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Green Mountain National Forest

Executive Summary

of the Final Environmental Impact Statement for the 2006 Land and Resource Management Plan

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Executive Summary
Final Environmental Impact Statement
for the Land and Resource Management Plan

Green Mountain National Forest

Eastern Region
Milwaukee, Wisconsin
February 2006

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Abstract: In April 2005, the Forest Service released for public review and comment a Draft Environmental Impact Statement (DEIS) that described five possible ways to manage the Green Mountain National Forest (GMNF). Alternative E was the Preferred Alternative in the DEIS and was the foundation for the Proposed Revised Forest Plan. Alternative E was modified in the Final Environmental Impact Statement (FEIS) to address public comments and new information received since the release of the DEIS. Alternative E is referred to as the "Selected Alternative" or "Alternative E Modified" in the Record of Decision, some parts of the FEIS, and FEIS Appendix H – Responses to Public Comments.

The Selected Alternative, outlined as the Green Mountain National Forest 2006 Land and Resource Management Plan (2006 Forest Plan), guides all natural resource management activities on the Forest; addresses new information and concerns raised since the 1987 Forest Plan was published; and meets objectives of federal laws, regulation, and policies. Rationale for choosing Alternative E Modified as the Selected Alternative is described in the Record of Decision.

As the population of the country rises and demands on the timber, forage, water, wildlife, and recreation resources increase, the national forests more and more provide for the material needs of the individual, the economies of the towns and States, and contribute to the Nation's strength and well-being. Thus the national forests serve the people.

- Edward P. Cliff, Ninth Chief of the USDA Forest Service, *The USDA Forest Service – The First Century,* FS 650, Washington DC, July 2000

Table of Contents

Chapter 1 – Purpose and Need

Chapter 2 – Alternatives

Chapter 3 – Affected Environment and Environmental Consequences

2.1 CHAPTER 1 - PURPOSE AND NEED

1.1.6 Introduction

This Executive Summary provides an overview of the Final Environmental Impact Statement (FEIS) for revision of the 1987 *Green Mountain National Forest Land and Resource Management Plan* (1987 Forest Plan).

The Green Mountain National Forest (GMNF) consists of more than 400,000 acres located in central and southern Vermont. The Forest represents approximately seven percent of the State's land area and hosts up to 3.4 million visitors each year. National Forest System lands are found within fifty-three towns, ranging in population from 16,000 to less than 10 people. The USDA Forest Service administers the GMNF, aided by partners, other agencies, individuals and permittees. The Forest is divided into two districts, referred to as the North Half and South Half with offices in Rochester, Middlebury and Manchester. The Forest Headquarters is currently located in Rutland.

This FEIS discloses the potential effects of applying five alternatives for revising the 1987 Forest Plan in a comparative format. Included in the analysis are the potential physical, biological, social and economic effects from implementing each alternative. The selected alternative will become the 2006 *Green Mountain National Forest Land and Resource Management Plan* (2006 Forest Plan) and will supercede the 1987 Forest Plan. The FEIS follows the implementing regulations of the National Environmental Policy Act (NEPA) found in 40 CFR, Part 1500-1508.

1.1.6 Forest Plan Decisions

The current GMNF Forest Plan was approved by the Eastern Regional Forester in January 1987, and has been amended nine times. Revision of the 1987 Forest Plan is now needed to meet Federal laws and regulations, as well as address new information about the Forest and its uses. The intent of the revised Forest Plan is to guide all natural resource management activities, establish management goals and objectives, allocate lands to different management emphases, provide standards and guidelines for Plan implementation, and set the criteria for monitoring and evaluation of management activities on the GMNF over the next 10 to 15 years.

The GMNF Forest Plan revision process follows the 1982 planning regulations (36 CFR Part 219) for developing forest plans pursuant to the National Forest Management Act (NFMA). Unless specified, references to the NFMA CFRs throughout these documents are to the 1982 implementing regulations. Planning actions required by the NFMA and used in this planning process are:

- Identification of issues, concerns, and opportunities
- Development of planning criteria
- Inventory of resources and data collection
- Analysis of the Management Situation
- Formulation of alternatives
- Estimation of effects of alternatives
- Evaluation of alternatives
- Recommendation of a preferred alternative
- Approval and implementation
- Monitoring and evaluation

The following key decisions are made in a forest plan:

1. Forest-wide multiple-use goals and objectives (36 CFR 219.11(b))
2. Forest-wide management requirements (such as standards and guidelines) (36 CFR 219.13-27)
3. Management area direction (36 CFR 219.11 (c))
4. Lands suited and not suited for timber production (36 CFR 219.14), and establishment of an allowable sale quantity (36 CFR 219.16)
5. Monitoring and evaluation requirements (36 CFR 219.11 (d))

6. Recommendations to the Congress (such as wilderness designations) (36 CFR 219.17)

The Regional Forester is the Responsible Official for the analysis and decisions for Forest Plan revision. Alternative development, conducting the analysis, as well as DEIS and FEIS preparation were done at the local Forest level under the direction of the Forest Supervisor of the Green Mountain and Finger Lakes National Forests. The Regional Forester selected Alternative E to become the 2006 Forest Plan based on the analysis in the DEIS, public comments, and the analysis in this FEIS. The Regional Forester has provided the rationale for alternative selection in the Record of Decision (ROD) accompanying the FEIS. The alternative selected includes the six key Forest Plan decisions.

1.1.6 Purpose and Need for Change

The purpose of Forest Plan revision rests in the NFMA and its implementing regulations contained in 36 CFR 219 (1982), which requires National Forests to revise forest plans:

- Every 10 to 15 years;
- When conditions or demands in the area covered by the plan have changed significantly;
- When changes in agency policies, goals, or objectives would have a significant effect on forest level programs;
- When monitoring and evaluation indicate that a revision is necessary.

There are three primary reasons to revise the 1987 Forest Plan:

1. It has been more than 15 years since the Regional Forester approved the 1987 Plan.
2. Agency goals and objectives, along with other national guidance for strategic plans and programs, have changed.
3. New issues and trends have been identified that could change the management goals, management areas, standards and guidelines, and monitoring and evaluation strategy in the Plan.

Public dialogue and Forest Service staff evaluation of 1987 Forest Plan implementation monitoring were used to complete the Analysis of the Management Situation (AMS) published in a report entitled, *Implementing the Green Mountain National Forest Land and Resource Management Plan – A 15 Year Retrospective*. This report is based on 15 years of Forest Service monitoring, the experience of Forest Service resource managers' implementing the Forest Plan, and public input. A total of 32 separate resource issues were identified that have helped focus what management direction in the 1987 Forest Plan is in need of change. These issues were grouped into15 issues that are now the basis of the revision process.

1.1.6 Proposed Action

The proposed changes to the Forest Plan include a restructuring of the Management Area descriptions that guide the management direction across the Forest; changes in Management Area allocations to provide a range of management opportunities and to achieve desired future conditions; changes to goals, objectives, standards, and guidelines for desired direction, relevance, consistency, and accuracy; and to address minor overall inconsistencies in the 1987 Plan. More far reaching proposed changes are associated with the primary issues used to develop the need for change of the 1987 Plan. The proposals specific to these issues include the following:

Special Designations

- Determine the most appropriate mix of specially designated areas to promote ecological, social, and economic sustainability
- Make recommendations to the Congress on special area designations such as Wilderness
- Make designations that are within the authority of the Forest Service, such as Research Natural Areas

Biodiversity and Ecosystem Management

- Consider biodiversity and natural communities at a variety of landscape scales and landscape patterns
- Provide for mixes of desired and viable plant and animal species populations, natural communities, and landscape patterns
- Revise the Forest's management indicators including Management Indicator Species

Social and Economic Concerns

- Provide for a mix of quantitative and qualitative socio-economic benefits provided by the Forest to the public and neighboring communities

Recreation Management

- Provide for the appropriate mix of primitive, dispersed-use opportunities and more developed, higher density opportunities
- Provide guidance for the use of mountain bikes and the use of motorized vehicles such as snowmobiles and summer off-highway vehicles
- Identify the areas with opportunities for future trail development

Timber Management

- Determine an appropriate level for timber harvesting
- Establish methods and uses for vegetation management
- More clearly define the desired mix and location of various vegetative forest types and age class distributions

1.1.6 Public Involvement and Collaborative Planning

Public involvement and input have been essential elements of the plan revision process since it began in 1996. This process was designed to identify changes needed in the 1987 Plan. One of the goals of this process was to emphasize public involvement and community partnerships. Forest Plan revision is a process that relies heavily on the collaboration of many stakeholders and the resolution of many issues. The GMNF planning team focused on creating an atmosphere of openness in which all members of the public would have an opportunity to share information.

To this end, the Forest Service has sought information, comments, and assistance from individuals, organizations, tribal governments, and federal, state, and local agencies that are interested in, or may be affected by the proposed action (36 CFR 219.6). The Forest Service has also pursued collaborative approaches with members of the public who are interested in forest management.

Since the initiation of the Plan revision process in 1996, there have been more than 80 local planning meetings in communities in and around the Forest, as well as four educational forums on the topics of wilderness, timber harvesting, the history of the GMNF and recreation. Throughout this process the public has been encouraged to call, visit the office, and/or submit letters and/or emails to have their comments and questions addressed. The public involvement process has enabled the Forest Service to accomplish the following:

- Keep the public informed during the entire process
- Gather public input on issues
- Formulate alternatives
- Define the scope and nature of the decisions to be made
- Address various management conflicts

In April 2005, the Forest Service released the DEIS and Proposed Revised Forest Plan for public review and initiated a three-month public comment period.

After the release of the Proposed Revised Forest Plan and DEIS documents, the Forest Service held another series of open house meetings. These meetings were important public forums to ask questions about the Proposed Revised Forest Plan in order to provide more informed and meaningful comments.

The Forest Service received more than 10,000 comment responses, including letters, emails, and facsimiles on the Proposed Revised Forest Plan and DEIS. Those responses contained more than 4,000 substantive comments. Substantive comments are addressed in the FEIS Appendix H – Responses to Public Comments.

Continuous public involvement throughout the Plan revision process will facilitate the eventual implementation of the revised Plan. To this end, the Forest Service intends to maintain consistent public involvement as the 2006 Forest Plan is implemented by site-specific project planning.

1.1.6 Issues

Forest plan revision issues are those areas of Forest management that require a change as a result of new scientific information, changed resource conditions, a better understanding of previous management based on monitoring and evaluation information, and/or changing public needs and desires.

Fifteen separate but interrelated issues were identified through the public involvement process for Forest Plan revision. These issues were evaluated, developed, and grouped into categories based on: 1) the degree to which they would affect Forest Plan direction, management area designations, goals, objectives, standards and/or guidelines; and 2) the level of concern they received from the public and Forest Service staff.

Major issues are those that were identified to have the most potential impact on the management of the Forest and direction of the Plan. These issues reflect the subject areas that have been proposed for the most change in management direction from the 1987 Plan and thus were the main factors used to develop alternatives. There are five major issues that were identified that are addressed in this FEIS through alternatives:

1. Special Designations
2. Biodiversity and Ecosystem Management
3. Social and Economic Concerns
4. Recreation Management
5. Timber Management

Other issues were identified that although didn't trigger a need for alternative development, were still important enough to address in the context of the analysis in the FEIS. These issues could still have a considerable impact on the management of the Forest and direction contained in the Plan, but to a lesser degree than the major issues. These issues are addressed across all alternatives either through goals, objectives, standards, guidelines, or management direction:

1. Role of the Green Mountain National Forest
2. Special Use Management
3. Heritage Resources
4. Road Management and Transportation Planning
5. Monitoring and Evaluation
6. Information and Education
7. Visual Quality and Scenery Management
8. Coordination and Partnerships
9. Water Resources
10. Land Acquisition

Detailed issue statements associated with the major and other issues are provided in Chapter 3 of this summary.

2.1 CHAPTER 2 – ALTERNATIVES

2.1.1 Alternative Development

The alternatives include different options to resolve issues and to fulfill the purpose and need discussed in Chapter 1. The public, other federal, State and local agencies, as well as Forest Service employees, contributed to the identification of five "major" issues that are addressed with alternatives in the FEIS. Following an interdisciplinary approach, the Forest Service used the five major issues as the primary basis on which to focus development of five alternatives that have been carried forward for detailed analysis in the FEIS. While all five alternatives provide a wide range of multiple uses, goods and services; each addresses the issues in different ways.

Public participation through local planning group meetings held from 2003 into the summer of 2004 helped focus the issues and scope of needed alternative development. Following these meetings, Forest Service staff developed five preliminary alternatives in response to the issues and need for change. The preliminary alternatives were presented at a series of public meetings in June 2004. Many of the comments received during and after the meetings were incorporated into alternative design, and led to the final five alternatives that were brought forward for analysis in the DEIS.

2.1.2 Changes between the Draft and Final Environmental Impact Statements

The Forest Service received well-prepared and constructive comments on the Proposed Revised Forest Plan and DEIS during the three-month public comment period. Both public and internal comments were considered in preparing the FEIS and 2006 Forest Plan.

Changes made to the Proposed Revised Forest Plan have been incorporated into the alternatives. No additional alternatives were included for detailed analysis in the FEIS. Changes made ranged from minor editing for improved clarity to changes in Forest Plan goals, objectives, standards, guidelines, and MA direction and allocation. Some changes resulted from data corrections, new survey information, and field verification. The following summary describes the most substantial changes made in the 2006 Forest Plan. A complete list of changes can be found in the FEIS planning record.

Public comments also identified the need for several improvements to the analysis and presentation of materials in the FEIS. As a result, editorial discrepancies, minor inconsistencies, or gaps in the presentation of information in the DEIS have been corrected in the FEIS. These changes are noted in the respective Forest Service responses in the FEIS Appendix H - Response to Comments.

Changes to Management Area Allocations

- Changes to the Diverse Forest Use management area increased this allocation from 116,737 acres (29%) to 118,717 acres (30%).
- Changes to the Remote Backcountry Forest (RBF) management area decrease this allocation from 32,763 acres (8%) to 30,930 acres (8%).
- Changes to the Remote Wildlife Habitat MA increase this MA allocation from 28,571 acres (7%) to 30,399 acres (8%).
- The Alpine Ski Area MA (178 acres) adjacent to Haystack Mountain has been changed to the Diverse Forest Use management area. The area is not under ski area permit and is not needed as part of the Haystack Ski Area.
- Changes to the Ecological Special Areas (ESA) management area increase this allocation from 3,556 acres (1%) to 3,928 acres (1%).

- Changes to the recommended Wilderness Study Area management area increase this MA allocation from 17,869 acres (4%) to 27,473 acres (7%).

CHANGES TO GOALS AND OBJECTIVES

- Goal 13 has been reworded to clarify the intent of wilderness management.
- The age class objectives under Goal 2 have been revised to be more consistent with desired conditions.

CHANGES TO STANDARDS AND GUIDELINES

- The soil, water, and riparian standards and guidelines (S&Gs) have been modified to provide greater clarity in the intended protection of wetlands including vernal pools and seeps.
- The standards and guidelines for Indiana bat roosting areas have been clarified in coordination with the United States Fish and Wildlife Service (USFWS) and the Vermont Department of Fish and Wildlife.
- The standards and guidelines for threatened, endangered, proposed, sensitive species; rare and exemplary natural communities have been revised to provide a greater level of detail and direction for rare
- The standards and guidelines for peregrine falcon, great blue heron, northern goshawk and osprey have been modified and clarified.
- Recreation Opportunity Spectrum (ROS) class, the Forest-wide standard requiring that management areas be managed consistent with the ROS class has been removed because the ROS class is a Desired Condition and cannot always be attained but provides a direction toward which to manage.
- The standards and guidelines for bicycle and equestrian use have been changed to reflect management reality.
- The standards and guidelines for motorized use have been clarified and further restricted, and new standards and guidelines have been added to clarify the limited role the GMNF will play in providing summer ORV use.

CHANGES TO MANAGEMENT AREA DIRECTION

- A number of changes were made to the Remote Wildlife Habitat management area including changes in the major emphasis, desired condition, and standards and guidelines. These changes are intended to clarify that although recreation uses are to be de-emphasized in this management area, existing uses, particularly trail maintenance, relocations and completions may occur.

CHANGES TO THE ENVIRONMENTAL IMPACT STATEMENT

- The Forest Service received comments about the adequacy of our acid deposition, soil productivity, and land suitability analysis relative to timber harvest. Additional information provided by commenters was reviewed and discussed with subject matter experts to determine if any adjustments in the timber management approach were necessary. We have added analysis to the soils section of the Final EIS on nutrient loss with respect to biomass removal and acid deposition.

CHANGES TO APPENDICES

- The Forest Service staff invested additional resources to further review some of the specific areas of concern expressed in comments on the roadless inventory. This review resulted in approximately 6,730 acres being added to the roadless inventory in three different areas: Bolles Brook, Austin Brook Road and Abbey Pond.
- Changes to the Proclamation Boundary maps for Alternative E Modified were made to be consistent with changes in management area allocations.

2.1.3 Elements Common to All Alternatives

All alternatives were designed to:

- Comply with applicable laws, regulations, and policies (a complete list is found in Appendix E of the 2006 Forest Plan).
- Meet the minimum management requirements of 36 CFR 219.27. These requirements guide the development, analysis, approval, implementation, monitoring, and evaluation of forest plans.
- Include the same goals, objectives, and forest-wide standards and guidelines. The only exception are standards and guidelines associated with Land Ownership Adjustment under Alternative A since it would retain the 1987 Forest Plan direction for newly acquired lands. A detailed description of the goals, objectives, and Forest-wide standard and guidelines can be found in Chapter 2 of the 2006 Forest Plan.
- Include the same Monitoring and Evaluation Plan as described in Chapter 4 of the 2006 Forest Plan.

The alternatives allocate land among different Management Areas (MAs). Each alternative includes a different combination of MA acres applied in varied spatial patterns. Each MA has a unique emphasis, desired condition of the land, and standards and guidelines. A detailed description for each MA can be found in Chapter 3 of the 2006 Forest Plan. MA descriptions for MA 9.2 and MA 9.4 (Significant Streams) can be found in the 1987 Forest Plan.

The following is a list of the MAs considered in Forest Plan revision. Unless otherwise noted, each MA is included in all alternatives.

- MA 3.1 Diverse Forest Use
- MA 5.1 Wilderness
- MA 6.1 Remote Backcountry Forest
- MA 6.2 Diverse Backcountry
- MA 6.3 Remote Wildlife Habitat (Alternatives B through E)
- MA 7.1 Alpine Ski Areas
- MA 8.1 Appalachian National Scenic Trail
- MA 8.2 Long Trail
- MA 8.3 White Rocks National Recreation Area
- MA 8.4 Alpine/Subalpine Special Area (Alternatives B through E)
- MA 8.5 Green Mountain Escarpment (Alternatives B through E)
- MA 8.6 Existing and Candidate Research Natural Areas
- MA 8.7 Ecological Special Areas
- MA 8.8 Recreation Special Areas
- MA 8.9 Moosalamoo Recreation and Education Area (Alternatives C and E)
- MA 9.2 Newly Acquired Lands (Alternative A Only)
- MA 9.3 Alpine Ski Area Expansion
- MA 9.4 Eligible Wild, Scenic, and Recreational Rivers (Alternatives B through E)
- MA 9.4 Significant Streams (Alternative A Only)
- MA 9.5 Wilderness Study Areas (Alternatives B through E)

2.1.4 Alternatives Considered in Detail

Five alternatives are analyzed in detail in the FEIS including the “no-action” (current management) alternative. Table ES-1 provides the Management Area allocations for each alternative.

Alternative A (Current Management)

Alternative A is the “no-action” alternative for this FEIS. This alternative serves as the baseline for comparison of the other alternatives. “No-action” for purposes of this analysis is considered “no change” from current management direction provided in the 1987 Forest Plan. It reflects the current level of goods and services provided by the Forest and the most likely amount of goods and services expected to be provided in the future if current management direction continues. Most of the

same changes identified for the other alternatives specific to the goals, objectives, standards and guidelines, and management area direction have been incorporated into Alternative A in order to reflect necessary improvements to the Forest Plan identified through monitoring since 1987.

Alternative A Highlights

- More than 90,000 acres of newly acquired lands (MA 9.2) are not allocated to management areas in order to provide a true baseline alternative
- Maintains Significant Streams in a special management area and does not use the information on Wild, Scenic and Recreational Rivers (WSR) provided by the evaluation completed for Plan Revision
- No new Wilderness Study Areas, other special areas (Green Mountain Escarpment, Alpine/subalpine, and Moosalamoo Recreation and Education Area MAs), or Remote Wildlife Habitat MA

Alternative B

The following factors were used to guide the development of Alternative B:

- Increase timber and wildlife habitat management
- Accommodate a wide range of uses
- Increase early successional age composition of forest community types
- Produce high quality saw timber
- Increase ecosystem-based management and emphasize conservation of biodiversity

Alternative B Highlights

- Emphasizes active management
- Large areas of forest that allow for flexible timber management
- Greater opportunities for timber production
- Active management is emphasized to provide biodiversity
- Greater opportunities for motorized recreation and recreation that requires road access

Alternative C

The following factors were used to guide the development of Alternative C:

- Provide a wider range of recreational experiences
- Provide more areas with mature forest
- Increase ecosystem-based management and emphasize conservation of biodiversity
- Improve tourism opportunities

Alternative C Highlights

- Greater opportunities for remote motorized and non-motorized recreation
- Proposes Moosalamoo Recreation and Education Area
- Portions of Glastenbury and Worth Mountain are proposed as Wilderness Study Areas
- Small additions to existing Wilderness areas are proposed in order to improve boundary management
- Most significant special areas added to Special Area MA to maintain biodiversity

Alternative D

The following factors were used to guide the development of Alternative D:

- Increase ecosystem-based management and emphasize conservation of biodiversity
- Increase mature/old forest
- Maintain representatives of most natural communities in areas with minimal management
- Restore and protect rare and uncommon ecosystems while providing for a range of other uses

Alternative D Highlights

- Most of the Escarpment is a special area
- Representatives of most natural communities included in a special area or Remote Backcountry Forest
- Larger portions of Glastenbury and Worth Mountain are proposed as Wilderness Study Areas

- Larger area for remote wildlife habitats
- Fewer areas with flexible, more intensive timber management

Alternative E – Selected Alternative

The following factors were used to guide the development of Alternative E:

- Provide a range of uses more evenly distributed across the forest
- Increase ecosystem-based management and emphasize conservation of biodiversity
- Provide a range of timber management areas
- Provide a diverse range of recreational opportunities

Alternative E Highlights

- Provides a mix of flexible timber management and longer rotation periods
- Focuses most active types of management in the most accessible areas
- Proposes larger area of Glastenbury than Alternative C as a Wilderness Study Area
- Allocates much of the Escarpment as a special area
- Proposes Moosalamoo Recreation and Education Area
- Provides a mix of remote areas for recreation and wildlife habitat

2.1.5 Alternatives Eliminated from Detailed Study

No Timber Harvest

This alternative was considered to address the public issue regarding the amount of timber harvesting that should be allowed, but more specifically, whether timber harvesting should occur at all on the GMNF. This alternative was eliminated from detailed analysis because it would not adequately address the issues and meet the criteria set for revising the Forest Plan.

The provision of sustainable supplies of timber products is one of several of the original purposes for establishing national forests, as described in the Organic Act and Weeks Act. The Forest Service has been practicing sustainable silvicultural practices on the GMNF since its creation in the 1930s and is now at a point where long-term investments, such as thinning and stand improvement harvesting, will be more fully realized with continued management. Timber harvesting is a necessary management tool for creating and maintaining desired wildlife habitat, and for maintaining and enhancing natural communities and other resources. Without timber harvesting scheduled to achieve these key objectives, this alternative would not meet the purpose and need of revising the Forest Plan.

Greatly Increased Timber Harvesting

This alternative was considered to address the public issue regarding the amount of timber harvesting that should occur on the GMNF, but more specifically whether timber harvesting should be dramatically increased. Public comments suggested that timber harvesting could be maximized by placing all lands except existing Wilderness and special areas into MAs that allow timber harvesting.

The National Forest Management Act, Multiple-Use Sustained-Yield Act of 1960, the Endangered Species Act of 1973, and other laws require that National Forests be managed for a variety of uses and provide resource protections. This alternative was eliminated from detailed analysis because it emphasized timber production to such an extent that the management and protection of other resources would not adequately address the issues and meet the criteria set for revising the Forest Plan. For this reason, this alternative fails to meet the purpose and need of revising the Forest Plan. The issue associated with the role of timber harvesting, the amount of timber that should be cut, harvest methods that should be used, and timber management intensity are

already adequately addressed at various levels in the five alternatives included for detailed analysis in the FEIS.

All Inventoried Roadless Areas Recommended as Wilderness

This alternative was considered to address the public issue of the amount of wilderness desired on the GMNF. In 2004, the Forest Service completed a roadless inventory and evaluation as part of the Forest Plan revision process. The inventory identified 36 roadless areas on the GMNF totaling 117,591 acres. The inventory was updated in 2005 to include a total of 37 roadless areas consisting of 124,321 acres. This alternative seeks a Forest Service recommendation that all of the Inventoried Roadless Areas (IRAs) be recommended for Wilderness study. In order to be recommended for Wilderness designation, a roadless area has to be evaluated based on three criteria: availability, capability, and need. The 37 IRAs identified in the *GMNF Roadless Inventory* were evaluated using the three criteria, and not all areas met the recommendation criteria (see FEIS Appendix C). Since all IRAs did not meet the minimum criteria to consider for inclusion in a Wilderness Study Area MA, the suggestion to recommend all 37 IRAs for Wilderness designation was eliminated from detailed study.

This alternative was also eliminated from detailed analysis because it would not adequately address the issues and meet the criteria set for revising the Forest Plan, and thus would not meet the purpose and need for the proposal. The National Forest Management Act, Multiple-Use Sustained-Yield Act of 1960, Endangered Species Act of 1973, and other laws require that National Forests be managed for a variety of uses and provide resource protections. In this alternative approximately 31% (124,321acres) of the total Forest land base would be placed in Wilderness Study Areas. When added to the 59,001 acres of existing Wilderness, 46% (183,322 acres) of the Forest land base would be allocated to management areas that limit some forms of recreation and other management opportunities, close existing roads, prohibit new timber harvest and road construction, and prohibit motorized recreation use and mountain biking. The issue of allocating additional land to wilderness is adequately addressed in the existing range of alternatives included for detailed analysis in this FEIS.

Vermont Wilderness Association Proposal

In November of 2001, the Forest Service was presented with a proposal from the Vermont Wilderness Association, a coalition comprised of 15 State, regional and national conservation groups. This alternative proposed an additional 79,200 acres (approximately 20% of the GMNF) as Wilderness, 45,000 acres (approximately 11% of the GMNF) as National Recreation Area, and 15,000 acres (approximately 4% of the GMNF) as National Conservation Area. This would increase congressionally designated areas to 55 percent of GMNF acreage. The Forest Service considered this proposal but eliminated it from detailed study for a number of reasons.

The Forest Service has conducted, as required by regulation, a Roadless Inventory and subsequent Wilderness Evaluation as part of the Plan revision process and identified Roadless Areas that meet the national and regional criteria. Some of the areas desired for Wilderness designation in this alternative would not meet these requirements for a Roadless Area, because they included roads and snowmobile trails. In addition, some of the areas proposed to be National Recreation Areas have large areas that are not on NFS lands and therefore, could not be effectively managed as a National Recreation Area. The VWA proposal to designate the Moosalamoo area as a NRA was considered and it was determined that the area's unique values would be better served by a recreation and education management area.

The National Forest Management Act, Multiple-Use Sustained-Yield Act of 1960, the Endangered Species Act of 1973, and other laws require that National Forests be managed for a variety of uses and provide resource protections. This alternative emphasizes restrictive management designations to an

extent that would be unreasonable, as management and protection of other resources would fall below acceptable levels. This alternative was also eliminated from detailed analysis because it would not adequately address the issues and meet the criteria set for revising the Forest Plan, and thus would not meet the purpose and need for the proposal. The issue of allocating additional land to designations such as wilderness and other special areas is addressed in the existing range of alternatives included for detailed analysis in this FEIS.

Initial Alternative A

At the preliminary stage of developing alternatives to address issues, Alternative A ("no-action" alternative or current management) included the allocation of more than 90,000 acres of newly acquired lands (MA 9.2) obtained before and after 1987 to other Management Areas thus allowing more proactive management activities to meet desired conditions. The allocation of these lands to another MA followed criteria that best met current management direction in the 1987 Forest Plan, and did not include any of the new MAs that have been developed and used for other alternatives such as Remote Wildlife Habitat, Wilderness Study Areas, and Green Mountain Escarpment. There were public concerns that this approach did not adequately represent a true "no-action" alternative as a basis for comparing the other alternatives considered for detailed analysis. The initial Alternative A as described during public meetings in June 2004 was replaced with a different approach as a result of this concern and thus was dismissed from further consideration. The new approach now consists of Alternative A, retaining the newly acquired lands MA (MA 9.2) as well as those lands considered as significant streams (MA 9.4). This approach was taken in order to better reflect a baseline no-action alternative to compare the other Forest Plan revision alternatives (see Section 2.1.4).

2.1.6 Comparison of Alternatives

Table ES-2 compares how each alternative addresses the major issues.

Table ES-1: Management Area Allocations by Alternative

Management Area	Alt. A (Current Mgt.) Acres (%)	Alt. B Acres (%)	Alt. C Acres (%)	Alt. D Acres (%)	Alt. E Acres (%)
Diverse Forest Use	110,271 (28%)	195,403 (49%)	120,778 (30%)	104,027 (26%)	118,717 (30%)
Diverse Backcountry	85,139 (21%)	59,193 (15%)	94,497 (24%)	59,082 (15%)	59,665 (15%)
Remote Wildlife Habitat	0	12,115 (3%)	5,723 (1%)	42,187 (11%)	30,399 (8%)
Escarpment	0	2,894 (1%)	8,488 (2%)	17,710 (4%)	14,436 (4%)
Remote Backcountry	8,316 (2%)	22,163 (6%)	23,220 (6%)	23,036 (6%)	30,930 (8%)
Wilderness	59,001 (15%)	59,001 (15%)	59,001 (15%)	59,001 (15%)	59,001 (15%)
Wilderness Study Area	0	2,291 (1%)	29,360 (7%)	49,799 (12%)	27,473 (7%)
National Recreation Area	22,758 (6%)	22,758 (6%)	22,758 (6%)	22,758 (6%)	22,758 (6%)
Appalachian Trail	*14,473 (4%)	14,315 (4%)	14,315 (4%)	12,790 (3%)	13,629 (3%)
Long Trail	*2,927 (1%)	2,640 (1%)	2,511 (1%)	1,801 (1%)	2,640 (1%)
Recreation Special Areas	86 (<1%)	157 (<1%)	157 (<1%)	157 (<1%)	157 (<1%)
Moosalamoo Recreation and Education Area	0	0	12,702 (3%)	0	12,375 (3%)
Alpine Ski Areas	2,822 (1%)	3,067 (1%)	3,067 (1%)	3,067 (1%)	2,889 (1%)
Alpine Ski Area Expansion	554 (<1%)	518 (<1%)	518 (<1%)	518 (<1%)	518 (<1%)
Existing and Candidate Research Natural Areas	1,546 (<1%)	471 (<1%)	471 (<1%)	471 (<1%)	471 (<1%)
Ecological Special Areas	796 (<1%)	3,000 (1%)	2,420 (1%)	3,582 (1%)	3,928 (1%)
Alpine/Subalpine Special Area	0	706 (<1%)	706 (<1%)	706 (<1%)	706 (<1%)
Eligible Wild, Scenic, and Recreational Rivers[1]	0	24,743	24,743	24,743	24,743
Significant Streams[1]	45,538	0	0	0	0
Newly Acquired lands	92,003 (23%)	0	0	0	0

Source: GMNF GIS Alternative A Management Area Layer ‡ Notes: Total Forest GIS acreage: 400,692
*Does not include portions of the Appalachian and Long Trail Management Areas that intersect congressionally designated Wilderness & National Recreation Areas as shown on Alternative A maps
[1] Management Area applies to stream corridors (1/4 mile each side of stream) which overlay and run through all other management areas.

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Special Designations					
The number of acres recommended for wilderness designation (land allocated to Wilderness Study Area (WSA) Management Area)	There would be no proposed WSAs, and would offer the least opportunity for expanded wilderness among the alternatives.	There would be 2,291 acres of WSAs, representing one percent of the total GMNF acreage. Acres would be additions to Breadloaf Wilderness (North Half of the Forest) for boundary adjustments.	There would be 29,360 acres of WSAs, representing seven percent of the total GMNF acreage. There would be additions to existing wilderness on both the North and South half of the Forest for boundary adjustments, and includes two stand alone WSAs (portions of the Glastenbury and Worth Mountain areas).	There would be 49,799 acres of WSAs, representing twelve percent of the total GMNF acreage. There would be additions to existing wilderness on both the North and South half of the Forest for boundary adjustments, and includes two stand alone WSAs (larger portions of the Glastenbury and Worth Mountain areas than Alternative C). This would be the largest WSA acreage of any of the alternatives.	There would be 27,473 acres of WSAs, representing seven percent of the total GMNF acreage. There would be additions to existing wilderness on both the North and South half of the Forest for boundary adjustments, and includes one stand alone WSA (a larger portion of the Glastenbury area than Alternative C, but smaller than Alternative D).
Number of unique natural communities included in recommended wilderness	There would be no proposed Wilderness Study Areas.	There would be 2,291 acres of potential future old growth forest.	There would be three significant features within the proposed Wilderness Study Areas (Glastenbury Mountain, Monastery Mountain, and Middlebury Gap), and 29,360 acres of potential future old growth forest.	There would be four significant features within the proposed Wilderness Study Areas (Glastenbury Mountain, Little Pond, Monastery Mountain, and Middlebury Gap), and 49,799 acres of potential future old growth forest.	There would be two significant features within the proposed Wilderness Study Areas (Glastenbury Mountain and Little Pond), and 27,473 acres of potential future old growth forest.

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Impacts of wilderness designation on recreation opportunities	No new proposed Wilderness Study Areas. No impacts to existing recreation opportunities.	There would be 0.3 miles of existing road and three recreation facilities inconsistent with Wilderness Act direction. Displacement of existing uses and impacts to forest visitors would be minimal.	There would be 7.8 miles of existing roads and three recreation facilities inconsistent with Wilderness Act direction. Displacement of existing uses and impacts to forest visitors would be minimal.	There would be 12 miles of existing snowmobile trails, 19.3 miles of roads, and eight recreation facilities inconsistent with Wilderness Act direction. Displacement of existing uses and impacts to forest users would be greatest among the alternatives.	There would be 7.8 miles of existing roads and three recreation facilities inconsistent with Wilderness Act direction. Displacement of existing uses and impacts to forest visitors would be minimal.
Acres of suitable land for timber production removed from management if designated wilderness	No new proposed Wilderness Study Areas. No land would be determined unsuitable for timber production due to Wilderness Study Area designation.	Approximately 1,958 acres of land suitable for timber production would be determined unsuitable due to Wilderness Study Areas.	Approximately 16,314 acres of land suitable for timber production would be determined unsuitable due to Wilderness Study Areas.	Approximately 31,409 acres of land suitable for timber production would be determined unsuitable due to Wilderness Study Areas.	Approximately 12,262 acres of land suitable for timber production would be determined unsuitable due to Wilderness Study Areas.
Community values associated with wilderness designation	Does not address the desire for additional Wilderness designation.	The desire for additional wilderness is addressed by adding to existing wilderness areas only to improve boundary management in towns that did not officially oppose additional wilderness.	The desire for additional wilderness is addressed by adding 29,360 acres, the second greatest amount next to Alternative D.	The desire for additional wilderness is addressed by adding 49,799 acres, the greatest amount of all the alternatives. The potential amount of wilderness may detract from the public desire for developed and motorized recreational opportunities, and may reduce opportunities for resource management through timber harvesting and other vegetation management tools.	The desire for additional wilderness is addressed by adding 27,473 acres, the intermediate amount between the alternatives, but only 1,877 acres less than Alternative C.

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Acres of Research Natural Areas (RNAs), candidate RNAs, ecological Special Management Areas (SMAs), and Old Growth Areas	Provides the largest number of acres within the ecological reference area network at 221,854 acres, or 55% of the Forest, with 41% of the acres coming from the Newly Acquired Lands designation.	Provides the least number of acres within the ecological reference area network at over 149,617 acres, or 37% of the Forest.	Provides an intermediate number of acres within the ecological reference area network at 172,624 acres, or 43% of the Forest.	Provides the second largest number of acres within the ecological reference area network at 188,014 acres, or 47% of the Forest.	Provides an intermediate number of acres within the ecological reference area network at 177,183 acres, or 44%of the Forest.
Percentage of Ecological Units Represented Within RNAs, cRNAs, ecological SMAs, and Old Growth Areas	All Land Type Associations (LTAs), Ecological Land Unit Groups (ELUGs), and forest communities are represented at greater than the desired 5% objective with the exception of Alpine/Krumholtz which was incorrectly mapped. The Newly Acquired Lands MA is included as part of the old growth grouping.	All ELUGs, and forest communities are represented at the greater than 5% objective. All but one LTA (Mountain Slope LTA in the Taconics) is represented at the greater than the desired 5% objective.	Same as Alternative B.	All LTAs, ELUGs, and forest communities are represented at the greater than 5% objective. Provides slightly better overall representation of some ecosystem types than the other alternatives.	All LTAs, ELUGs, and forest communities are represented at the greater than 5% objective. Provides second best overall representation of some ecosystem types among the other alternatives.

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Biodiversity and Ecosystem Management					
Amount of each major forest community type (composition and abundance) *Oak and Oak-Pine Forest Communities*	The abundance of oak would be less likely to increase over the long-term, and more likely to be maintained at the low end of the composition objective range.	The abundance of oak would likely increase slightly more than Alternative A, but less than the other alternatives. It would tend to maintain oak abundance at the low end of the long-term composition objective range.	Would tend to maintain oak abundance at the lower to middle end of the desired long-term composition objective range.	Would likely increase oak abundance across the Forest substantially more than Alternatives A, B, and C, and slightly more than Alternative E, toward the middle to upper end of the desired long-term composition objective range.	Would likely be almost as effective as Alternative D at maintaining and increasing oak communities across the Forest. Would likely increase the abundance of this community over the long-term toward the middle to upper end of the desired long-term composition objective range.
Non-forest Communities	Provides fewer acres than the other alternatives with moderate to high opportunities for creation of new upland openings, and the most acres in lands that do not allow opening creation. Consequently, the abundance of upland openings would likely not increase as much as in other alternatives.	Provides more acres than the other alternatives with moderate to high opportunities for upland openings creation. More likely than the other alternatives to increase the abundance of upland openings needed to reach the upper end of the desired long-term composition range.	Would increase upland opening abundance (greater than Alternatives A and D) toward the middle of the desired long-term composition objective range.	Maintains the abundance of upland opening habitat at the low end of the composition objective range. Opportunities for creation of new openings may be fewer, and increases in abundance are likely to be less than in the other alternatives except Alternative A.	Would increase upland opening abundance toward the middle of the desired long-term composition objective range, similar to Alternative C.

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Aspen-Birch Communities	Provides the least amount of acres in lands with moderate to high opportunities for creating new stands of aspen-birch forest, and the most acres in lands where this management is prohibited. The abundance of aspen-birch forest is not likely to increase as much in this alternative as in others.	Provides the greatest amount of acres in lands with moderate to high opportunities for creating new stands of aspen-birch forest. Is more likely than the other alternatives to increase the abundance of aspen-birch forest toward the upper end of the desired long-term composition objective range.	Expected to increase the abundance of aspen-birch forest more than Alternatives A and D, and would likely increase aspen-birch abundance toward the lower to middle portion of the desired long-term composition objective range.	Would likely be less effective at increasing the abundance of aspen-birch forest than all other alternatives with the exception of Alternative A. Would tend to create enough new aspen-birch forest to maintain this community at the low end of the desired long-term composition objective range.	Similar to Alternative C, although it would provide for aspen-birch forest at the lower end of the composition objective range similar to Alternative A if non-commercial activities prove to be an unreliable tool to manage this community type.
Northern Hardwood, Mixedwood, and Softwood Forest Communities	Northern Hardwood, Mixedwood, and Softwood Forest Communities would become well-distributed over several decades to centuries. There are no substantial differences in how well the alternatives would move the Forest toward these composition tendencies. All alternatives provide abundant opportunities for both management and natural succession towards the composition objectives for these forest communities. Vegetation management may contribute to or accelerate the inevitable natural shifts in composition for these communities across alternatives, but it would account for only a two percent increase in the composition of mixedwoods and softwoods combined over the short-term. Over several decades to centuries, this shift may become more noticeable, but would not likely vary by alternative.				
Proportion of each major forest community type in various age categories (Age Class Distribution)	All alternatives increase the proportion of the regenerating age class across the Forest by at least five times their current levels (within a range of five to seven percent of the GMNF, for both the short and long-term). The young age class falls within a range of 14 to 17 percent in the short-term, and 23 to 32 percent for the long-term. The projected proportion of the Forest in mature or older forest falls within a range of 74 to 82 percent in the short-term. In the long-term, the proportion is lower, 58 to 75 percent, but not appreciably different between alternatives. All alternatives and forest communities are expected to have a substantial reduction in the mature age class, particularly after 150 years, while the other age classes show increases. Forest communities would continue to age in over 33% of the Forest across all alternatives, moving from the mature to old age class except where large scale natural disturbance would occur.				

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Acres of white-tailed deer wintering habitat allocated to Management Areas allowing vegetation management	Provides the least acreage of deer wintering areas in which vegetation management is permitted (13,826 acres, 69% of deer wintering area acres on the Forest).	Provides the most acreage of deer wintering areas in which vegetation management is permitted (15,586 acres, 78% of deer wintering area acres on the Forest).	Alternatives C, D, and E provide similar amounts of acreage of deer wintering areas in which vegetation management is permitted with 14,988 acres (75% of the total) in Alternative C, 14,903 (75% of the total) in Alternative D, and 14,591 acres (73% of the total) in Alternative E.		
Early successional habitat provided and opportunities for its management	Provides the least opportunity for management of upland openings, allocating the lowest proportion of the Forest (55%) to MAs with high to moderate opportunity for creating or maintaining them.	Provides the greatest opportunity for management of upland openings, allocating the highest proportion of the Forest (72%) to MAs with high to moderate opportunity for creating or maintaining them.	Provides an intermediate opportunity for management of upland openings, allocating 64% of the Forest to MAs with high to moderate opportunity for creating or maintaining them.	Provides the second lowest opportunity for management of upland openings, allocating 57% of the Forest to MAs with high to moderate opportunity for creating or maintaining them.	Provides an intermediate opportunity for management of upland openings, allocating 61% of the Forest to MAs with high to moderate opportunity for creating or maintaining them.
Acres available as habitat for reclusive wildlife species	Allocates the least amount of land with 90,645 acres (23% of the Forest) to MAs that provide remote habitat for reclusive wildlife species. Because Alternative A is the “no action” alternative, the newly developed Remote Wildlife Habitat MA is not available. Of the remote habitat acres, 22,758 acres (25%) would be in MAs that allow vegetation management.	Allocates slightly more land to MAs that provide remote habitat for reclusive wildlife species (119,604 acres, 30% of the Forest) than Alternative A, but less than all other alternatives. Of the remote habitat acres, 34,873 acres (29%) would be in MAs that allow vegetation management.	Allocates an intermediate amount of land to MAs that provide remote habitat for reclusive wildlife species (141,338 acres, 35% of the Forest). Of the remote habitat acres, 28,481 acres (20%) would be in MAs that allow vegetation management.	Allocates the greatest amount of land to MAs that provide remote habitat for reclusive wildlife species (198,057 acres, 49% of the Forest). Of the remote habitat acres, 64,945 acres (33%) would be in MAs that allow vegetation management.	Allocates the second highest amount of land to MAs that provide remote habitat for reclusive wildlife species (171,837 acres, 43% of the Forest). Of the remote habitat acres, 53,157 acres (31%) would be in MAs that allow vegetation management.

Table ES-2: Comparison of Environmental Effects by Alternative

Issue/Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of habitat available for Management Indicator Species and their population trends	Would be most difficult to increase the amount and quality of aspen or aspen-birch habitat on the GMNF, and thus would provide the least benefit to ruffed grouse and other species that depend on or frequent aspen-birch forests. The projected trend for amount and quality of oak and oak-pine habitat is stable for the short-term. Over the long-term, however, oak and oak-pine likely would decline, and thus the potential benefits to gray squirrels and other species that utilize oak-pine forests would be lowest under this alternative. The potential impacts to the quality of the aquatic-riparian habitat for brook trout and other aquatic and riparian species would be negligible.	Would be more likely than the other alternatives to increase the abundance of aspen-birch forest toward the upper end of the desired long-term composition objective range for the Forest, and thus would provide the greatest benefit to ruffed grouse and other species. The projected trend for amount and quality of oak and oak-pine habitat is stable for the short and long-term. Would provide low potential benefits to gray squirrels and other species that utilize oak-pine forests. The potential impacts to the quality of the aquatic-riparian habitat for brook trout and other aquatic and riparian species would be negligible.	Would likely increase aspen-birch abundance toward the lower to middle portion of the desired long-term composition objective range and thus would provide an intermediate level of benefit to ruffed grouse and other species. The projected trend for amount and quality of oak and oak-pine habitat is stable for the short-term and a slight increase for the long-term. Would provide moderate potential benefits to gray squirrels and other species that utilize oak-pine forests. Represents a greater potential for short-term adverse impact on the quantity and quality of brook trout habitat than Alternatives A and B, but less than for Alternative D.	Would likely provide for enough aspen-birch forest to maintain this community at the low end of the desired long-term composition objective range. Would provide a greater level of benefit to ruffed grouse and other species that utilize aspen-birch than Alternative A, but less than all other alternatives. The projected trend for amount and quality of oak and oak-pine habitat is to increase for both the short- and long-term, and thus provide high potential benefits to gray squirrels and other species that utilize this habitat. Management restrictions may diminish the overall quality of brook trout habitat on the GMNF, and thus has the greatest potential for short-term adverse impact on the quantity and quality of brook trout habitat among the alternatives.	Would likely increase aspen-birch abundance toward the lower to middle portion of the desired long-term composition objective range and thus would provide an intermediate level of benefit to ruffed grouse and other species. The projected trend for amount and quality of oak and oak-pine habitat is to increase for both the short- and long-term, and thus provide high potential benefits to gray squirrels and other species that utilize this habitat similar to Alternative D. Represents a greater potential for short-term adverse impact on the quantity and quality of brook trout habitat than Alternatives A and B, but less than for Alternative D.

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Viability outcomes for species of potential viability concerns	The viability outcomes of the species of potential viability concern would not changes under any alternative. For the majority of species there are no differences in effects across alternatives over the short-term. In the few species where there are differences in the effects across alternatives, these differences are slight and would not change the viability outcomes.				
Social and Economic Concerns					
Community values	Does not address the stated community concern over lack of management on newly acquired lands. Does not address the desire for additional Wilderness designation, or the desire for improved timber economics and availability.	Provides the greatest opportunity to address community concerns about timber resources, forest related industries, and economics. It also allows for more opportunities for developed and motorized recreation, but may detract from the community desire to have more areas with non-motorized use.	Provides an intermediate opportunity to address community concerns about timber resources, forest related industries, and economics. Provides for an intermediate level of opportunities for developed and motorized recreation. Provides an intermediate level of emphasis on community desire to have more areas with non-motorized use. Addresses community desire for additional wilderness by adding 29,360 acres, the second greatest amount next to Alternative D. Provides opportunities for tourism economics by assigning 12,702 acres (3%) to the Moosalamoo Recreation and Education Area.	Provides the second lowest opportunity to address community concerns about timber resources, forest related industries, and economics. Provides the greatest opportunity to address the community desire to have more areas with non-motorized use. Addresses the community desire for additional wilderness by adding 49,799 acres, the greatest amount of all the alternatives. The potential amount of wilderness could detract from the public desire for developed and motorized recreational opportunities, and may reduce opportunities for resource management through timber harvesting and other vegetation management tools.	Provides an intermediate opportunity similar to Alternative C to address community concerns about timber resources, forest related industries, and economics. Would focus timber harvesting on the most suitable lands and in the most accessible areas providing for increased economic sustainability. Provides opportunities for tourism economics by assigning 12,375 acres (3%) to the Moosalamoo Recreation and Education MA. An intermediate level of emphasis is placed on the community desire to have more areas with non-motorized use. Addresses community desire for additional wilderness by adding 27,473 acres.

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Economic impacts	Would provide the least potential employment and income contributions from Forest Service programs.	Alternatives B, C, and E provide similar potential employment and income opportunities and have negligible differences in their economic impact on the analysis area. These three alternatives have a greater employment and income contribution than A and D.	Alternatives B, C, and E provide similar potential employment and income opportunities and have negligible differences in their economic impact on the analysis area. These three alternatives have a greater employment and income contribution than A and D.	Provides an intermediate potential employment and income contribution from Forest Service programs, between Alternative A and the other alternatives. Provides the potential for approximately 800,000 to 1,000,000 dollars less income and 24 to 30 fewer jobs than Alternatives B, C, and E due to the lower volume of timber harvesting than in Alternatives B, C, and E.	Alternatives B, C, and E would provide similar potential employment and income opportunities and have negligible differences in their economic impact on the analysis area. These three alternatives have a greater employment and income contribution than A and D.
Present Net Value (PNV) in thousands of dollars	2,308,593	2,340,861	2,337,464	2,328,844	2,332,102

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Recreation Management					
Desired Recreation Opportunity Spectrum (ROS) classes by Management Area	Provides for the greatest majority (72%) of the Forest recreation opportunities in the motorized ROS classes (Rural, Roaded Natural and Semi-primitive Motorized). Allocates 23% of the Forest to MA 9.2 newly acquired lands which does not have a desired ROS class. Does not fulfill the Forest Plan goal to provide recreation opportunities that complement those off of NFS lands since most areas adjacent to the Forest are generally considered roaded natural and/or rural..	Provides for 71% of the Forest recreation opportunities in the motorized ROS classes (Rural, Roaded Natural, and Semi-primitive Motorized). Emphasizes the greatest amount of Roaded Natural recreation opportunities (49% of the Forest in Roaded Natural ROS class) compared to all alternatives. Does not fulfill the Forest Plan goal to provide enough recreation opportunities in the Semi-primitive Non-motorized and Primitive ROS classes that complement those off of NFS lands, since most areas adjacent to the Forest are generally considered roaded natural and/or rural.	Provides for 65% of the Forest recreation opportunities in the motorized ROS classes (Rural, Roaded Natural and Semi-primitive Motorized). Provides for the Forest to be managed towards a nearly equal amount of the Roaded Natural (33%) and Semi-primitive Motorized (31%) ROS classes. Semi-primitive Non-motorized and Primitive ROS classes are emphasized on 12% and 22% of the Forest, respectively. Does not provide the optimum to achieve the Forest Plan goal of providing a diverse range of recreation opportunities that complement those provided off NFS lands.	Provides for the Forest to be proportionally divided between Roaded Natural (26%), Semi-primitive Motorized (25%), Semi-primitive Non-motorized (21%) and Primitive (27%) ROS classes. Provides the greatest amount of non-motorized ROS settings, (Semi-primitive Non-motorized and Primitive) and the least amount of motorized ROS settings compared to all other alternatives. Provides the optimum to achieve the Forest Plan goal of providing a diverse range of recreation opportunities that complement those provided off NFS lands.	Provides for the majority of the Forest (57%) to be managed toward the Roaded Natural (33%) and Semi-primitive Motorized (24%) ROS classes. The remainder will be managed toward the Semi-primitive Non-motorized (21%) and Primitive (22%) ROS classes. Provides more non-motorized ROS settings, (Semi-primitive Non-motorized and Primitive), than Alternatives A, B and C, but less than Alternative D. It does a good job of achieving the Forest Plan goal of providing a diverse range of recreation opportunities that complement those provided off NFS lands.

Table ES-2: Comparison of Environmental Effects by Alternative

Issue/Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Number of acres available for development by trail activity	Provides for 77% of the Forest to remain open for future hiking trail development. It is the most restrictive for future hiking trail development because of the large proportion of MA 9.2 newly acquired lands. 58% would remain open to future bicycling and horse/pack animal/dog team trails. 55% would remain open for future snowmobile trail development and 49% would be available for consideration of potential future summer ORV trails.	Provides for 97% of the Forest to remain open for future hiking trail development. 77% of the Forest would remain open to future bicycling and horse/pack animal/dog team trails. 70% of the Forest would remain open to future snowmobile trails and 64% would be available for consideration of potential future summer ORV trails. Overall, provides for the maximum diversity of opportunities for future trail uses.	Provides for 99% of the Forest to remain open to future hiking trail development, the most among the alternatives. 72% of the Forest would remain open to future bicycling and horse/pack animal/dog team trails. 63% of the Forest would be open to future snowmobile trails and 54% would be available for consideration of potential future summer ORV trails. .	Provides for 89% of the Forest to remain open to future hiking trails. 58% of the Forest would remain open to future bicycling and horse/pack animal/dog team trails. 47% of the Forest would remain open to future snowmobile trails and 41% would be available for consideration of potential future summer ORV trails. Provides for the least amount of land to be open to new trail construction for most use types, and is the most restrictive to snowmobile and summer ORV trail development.	Provides for 92% of the Forest to remain open to future hiking trails. 66% of the Forest would remain open to future bicycling and horse/pack animal/dog team trails. 54% of the Forest would remain open to future snowmobile trails and 45% would be available for consideration of potential future summer ORV trails. Compared to the other action alternatives, this alternative is the second most restrictive in terms of both motorized and non-motorized trail-based recreation.
Acres of land available for future developed recreation facilities	Provides for an almost equal distribution of Forest lands to be open (135,937 acres, 34% of the Forest), limited (112,205 acres, 28%), or closed (152,550 acres, 38%) to future developed recreation facilities.	Would have the greatest amount of acres open to future developed recreation facilities (221,385 acres, 55% of the Forest), and the least amount limited (105,429 acres, 26%) or closed (73,878 acres, 18%).	Provides an intermediate amount of acres open to future developed recreation facilities (159,462 acres, 40% of the Forest), allowing for more of the Forest to remain open than Alternative A. Provides for most amount limited (146,675 acres, 37%) among the alternatives, and provides for 94,555 acres (24%) to be closed.	Provides for the least amount of acres open (130,009 acres, 32% of the Forest) and the second lowest amount limited (119,225 acres, 30%). Provides for 151,458 acres (38%) to be closed, similar to Alternative A.	Provides for a similar amount of the Forest to be open to future developed recreation facilities (156,896 acres, 39% of the Forest), and slightly higher amounts to be limited (126,452 acres, 32%) and closed (117,284 acres, 29%) as Alternative C.

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Acres of land available for recreation special use activities	Provides for 221,630 acres (34% of the Forest) to be open and 85,513 acres (21%) to be limited to future recreation special use activities. Would be most restrictive for future recreation special use activities with 93,549 acres (23%) closed, and would provide minimum opportunities to achieve the recreation goal and niche of the Forest because of the high proportion of MA 9.2 newly acquired lands that prohibit future recreation special use services.	In Alternatives B through E the majority of the Forest (over 99%) is open or limited to recreation special use activities. Recreation special use opportunities would meet the demand for a growing population. None of the alternatives propose expanding the Alpine Ski Area MA and Alpine Ski Area Expansion MA because there is currently ample capacity to meet projected future demands. All of these alternatives would provide similar capacities for future recreation services under special use permit. These alternatives would all achieve the Forest recreation goal and recreation niche to provide high-quality recreation opportunities.			

Table ES-2: Comparison of Environmental Effects by Alternative					
Issue/Indicator	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**	**Alternative E**
Timber Management					
Acres of land Identified as suitable for timber production	Would have the least amount of suitable forest land. A total of 157,673 acres (39% of total Forest) would be considered suitable for timber production. Of this total, 71,777 acres are on lands considered highly productive. No acres of Newly Acquired Lands (MA 9.2) would be considered suitable for timber production.	Would have the greatest amount of suitable forest land. A total of 216,430 acres (54%) would be considered suitable for timber production. Of this total, 92,802 acres are on lands considered highly productive. Approximately 65,942 acres of tentatively suitable forest land that was acquired since 1982 would be considered suitable in this alternative.	Would be intermediate in the amount of suitable forest land. A total of 193,791 acres (48%) would be considered suitable for timber production. Of this total, 85,610 acres are on lands considered highly productive. Approximately 58,726 acres of tentatively suitable forest land that was acquired since 1982 would be considered suitable in this alternative.	Would be intermediate in the amount of suitable forest land. A total of 180,381 acres (45%) would be considered suitable for timber production. Of this total, 82,207 acres are on lands considered highly productive. Approximately 48,626 acres of tentatively suitable forest land that was acquired since 1982 would be considered suitable in this alternative.	Would be intermediate in the amount of suitable forest land. A total 189,616 acres (49%) would be considered suitable for timber production. Of this total, 85,226 acres would be on lands considered highly productive. Approximately 55,058 acres of tentatively suitable forest land that was acquired since 1982 would be considered suitable in this alternative.
Timber sale volume - average annual Allowable Sale Quantity (ASQ)	Would have the lowest potential timber volume that could be sold of all the alternatives. The average annual ASQ would be 13.8 MMBF over the short-term (next 10-15 years) and long-term (over the next 150 years).	Would have the maximum potential timber volume that could be sold of all the alternatives. The average annual ASQ would be 17.5 MMBF over the short and long-term.	Would have an intermediate level of potential timber volume that could be sold compared to the other alternatives. The average annual ASQ would be 16.8 MMBF over the short and long-term.	Would have an intermediate level of potential timber volume that could be sold compared to the other alternatives, but slightly less than Alternatives C and E. The average annual ASQ would be 16.0 MMBF over the short and long-term.	Would have an intermediate level of potential timber volume that could be sold compared to the other alternatives. The average annual ASQ would be 16.4 MMBF over the short and long-term.

Table ES-2: Comparison of Environmental Effects by Alternative

Issue/Indicator	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Acres of harvest treatment methods	Would have the least opportunity for even-aged timber harvesting and the second least opportunity for uneven-aged timber harvesting. Even-aged Management (2,698 acres) • Thinning Harvest: 1,000 acres • Shelterwood Regeneration: 1,161 acres • Shelterwood Removal: 280 acres • Clearcut: 257 acres Uneven-Aged Management Selection: 802 acres **Total Harvesting: 3,500 acres**	Would have the highest opportunity for both even-aged and uneven-aged timber harvesting. Even-aged Management (3,209 acres) • Thinning Harvest: 1,000 acres • Shelterwood Regeneration: 1,475 acres • Shelterwood Removal: 376 acres • Clearcut: 358 acres Uneven-Aged Management • Selection: 1,494 acres **Total Harvesting: 4,703 acres**	Would have intermediate opportunities for both even-aged and uneven-aged timber harvesting. Even-aged Management (3,171 acres) • Thinning Harvest: 1,000 acres • Shelterwood Regeneration: 1,537 acres • Shelterwood Removal: 323 acres • Clearcut: 311 acres Uneven-Aged Management • Selection: 863 acres **Total Harvesting: 4,034 acres**	Would have intermediate opportunities for both even-aged and uneven-aged timber harvesting and would have the least opportunity for timber harvesting except for Alternative A. Even-aged Management (3,056 acres) • Thinning Harvest: 1,000 acres • Shelterwood Regeneration: 1,451 acres • Shelterwood Removal: 307 acres • Clearcut: 298 acres Uneven-Aged Management • Selection: 778 acres **Total Harvesting: 3,834 acres**	Similar to Alternative C, it would have intermediate opportunities for both even-aged and uneven-aged timber harvesting. Even-aged Management (3,074 acres) • Thinning Harvest: 1,000 acres • Shelterwood Regeneration: 1,431 acres • Shelterwood Removal: 324 acres • Clearcut: 319 acres Uneven-Aged Management • Selection: 981 acres **Total Harvesting: 4,055 acres**

3.1 CHAPTER 3 – ENVIRONMENTAL CONSEQUENCES

3.1.1 Introduction

Chapter 3 provides a summary of the potential physical, biological, social, and economic effects from the alternatives presented in Chapter 2. A detailed disclosure of the affected environment and environmental consequences can be found in Chapter 3 of the DEIS.

Different time scales are used in the effects analysis to provide a temporal context and comparison for the way conditions may change through time as a result of management activities or natural events. Three time frames are used: 1) temporary, 2) short-term, and 3) long-term. Unless otherwise stated, temporary effects are generally expected to last anywhere from 0-3 years. Short-term effects can include temporary effects but can last up to 10 to 15 years, or the period of time between Forest Plan revisions. Long-term effects generally last longer than 10 to 15 years, or begin to occur after the first 10 to 15 year planning period.

For the purpose of Chapter 3 environmental consequences discussions, Wilderness Study Areas (WSAs) are analyzed as though they are designated Wilderness. Although the WSAs may only become designated wilderness by an act of the Congress, the potential effects are analyzed as if designation would occur. Environmental effects are disclosed assuming full compliance with the Forest-wide and management area standards and guidelines described in the Proposed Forest Plan.

The organization of the Summary DEIS Chapter 3 begins with a brief discussion of the issues (issue statement) associated with the each resource. The issue statements provide a detailed discussion of the issues derived during public participation in the planning process summarized in Chapter 1. The environmental consequences are then provided for each alternative under the indicator that provides a meaningful measurement of the effects associated with the issues.

3.1.2 Soil

Issue Statement
A concern is the extent to which soil quality will be maintained under the revised Forest Plan. Maintenance of soil quality is an important part of the issue of restoring, protecting, maintaining, and enhancing biological and ecological diversity. There is also concern that acid deposition is adversely impacting soil quality.

Environmental Consequences

Indicator 1: Acres in MA Allocations Most Subject to Ground Disturbing Activities
It is anticipated that the short and long-term effects of implementing one alternative over another would be minimal, because standards and guidelines and other protection measures would minimize the impacts to soil quality. The opportunity for human error exists, however, when implementing Forest Plan standards and guidelines and State of Vermont Acceptable Management Practices (AMPs), which could result in a reduction in soil quality.

Table ES-3 displays the acres in MA allocations most subject to ground disturbing activities for each alternative.

Table ES-3: Acres in MA Allocations Most Subject to Ground Disturbing Activities

Alternative	Acres (% of GMNF)
A	198,872 (50%)
B	273,347 (68%)
C	245,930 (61%)
D	226,748 (57%)
E	239,156 (60%)

Note: MA Allocations most subject to disturbance are Diverse Forest Use, Diverse Backcountry, Remote Wildlife Habitat, Escarpment, Recreation Special Areas, Moosalamoo Recreation and Education Area, Alpine Ski Areas, and Alpine Ski Area Expansion.

Alternative A would have the lowest acreage subject to ground disturbing activities. Alternative B would have the highest acreage of lands most subject to ground disturbing activities. Alternatives C, D, and E would be intermediate in their acreage of ground disturbing activities.

Indicator 2: Acres in Management Area Allocations Subject to Ground Disturbing Activities, With a High Erosion Hazard
Twenty-five to thirty-four percent of the GMNF having a high erosion hazard would actually be subjected to soil-disturbing activities (Table ES-4).

Table ES-4: Acres With A High Erosion Hazard, in MA Allocations Most Subject to Ground Disturbing Activities

Alternative	Acres
A	101,336 (25%)
B	136,201 (34%)
C	122,831 (31%)
D	111,576 (28%)
E	118,542 (30%)

Note: MA Allocations most subject to disturbance are Diverse Forest Use, Diverse Backcountry, Remote Wildlife Habitat, Escarpment, Recreation Special Areas, Moosalamoo Recreation and Education Area, Alpine Ski Areas, and Alpine Ski Area Expansion.

Standards and guidelines would minimize detrimental short and long-term impacts to soil quality. Therefore, the effects of management practices on Forest-wide soil quality would be minor, and soil quality would be maintained. Alternative A has the lowest acreage with potential for ground disturbing activities on lands with a high erosion hazard. Alternative B has the greatest land acreage with potential for ground disturbing activities on lands with a high erosion hazard. Alternatives C, D, and E are intermediate in acreage with potential for ground disturbing activities on lands with a high erosion hazard.

Indicator 3: Soil Productivity Losses from Biomass Removal and Acid Deposition
For all alternatives, the loss of soil nutrients from forest sites due to the removal of trees during harvest, a ground disturbing activity, would be minor. The loss of soil nutrients via leaching in response to atmospheric deposition of sulfur and nitrogen would continue at rates similar to the present for all alternatives. Few ground-disturbing activities, and limited timber harvesting, would occur at the higher elevations of the GMNF.

Effects due to acid deposition will be similar for all alternatives. The cumulative effects of acid deposition and timber harvesting on soil productivity are minor. Managers on the GMNF have no direct control or regulatory authority over the amount of deposition coming to the Forest. Under all alternatives, the Forest Service will continue to monitor the effects of acid deposition, and base management decisions on the best available scientific information in order to maintain soil quality over the long-term.

3.1.3 Water

Issue Statement
Concern is focused on the extent to which water quality, riparian area conditions, and watershed health will be maintained and/or restored under the revised Forest Plan. Maintenance of water quality and riparian area conditions is an important part of the issue of restoring, protecting, maintaining, and enhancing biological and ecological diversity.

Environmental Consequences
Indicator: Acres in Management Area Allocations Most Subject to Ground Disturbing Activities that Could Impact Water Quality and Riparian Areas
The actual variation between alternatives in the risk to water quality and riparian conditions would be small. The overall risk of reductions in water quality or riparian conditions would be minor for all alternatives. Riparian conditions and water quality on a majority of the Forest (regardless of the alternative) would actually improve over the next planning period because most ground disturbing activities would only be allowed on 50 to 68 percent of GMNF lands (depending on the Alternative), and more importantly, only a small percentage of lands most subject to ground disturbing activities

would actually undergo ground disturbance over the next planning period. Table ES-3 displays the acres in MA allocations most subject to ground disturbing activities for each alternative. Alternative A would have the lowest acreage subject to ground disturbing activities. Alternative B would have the highest acreage of lands subject to ground disturbing activities. Alternatives C, D, and E would be intermediate in their acreages subject to ground disturbing activities.

3.1.4 Air

Issue Statement
Concern is focused on the extent to which management activities on the GMNF would affect local and regional air quality. Maintenance of air quality is an important part of the issue of restoring, protecting, maintaining, and enhancing biological and ecological diversity. Additionally, there continues to be concern about the impacts to forest resources and air quality from air pollution transported to the GMNF from near and distant sources.

Environmental Consequences
Indicator: Potential Amount of Particulate Emissions (tons per year) Generated from Prescribed Fire
The primary direct and indirect effects of prescribed fire are increased particulate emissions and decreased visibility. These effects are temporary, lasting only a few hours to a day. Burning is typically done in the spring when weather and fuel conditions are conducive to meeting management objectives. Weather and fuel conditions, however, vary from year to year so it is difficult to estimate the exact amount of burning that would be conducted in any one year or the exact amount of emissions potentially produced from that burning.

The potential impacts from prescribed burns are not expected to vary by alternative due to the small acreage differences in management area allocations allowing prescribed fire. Under all alternatives, prescribed fire is expected to have minimal impacts to local and regional air quality. For the purpose of this analysis, it is estimated that the maximum amount of burning that could occur annually would not exceed three times the maximum historic annual level of 500 acres. These estimates indicate that tripling the historic maximum number of acres burned would increase emissions to 50 tons per year. This amount is minimal compared to other amounts that range from approximately 1000 to 2000 tons per year.

3.1.5 Vegetation

The vegetation resource is discussed in three primary subsections: Major Forest Communities, Forest Health, and Non-Native Invasive Species (NNIS).

Major Forest Communities

Issue Statement
The major forest communities are broadly defined groupings of tree species used to classify lands on the GMNF during field inventories. These communities indicate the dominant tree species present, but may not always reflect all of the species present in a forested stand. Public concern with major forest communities is focused on what tree species and forest ages will provide adequate forest structure and biodiversity while providing for products and opportunities for the social and economic needs of people.

There are six major forest communities on the GMNF: 1) northern hardwood forests; 2) softwood forests; 3) mixedwood forests (mix of hardwoods and softwoods); 4) oak and oak-pine forests 5) aspen/paper birch forests; and 6) non-forested habitats. The current abundance of these communities is displayed in Table ES-5, and is compared with ecological tendencies.

Table ES-5: Current composition and abundance of the GMNF by major forest community compared to ecological tendencies for potential natural vegetation.

Forest Community	Ecological Tendencies	Amount (2004)	Status (2004)
	(%)	(acres)	(%)
Northern hardwood	30-40	289,646	76
Mixedwood	40-60	39,017	10
Softwood	15-25	25,319	7
Aspen-birch	1-3	11,531	3
Oak	1-3	3,781	1
Upland openings	<1	5,178	1-2
Wetland openings	1-2	5,645	1-2

Environmental Consequences

Indicator 1: Amount of Each Major Forest Community (Composition and Abundance)
Ecological tendencies based on Landtype Association mapping and analysis of pre-European settlement tree data estimate the direction and magnitude by which forest community composition and abundance is expected to change over time on NFS lands in most MAs. Within MAs Diverse Forest Use, Diverse Backcountry, Escarpment, Remote Wildlife Habitat, Moosalamoo Recreation and Education Area, and to some extent White Rocks NRA, vegetation management could alter forest community composition, particularly for the oak, upland opening, and aspen-birch communities. Land allocation to these MAs varies by alternative, and so alternatives would have varying effects on the composition and abundance of some of these forest communities over the short-term (next 15 to 20 years) or long-term (next 150 or more years).

All alternatives provide abundant opportunities for both management and natural succession towards the composition objectives for northern hardwood, mixedwood, and softwood forest communities. Oak, upland openings and aspen-birch tend to occur in very limited quantities under natural disturbance regimes. Consequently, within MAs that do not allow the creation or maintenance of these communities, they may become less abundant. Increases are only likely to occur within MAs that allow vegetation management for these purposes.

The abundance of oak and oak-pine forests is expected to remain stable or increase slightly over the short-term within the MAs that allow management activities. Variation among alternatives is generally related to the level of emphasis placed on oak management within the MAs especially through the allocation of lands to the Escarpment MA.

Without the focus and attention provided to oak management by the Escarpment MA in Alternative A, the abundance of oak is less likely to increase over the long-term, and more likely to be maintained at the low end of the composition objective range. Alternative B is likely to increase oak abundance slightly more than Alternative A, but would still tend to maintain oak abundance at the low end of the long-term composition objective range. Alternative C would tend to maintain oak abundance at the lower to middle end of the desired long-term composition objective range. Alternative D is expected to increase oak abundance across the Forest substantially more than Alternatives A, B, and C, and slightly more than Alternative E, toward the middle to upper end of the desired long-term composition objective range. Alternative E would likely be almost as effective as Alternative D, and more effective than the remaining alternatives, at maintaining and increasing oak communities across the Forest.

Alternative A provides fewer acres than the other alternatives in MAs with moderate or high opportunities for creation of new upland openings, and the most acres in lands that do not allow opening creation. Alternative B provides more acres than the other alternatives in MAs with moderate to high opportunities for upland openings creation. Alternatives C and E are expected to increase upland opening abundance toward the middle of the desired long-term composition objective range, due primarily to the greater amount of land available for the creation of new openings. Alternative D would maintain the abundance of upland opening habitat at the low end of the composition objective range.

Across all alternatives, the abundance of existing stands of aspen-birch is expected to decline by more than 50 percent over the short-term. Alternative A provides the least amount of acres in lands with moderate to high opportunities for creating new stands of aspen-birch forest, and the most acres in lands where this management is prohibited. Overall, Alternative B is more likely than the other alternatives to increase the abundance of aspen-birch forest toward the upper end of the desired long-term composition objective range. Alternatives C and E are likely to increase aspen-birch abundance toward the lower to middle portion of the desired long-term composition objective range. Alternative E, however, is predicted to have a smaller number of acres scheduled for conversion of hardwoods to aspen-birch. If non-commercial aspen activities prove to become an unreliable management tool, then Alternative E may result in outcomes similar to Alternative A. Alternative D would tend to create enough new aspen-birch forest to maintain this community at the low end of the desired long-term composition objective range.

Indicator 2: Percentage of Each Major Forest Community in Various Age Categories (Age Class Distribution)

There are not substantial differences among alternatives in the different amounts of each age class that would be expected on the Forest over the short and long-term. Age class of forest communities would be altered by vegetation management in Diverse Forest Use, Diverse Backcountry, Escarpment, Moosalamoo Recreation and Education Area, and Remote Wildlife Habitat MAs. In all other MAs, forest communities would generally be allowed to mature, except where natural disturbance, restoration, or development occurred and some vegetation management for specific MA objectives.

The regenerating age class (0-9 years) for all forest community types consistently accounts for five to seven percent of the GMNF across all alternatives, for both the short and long-term. The young age class falls within a range of 14 to 17 percent in the short-term, and 27 to 32 percent for the long-term. The projected proportion of the Forest in mature or older forest falls within a range of 75 to 82 percent in the short-term for all five alternatives. In the long-term, the proportion is lower, ranging from 58 to 75 percent, but this range is not appreciably different between alternatives. The major difference between the age structure after the short and long-term is a reduction in the mature age class with increases in young and old age classes.

Across all alternatives and forest communities, there is expected to be a substantial reduction in the mature age class, particularly after 150 years, while the other age classes show increases. The decrease in proportion of this age class is attributed to the regulation of a substantial number of acres of lands suitable for even-aged management that are currently in the mature age class. This would inevitably lead to increases in the younger age classes. The decrease in the mature age class is also attributed to increases in the old age class through natural maturation of forests on lands allocated to MAs that do not allow even-aged management.

Indicator 3: Acres of Timber Harvest Treatments (Forest Structure)

Forest structure takes decades or centuries to develop, and appreciable or measurable differences are not likely to be found over the short-term. While the alternatives vary slightly in the average annual acres that could be harvested over the long-term, all alternatives propose regenerating slightly less than one percent of the lands suitable for timber production per year over this timeframe, which amounts to less than half of one percent or less of the Forest per year over the long-term. With around half of the Forest developing old conditions over the long-term, a significant proportion of the Forest will continue to succeed through natural processes and develop increasing within-stand complexity over time. Consequently, all alternatives appear likely to be effective at improving stand structural diversity over the forested acres of the GMNF over the long-term, given the diversity of harvesting methods and the relatively low, but steady, level of annual harvesting.

Forest Health

Issue Statement

Public concern is focused on the forest health of the GMNF, and how the Forest ecosystems will respond to increasing local, national, and global insect and disease threats. The use of forest health management activities to limit and suppress damage from these threats is also a concern, such as pesticide use.

Environmental Consequences

Indicator: Amount of Suitable Timber Acres to Maintain Healthy Stand Conditions to Reduce the Threat of Insects and Disease

Silvicultural treatments promote healthy forest stands using two approaches. The first approach includes proactive timber harvesting, before a stand exhibits insect or disease infestation, by promoting healthy, vigorous, growing trees. The second approach includes the salvage of infested trees to remove the pests from the forest, thus protecting healthy trees and preventing the continued spread of the pests or diseases. Management areas that allow proactive timber harvesting, and contain lands suitable for timber production include: Diverse Forest Use, Diverse Backcountry, Remote Wildlife Habitat, Mooslamoo Recreation and Education Area, and Green Mountain Escarpment. Management areas that allow salvage harvesting include: Diverse Forest Use, Diverse Backcountry, Remote Wildlife, Mooslamoo Recreation and Education Area, Green Mountain Escarpment and Newly Acquired Lands (MA 9.2).

Alternative A would have the least opportunity for timber harvest and consequently fewer opportunities to maintain forest health through silvicultural activities. Alternative B would have the highest opportunity to maintain forest health since it has the most opportunity for timber harvesting. Alternatives C and E would be intermediate in the opportunity for maintaining forest health through silvicultural activities compared to the other alternatives. Alternative D would have the second lowest opportunity for timber harvesting; slightly more opportunities than Alternative A, but less opportunity than the other alternatives, to maintain forest health through silvicultural activities.

Non-Native Invasive Species

A non-native invasive species (NNIS) is an organism that has been purposefully or accidentally introduced outside its original geographic range, and that is able to proliferate and aggressively alter its new environment, causing harm to the economy, environment, or human health.

Issue Statement

Public concern is focused on the need to evaluate current management direction for NNIS. This is an issue within the broader topic of restoration, protection, maintenance, and enhancement of biological and ecological diversity, and conservation of species, communities, and ecosystems. NNIS have the potential to impact other resources, including contributing to the decline of threatened, endangered and sensitive (TES) species and biodiversity.

Environmental Consequences

Varied recreational and management activities occur on the GMNF that have the potential to disperse NNIS or increase the likelihood that they will become established at a given site. Given that the Forest Service has no control over dispersal and establishment that happens naturally, the amount of NNIS infestation that would occur naturally becomes, to a certain extent, an acceptable threshold of infestation. NNIS will continue to disperse and become established to at least some degree, since no methods for prevention and control are one hundred percent effective. Very few of the places surveyed have substantial infestations of NNIS, which puts the Forest Service in the fortunate position of being able to focus primarily on prevention.

Indicators: Potential to Facilitate the Establishment, Growth, and Dispersal of NNIS

Under all alternatives, it is anticipated that the spread of NNIS will be minimized and the effects of implementing one alternative over another would be minimal. The opportunity for human error exists, however, and NNIS will still disperse by means other than human activity, and will still be able to take advantage of the increased soil disturbance, pathways for

dispersal, and light that result from management activities and recreational use of the Forest.

For the direct and indirect effects analysis, the three indicators with the potential to facilitate the establishment, growth, and dispersal of NNIS are combined because of their interconnected relationships. The short and long-term impacts from recreational use and management activities that could cause ground disturbance, increase pathways of dispersal, and allow more light to reach the ground are lowest in Alternative A, highest in Alternative B, and intermediate for Alternatives D, E , and C, from lowest to highest, respectively. This suggests that the protection and maintenance of biodiversity and conservation of ecosystems would be most supported by Alternative A and least supported by Alternative B.

3.1.6 Wildlife and Wildlife Habitat

The GMNF provides habitat for a diverse array of species, including more than 300 species of wildlife, 17 species of fishes, and more than 400 species of vascular plants. The mixture and diversity of vegetative conditions and habitats found on the GMNF contribute to the continued presence of all species.

Issue Statement

Public concern is focused on the types and mixtures of habitats on the GMNF that will provide diversity of terrestrial wildlife species, while meeting other resource objectives. Public concern includes debate about the appropriate distribution and amount of two major vegetative conditions: wintering habitat for white-tailed deer and early successional habitat. These habitats provide important opportunities for the region's wildlife species. A third issue is reclusive wildlife that consists of species that fare better in the absence of human disturbances. A fourth issue focuses on the efficacy of management indicator species (MIS), and how effectively population trends of selected MIS assess the effects of management actions on wildlife populations and habitats. Adequate conservation of remote and contiguous habitat to meet wildlife needs was also a concern.

Environmental Consequences

For the purpose of this analysis, effects over the short-term are defined as 20 years, long-term effects are defined as 150 years.

Timber and vegetation management are allowed in the following MAs: Diverse Forest Use, Diverse Backcountry, Remote Wildlife Habitat, Green Mountain Escarpment, and Moosalamoo Recreation and Education Area. Although White Rocks NRA is not part of the suitable landbase, limited timber and vegetation management is permitted, particularly for creation, maintenance, or enhancement of wildlife habitat. On these lands, the most common wildlife habitat management actions will be the following:

- Maintenance and enhancement of deer wintering habitat
- Creation of temporary openings of early successional habitat
- Maintenance of permanent openings
- Regeneration of important forest stands (aspen, oak, beech)

Mature forest with continuous, closed canopy will predominate on the GMNF, providing ample and well-distributed habitat for wildlife species. This condition varies negligibly between the five alternatives.

Indicator 1: Acres of White-tailed Deer Wintering Habitat Allocated to Management Areas Allowing Vegetation Management

The GMNF encompasses 19,919 acres of mapped deer wintering areas that are widely distributed throughout the Forest and managed by nine different MA prescriptions. Vegetation management is important in maintaining the quality of deer wintering habitat.

The five alternatives provide a range for allocating State-recognized and mapped, potential deer wintering areas to management areas in which vegetation management is allowed at different levels of intensities. Alternative A proposes the least acreage of deer wintering areas in which vegetation management is permitted (13,826 acres, 69%).

Alternative B proposes the most acreage of deer wintering areas in MAs where vegetation management is permitted (15,586 acres, 78%). Alternatives C, D, and E are similar to each other, proposing more acres in these MAs than in Alternative A, but fewer than in Alternative B: range from 14,591 acres (73%) to 14,988 acres (75%). The combined effect of similar acreage of deer wintering areas available for management and high-elevation distribution of deer wintering areas removed from management is that Alternatives B through E provide equivalent opportunity for well-distributed and well-maintained deer wintering areas on the GMNF, and better opportunity to provide desired deer wintering conditions than Alternative A.

Indicator 2: Early Successional Habitat Provided and Opportunities for its Management
Early successional habitat includes both permanent upland openings and temporary openings that are regenerating forest. Each of the five alternatives provides increased acreage of regenerating forest (early successional habitat) from the current condition, but there is little difference between alternatives with respect to temporary openings. The five alternatives do provide a range of opportunity for the creation and maintenance of permanent upland openings. Alternatives A and D provide the least opportunity for creation and management of permanent upland openings, allocating 55 and 57 percent, respectively, of the GMNF to MAs with high to moderate opportunity for creating or maintaining them. Alternative B provides the greatest opportunity for management of permanent upland openings, allocating the highest proportion of GMNF land (72%) to MAs with high to moderate opportunity for creating or maintaining them. Alternatives C and E provide intermediate opportunity for management of permanent upland openings, allocating 64 and 61 percent, respectively, of GMNF land to MAs with high to moderate opportunity for creating or maintaining them.

Indicator 3: Acres Available as Habitat for Reclusive Wildlife Species
Suitable conditions for reclusive wildlife are provided primarily by MAs that emphasize semi-primitive non-motorized recreational opportunities or otherwise limit sources of repeated disturbance. MAs that provide conditions that can contribute to habitat for reclusive wildlife include: Wilderness, Wilderness Study Area, Remote Backcountry, Remote Wildlife Habitat, White Rocks NRA, Brandon Gap Research Natural Area, Branch Pond Ecological Special Area, and Alpine/Subalpine Special Area MAs. The alternatives offer a linear range in remote conditions and habitat for reclusive species in the following order from least to most: A, B, C, E, and D.

Indicator 4: Acres of Habitat Available for Management Indicator Species and Their Population Trends
Management Indicator Species (MIS) are vertebrate or invertebrate species selected for monitoring habitat conditions on the Forest, because their population changes are believed to indicate the effects of management activities. The MIS selected for the revised Forest Plan and their associated habitat type(s) are displayed in Table ES-6.

Table ES-6: MIS for the revised Forest Plan linked to resource issues or habitat types.

Major issue or habitat	MIS
Deer wintering habitat	White-tailed deer
Early successional habitat	American woodcock
Aspen and aspen-birch habitat	Ruffed grouse
Oak and oak-pine habitat	Gray squirrel
Aquatic-riparian habitat	Brook trout

MIS for the revised Forest Plan are linked to two of the three major resource issues (deer wintering habitat and early successional habitat) and to three other important habitat types on the GMNF (aspen and aspen-birch, oak and oak-pine, and aquatic-riparian habitat). Aspen and aspen-birch habitats at all successional stages are important to many wildlife species for cover and food. Oak is particularly important as a hard mast-producing species. Each of the selected MIS address issues or conditions directly associated with

active habitat manipulation and with habitat conditions that are expected to change substantially over time. Current conditions and trends for MIS selected for the revised Forest Plan are summarized in Table ES-7.

Table ES-7: Trends for populations (Pop) of GMNF MIS and the habitats (Hab) they represent, for New England, Vermont, and the GMNF.

MIS Species	New England		Vermont		GMNF	
	Pop	Hab	Pop	Hab	Pop	Hab
White-tailed Deer	V	V	↓	↓	↓	↓
American woodcock	↓* PIF[1] ↔ BBS ↓**SGS	↓	↑BBS ↓**SGS	V	?	↓
Ruffed grouse	↓** PIF ↔ BBS	↓	?	↓	?	↓*
Gray squirrel	↔	↑	?	V	?	↓ ↑A
Brook trout	↔	↔	↔	↔	↔	↑ ↑A

Sources: Raleigh (1982), Roy (1996), Partners in Flight (PIF 2000a, b), Toth (2000), Kirn (2000), North American Breeding Bird Survey (BBS: Sauer et al. 2003), Singing-ground survey (SGS: Kelly and Rau 2005), and the GMNF MIS Status Summary, which is documented in the Forest Plan revision project file.

Trend codes:
? = uncertain
V = Regionally variable
↑A = habitat increasing through acquisition
↑ = increase in abundance/quality
↔ = stable
↓ = decrease in abundance/quality
↓* = moderate decrease in abundance/quality
↓** = significant decrease in abundance/quality
[1]Partners in Flight physiographic areas 27- Northern New England (PIF 2000a) and 28 - Eastern spruce-hardwood (PIF 2000b)

Effects analyses for deer wintering habitat and early successional habitat are provided separately under the other indicators for this effects analysis. For the remaining MIS related habitat types, the five alternatives provide a range of management options for aspen-birch, oak-pine, and aquatic-riparian habitats. These options stem primarily from the relative allocation of land to different MAs, and what opportunities or limits for management are provided by the MA-specific standards and guidelines.

Increasing the amount and quality of aspen or aspen-birch habitat on the GMNF would be most difficult under Alternative A and thus provides the least benefit to ruffed grouse and other species that depend on or frequent aspen-birch forests. Alternative B is more likely than the other alternatives to increase the abundance of aspen-birch forest toward the upper end of the desired long-term composition objective range for the Forest and thus would provide the greatest benefit to ruffed grouse and other species. Alternatives C and E are likely to increase aspen-birch abundance toward the lower to middle portion of the desired long-term composition objective range and thus would provide an intermediate level of benefit to ruffed grouse and other species. Alternative D would provide a greater level of benefit to ruffed grouse and other species that exploit aspen-birch than Alternative A, but less than all other alternatives.

The projected trend for amount and quality of oak and oak-pine habitat on the GMNF under Alternative A is stable for the short-term, due to the longevity of the dominant species. Over the long-term, however, oak and oak-pine likely would decline, and thus the potential benefits to gray squirrels and other species that utilize oak-pine forests, such as wild turkeys, red-headed woodpeckers, black bears, and white-tailed deer would be lowest under Alternative A. The projected trend for amount and quality of oak and oak-pine habitat under Alternative B is stable for the short and long-term. Overall, Alternative B provides low potential benefits to gray squirrels and other species that utilize oak-pine forests. The projected trend for amount and quality of oak and oak-pine habitat under Alternative C is stable for the short-term and a slight increase for the long-term, due primarily to the increased management opportunity provided by the Green Mountain Escarpment MA. Thus, Alternative C provides moderate potential benefits to gray squirrels and other species that utilize oak-pine forests. The projected trend for amount and quality of oak and oak-pine habitat under Alternatives D and E is to increase for both the short- and long-term, and thus these alternatives provide the highest potential benefits to gray squirrels and other species that utilize this habitat.

The potential impacts to the quality of the aquatic-riparian habitat for brook trout and other aquatic and riparian species are based on the number of miles of habitat in MAs that do or do not allow restoration and enhancement activities. The effects would be negligible under Alternatives A and B. Alternative C and E represent a greater potential for short-term adverse impact on the quantity and quality of brook trout habitat than Alternatives A and B, but less than under Alternative D. Management restrictions under Alternative D may diminish the overall quality of brook trout habitat on the GMNF. Accordingly, Alternative D carries the greatest potential to adversely impact quantity and quality over the short-term of brook trout habitat.

3.1.7 Fisheries

Issue Statement
Concern is focused on the extent to which forest management emphasis should be placed on maintenance, enhancement, and restoration of fisheries (aquatic) habitat to provide for viable fish populations.

Environmental Consequences
Indicator: Acres in Management Area (MA) Allocations Most Subject to Ground-Disturbing Management Activities that could Impact Fisheries Habitat
There are differences between alternatives in the acreage of MA allocations most subject to ground disturbing activities that could negatively impact fisheries habitat (Table ES-3). Ground disturbing activities have the potential to degrade fisheries habitat to varying degrees. However, despite the acreage difference of 74,475 acres (19%) between the alternatives with the most and least amount of land subject to ground disturbance, the actual variation between alternatives as they relate to the effects on fisheries habitat would be small. Also, the overall risk of degradation or loss of fisheries habitat would be low for all alternatives due to the implementation of standards and guidelines.

Alternative A would have the lowest acreage of lands most subject to ground disturbance at 198,872 acres (50 %). Alternative B would have the highest acreage of lands most subject to ground disturbance at approximately 273,347 acres (68 %). Alternatives C, D, and E would be intermediate in acreage most subject to ground disturbance with a range of 226,748 (56%) to 245,930 acres (60%).

3.1.8 Threatened and Endangered Species

Five federally listed threatened and endangered (TE) animal species are of concern for the GMNF: gray wolf, eastern cougar, Canada lynx, Indiana bat, and bald eagle. There are no TE plant species of concern for the GMNF, nor are there any plant or animal species proposed for listing under the Endangered Species Act (ESA) that occur on the Forest. The Biological Evaluation (Appendix E of the FEIS) presents the detailed analysis of the effects of the revised Forest Plan on TE animal species. The BE concludes that one of these species, the Indiana bat, may be present on the GMNF and may be affected by management actions authorized by the revised Forest Plan. Given current population trends, it is likely that numbers of Indiana bats in the Northeast will continue to increase in the future. The BE further concludes that implementation of the revised Forest Plan, under any of the proposed alternatives, may affect, but is not likely to adversely affect, the Indiana bat. The BE also concludes that implementation of the revised Forest Plan, under any of the proposed alternatives, will have no effect on the other listed species. The GMNF does not include designated critical habitat or proposed critical habitat for any TE species, including Indiana bat.

Issue Statement
Public concern is focused on ensuring that federally listed, threatened and endangered species are considered during development of the revised Forest Plan and during project implementation. The Indiana bat is the one federally listed, endangered or threatened species analyzed in this section.

Environmental Consequences
Areas on the GMNF in which Indiana bats are likely to occur are within five miles of known hibernacula, in forested habitats at or below 800 feet in elevation to the Champlain Valley or in the Valley of Vermont, or other areas as identified by the US Fish and Wildlife Service.

Management activities on the GMNF most likely to affect Indiana bats stem from vegetation or timber management in areas where Indiana bats are likely to occur. Potential adverse effects include direct affects from killing or injuring bats during removal of or damage to an occupied roost tree or snag, or indirect effects from reducing quantity or quality of potential roosting habitat by removing existing or potential roosting trees or snags. Potential beneficial effects include creation of openings or patches in which canopy closure is reduced, thereby enhancing the mosaic of suitable roosting and foraging habitats in close proximity to each other.

Specific activities most likely to affect Indiana bats, directly or indirectly are timber harvesting, firewood cutting for commercial or personal use, or creation of permanent upland openings for wildlife habitat or other uses. Other activities, such as management and maintenance of recreational sites, construction and maintenance of roads and trails, removal of hazard trees, wildlife habitat management, prescribed burning, special uses, visual quality management, and protection of cultural resource may alter habitat over smaller areas.

The Forest Service's responsibilities pursuant to the ESA and compliance with ESA requirements are not affected by the alternatives. Forest-wide management direction relative to the protection, conservation, and recovery of TE species is not affected by alternatives. In particular, standards and guidelines for wildlife reserve trees ensure that roost trees and snags suitable for use by Indiana bats will be retained during management activities, and suitable roost trees will continue to be available on the Forest. Forest-wide management direction from goals, objectives, standards, and guidelines also provide substantial protection to riparian areas on the GMNF. This protection is common to all alternatives.

Indicator: Acres Allowing Management Activities That May Affect Habitat or Population Trends of Indiana Bats
The largest acreage of lands on the GMNF with management concerns relative to Indiana bats is that within five miles of known Indiana bat hibernacula. Of the total land area within these five-mile radii, approximately 20 percent (28,452 acres) is on the GMNF. The relative allocation of these acres to MAs that allow timber harvest or vegetation management varies by alternative from the least in Alternative D (12,690 acres) to the most in Alternative B (19,114 acres). Despite these differences in allocation of land to MAs that do or do not allow timber harvest or vegetation management, differences in direct or indirect effects between alternatives should be negligible. This conclusion is based on the limited area of the GMNF on which Indiana bats are likely to occur, the low number of Indiana bats likely to occur on the Forest, and the protective measures included in the revised Forest Plan to prevent or minimize direct or indirect effects to Indiana bats as a consequence of management actions.

3.1.9 Species of Potential Viability Concern

Species evaluated here include federally listed threatened and endangered species, Regional Forester sensitive species (RFSS), and other species of potential viability concern identified during the Species Viability Evaluation (SVE) process. The evaluation of effects to sensitive species is conducted in detail in the Biological Evaluation (BE; Appendix E of the FEIS).

Issue Statement
Public concern is focused on ensuring the conservation of biological diversity at the species, community, and regional levels. There is public debate regarding the quantity and quality of habitat that the Forest will provide and maintain. There is also public concern that Forest Service management and GMNF habitats provide for viable well-distributed

populations of plants and wildlife, particularly those that are threatened, endangered, or sensitive.

Environmental Consequences

Species Viability Evaluation (SVE) is a qualitative process developed to identify and gather information about vertebrate, invertebrate, and plant species of potential viability concern and for existing threatened and endangered (TE) species and RFSS. The Forest Service conducted the SVE in cooperation with scientists qualified for each taxon (plants, insects, amphibians and reptiles, birds, and mammals) and knowledgeable about local flora and fauna. The SVE process led to the addition of a few new species to the RFSS list for the GMNF in 2003, but it also identified other species that might be of potential viability concern, depending upon the alternative chosen for the revision of the Forest Plan. The final result of the SVE process is an estimated outcome assigned to each species for current conditions and over the short-term (next 15 to 20 years), both range-wide and for the GMNF. Each viability outcome is an index or relative measure of the environment's capability to support population abundance and distribution. It is not a prediction of population occurrence, size, density, or other demographic characteristics.

Outcomes display a range of increasing risk to viable, well-distributed populations from "A" (lowest viability concern) through "E" (greatest viability concern). Outcome A indicates that habitats are similar, or only slightly degraded from, historical conditions and risks are relatively low. For outcome C, suitable ecological conditions and/or populations are not well distributed, are uncommon, or have been lost, and risk to viability is moderate. Under outcomes D and E, conditions have been so altered that habitats and/or populations are not well distributed, or are at great risk, and therefore the likelihood of loss of viability is high.

The Forest Service identified 27 animals and 83 plants as species of viability concern for the GMNF. Of the animal species, five are federally listed as endangered or threatened, 13 are Regional Forester sensitive species (RFSS), and 9 are other species of potential viability concern. No federally listed plants are of concern on the GMNF; 65 plant species are RFSS and 18 are other species of potential viability concern. Species of particular concern are those with current viability outcomes that are approaching D or E.

Management activities that result from implementation of the alternatives may have a wide variety of predictable effects on species of viability concern. The amount, timing, location, and intensity of activities can influence the degree to which they may impact species and their habitats, and represent potential threats to species. These activities and risks can all cause effects to species through the alteration of habitat composition, structure, and function.

Indicator 1: Viability Outcomes

Through the SVE process, the Forest Service calculated current and future viability outcomes for 27 animal and 83 plant species of viability concern on the GMNF. Viability outcomes for each alternative were estimated for the short-term, primarily over the next 15 to 20 years. The species viability evaluations revealed only minor differences between alternatives over the short-term for four animal species: wood turtle, Jefferson, blue-spotted, and four-toed salamanders. For the other 23 animal species there are no differences in effects across alternatives over the short-term. There are no differences in effects on plant species of viability concern across alternatives over the short-term. For several species, there are differences between the current condition and the projected viability outcomes, but not between outcomes by alternative.

The Forest Service identified three animal species (Bicknell's thrush, wood turtle, and Jefferson salamander) and ten plant species with outcomes expected to decline from their current condition over the short-term across all alternatives. High-risk outcomes are those predicted to be "D" or "E." Under these outcomes, conditions have been altered so much that habitats and/or populations are not well distributed or are at great risk; and the likelihood for loss of viability is high. The

Forest Service identified five animal species (gray wolf, eastern cougar, red-headed woodpecker, wood turtle, and Jefferson salamander), and two plant species (*Juglans cinerea* and *Cynoglossum virginianum* var. *boreale*) with high-risk outcomes. Outcomes for nine animal species (two bats, seven odonates [dragonflies], and one beetle) are uncertain because of insufficient data on distribution and abundance.

Indicator 2: Sensitive Species Determinations
As required by agency policy, the Forest Service made determinations for all TE species, and RFSS. Determinations for TE species are summarized separately in the TE section of this summary.

Implementation of the revised Forest Plan under any of the alternatives should have no impact on 8 of the 13 animal RFSS. Seven of these species are closely tied to riparian or other wetland habitats that receive considerable protection through Forest-wide standards and guidelines. Bicknell's thrush is equally protected on the Forest in high-elevation spruce-fir and krumholtz habitats.

Implementation of the revised Forest Plan under any of the alternatives may impact individuals of 3 animal RFSS species (eastern small-footed bat, forcipate emerald, and gray petaltail) and 64 of the 65 plant RFSS. The Forest Service judged that impacts associated with timber, vegetation, recreation, or other management activities may affect individuals, but are not likely to result in a trend toward federal listing or loss of viability for any of these species under any of the five alternatives. Some of these impacts may be positive, while others are negative.

Two animal species (wood turtle and Jefferson salamander) and one plant (*Juglans cinerea*, butternut) were determined to have a high risk of loss of viability within the planning area over the short-term across all alternatives. The determination for these species is that the alternatives may impact individuals but are not likely to result in a trend toward federal listing or loss of viability.

3.1.10 Recreation Opportunities

Issue Statement

Public concern is focused on differing opinions about the appropriate mix of recreation opportunities and forest settings that should be emphasized on the GMNF. Some people prefer to recreate in developed settings, while others prefer a more primitive setting. Some people would prefer to utilize the trail system with motorized vehicles, while others prefer non-motorized travel. Trail system planning is needed to identify the right mix of trail types in order to meet needs of Forest users. In addition, there is a concern that certain resource management actions such as timber management and recreation management can have impacts on each other as well as impacts to other resources such as wildlife and plants.

Environmental Consequences

The Recreation Opportunity Spectrum (ROS) inventory system helps characterize the existing condition of the Forest. The ROS is a planning tool used to identify and evaluate the supply of recreation settings on national forests based on actual on-the-ground conditions. Five ROS classes are currently inventoried on the GMNF: Urban, Rural, Roaded Natural, Semi-primitive Motorized, and Semi-primitive Non-motorized. Another way ROS is used is to set management direction (referred to as the "Desired ROS Class").

Indicator 1: Desired Recreation Opportunity Spectrum Classes by Management Area
In all alternatives, management activities would move the Forest towards the desired ROS class. Each alternative provides for varying quantities of desired ROS classes across the Forest. The proportion of management area desired ROS classes for each alternative are summarized in Table ES-8.

Alternative A provides for the greatest majority (72%) of the Forest recreation opportunities in the Roaded Natural and Semi-primitive Motorized ROS classes. If this alternative is implemented, it will not fulfill the Forest Plan goal to provide recreation opportunities that

complement those off of NFS lands since most areas adjacent to the Forest are generally considered roaded natural and/or rural.

Table ES-8: Estimated Distribution (percent) of Desired ROS Classes by Alternative

Desired ROS	Alt. A[1]	Alt. B	Alt. C	Alt. D	Alt. E
Urban	<1%	0%	0%	0%	0%
Rural	2%	1%	1%	1%	1%
Roaded Natural	36%	49%	33%	26%	33%
Semi-primitive Motorized	34%	21%	31%	25%	24%
Semi-primitive Non-motorized	13%	14%	12%	21%	21%
Primitive	15%	15%	22%	27%	22%

Notes: [1]MA 9.2 (Newly Acquired Lands) do not have a desired ROS identified in the desired future condition. Inventoried ROS was calculated for MA 9.2 lands and included in the totals for Alternative A. Percents do not total 100 due to rounding.

Alternative B provides for 71 percent of the Forest to be managed for recreation opportunities in the motorized ROS classes: Rural, Roaded Natural and Semi-primitive Motorized. If this alternative is implemented, it would not fulfill the Forest Plan goal to provide enough recreation opportunities in the Semi-primitive Non-motorized and Primitive ROS classes that complement those off of NFS lands since most areas outside of the Forest in Vermont are generally not able to provide Primitive recreation settings.

Alternative C would provide for a range of recreation opportunities across the Forest with more emphasis placed in the Roaded Natural and Semi-primitive Motorized settings. This alternative provides more Semi-primitive Non-motorized and Primitive ROS settings than Alternatives A and B, but it does not provide the optimum to achieve the Forest Plan goal of providing a diverse range of recreation opportunities that complement those provided off National Forest System land.

Alternative D offers a wide-range of recreation opportunities across the Forest. Forest visitors would have near equal opportunities for recreation settings ranging from constructed developed recreation facilities with high levels of visitor interactions to remote settings with few or no people around. This alternative provides the greatest amount of Semi-primitive Non-motorized and Primitive ROS settings compared to all alternatives. It provides the optimum to achieve the Forest Plan goal of providing a diverse range of recreation opportunities that complement those provided off NFS land.

Alternative E would provide for a wide-range of recreation opportunities across the Forest similar to Alternative D. It differs from Alternative D in that it provides less Semi-primitive Non-motorized and Primitive ROS settings. Forest visitors would have diverse opportunities for recreation settings ranging from developed recreation facilities with moderate to high levels of visitor interactions to remote settings with few or no people around.

Indicator 2: Number of Acres Available for Development by Trail Activity

If any of these alternatives were implemented, future trail based recreation opportunities would meet the recreation goal and recreation niche on the GMNF. The alternatives, to varying degrees, provide a mix of trail based recreation experiences and future opportunities that complement those found elsewhere in Vermont. The current trail system on the GMNF is adequate to meet projected increased demands for hiking and snowmobiling over the short-term and long-term. Future demand for mountain biking, horse, pack animal, and dog team, and summer ORV trails are expected to increase as well.

Alternative A provides for 77 percent of the Forest to remain open for future hiking trail development. It is the most restrictive for future hiking trail development among the alternatives because of the large proportion of MA 9.2 newly acquired lands. Fifty-eight percent would remain open to future bicycling and horse/pack animal/dog team trails. Fifty-five percent would remain open for future snowmobile trail development and 49 percent would be available

for consideration of potential future summer ORV trails.

Alternative B provides for 97 percent of the Forest to remain open for future hiking trail development. Future bicycling and horse, pack animal, and dog team trails would be permitted on 77 percent of the Forest. Seventy percent would remain open to future snowmobile trails and 64 percent would be available for consideration of potential future summer ORV trails. This alternative provides for the maximum diversity of opportunities for future trail uses. The majority of the Forest would remain open for all uses.

Alternative C provides for 99 percent of the Forest to remain open to future hiking trails. Future bicycling and horse, pack animal, and dog team trails would remain open on 72 percent of the Forest. Sixty-three percent of the Forest would remain open to future snowmobile trails and 54 percent would be available for consideration of potential future summer ORV trails. This alternative provides for the most land to remain open for future hiking trail development across the Forest.

Alternative D provides for 89 percent of the Forest to remain open to future hiking trails. Future bicycling and horse, pack animal, and dog team trails would remain open to 58 percent of the Forest. Forty-seven percent of the Forest would remain open to future snowmobile trails and 41 percent would be available for consideration of potential future summer ORV trails. This alternative is the most restrictive to snowmobile and summer ORV trail development.

Alternative E provides for 92 percent of the Forest to remain open to future hiking trails. Future bicycling and horse/ pack animal/ dog team trails would remain open to 66 percent of the Forest. Fifty-four percent of the Forest would remain open to future snowmobile trails and 45 percent would be available for consideration of potential future summer ORV trails. This alternative is the second most restrictive in terms of both motorized and non-motorized trail-based recreation.

Indicator 3: Acres of Land Available for Future Developed Recreation Facilities

Trends in visitor demand have the potential to add or reduce developed recreation facility capacity or alter existing facilities to accommodate changing social demands. If any of the alternatives were implemented, except for Alternative A, developed recreation opportunities would meet the demand for a growing population. Alternatives B, C, D, and E provide adequate opportunities to achieve the Forest recreation goal and recreation niche for high-quality recreation opportunities over the short-term and long-term.

Indicator 4: Acres of Land Available for Recreation Special Use Activities

Alternative A provides for 55 percent of the Forest to remain open to future recreation special uses. Twenty-one percent would be limited and 23 percent would be closed to future recreation special uses. This alternative is the most restrictive for future recreation special use activities and provides minimum opportunities to achieve the recreation goal and niche of the Forest because of the high proportion of MA 9.2 newly acquired lands that prohibit future recreation special use services.

If Alternatives B, C, D or E were implemented, recreation special use opportunities would meet the demand for a growing population. None of the alternatives propose expanding the Alpine Ski Area MA and Alpine Ski Area Expansion MA because there is currently ample capacity to meet projected future demands. All of these alternatives provide similar capacities for future recreation services under special use permit. These alternatives all achieve the Forest recreation goal and recreation niche to provide high-quality recreation opportunities.

Indicator 5: Impacts to Recreation Resources from Timber Harvest Activities

Effects of timber harvest activities on recreation resources typically impact access (such as road building) and visuals of the harvested area. The effects can have both positive and negative impacts to recreation resources. Although the alternatives provide for varying amounts of land to be allocated to management areas allowing timber harvest activities, the difference in

effects would be negligible since Forest Plan standards and guidelines as well as site specific mitigation measures have kept negative impacts from timber harvesting on recreation resources to minimal, acceptable levels.

Indicator 6: Impacts of Wilderness Designation on Recreation Opportunities
All alternatives, except Alternative A, provide for varying degrees of potential new wilderness acres. Existing recreation infrastructure inconsistent with the Wilderness Act may be impacted by the designation of new wilderness.

Alternative A recommends no new Wilderness Study Areas. Therefore, existing recreation infrastructure would not be impacted by its implementation. Alternative B recommends no new individual Wilderness Study Areas, but does recommend 2,291 acres to be added to the Breadloaf Wilderness Area for boundary adjustment purposes. Impacts to forest visitors would be minimal. If implemented, however, approximately 0.3 miles of existing roads and three recreation facilities would be inconsistent with the Wilderness Act. Alternative C recommends two new Wilderness Study Areas and increases two existing wilderness areas totaling 29,360 acres. If this alternative was implemented, approximately 7.8 miles of existing roads and three recreation facilities, would be inconsistent with the Wilderness Act. Alternative D recommends two new Wilderness Study Areas and increases to existing wilderness areas totaling 49,799 acres. If this alternative was implemented, approximately 12 miles of snowmobile trails, 19.3 miles of roads and eight recreation facilities would be inconsistent with the Wilderness Act. Alternative E recommends one new Wilderness Study Area and increases to existing wilderness areas totaling 27,473 acres. If this alternative was implemented, approximately 7.8 miles of roads and three recreation facilities would be inconsistent with the Wilderness Act.

3.1.11 Areas of Special Significance

Areas of special significance include Research Natural Areas, candidate Research Natural Areas, Special Management Areas, and old growth areas.

Issue Statement

Public concern is focused on the desire for designation of special areas, resolution of existing candidate Research Natural Areas (cRNAs), and determining the most appropriate mix, size, and configuration of future old growth and other special areas (such as Ecological and Recreation Special Management Areas, and Wilderness). This is an issue within the broader topic of restoration, protection, maintenance, and enhancement of biological and ecological diversity, and conservation of species, communities, and ecosystems.

Environmental Consequences

A fundamental principle of conservation biology is that representative examples of each type of ecological system, along with their full ranges of variation in composition, structure, and function, should be conserved in a way that prevents extractive management (for example, timber harvesting or drilling for oil or gas), while allowing limited management activities that restore or maintain the system. These areas together can be described in general as ecological reference areas, and include such formal designations as Wilderness or Research Natural Areas, or other administrative designations like ecological areas, natural areas, or special areas. In these roles, ecological reference areas contribute to biological diversity, an element of ecosystem sustainability. The Special Management Areas (SMAs) considered in this section are those with significant natural features, and are considered as an “ecological SMAs” group. Old growth forests are represented by the oldest examples of forested stands that have survived catastrophic or stand-replacing disturbances associated with the prevailing natural disturbance regime. Regions that have very little remaining old growth, like New England, can foster old growth development by minimizing extractive uses in designated areas and allowing these areas to develop under natural processes.

The process for identifying the pool of potential RNAs, cRNAs, ecological SMAs, and areas for

old growth development around which to develop an ecological reference area network is described in the *Green Mountain National Forest Special Area Assessment*. Existing ecological units on the Forest, known as ecological landtypes (ELTs), landtype associations (LTAs), and ecological land unit groups (ELUGs), were used to help determine representation of ecosystems within a network of ecological reserves.

Indicator 1: Acres of RNAs, cRNAs, ecological SMAs, and Old Growth Areas
Across alternatives, the revised Forest Plan will apply the new goal and Forest-wide standard and guideline to all areas of special significance, including those that are not currently within a special management area designation. This means that all 129 features or 13,000 acres identified as ecologically significant will receive some level of protection under the revised Plan. In addition, all 10 areas originally identified as ecological SMAs and cRNAs in the 1987 Forest Plan, representing 2,342 acres, are maintained within the ecological reference area network across all alternatives. In all alternatives, areas identified as part of the ecological reference area network, including RNAs, cRNAs, SMAs, Wilderness, White Rocks NRA, Remote Backcountry Forest, Eligible Wild Rivers, unsuitable timber management lands, and Wilderness Study Areas, will be managed similarly in respect to conservation of ecological attributes.

In Alternative A, all of the current cRNAs remain candidates, and no additional cRNAs or RNAs are proposed. In addition, all of the existing Special Areas identified as ecological SMAs in the 1987 Plan would continue to be managed for their special values in the Ecological Special Area designation. Although Alternative A includes Newly Acquired Lands (MA 9.2), the assumed temporary nature of this designation means that over the short-term some of these lands would be allocated to other MAs that would not emphasize old growth characteristics. In comparison with other alternatives, while Alternative A appears to have the largest amount of potential future old growth, in reality half of this amount would likely change to other designations over the short term, and the remaining acres that are constant are actually smaller than in other alternatives. From this perspective, this alternative offers the least stable number of future old growth acres, and so the least opportunity to improve the abundance and distribution of this habitat across the Forest.

Across all alternatives except Alternative A, one set of ecologically significant areas was placed within one of the ecological reference area designations discussed. Sixty-one areas were identified as ecologically significant for consideration during alternative development, and 52 of these areas currently exist or were placed within the ecological reference area network across Alternatives B through E. The acreage of RNAs, cRNAs, ecological SMAs, and future old growth areas in these four alternatives varies from around 149,617 acres (37% of the Forest) in Alternative B, the lowest of the four alternatives, to 188,014 acres (47% of the Forest) in Alternative D, the greatest amount of these alternatives. Alternatives C (172,624 acres or 43% of the Forest) and E (177,183 acres or 44% of the Forest) are very close in total acreages. The acreage of RNAs/cRNAs, Wilderness, and White Rocks NRA do not change among Alternatives B through E. Alternatives B through E provide the most variation in acreage allocated to areas designed to provide potential future old growth conditions. Of these four alternatives, Alternative B would provide the least number of acres, Alternative D the most, and Alternatives C and E in the middle and similar to each other.

Indicator 2: Percentage of ecological units represented within RNAs, cRNAs, ecological SMAs, and old growth areas
Ecosystem representation was examined by looking at the distribution and conservation status of LTAs, ELUGs, and existing major forest communities within the GMNF and within ecological subsections. The revised Forest Plan objective is to manage at least five percent of each ecological type present on the Forest for old growth characteristics. The designations associated with the ecological reference area network, RNA/cRNA, ecological SMA, Remote Backcountry Forest, Wilderness, RNA,

Wilderness Study Area, Newly Acquired Lands, unsuitable timber management lands, and Eligible Wild River, would be managed similarly for natural forest ecosystem processes and development of old forest or old growth conditions. Overall, any of these designations are considered equally effective at achieving objectives for representation.

If MA 9.2 lands are not considered, the effectiveness of Alternative A at representing the diversity of ecosystem types across the Forest is substantially reduced for many ecological types. Thirteen out of the 16 LTAs are represented within the reference area network at greater than five percent, with the low proportions in the Valley Bottom LTA of the southern Green Mountains, and the LTAs in the Taconics. Ten of the LTAs are represented at 20 percent or greater. Most ELUGs and all vegetative communities are represented at greater than five percent, and many are close to or surpass 20 percent. The revised Plan objective of five percent representation would not be achieved for some ecological units on the Forest, particularly those LTAs and ELUGs associated with oak dominance, on lower, warmer slopes, in valley bottoms, and in the Taconics.

For all measures of representation of ecosystems (LTAs, ELUGs, vegetative communities), all action alternatives have at least five percent of each type of ecological unit within an ecological reference area network designation where old growth would develop, except for one LTA, and in that case only in Alternatives B and C. The under represented LTA is the Mountain Slope LTA in the Taconics. In Alternatives D and E, this LTA is represented above 20 percent.

Across alternatives B through E, most ecological types, including LTAs, ELUGs, and vegetative communities, fall at or well above 20 percent representation. Only five ecological types are represented below the 20 percent level, including the LTA mentioned above. Generally speaking, as far as overall representation is concerned, Alternative D provides slightly better representation of some types of ecosystems than the remaining alternatives, with Alternative E a little behind, and Alternatives B and C very similar and behind E. Alternative D doubles the representation of the rich transition slope forest in the ecological reference area network compared to Alternatives B and C, and helps to move representation of the Low Mountain/Small Hill LTA in the Taconics to greater than 20 percent.

3.1.12 Wilderness, Wild and Scenic Rivers, and National Recreation Area Scenic Rivers Areas

Wilderness

There are currently six existing wilderness areas on the GMNF, totaling 59,001 acres Table ES-9.

Table ES-9: Designated Wilderness on the Green Mountain National Forest

Wilderness Areas	Acres	Year Designated	Enabling Legislation
Breadloaf	21,151	1984	Vermont Wilderness Act
Lye Brook	15,814	1975 and 1984	Eastern Wilderness Areas Act
Peru Peak	7,047	1984	Vermont Wilderness Act
Big Branch	6,505	1984	Vermont Wilderness Act
George Aiken	4,772	1984	Vermont Wilderness Act
Bristol Cliffs	3,712	1975 and 1976	Eastern Wilderness Areas Act

Issue Statement

Public concern is focused on how much designated wilderness the GMNF needs to have in order to provide for a range of recreation opportunities and ecosystem values. The public is divided on the subject of wilderness; some desire more wilderness, while others do not want additional wilderness designated. Another topic of public concern is that allocating land as wilderness may negatively impact other resources, such as

timber management or wildlife habitat. Issues also include the impacts of use in and around wilderness, buffer zones and the level of management intensity in areas surrounding wilderness, and the consistent and appropriate management and use of wilderness.

Environmental Consequences

The NFMA directs each National Forest to conduct a roadless inventory and evaluation during its Plan revision process in order to update and identify all roadless, undeveloped areas. The GMNF Plan revision roadless area inventory resulted in 37 roadless areas for evaluation consisting of 124,321 acres of NFS lands. Following evaluation, parts of the roadless areas were grouped together in various configurations to become recommended Wilderness Study Areas (WSAs) MA. Wilderness Study Areas are those roadless areas the GMNF is recommending to the Congress as potential wilderness. The WSAs were grouped into the following categories for consideration in the alternatives: Breadloaf Expansion, Big Branch Expansion, Glastenbury, Lye Brook Expansion, Peru Peak Expansion, and Worth Mountain. Each alternative proposes a different size and configuration of these WSAs, however, and not all alternatives propose a WSA in each category. Varying degrees of past management activity has taken place in these WSAs.

The focus of the WSA management area is on managing these areas to protect wilderness characteristics pending legislation as to their classification, and on providing existing uses where compatible with protecting wilderness character. For the purposes of determining the effects of the alternatives on the wilderness resource in this analysis, however, the WSAs are examined as if they are managed as wilderness areas.

Indicator 1: The Number of Areas and Acres Recommended for Wilderness Designation

Table ES-10 displays the acres allocated to WSAs by alternative. Alternative A would contain no acres of WSA, and would offer the least opportunity for expanded wilderness among the alternatives. Alternative B would contain 2,291 acres of WSA in the Breadloaf Expansion, representing less than one percent of the total GMNF acreage. Alternative C would contain 25,360 acres of WSA, representing seven percent of the total GMNF acreage. Alternative D would contain 49,799 acres of WSA, representing twelve percent of the total GMNF acreage, the largest WSA acreage of any of the alternatives. Alternative E would contain 27,473 acres of WSA, representing seven percent of the total GMNF acreage.

Table ES-10: Wilderness Study Areas by Alternative

Alternative A	No Wilderness Study Areas	0
Alternative B	Breadloaf Expansion	2,291
	Subtotal	2,291
Alternative C	Big Branch Expansion	175
	Breadloaf Expansion	4,031
	Glastenbury	16,766
	Lye Brook Expansion	155
	Peru Peak Expansion	867
	Worth Mountain	7,366
	Subtotal	29,360
Alternative D	Breadloaf Expansion	5,500
	Glastenbury	31,407
	Lye Brook Expansion	155
	Peru Peak Expansion	843
	Worth Mountain	11,894
	Subtotal	49,799
Alternative E	Big Branch Expansion	42
	Breadloaf Expansion	3,977
	Glastenbury	22,425
	Lye Brook Expansion	155
	Peru Peak Expansion	874
	Subtotal	27,473

Indicator 2: Configuration of Management Areas Adjacent to Wilderness and Compatibility with Wilderness Values

The compatibility of the MAs surrounding the Bristol Cliffs and Aiken Wilderness MAs is the same across all alternatives. In all alternatives, the Bristol Cliffs Wilderness, on the North Half of the GMNF, is adjacent to private land and a small block of the Escarpment MA. The Escarpment MA may be less than compatible with wilderness values due to the allowance, for example, of motor vehicles and timber harvesting. These are small blocks of Forest, however, and will be unlikely to influence the character of the adjacent wilderness. The Aiken Wilderness, on the South Half of the GMNF, is adjacent to less than compatible management types in all alternatives.

In Alternative A, the boundary of the Breadloaf Wilderness MA would be shared by the Backcountry Motorized MA, which is less compatible with wilderness values. The Big Branch and Peru Peak Wilderness MAs would share boundaries with the White Rocks National Recreation Area, which would be more compatible with wilderness values, and with the Diverse Forest Use MA, which is less compatible. The Lye Brook Wilderness boundary would be shared by both compatible and less compatible MAs.

The configuration of adjacent management types in Alternative B would not vary significantly from the configuration in Alternative A; the configurations of Alternatives A and B would present a similar mix of compatibility with wilderness values.

The configuration of adjacent management types in Alternatives C, D, and E would be generally more compatible with wilderness values than the configuration in Alternatives A or B, as it increases the amount of compatible land bordering Wilderness Areas and WSA MAs.

Eligible Wild and Scenic Rivers

Issue Statement

Public concern is focused on the determination of eligibility of streams and rivers for inclusion in the National Wild and Scenic River System (NWSRS) and protection of the rivers' and streams' outstandingly remarkable values.

Environmental Consequences

The Wild and Scenic Rivers Act directs federal agencies to identify eligible WSRs in their planning processes. This eligibility identification process was started in January 2003 for the GMNF. As defined by the Act, a National Wild and Scenic River must be free-flowing and must have at least one outstandingly remarkable value: recreation, scenery, wildlife or fish habitat, history, geology, cultural, ecological, or other related feature. Determination of eligibility was based on these criteria. After a river segment is determined eligible and is classified, it must undergo a suitability study before it can be recommended to the Congress for inclusion in the NWSRS.

Currently, there are no federally designated wild, scenic, or recreational rivers on the GMNF. There are 20 rivers with 28 segments on the Forest that have been determined to be eligible as wild, scenic, or recreational, and are awaiting a suitability study for inclusion in the NWSRS.

The rivers that are eligible for inclusion in the NWSRS based on the original National Rivers Inventory (NRI) are:

- Bolles Brook (two segments)
- Deerfield River (one segment)
- Lye Brook (two segments)
- New Haven River (one segment)
- Otter Creek (one segment)
- Roaring Branch (one segment)
- City Stream (one segment)
- Wardsboro Brook (two segments)
- West River (one segment)
- White River (one segment)
- Winhall River (two segments)

The following rivers are also eligible based on NRI data. These river segments have been acquired since the 1987 Plan:

- Mad River (one segment)
- Ottauquechee River (one segment)
- Batten Kill River (two segments)
- Rock River (two segments)

The rivers that are eligible for inclusion in the NWSRS based on GMNF specialists' 2003 eligibility review are:

- Big Branch (one segment)
- Bourn Brook (two segments)
- Leicester Hollow Brook (two segments)
- North Branch of the Middlebury River (one segment)
- Stamford Stream (one segment)

The majority (17) of these 28 eligible river segments are classified as Recreational Rivers. Of the remaining 11 segments, 8 are classified as Scenic Rivers, and 3 are classified as Wild Rivers.

Indicator: The Number of Rivers Proposed as Wild, Scenic, or Recreational Rivers.
In Alternative A, the Significant Streams designation would be retained. Significant Streams would continue to be managed as recreational rivers, and NRI-designated rivers would continue to be managed to protect their Outstandingly Remarkable Values. Under this alternative, there would be no eligible rivers, and rivers would not be studied for suitability. Significant Streams and NRI-designated rivers would be protected, as all GMNF rivers are, under improved water resources standards and guidelines.

The number of rivers proposed as Wild, Scenic or Recreational Rivers is the same across Alternatives B, C, D, and E (20 separate rivers consisting of 28 river segments). Seventeen river segments are proposed as Recreational Rivers, eight are proposed as Scenic Rivers, and three are proposed as Wild Rivers. The acreage in the Eligible Wild and Scenic Rivers MA would also be the same across the alternatives (24,743 acres).

National Recreation Area

White Rocks National Recreation Area (WRNRA) covers 36,400 acres, and includes all of the Big Branch and Peru Peak Wilderness Areas. Allocations to the WRNRA Management Area (22,758 acres) only include the WRNRA land outside of the two Wilderness Areas.

Issue Statement

Public concern is focused on management of the WRNRA, particularly vegetation management in the WRNRA. Other concerns include designation of additional National Recreation Areas. While some may want to see more land allocated to National Recreation Areas, others oppose such allocations. Finally, there is additional public concern regarding a buffer zone around WRNRA.

Environmental Consequences

Indicator: Potential Effects of Management Areas Adjacent to White Rocks National Recreation Area
In Alternatives A, D and E, the WRNRA is bordered by a combination of Diverse Forest Use and either the Diverse Backcountry or the Escarpment MA. This configuration would be more desirable than that of Alternative B, but less desirable than that of Alternatives C. In Alternative B, the WRNRA is completely surrounded by the Diverse Forest Use MA. This surrounding management configuration would be the least compatible with NRA management of any of the alternatives. In Alternative C, the WRNRA is surrounded by a configuration of Diverse Forest Use, Diverse Backcountry, and Escarpment MAs. The addition of both Escarpment and Diverse Backcountry MA in this Alternative, both with a Semi-Primitive Motorized desired future condition, would make Alternative C generally more consistent with the desired Semi-Primitive Motorized condition of the WRNRA, than Alternatives A, B, D or E.

3.1.13 Timber Management

Issue Statement

Public concern is focused on the role of timber harvesting, the amount of timber harvested,

harvest methods, and management intensity. In addition, impacts of timber management activities on natural and socio-economic resources are a concern. This analysis will compare how the alternatives address different levels of timber harvesting (intensity), methods and uses for timber management, and the desired mixes and locations of various forest type composition and age classes.

Environmental Consequences

Although there have been changes proposed in the revised Forest Plan goals, objectives, and Forest-wide standards and guidelines, the overall direction associated with timber management on the GMNF to meet different resource objectives would not be greatly altered. Each alternative, however, has a different level of opportunity for timber management over the short and long-term time period. The difference in the opportunity for timber management by alternative is highlighted by the indicators since each alternative has a different mix of MA allocations where timber harvest is emphasized.

Indicator 1: Acres of Land Identified as Suitable for Timber Production

Suitable forest land constitutes the land base for determining the average annual Allowable Sale Quantity (ASQ) where management for timber production occurs on a regulated basis. The management areas that are appropriate for timber production include: Diverse Forest Use, Diverse Backcountry, Remote Wildlife Habitat, Moosalamoo Recreation and Education Area, and the Escarpment. These management areas also contain some lands that are not appropriate for timber production such as inclusions of steep slopes, wet soils, and riparian areas (Table ES-11). Although timber harvesting may occur in other management areas, such as Alpine Ski Areas and the White Rocks NRA, timber harvesting in these areas does not contribute to the ASQ.

Table ES-11: Lands Suitable and Unsuitable for Timber Production

Management Areas	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
			Suitable Acres (Unsuitable Acres)		
Diverse Forest Use	95,081 (15,190)	162,365 (33,038)	100,012 (20,766)	88,003 (16,024)	102,463 (16,254)
Diverse Backcountry	62,592 (22,547)	43,176 (16,017)	72,656 (21,841)	46,820 (12,262)	43,677 (15,988)
Remote Wildlife Habitat	0	9,421 (2,694)	5,268 (455)	31,272 (10,915)	22,447 (7,952)
Moosalamoo Recreation and Education Area	0	0	9,842 (2,860)	0	9,613 (2,762)
Green Mountain Escarpment	0	1,469 (1,425)	6,013 (2,475)	14,287 (3,423)	11,416 (3,020)
Other Management Areas[1]	(205,282)	(131,087)	(158,504)	(177,686)	(177,475)
Total Suitable (Total Unsuitable)	157,673 (243,019)	216,430 (184,261)	193,791 (206,001)	180,381 (220,310)	189,616 (223,451)

[1] All lands in Remote Backcountry, Wilderness, Wilderness Study Area, White Rocks National Recreation Area, Appalachian Trail, Long Trail, Recreation Special Area, Alpine Ski Area, Alpine Ski Area Expansion, Research & Candidate Research Natural Areas, Ecological Special Area, Alpine & Subalpine Special Area, & Newly Acquired Land Management Areas (Alternative A only) are unsuitable for timber production based on management area direction.

Indicator 2 – Timber Sale Volume –Average Annual Allowable Sale Quantity (ASQ) is defined as the quantity of timber that may be sold from the area of suitable land covered by the Forest Plan for a time period specified by the Plan. This quantity is usually expressed on an annual basis as the average annual allowable sale quantity. The ASQ is the sum of all the wood products and expressed in millions of board feet (MMBF) or millions of cubic feet (MCF).

The application of vegetation treatments and allocations to various management areas affects the potential volume of timber produced during a particular period under each alternative. For the purpose of this analysis, the short-term covers the first decade and the long-term reaches 15 decades into the future. Table ES-12 displays each alternative's average annual ASQ for the short and long-term.

Table ES-12: Proposed Average Annual Allowable Sale Quantity (ASQ) by Alternative (MMBF) for Decades 1 to 15.

Alternative	A	B	C	D	E
Proposed Avg. Annual ASQ (MMBF)	13.8	17.5	16.8	16.0	16.4

Notes: This analysis was run for each decade up to 150 years into the future. Each decade had the same proposed ASQ.

The volumes are the maximum amount of timber products that could be sustainably harvested. Volumes are displayed in MMBF for all commercial wood products including sawtimber, pulpwood, commercial firewood, and chipwood. There would be roughly a 70/30 mix of sawtimber and pulpwood under all alternatives in the short and long-term. Major factors affecting achievement of the average annual ASQ are the lack of existing and projected pulpwood markets and limited staffing and project funding.

Indicator 3 - Silvicultural Prescriptions
Although there are a variety of harvest methods used in managing forest lands, there are only two silvicultural systems discussed in the revised Forest Plan: 1) even-aged management (including clearcutting, standard shelterwood, delayed shelterwood, and thinning); and 2) un-even-aged management (including individual tree and group selection).

Even-aged management harvest methods are used to achieve resource objectives such as regenerating shade intolerant tree species or high-risk and sparse stands, preventing the spread of insect and disease, and meeting wildlife habitat composition objectives. Shelterwoods accomplish desired even-aged resource objectives while retaining important stand attributes such as structure and visual quality. The removal cut is conducted three to seven years after the first cut to release the new stand of seedlings and saplings. Clearcuts are to be used only when they are the optimum method to achieve stated management objectives such as regenerating aspen or paper birch stands, and salvaging stands damaged by insect or disease.

Intermediate cuts, referred to as thinnings, are to be used to improve the growth and quality of desirable trees in overstocked stands. Frequency with which thinnings are conducted is based on the type of trees being managed, the productivity of the site, and the overall resource objectives for the area.

Uneven-aged management harvest methods are used to achieve resource objectives such as providing continuous forest cover, providing vertical diversity within stands, providing a variety of age and type classes among stands, and maintaining visual sensitive areas of the forest. The individual tree selection harvest method is used where shade intolerant species and continuous forest cover are desired. The group selection harvest method is used in where species are intermediately tolerant or intolerant to shade, and to facilitate the conversion of some even-aged stands to un-even-aged. Uneven-aged management entries in hardwood stands are normally every 15-20 years.

Table ES-13 shows the harvest methods that could be implemented under all alternatives. Thinning harvests could occur on 1,000 acres annually under all alternatives. Alternative A would have the least opportunity for even-aged

timber harvesting and the second least opportunity for uneven- aged timber harvesting. Alternative B would have the highest opportunity for both even-aged and uneven-aged timber harvesting. Alternative C would have intermediate opportunities for both even-aged and uneven-aged timber harvesting. Alternative D would have intermediate opportunities for both even-aged and uneven-aged timber harvesting and would have the least opportunity for timber harvesting except for Alternative A. Alternative E is similar to Alternative C and would have intermediate opportunities for both even-aged and uneven-aged timber harvesting.

Table ES-13: Projected Average Annual Acres Cut in the Short-term (2005-2014) by Harvest Method

Alternative	A	B	C	D	E
Even-aged Management					
Thinning Harvest	1,000	1,000	1,000	1,000	1,000
Shelterwood Regeneration	1,161	1,475	1,537	1,451	1,431
Shelterwood Removal	280	376	323	307	324
Clearcut	257	358	311	298	319
Even-aged Management Subtotal	2,698	3,209	3,171	3,056	3,074
Uneven-Aged Management					
Selection	802	1494	868	778	981
Totals	3,500	4,703	4,034	3,834	4,055

3.1.14 Non-Recreation Special Use Management

Non-recreation special uses are all uses of National Forest System lands, improvements, and resources, except those involved in the disposal of timber, minerals, the grazing of livestock, or commercial recreation activities. Discretionary authorizations are forms of non-recreation special uses allowed by permit, easement, or lease from the Forest Service.

Issue Statement

There is on-going concern and debate about special use management on the GMNF. Specifically, there is concern about what permit types are appropriate for the GMNF and the use of NFS lands for development of wind power and communication sites. Forest Plan revision will determine where particular activities could be allowed and the standards and guidelines for these uses.

Environmental Consequences

Indicator 1: Acres in Management Area Allocations Allowing Wind Power Development and New Communication Sites

In Alternative A, 113,647 acres (28%) could be considered for the development of wind power and communication sites. Of the total acreage, 8,760 acres (2%) of the Forest are potentially suitable for wind power sites. This represents the fewest acres available for these uses of any of the alternatives primarily due to presence of 92,003 acres of lands in the Newly Acquired Lands Management Area. This alternative would have a moderate amount of land available for low elevation communication sites for such uses as wireless telephone.

Alternative B would allocate 211,103 acres (53%) to be considered for the development of wind power and communication sites. Of the total acreage, 24,570 acres (6%) would potentially be suitable for wind power. This alternative has the most amount of land available for low elevation communication sites for such uses as wireless telephone, nearly three times the amount of available land as Alternative A.

Alternative C would allocate approximately 142,788 acres (36%) to be considered for the development of wind power and communication sites, the least among the alternatives. Of the total acreage, 14,490 acres (4%) would potentially be suitable for wind power. Alternative C has less land available for low elevation communication sites than Alternative A.

Alternatives D and E would range between 149,799 acres (37%) in Alternative D to 164,898 acres (41%) in Alternative E to be considered for the development of wind power and communication sites. Alternatives D and E would be intermediate in the amount of lands available for wind power and communication site development. Of the total acreage, 18,770 acres (5%) in Alternative D and 19,700 acres (5%) in Alternative E would potentially be

suitable for wind power. Alternatives D and E are also comparable in the amount of land available for low elevation communication sites.

Indicator 2: Acres in Management Area Allocations Allowing New Discretionary Authorizations that Include Facilities or Development
Opportunities for discretionary authorizations would be minimal under Alternative A. It would allocate 113,733 acres (28%) of the Forest in MAs available for discretionary authorizations, the second lowest of any alternative. New discretionary authorizations would be restricted on 135,955 acres (34%) of the Forest, primarily due to the presence of the undesignated lands of the Newly Acquired Lands MA, which are not available for new uses.

A full range of discretionary authorizations could be considered on 199,145 acres (50%) of the Forest under Alternative B. New discretionary authorizations would be restricted on 140,255 acres (35%) of the Forest. This alternative would have the most acres available for discretionary authorizations, and would provide more opportunities for development and use of adjoining lands of other ownership.

A full range of discretionary authorizations could be considered on 137,222 acres (34%) of the Forest under Alternative C. New discretionary authorizations would be restricted on 175,109 acres (44%) of the Forest. These levels of opportunity would be a moderate improvement over those in Alternative A.

A full range of discretionary authorizations could be considered on 107,769 acres (27%) of the Forest under Alternative D. This is the lowest level of opportunity of any alternative. New discretionary authorizations would be restricted on 184,123 acres (46%) of the Forest.

A full range of discretionary authorizations could be considered on about 134,656 acres (34%) of the Forest under Alternative E. New discretionary authorizations are restricted on 179,562 acres (45%) of the Forest. These levels of opportunity are a moderate improvement over those in Alternative A and very comparable to Alternative C and D.

3.1.15 Visuals

Issue Statement
The level of emphasis placed on managing the visual quality of the landscape continues to be a high priority. There is concern over the impacts of certain forest activities on visual quality such as wind energy and communication towers, and a concern that visual quality could hinder some activities.

Environmental Consequences
Indicator 1: Acres in Management Area Allocations Providing Similar Opportunities for Vista Management
Vistas include a point or area along a travelway from which people view scenery and include the land that is managed to allow the view shed to be seen. All alternatives will provide for adequate opportunities to provide vista management. Alternative A would offer the least potential for vista management. Alternative B would offer the greatest opportunity for vista management. Alternatives C and E would offer opportunities for vista management that fall in between Alternatives A and B. Alternative D would offer the second least amount of opportunity for vista management and would offer the most restrictions on vista management, other than Alternative A.

Indicator 2: Acres in Management Area Allocations which Allow the Development of Wind Power and New Communication Sites
Alternative A has the least number of acres (113,647; 28%) available to be considered for development of wind and communication tower sites, therefore Alternative A has the potential to have the least visual impacts. Alternative B has the most acreage (211,103; 53%) available to be considered for development of wind and communication tower sites, therefore Alternative B has the potential to have the greatest visual impacts. Alternative C falls in between Alternatives A and B and offers the least number of acres (142,788; 36%) available to be considered for development of wind and communication tower sites after Alternative A. Alternative D falls in between Alternatives A and B for the development of wind and communication tower sites with 149,799 acres

(37%). Alternative E falls in between Alternatives A and B and offers the second highest number of acres (164,429; 41%) available to be considered for development of wind and communication tower sites after Alternative B.

Indicator 3: Projected Average Annual Acres Harvested by Treatment Methods with Similar Effects on Visual Quality

All alternatives meet the intent of the goal for the visual resource. All alternatives have management areas where timber harvest in the suitable land base is allowed. Table ES-12 shows the harvest methods that could be implemented under all alternatives. The alternatives differ in the projected acreage and distribution of even-aged and uneven-aged timber harvesting. Alternative A has the least amount of projected average annual acreage (3,500) harvested of all the alternatives and the least amount of even-aged acres (2,698) projected for harvest. Therefore, the overall potential visual effects of timber harvest would be the least in Alternative A. Alternative B has the most projected average annual acreage (4,703) harvested of all alternatives and the most amount of even-aged acres (3,209) projected for harvest and thus has the most potential negative effects on the visual resource. Alternatives C, D, and E are intermediate in the amount of projected average annual acreage harvested and the projected average amount of even-aged acres harvested. Alternatives C (4,034) and E (4,055) are nearly identical for total acreage projected for harvest. Alternative D includes 3,834 acres. The potential effects on the visual resource from these alternatives would be greater than Alternative A and less than Alternative B.

3.1.16 Heritage Resources and Tribal Relations

Issue Statement

Public concern is focused on the need to protect and preserve significant Heritage Resource properties and values.

Environmental Consequences

The Forest Service currently keeps representatives of the Abenaki and Mohican Tribes apprised of GMNF projects and programs, and is seeking to improve consultation. A long-term relationship with the Abenaki goes beyond the short-term compliance process, and there is an effort to maintain open communications and an exchange of views, concerns, and opportunities.

Indicator: Acres in Management Area Allocations Most Subject to Ground Disturbing Activities that Have Potential to Affect Heritage Resources

All alternatives will do a good job of protecting heritage resources since standards and guidelines and in-field methods and measures for protecting sites are effective when implemented. Some alternatives will inevitably result in greater potential for incremental impacts to heritage resources over the life of the Plan and the long-term due to the variation in the total area allowing ground disturbing activities and human error in implementing standards and guidelines.

In Alternative A, 198,872 acres (50%) are included in MAs that are most subject to ground-disturbing activities. This Alternative has the least potential for impacts to Heritage Resource sites over the short-term and long-term. In Alternative B, 273,347 acres (68%) are included in MAs that are most subject to ground-disturbing activities, 74,475 acres (and 500 sites) more than Alternative A. This difference is significant because it represents a large number of additional (and unevaluated) sites. In Alternatives C and E, 245,930 and 239,156 acres, respectively (61% and 60%, respectively) are included in MAs that are most subject to ground-disturbing activities. These Alternatives have more acreage in MAs that allow ground disturbing activities than Alternative A (but less than B) and would therefore potentially result in more adverse effects to heritage resources. In Alternative D, 226,748 acres (57%) are included in MAs that are most subject to ground-disturbing activities. This Alternative has the second-least acreage in MAs that allow ground disturbing activities,

slightly more than Alternative A and less than Alternatives B, C and E.

3.1.17 Wildland Fire Management

Issue Statement
Concern is focused on defining the ecological role of fire on the GMNF. The issue of fire ecology is part of the broad plan revision issue of restoring, protecting, maintaining, and enhancing biological and ecological diversity.

Environmental Consequences
The role of natural fire on the GMNF has historically been to create small patch disturbances with long fire-return intervals. There is a desire to manage wildland and prescribed fire so that various vegetation types and species can be maintained, public and firefighter safety is assured, and improvements such as houses, buildings, administrative sites, campgrounds, and communication sites, are protected. Of particular concern is the interface between private development and public lands. This is referred to as the Wildland Urban Interface (WUI) and includes lands within a mile and a half from improvements, such as homes and power lines. Nearly all of the GMNF is considered part of the WUI.

Indicator 1: Acres in Management Area Allocations where Wildfire would be Suppressed
The Forest-wide effects of wildfire, based on average and historical conditions, would generally be of small–scale across all alternatives. Natural wildfires may be managed under Wildland Fire Use when appropriate. All other wildfires would be suppressed within all GMNF management areas for all alternatives.

Indicator 2: Acres in Management Area Allocations where Prescribed Fire would be Allowed
Although the actual intensity of the prescribed burning program in the short-term is not expected to vary by alternative, their allocation of Management Areas (MAs) would differ in the prescribed burning opportunities they would afford (Table ES-14). Prescribed burning is allowed in all MAs except: Wilderness, Wilderness Study Areas and Alpine/Subalpine Special Areas.

Table ES-14: Management Area Allocations where Prescribed Fire would be Allowed

Alternative	Acres (% of total)
Alternative A	341,691 (85%)
Alternative B	338,694 (84%)
Alternative C	311,625 (78%)
Alternative D	291,186 (73%)
Alternative E	313,512 (78%)

Indicator 3: Acres in Management Area Allocations where Wildland Fire Use would be Allowed
The allocation of MAs would differ in the level of Wildland Fire Use opportunity they would provide to achieve management objectives (Table ES-15). The application of Wildland Fire Use would be allowed in the Wilderness, Wilderness Study Areas, Remote Backcountry, White Rocks National Recreation Area, Alpine/Subalpine Special Area, the Green Mountain Escarpment, Research Natural Areas, and Ecological Special Areas MAs.

Table ES-15: Management Area Allocations where Wildland Fire Use would be Allowed

Alternative	Acres (% of total)
Alternative A	92,417 (23%)
Alternative B	113,284 (28%)
Alternative C	146,424 (37%)
Alternative D	177,063 (44%)
Alternative E	159,703 (40%)

3.1.18 Special Forest Products

Special forest products (SFPs) are defined by the Forest Service as a subset of forest products that the agency permits to be sold, or used, from NFS lands. They include:

- Non-timber vegetative products, such as mosses, fungi, bryophytes, roots, bulbs,

berries, seeds, wildflowers, ferns, and transplants of shrubs
- Non-convertible timber products that cannot be measured in cubic feet of wood, such as Christmas trees, tree sap, boughs, bark, cones, burls, and transplants of trees
- Convertible timber products that can be measured in cubic feet of wood, such as posts, poles, rails, shingle and shake bolts, firewood, fence stays, mine props, and bow staves

Issue Statement
Concern is focused on the need for more guidance on how to address permits for gathering of SFPs. There were also concerns regarding the need for more guidance on what types of products can be gathered, where they can be gathered, and the availability of SFPs in general.

Environmental Consequences
Indicator: Acres of Management Area Allocations that allow the Collection of Special Forest Products (Acres of Availability)
The entire GMNF would be open to incidental gathering for personal use of SFPs, regardless of alternative. Management areas vary in what types of permit gathering they allow, prohibit, or otherwise constrain. This variation in acres of availability is expected to result in little to no variation in effects by alternative, and effects are predicted to be inconsequential. Lands available for personal use permit gathering are similar across all alternatives, representing about 85 percent of the Forest. Additional restrictions may apply to some of these lands; lands with such restrictions range from around 10-30 percent by alternative, with the fewest restrictions in Alternative B and the greatest in Alternative A. Even under Alternative A, however, about 75 percent of the Forest would still be available for these types of uses without additional management area restrictions. Lands available for commercial use permits vary by alternative from approximately 66 percent to 83 percent of the Forest.

3.1.19 Minerals

Issue Statement
Public concern is focused on whether or not mineral and gravel extraction should be allowed on the Forest and the impacts of extraction activities. Other concerns expressed are the continuation of hobby extraction, including panning for gold.

Environmental Consequences
Indicator: Acres of Management Area Open to Surface Occupancy
Surface occupancy is allowed in five management areas: Diverse Forest Use, Diverse Backcountry, Remote Wildlife Habitat, Recreation Special Areas, and Moosalamoo Recreation and Education Area. Surface occupancy associated with leasable minerals is not expected to vary by alternative since they do not occur, or have not occurred in commercial quantities, on the Forest. There is a difference in the number of acres in each management area that allows for surface occupancy. This difference is negligible since the actual surface occupancy could only occur in areas geologically favorable for sand and gravel development.

3.1.20 Road Management

Issue Statement
Public concern is focused on how the GMNF plans for and manages roads and transportation systems. Management includes road construction, reconstruction, closure, and usage (the purpose for which roads may be used). Management also implies maintaining the existing road system on the GMNF to provide safe and sufficient access to the Forest while minimizing harmful impacts to the environment.

Environmental Consequences
The GMNF road system is comprised of approximately 434 miles of road with approximately 250 miles (58%) under Forest Service jurisdiction and 184 miles (42%) under private, State, or town jurisdiction. The roads under other jurisdictions are scattered throughout the Forest and are essential links in

the road system that provides access to publicly owned lands. The surrounding road system, in connection with the Forest road system, provides adequate access to public and private lands in and around the GMNF.

Indicator: Acres by Management Area Allocation that Allow Road Development and Construction
Although there are variations among alternatives, all meet the intent of the revised Plan goal to provide for a safe, efficient, and effective road system. All five alternatives allow for the development and construction of temporary or permanent roads and maintenance of existing roads within the following Management Areas: Diverse Forest Use, Escarpment, Moosalamoo Recreation and Education Area, the White Rocks National Recreation Area, Recreation Special Areas, Alpine Ski Areas, Alpine Ski Expansion Areas, and the Recreational segments of Eligible Wild, Scenic, and Recreational Rivers.

In all five alternatives, the development and construction of temporary or permanent roads and the maintenance of existing roads is either strictly prohibited, or restricted to varying degrees, within the following MAs: Diverse Backcountry, Remote Backcountry Forest, Remote Wildlife Habitat, Wilderness, Wilderness Study Areas, Appalachian Trail, Long Trail, Alpine/Subalpine Special Areas, Candidate and Existing Research Natural Areas, Ecological Special Areas, and the Wild and Scenic segments of Eligible Wild, Scenic, and Recreational Rivers.

The amount of acres allowing the potential for new road development and temporary roads would be less under Alternative A than what may occur in the other alternatives. Alternative B would provide the most acres allowing the potential for new road development and new temporary roads. Alternatives C and E would provide moderate amounts of acres allowing the potential for new road development and temporary roads, when compared to Alternatives A and B. Alternative D would provide the second lowest opportunity for the potential for new road development and temporary roads.

3.1.21 Social and Economic Factors

Issue Statement
Public concern is focused on the social and economic costs and benefits of having NFS land in fifty three municipalities in Vermont. Social concerns focus on community desires and the values and expectations of a changing population. Economic concerns focus on the adequacy of Forest Service contributions in lieu of tax revenues lost due to Forest Service land ownership; potential revenues and employment that could be generated from forest products, tourism, and other Forest Service related activities; and the cost effectiveness of Forest Service programs and management.

Public concern specific to land acquisition is focused on determining land acquisition priorities with input from other agencies, State and local governments, and the public; the impact of land acquisition on local taxes; and the potential removal of acquired lands from timber management and other uses.

Environmental Consequences
Indicator 1: Community Values
The GMNF is located in 53 towns in six counties (Addison, Bennington, Rutland, Washington, Windham, and Windsor) located in central and southern Vermont. The combined population of the six counties is 296,041, and makes up 49 percent of the State of Vermont's population. The focus on town government, planning, education, and culture is born of, and continues to perpetuate, a strong sense of community in Vermont towns. The setting of small villages and towns surrounded by a rural and scenic landscape also contributes to the sense of place that knits local communities together. People care deeply about their communities and the land in which they are located.

All alternatives are designed to be consistent with community values and to sustain the social and economic fabric of local communities. All alternatives will maintain and enhance natural resources, historic resources, scenic resources, and recreational opportunities through the

implementation of goals, objectives, standards, guidelines, and management area direction.

Alternative A does not address the stated community concern over lack of management on newly acquired lands. Alternative A does not address the desire for additional Wilderness designation, or the desire for improved timber economics and availability. Alternative B provides the greatest opportunity to address community concerns about timber resources, forest related industries, and economics. It also allows for more opportunities for developed and motorized recreation. Alternative C provides an intermediate opportunity to address community concerns about timber resources, forest related industries, and economics. This alternative emphasizes public use, interpretation and education; and the protection of the special values and attributes of the area that contribute to public enjoyment. An intermediate level of emphasis is placed on the community desire to have more areas with non-motorized use. Alternative D provides the second lowest opportunity to address community concerns about timber resources, forest related industries, and economics. The desire for additional wilderness is addressed in Alternative D by adding the greatest amount of all the alternatives. The potential amount of wilderness in Alternative D may detract from the public desire for developed and motorized recreational opportunities, and may reduce opportunities for resource management through timber harvesting and other vegetation management tools. Alternative E provides an intermediate opportunity, similar to C, to address community concerns about timber resources, forest related industries, and economics. This alternative focuses timber harvesting on the most suitable lands and in the most accessible areas providing for increased economic sustainability.

Indicator 2: Economic Impacts

All alternatives would contribute positively to the economy of the six Vermont counties with NFS lands. The recreation and timber programs would contribute the most jobs and industry income. All alternatives would contribute at greater levels than the current condition. Alternative A provides the least potential employment and income contributions from Forest Service programs. Alternatives B, C, and E provide similar potential employment and income opportunities and have negligible differences in their economic impact on the analysis area. All three of these alternatives provide greater employment and income contribution opportunities than Alternative A. Alternative D provides an intermediate potential employment and income contribution from Forest Service programs, between Alternative A and the other alternatives.

Indicator 3: Forest Payments to Towns

Since Payment in Lieu of Taxes (PILT) are based on the amount of acreage under Forest Service administration, these payments are not affected by changes in the Forest Plan and resource output levels as a result of direction provided in the Forest Plan. All towns with GMNF lands chose the Full Payment Fund based on the State's three highest 25-Percent Fund payments between 1986 and 1999 instead of the 25-Percent Fund that is based on yearly revenues generated by resource outputs. Basing Secure Schools Act payments on past revenues means that the payments would not vary between alternatives.

Indicator 4: Present Net Value (PNV)

Table ES-16 provides the PNV for the alternatives. The PNV for market values without timber is the same for all alternatives. Revenues and expenditures for resource programs other than timber are not estimated to vary by alternative. Alternative A provides the lowest total PNV due to the lower amount of potential timber harvesting. Alternative B

Table ES-16: Present Net Value (PNV) in Thousands of Dollars for each Alternative

	Non-Market Assigned Value	Market Value without Timber	Timber Market Value	Total PNV
Alt. A	2,360,579	($168,504)	116,518	2,308,593
Alt. B	2,360,692	($168,504)	148,314	2,340,502
Alt. C	2,362,022	($168,504)	143,946	2,337,464
Alt. D	2,363,025	($168,504)	134,323	2,328,844
Alt. E	2,361,929	($168,504)	138,677	2,332,102

provides the highest PNV. Alternative C provides a total PNV that is higher than Alternative A and the second highest overall. Alternative D provides a total PNV that is higher than Alternative A but is lower than Alternatives B, C, and E. Alternative E has a higher total PNV than Alternative A and is the intermediate level PNV of the alternatives.

3.1.22 Environmental Justice

Principles for considering environmental justice under NEPA are set forth in "Environmental Justice, Guidance Under the National Environmental Policy Act" (Council on Environmental Quality, 1997). Before a policy, proposal or, as in this case, a Forest Plan is implemented, the likelihood of a disproportionate effect on minority or low-income populations must be investigated and disclosed. Evidence shows that low-income and minority populations bear a disproportionate risk of suffering adverse environmental conditions in their communities.

Adoption and implementation of a proposed revised Forest Plan is not expected to have a disproportionate adverse direct, indirect, or cumulative impact on minority or low-income populations over the life of the Plan, regardless of the alternative selected. No issues related to potential disproportionate impacts on either of these demographic groups were identified during public involvement associated with the Forest Plan revision process.