prescribed for even-aged management in HMU 118, we are faced with a situation where there will be 20 acres of early-successional habitat (0-9 years) by 2014 if no additional clearcutting/overstory removal occurs. Early-successional habitat in MA 3.1 is currently below the Forest

Ammonoosuc/Pemigewasset Ranger District, White Mountain NF

Plan ideal desired condition of 10% (Forest Plan, p. III-13, VII-B-4, & VII-B-5) and will steadily decline over the coming decade as trees age. Table 2 displays how the existing clearcuts, and those planned for Compartment 45 in the even-aged MA 3.1 lands in HMU 118 will grow out of the regenerating age class by 2014.

Table 2: Acres of Regeneration in Even-Aged Management, MA 3.1, HMU 118

		Year					
		2003	2004	2006	2010	2013	2014
Compartment 47							
Stand 13	9 yrs	24 Ac	--	--	--	--	--
Stand 16	7 yrs	17 Ac	17 Ac	--	--	--	--
Stand 19		14 Ac	14 Ac	--	--	--	--
Stand 36	5 yrs	16 Ac	16 Ac	16 Ac	--	--	--
Compartment 46							
Stand 51	--	--	16 Ac	16 Ac	16 Ac	16 Ac	--
Stand 70	1 yr	11 Ac	11 Ac	11 Ac	11 Ac	--	--
Compartment 45 (Anticipated 2006 project)							
Potential for 20 Ac of regeneration		--	--	20 Ac	20 Ac	20 Ac	20 Ac
Total		82 Ac/ 5.1%	74 Ac/ 4.6%	63 Ac/ 3.9%	47 Ac/ 2.9%	36 Ac/ 1.9%	20 Ac/ 1.1%

6. Table E-4 displays the desired condition for MA 3.1 lands in HMU 118 to the existing conditions.

Table E-4: Northern Hardwood/Softwood Component on MA 3.1 Lands in HMU 118

Habitat Community	Desired Condition	Existing Condition	Difference
Even-Aged Management:			
Northern Hardwoods	51%	90%	+39%
Spruce Fir	16%	0%	-16%
Uneven-Aged Management:			
Northern Hardwoods	66%	61%	-5%
Spruce Fir	22%	14%	-8%

7. Forest Management Goals and MA 3.1 and HMU Primary Purposes and Desired Conditions. (Letters are used in Table 2, p. 16)

Forest Management Goals (Forest Plan, pp. III-2 & III-3):

Forest-wide goals and objectives provide the basis for overall direction regarding the type and amount of goods and services that the White Mountain National Forest will provide. These goals are concise statements describing a desired result to be achieved over the next 10-15 years through implementation of the Forest Plan. All goals are to be achieved in the most cost-effective manner. The following Forest-wide Management goals apply to the Ramsey Basin Project Area:

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- Conduct all management activities to protect soil and water.
- Conduct all management activities with full recognition of the appearance of the Forest, realizing the importance to society of a natural landscape distinct from man-made environments in an otherwise dominant in the east (Forest Plan, Appendix G-6 – Visual Quality Objective Guide/Even-Aged Management, pp. VII-C-17 through VII-C-19).
- Recognize the demand for and the importance of day-use areas and driving for pleasure as part of the Forest’s total recreation opportunity spectrum.
- Use existing roads, trail, and utility corridors to the maximum extent possible. Plan and design access to serve multiple management purposes.
- Design and build any new access, regardless of type, according to standards and criteria that focus on minimum impact.
- Feature management for indigenous wildlife species including those using old-growth habitat, threatened and endangered, sensitive/unique species. Recognize the demand for non-consumptive uses of wildlife, including opportunities to observe.
- Use timber management as one of the tools available to achieve the desired future condition and integrated resource objectives of certain management areas.
- Feature northern hardwood management over softwood. Move toward the culturing of high quality hardwoods that are in demand for specialty products. Assure a stable, reliable source of this raw material to support community stability.

The Primary Purposes of MA 3.1 (Forest Plan, p. III-36) are to:

- Provide large volumes of high quality hardwood sawtimber on a sustained yield basis and other timber products through intensive management practices.
- Increase wildlife habitat diversity for the full range of wildlife species with emphasis on early successional species.
- Broaden the range of recreation opportunities, mainly those offering semi-primitive motorized experience opportunities.
- Grow smaller-diameter trees for fiber production.
- Even-aged management will be the most predominant silvicultural system used; uneven-aged management will be used to meet site-specific visual and silvicultural requirements and generally range from 3-30 acres. Uneven-aged management will be considered on a forest setting. This conforms to 36CFR219.27(g) that states that diversity must be “at least as great as that which would be expected in a natural forest.” In addition, because the majority of the wildlife species in the planning area have a primary or secondary requirement for regenerating or young vegetation, management activities must be directed toward supplying these habitats throughout the 337,000 acres in a manner that strives for a controlled distribution and even supply across space and time.

Desired Condition for MA 3.1

The forest on these management areas will be a mosaic of stands of American beech, sugar maple, balsam fir, hemlock, red and white pine, spruce, paper birch, red oak and aspen. These areas will provide habitat for game and non-game species. Three different conditions will occur:

- 1) The majority of stands will consist of trees of about the same age and size;
- 2) Other stands will consist of a mix of tree sizes and ages ranging from seedlings to very large mature trees; and
- 3) A lesser acreage of the forest will be comprised of individual stands of northern hardwoods, softwoods, paper birch, and aspen of the same age and size grown on a shorter rotation and having a diameter of 6-16 inches.

Uneven-aged management will be considered on a site-by site basis and generally will be applied on 10-20 percent of the management area. The selection of even-or uneven-aged silvicultural systems is guided by the land type capability and current species composition of each stand as well as social needs (see §1.4.1.2, below, for an explanation of how this applies to Habitat Management Units).

There will be openings of different sizes interspersed with the stands of trees. These intermixed stands will be of irregular size and shape and distributed so that the overall forest will generally be natural appearing.

There will be noticeable human activity in these areas resulting from many uses. Evidence will usually be in harmony with the natural-appearing environment and consistent with good resource management.

A network of gated/blocked roads and trails will provide access for various land management activities. Selected areas will be accessible for off-road motorized forms of recreation activities. Some roads will be open occasionally to provide opportunities for activities such as firewood gathering or hunting access. Generally, there will be 1-3 miles of road per square mile of area.

Habitat Management Unit Desired Composition Objectives (Map 2, p. 4)

HMUs across the WMNF were:

laid out using the proper aquatic types (wetland component for moose) as centers and then drawing 4,000-acre circles around them to approximate moose home ranges. These boundaries were then adjusted so that the coincided with compartment boundaries on each Ranger District. . . . due to boundary adjustments, each HMU will contain varying amounts of land in vegetative management (MAs 2.1 and 3.1), but usually will contain at least 4,000 acres in this category. Many HMUs contain no management objective over and above the basic 4,000 acres. Only that portion of the HMUs in Management

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Areas 2.1 or 3.1 is addressed in the . . . discussion of composition objectives and indicator species selection. Lands 3.1 are recognized as part of the mature, over-mature, and old growth habitats . . . and can be considered in the overall habitat use analysis for any given wildlife species within each HMU (Forest Plan V-II-B-4 & 5).

Since each of the HMUs is based upon diverse moose requirements, at least some of the community types required by the other wildlife species will be present. The remaining community types not represented by moose were added to the mix resulting in an “ideal” habitat mix on each HMU. The “ideal” vegetative community serves as a standard that should be repeated across the HMUs and against which each individual HMU can be measured to determine present condition and to direct management toward the desired objectives. Each HMU is composed of a varying assortment of ecological land types and, as a result, not all may be capable of reaching the “ideal” state (Forest Plan, p. VII-B-4 & 5.).

Each HMU is unique in the quantities of different ecological land types they contain. The result will be projects that may differ substantially from the “ideal” state, but when looked at from a landscape perspective more closely resemble the “ideal” state.

8. Issues Received During Scoping: Three (3) letters were received from the following parties in response to the 93 Scoping letters mailed for the Ramsey Basin project: E. A. Nutt, Woodsville, NH; Frances Shea, Earthworks Project, Fitchburg, MA; and Michael Petrie, Franklin VT. The comments received fell in two categories: Issues that can be resolved by applying Forest Plan Standards and Guidelines (nonsignificant issues) and Issues that could be resolved by modifying the Proposed Action (significant issues)

Issues resolved by Applying Forest Plan Standards and Guidelines (Nonsignificant Issues):

- a. “Stands 9 and 22 may border Davis Brook and although the map is indistinct Davis Brook may actually pass through one or both stands. The set back from them should be considerable and should be enforced.” *Applicable Forest Plan Standards and Guidelines pertaining to riparian areas (Forest Plan, Appendix E; Forest Plan Amendments to Provide Fisheries Management Direction, 11/6/89, pp. III-15d & III-16) were followed during the layout of all stands in the Project Area.*
- b. “The present proposal appears to include areas of a good many cellar holes, specifically Stands 2, 36, 14, 9, and possibly 5 and 11. These sites should not only be located and marked, but, . . . there should be a significant buffer zone left around each one.” *Cultural surveys have been conducted in the Ramsey Basin Project Area Cultural Resource Report #s 023-29, 031, 065-068). Cultural sites are the result of past settlement in the nineteenth century and consist of cellar holes, foundations, and stone walls in various states of repair. Vegetation growing in and around cellar holes and*

foundations and natural weathering will continue to cause these sites to collapse. Project layout assured avoidance of known sites. Sites are protected as necessary in accordance with State Historic Preservation Office (SHPO) direction. This can include logging on frozen ground conditions to help protect historic values associated with known sites. If previously unknown sites or artifacts are located, and District/Forest Personnel will be consulted to evaluate the finds and recommend how to proceed.

- c. "There is (sic) the remains of early bridge abutments at Davis Brook. An early timber sale resulted in the collapse of the easterly abutment (which should have been restored by the Forest Service). If the crossing is to be utilized, as you indicated it would be, the temporary bridge should be so constructed that no part of the old abutments should bear any of the weight or pressure when equipment is passing over it." *When these bridge abutments were surveyed in 1982, the western abutment was already collapsed. This has been the result of natural weathering and stream action. The historic abutments are five feet above the stream. The existing bridge is supported on the banks back from and above the historic bridge abutments.*

SUMMARY OF LANDSCAPE SCALE MANAGEMENT TERMS

Management on the White Mountain National Forest includes consideration of many natural resource factors at several landscape scales. The contrast between vegetation and wildlife management exemplifies this point. Vegetation can be managed at a relatively small scale where as wildlife management may often have habitat requirements that range from less than an acre to thousands of acres. Stands, habitat types, compartments, management areas, and habitat management units are terms used to help define these differences in various landscape management scales.

A *stand* is a landscape management term typically used to describe a tree community that is sufficiently uniform in composition, age, spatial arrangement, or condition so that it can be distinguished from adjacent communities. A stand may range in size from a few acres to over 100 acres. Stands are management (silvicultural) entities where each stand is managed using either even- or uneven-aged silviculture practices. Stands, which are typically comprised of trees, are constantly growing and moving through various successional stages.

A *habitat type* is never smaller than a particular stand size. It is typically a unit of land comprised of a few acres to over 100 acres that supports a distinct successional sequence of vegetation growing on a unique type of soil material. The size of a particular habitat type may range from one stand to several stands in size. Examples of habitat types are, spruce/fir, northern hardwoods,

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aspen, oak/pine, etc. The successional stages that each of these habitat types progress through are: early-successional, young, mature and over-mature.

Compartments is a term used to describe a number of stands grouped together. A compartment is a small subdivision of a forested area used for the purpose of orientation, administration, and management (silvicultural) operations. Compartments contain a mix of habitat types and successional stages. These areas are defined by permanent boundary features (road, trail, stream, etc.). Compartment analysis can provide a mid-scale assessment of specific portions of the Forest. Project areas generally include portions of one or more compartments. Individual project areas generally include one or more compartments.

A *management area* is a large land area with specific management goals. Management areas 2.1 and 3.1 stress vegetation management, but have slightly different goals. Management areas provide us with a landscape-level look at the Forest and are not always contiguous. Management areas often cross compartment boundaries and subsequently contain multiple compartments.

A *habitat management unit* is approximately 4,000 acres in size, the boundaries of which follow compartment boundaries. Within a habitat management unit, there must be at least a pond or a stream with wetland potential. Habitat management units provide us with a landscape-level look at the Forest. The White Mountain National Forest Land and Resource Management Plan provides direction for what variety of habitat types and successional stages would be found on MA 2.1 and 3.1 lands an “ideal” habitat management unit. The Forest Plan further defines this “ideal” desired condition by stands that are managed using even- and uneven-aged silvicultural management systems.

When determining the desired condition for a habitat management unit the existing condition of that area is compared with the desired condition for an “ideal” habitat management unit. The difference between the existing and

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