White Mountain National Forest

United States
Department of
Agriculture

Forest
Service

**Eastern
Region**

Executive Summary Final Environmental Impact Statement

for the Land and Resource Management Plan

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Executive Summary Final Environmental Impact Statement

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Abstract: This is the summary of the Final Environmental Impact Statement (FEIS), which documents the analysis of four alternatives developed for programmatic management of the land administered by the White Mountain National Forest. The Forest Service has identified Alternative 2 as the Selected Alternative.

Contents

Chapter 1 — Introduction

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

The White Mountain National Forest is located in New Hampshire and Maine, and has a long history as a place for outstanding and varied recreational opportunities for millions of people each year, as well as providing products to support local enterprises and meet the needs of citizens. Valuable terrestrial and aquatic habitats for native plants and animals stretch from lowlands to the alpine zone, including habitats needed to aid the recovery of threatened and endangered species. Centuries of cultural artifacts scattered throughout the landscape tell the stories of changing land uses, former residents, and our nation's evolving values. This 796,700-acre Forest also includes areas of regional and national significance such as five Congressionally-designated Wildernesses, three research natural areas, two experimental research forests, the largest parcel of alpine zone in the east, the White Mountain Trail National Scenic Byway, and segments of the Appalachian National Scenic Trail and the Wildcat River Wild and Scenic River. Watersheds in the national forest support the headwaters of streams that provide clean drinking water for people throughout the region. The White Mountain National Forest contributes to the livability and quality of life in New England, and is treasured by residents and visitors alike.

About the Forest Plan and the FEIS

The current Forest Plan was adopted in 1986, and is now due to be revised. Legal direction for revising the Forest Plan comes from the National Forest Management Act and its implementing regulations contained in 36 CFR 219. The analysis and decision-making process is guided by the National Environmental Policy Act. The Forest Plan describes the desired future condition of the land, allocates management areas, identifies goals, objectives, and management activities, and assigns standards and guidelines to be applied when managing the land. The Forest Plan also outlines a program for monitoring and evaluating results of implementation.

The Forest Plan is based on a thorough environmental analysis that is documented in an environmental impact statement (EIS). A new analysis must be conducted every 10-15 years to incorporate new information and changed conditions. Revision seeks to find the appropriate balance of uses and management actions that will move the land toward the desired future condition. An interdisciplinary approach relying on the best available science and significant public involvement is used to develop the FEIS. The Final Environmental Impact Statement describes:

- The purpose and need for changing the Forest Plan.
- Alternatives developed to address the issues surrounding the purpose and need for change.
- The affected environment.
- The predicted consequences associated with each alternative.

This FEIS studies four alternatives, each with a different mix of land uses and effects. Alternative 2 was selected as the *Preferred Alternative* and was the basis for the Proposed Plan published with the Draft EIS (DEIS). Following public review of the draft documents, Alternative 2 was changed slightly in response to internal and public comment. This updated Alternative 2 is the *Selected Alternative*, and is the basis for the 2005 Forest Plan.

The Record of Decision (ROD) explains the following:

1. The rationale for selecting Alternative 2 to be the 2005 Forest Plan;
2. How the Selected Alternative responds to Plan revision problems and public issues; and
3. How the 2005 Plan relates to existing laws and regulations.

The Regional Forester is the Responsible Official for the analysis and decisions for Forest Plan revision.

In conjunction with laws, policies, executive orders, and Forest Service Manuals and Handbooks, the 2005 Forest Plan establishes direction for managing the Forest's natural resources for the next 10 to 15 years.

Decisions Made in the Forest Plan

Six programmatic decisions are made in the Forest Plan that will govern the landscape-scale management of the Forest.

1) Forest-wide multiple-use goals and objectives (36 CFR 219.11(b)).
2) Forest-wide management standards and guidelines (36 CFR 219.13-27).
3) Management area direction (36 CFR 219.11).
4) Lands 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 Congress (e.g., recommendations for Wilderness (36 CFR 219.17)).

These decisions establish the framework under which site-specific, project-level decisions are made to implement the direction in the Forest Plan.

Changes Between Draft and Final EIS

Well-prepared and constructive comments, as well as internal reviews and field verification, were considered in preparing the Final EIS and revised Plan. Changes made range from minor editing to changes in management direction, desired conditions, objectives, and standards and guidelines. The most substantial of these are summarized here.

Changes to Mountain Biking Management Direction

The revised Plan continues to prohibit cross-country travel and use of bicycles in Wilderness, the Appalachian Trail, and any other specific Area Closure implemented through a Forest Supervisor Order. All other Forest

development trails and travel corridors will remain open to mountain bike use, unless signed closed.

Inventoried Roadless Process

Based on concerns about the roadless inventory process, additional information about the inventory process is included in the FEIS (Appendix C) and in the Administrative Record. A Forest Service review of specific boundary locations added approximately 13,000 acres to four existing inventoried roadless areas. Field verification of improved roads demonstrated that most were correctly mapped, but a few that no longer meet the criteria have been dropped, resulting in a new Sawyer River Inventoried Roadless Area of approximately 6,718 acres. A total of 403,144 acres in 27 inventoried roadless areas has been identifiec across the Forest.

Wilderness Boundaries

The Selected Alternative recommends the same two areas for Wilderness consideration as the DEIS, but includes minor boundary changes to the Sandwich Range Recommended Wilderness along the southeastern and southwestern boundaries, in the Algonquin Trail and Ferncroft areas. This adds 900 acres to MA 9.1 (Recommended Wilderness).

Changes to the Application of Prescribed Fire

Prescribed fire will now be allowed in MA 7.1 (Alpine Ski Areas) and MA 9.2 (Ski Area Expansion) as an alternate slope management tool for vegetation control (e.g., on slopes that are too steep for wheeled or tracked equipment and where risk to improvements is not a factor).

Acid Deposition, Soil Productivity, and Water Quality Analysis

The analysis area for soils was redefined in the FEIS, and discussion and analysis of soil and water concerns was expanded.

Additions to Species Viability Evaluation (SVE) List

Based on 2004 survey data and further peer review, six species (Brown's ameletid mayfly, third ameletid mayfly, *Arctostaphylos alpina*, *Carex exilis*, *Corallorhiza odontorhiza,* and *Epilobium anagallidifolium*) were added to the SVE list since the release of the DEIS. The potential for each alternative to impact these species is addressed in the Rare and Unique Features section and Appendix F or the FEIS.

Management Area 9.5 — Newly Acquired Lands

Internal review indicated that allocating a management area to new lands at the time of acquisition would be more expedient than placing them in a holding area (MA 9.5 proposed in the DEIS). As stated in the revised Plan, newly acquired land will be allocated to the same MA as surrounding National Forest land if it has similar attributes. If the attributes are different, the acquired tract will be evaluated by an interdisciplinary team to decide its management area.

Purpose and Need for Change

Since its implementation in 1986, the Forest Plan has provided the framework for management decisions related to the continuing health of the Forest and its ability to provide multiple benefits to the public. Portions of the Plan have been amended when necessary, however, advancements in scientific understanding, shifts in public policy, and changing and growing public needs have caused the need to thoroughly review and revise the Plan at this time.

Notice of Intent

In February 2000, the White Mountain National Forest issued a Notice of Intent and Description of Proposal for Revising the White Mountain National Forest Plan (NOI) which initiated the planning process. It discussed the existing Forest Plan, the Plan revision process, and the role of the Forest. The NOI identified Forest Plan revision needs; it also set out items that would not be addressed in revision. Twenty-three topics were discussed as areas of concern in the NOI.

Need for Change

A **need for change** was identified for six of the twenty-three topics: timber management, wildlife habitat management, roadless and unroaded area management, Wilderness recommendations, motorized dispersed recreation, and non-motorized dispersed recreation. The four indicators that suggested the need to revise the Plan were:

- Public use of the Forest has changed.
- Agency goals and objectives, along with other national guidance for strategic plans and programs, have changed.
- Results of monitoring and evaluation suggest the need for revision.
- Forest research has advanced with new information to incorporate into forest management.

Timber Management Need for Change

While some of the public would like to eliminate national forest timber harvesting, others would prefer some level of timber harvest to achieve resource objectives, including a sustained yield of timber. Some of the debate revolves around the impacts of even-aged management, especially clearcutting, which creates openings in the forest. Some view clearcutting as a negative scenic impact, while others view it as an important tool for wildlife habitat management. There is a need to respond to these concerns and to address the trade-offs between resources involved in timber production at various levels of timber harvest.

Wildlife Habitat Management Need for Change

New scientific information becomes available periodically from research organizations and agencies studying wildlife habitat and populations. The need at this time is to incorporate new information while reevaluating the mix of habitat objectives necessary to maintain viable populations, and developing a strategy for implementing those objectives. Natural disturbance patterns, spatial arrangement of habitats across the landscape, a look at stand structure, reevaluation of management indicator species, and a new assessment of species viability are looked at in revising the Forest Plan. As described in the timber management topic, the creation of early successional habitat concerns some because it is accomplished through even age management. Others believe not creating young habitat limits wildlife diversity.

Roadless and Unroaded Area Management Need for Change

What lands are considered roadless and what uses should be allowed on them is debated among the public. A roadless area inventory was completed during the Forest Plan revision process. Each roadless area was considered for Wilderness recommendation based on three criteria: capability, availability, and need. The 2005 Forest Plan identifies a range of management direction for those roadless areas not proposed for Wilderness recommendation.

Wilderness Recommendation Need for Change

Wilderness is ultimately designated by Congress, but it is the job of Forest Plan revision to study the issue and recommend White Mountain National Forest lands for designation. Public sentiment ranges from no change in the current 114,000 acres of Wilderness to recommending substantially more designated Wilderness.

Motorized/Non-motorized Dispersed Recreation Need for Change

The quality of the recreation experience on the Forest has been affected by increasing numbers of visitors as well as changes in the recreational activities they pursue. Over the last 15 years interest and growth in many recreational activities such as rock climbing, mountain biking, and summer motorized recreation has indicated a need for more specific direction on how to meet a broad range of recreation goals while conserving and maintaining both the recreational experience and the natural resources affected by recreationists.

Public Involvement

Public involvement in many forms has been an essential element of the Forest Plan revision since it began in 1997. Early in the process, public outreach sessions helped identify changes needed in the 1986 Forest Plan. These comments formed the basis for 23 topics of concern which were presented to the public in the 2000 Notice of Intent (NOI). The Forest found that while many of these topics identified needed change, the changes could be dealt with through the establishment of standards or guidelines. Six of the topics could not be dealt with in this manner. Additional public involvement led to the six topics being combined into three issues. Conceptual management alternatives were developed to respond to these issues. These preliminary alternatives were then presented to and reviewed by the public.

The public has been kept informed and updated, and input gathered by the Forest Service through regular newsletters, news releases, open houses, public meetings, and Internet postings. Forest Planning libraries were maintained at each Ranger District office to have meeting notes and analysis reports available to the public. Notable forums for public involvement were the citizen-run Local Planning Groups which met monthly with Forest Service employees for two years to discuss and offer options for addressing the topics of concern.

Meetings were also held with Native American tribes, federal and state agencies, local governments, and private organizations and individuals.

Public comments from review of this FEIS and Proposed Forest Plan were reviewed and responded to in the Final EIS.

Issues

Issues stem from the need for change to address new scientific information, changed resource conditions, monitoring and evaluation information, and changing public demands. Management alternatives are developed around these issues and reflect different management emphases.

Three issues resulted from the need for change summarized in the "Purpose and Need for Change". Each issue has indicators that measure existing conditions and potential effects of management activities. Indicators highlight differences between alternatives and summarize the environmental, economic, and social impacts of the alternatives. Indicators are both quantitative and qualitative.

1. Management emphasis through land allocation

The existing White Mountain National Forest Plan identifies management direction through the use of management areas that provide a mix of resource management emphases. The current Forest Plan emphasizes dispersed recreation experiences in non-motorized landscapes on approximately 54 percent of the Forest. These management areas provide for older forest conditions and large blocks of non-manipulated landscapes that are valued for both their ecological and social values. Included within this management

emphasis are 114,000 acres (fifteen percent of total Forest acres) of Congressionally-designated Wilderness.

The remaining 46 percent of the National Forest includes management emphasis that provides for the full range of recreation opportunities, including non-motorized trails, developed recreation areas, road systems for public access, timber management activities, Nordic and alpine ski areas, and snowmobiling. These management areas allow vegetation management to provide early successional habitat that is important for some wildlife species.

This issue explores the question of whether the current management emphasis provides the needed direction for the White Mountain National Forest, or if changes should be made to meet the ecological, social, and economic demands expected on the Forest over the next 10 to 15 years. The issue also looks at whether additional areas should be proposed to Congress for Wilderness designation.

All lands are managed to ensure that long-term sustainability and visual quality objectives are maintained or improved.

2. Timber Management and Wildlife Habitat

Timber harvest accomplishes many goals. It provides a reliable source of high quality wood products, modifies wildlife habitat, maintains a healthy forest by removing trees damaged by insects and disease, and demonstrates science-based forest management practices.

This issue addresses how much timber is harvested on a sustainable basis from the Forest, where it is harvested, and the type of harvest treatment to be used. The issue also responds to the role of the White Mountain National Forest in providing young forest habitat within the larger landscape. There are varying opinions on the value and need for active habitat manipulation to ensure an adequate presence of early successional wildlife species such as moose, deer, ruffed grouse, and some songbirds. Some people view these species as important for wildlife viewing and hunting experience, as well as for their intrinsic contribution to species diversity. Other people believe mature forest habitats should predominate on the National Forest because young forest habitats are available elsewhere

3. Recreation Management

The current Forest Plan provides for a full range of recreation opportunities, with an emphasis on non-motorized dispersed recreation. Millions of people visit the White Mountain National Forest each year and are important to the local and regional economy. Growth in demand, marketing, and improvements in outdoor recreation equipment has increased use and activities during all seasons. This growth and expansion may affect ecological conditions and recreational experiences. In addition to the growing use within traditional recreation activities, the Forest is being asked to accommodate a broader array of recreation experiences, including summer motorized trail vehicles and new recreational events.

This issue looks closely at how changing activities and increasing use can be managed to prevent unacceptable ecological impacts, as well as the need to provide long-term direction that ensures a range of high quality recreation opportunities. This includes protecting areas of low recreation use and recognizing the value of areas with high recreation use. The current Plan provides little long-term guidance or management direction for addressing new uses, or existing activities such as rock and ice climbing, outfitter and guide operations, mountain biking, and group events. The Forest Plan also needs to provide more guidance for managing recreation within Wilderness.

Chapter 2 — Alternatives

Introduction

This chapter describes and compares the alternatives considered in the FEIS. Alternatives provide a framework for analyzing different ways of meeting the purpose and need and addressing the issues discussed in Chapter 1. In Forest Plan revision, each alternative has a different approach to managing natural resources on the National Forest. The 2005 Forest Plan is based on the Selected Alternative (Alternative 2).

Developing Alternatives

Public comment was invited early and often during the Plan revision process (see Appendix A). The public, working with Forest Plan revision team members, contributed to the identification of the three Forest Plan revision issues addressed in this analysis. The public also identified options to current Forest Plan management direction. Following an interdisciplinary approach, the Forest Service used these options to lay the groundwork for the central focus of Plan revision, the management alternatives.

The interdisciplinary team developed four preliminary alternatives in response to the issues and need for change. While all four alternatives provide a wide range of multiple uses, goods, and services, each addresses the issues in a different way.

The preliminary alternatives were presented at a public workshop in March of 2003. Many of the comments received during and after the workshop were incorporated, and the four alternatives were brought forward for analysis in the DEIS. Comments on the DEIS and the Proposed Plan prompted slight changes to Alternative 2, resulting in the four alternatives analyzed in this FEIS. Each alternative provides a different basis for developing a Forest Plan. Alternatives share goals, concepts, and policies that all National Forests are directed to follow. They differ in the emphasis given to particular issues and goals.

Alternatives Eliminated from Detailed Study

No Timber Harvest

Public comment about timber management on the White Mountain National Forest concentrated around the legitimacy of timber harvesting, the amount of timber harvested, where on the landscape it was harvested, the harvest methods, and the intensity of timber management. Some members of the public proposed options to the current timber management program that would end timber harvest completely on the Forest. These options, as submitted, were eliminated from detailed consideration for several reasons.

1. Sustainable supplies of timber products is one of the original purposes for establishing the National Forests, as described in the Organic and Weeks Act.
2. Timber management over the last 50 years aimed at growing high

quality sawtimber has been an investment that will be more fully realized with continued management.

3. Overall benefits of the program, including market and non-market values, exceed costs. Monitoring also indicates that timber harvesting has proven to be the most effective method of providing vegetative diversity, and is closely tied with achieving wildlife habitat composition objectives.
4. Public land management agencies have the ability to field trial new management techniques and test new research results. The results can then be used in conservation education efforts to demonstrate sustainable and ecologically sensitive timber management.

All Roadless Areas Recommended as Wilderness

An alternative was proposed to recommend all 27 inventoried roadless areas on the Forest (403,144 acres) for Wilderness designation. This was considered and eliminated from detailed analysis because:

- While all areas meet minimum roadless area inventory criteria, not all areas meet the Wilderness recommendation criteria of availability, capability, and need.
- The desired future condition of the Forest would not be reached. Approximately 48 percent of the total Forest land base would be placed in MA 9.1, a holding area allocation. When added to the 114,000 acres of existing Wilderness, 63 percent of the Forest land base would be allocated to management areas that limit recreation opportunities, close existing roads, and prohibit new timber harvest and road construction. Winter motorized recreation use and mountain biking would be constrained, forcing use onto private and other, non-federal, public lands.

Roadless Areas Not Recommended for Wilderness in Any Alternative or in Their Entirety

Though all 27 inventoried roadless areas meet minimum Wilderness evaluation criteria, some roadless areas were not considered for Wilderness study in any alternative. Some of these areas have nonconforming uses that diminish Wilderness values. Others currently have little or no public support as proposed Wilderness areas. New Wilderness recommendations reflect public interest over the last fifteen years, as well as how specific areas address the overall Desired Future Condition for the White Mountain National Forest.

Elements Common to All Alternatives

(See Table 1 for management area names)

Wildland Fire Use

The Forest proposes to manage lightning-ignited fires in several management areas (5.1, 6.1, 6.2, 6.3, 8.1, 8.3, 8.4, 9.1, and 9.3) as Wildland Fire Use (WFU). The goal is to allow lightning-ignited fires to function as a

natural ecosystem process within a maximum allowable area, such as within a Wilderness. These fires will be managed under conditions that constitute low risk to firefighter and public safety. Natural fire on the White Mountain National Forest has historically created small patch disturbances with a long fire return interval. Fire is not as significant a disturbance factor as other agents of change, such as wind, but the influence of fire may have cumulative effects on ecosystem function and diversity.

Appalachian National Scenic Trail Management

The basis of management direction for the Appalachian National Scenic Trail follows the provisions of the National Trails System Act, as amended (P.L. 90-543).

Wild and Scenic Rivers

A Wild and Scenic River was created in 1988 when the Wildcat River was designated a Wild and Scenic River (WSR). There are no proposed additions to the Wild and Scenic River System in this Plan revision. Under all alternatives, the Forest will protect and manage attributes of rivers currently eligible for the WSR system.

Communication Sites

There is one designated communication site on the Forest, located on Mt. Tecumseh at Waterville Valley Ski Area. Three new communication sites will be designated in the revised Plan adjacent to existing man-made structures at Loon, Wildcat, and Attitash ski areas. No other designated communication sites will be considered during the 10-15 year planning period covered by this Forest Plan.

Alternative Energy Sources

To meet the National Energy Policy, the Forest will cooperate in the production of sustainable energy on public lands. Special use permits could be granted for new energy sources, such as the operation of wind turbines, in MAs 2.1, 3.1, 7.1, and 9.2. However, proposals would be subject to a site specific environmental analysis and public review.

Allocation of Land Acquisitions since 1986

The Forest has acquired approximately 15,600 acres of land through purchase and exchange since the completion of the 1986 Forest Plan. These lands will receive management allocation designations through this Plan revision process. New acquisitions will normally be given the same allocation as the management area that surrounds or abuts them, following site specific review through the National Environmental Policy Act.

Alpine Ski Areas

Loon Mountain, Waterville Valley, Attitash/Bear Peak, and Wildcat ski areas (also called four-season resorts) will continue to be operated by the private sector under special use permit authority, consistent with permit language and the Forest Plan. The Forest retains the areas identified in the current

Plan, as amended by the approved Loon Mountain Ski Resort Development and Expansion FEIS, for potential ski area expansion (MA 9.2). This includes lands adjacent to Loon Mountain, Attitash/Bear Peak, and Snows Mountain in Waterville Valley, as well as the former Mittersill ski area.

Research Natural Areas (RNAs)

RNAs provide and protect areas of unique or outstanding scientific, biological, geological, historical, recreational, or scenic significance. There are currently three RNAs on the Forest: The Bowl, Alpine Garden, and Nancy Brook.

Roadless Area Inventory

A roadless area inventory was completed in 2004 and revised in 2005. There are approximately 403,144 roadless acres in 27 inventoried roadless areas. These inventory acres remain the same through all alternatives, and are used in the analysis of proposals for additional Wilderness on the Forest.

Elements Common to Alternatives 2-4

Land Allocation

Consolidation of MAs 2.1 and 3.1

Management Areas 2.1 and 3.1 from the current Forest Plan have been combined into MA 2.1, General Forest Management. Monitoring has indicated that the intended differences in emphasis on visual quality, intensity of timber harvesting, and type of wildlife habitat produced between lands allocated to MA 2.1 and 3.1 have not occurred in implementation

New 8.1 Management Area

The Alpine Zone, previously allocated to MA 6.2, is now allocated to MA 8.1.

Reallocation of MA 2.1A and 9.4

Several organizations, believing that timber harvesting, road construction, and snowmobiling should occur only in currently roaded areas, filed an administrative appeal in 1986 after the Forest Plan was completed. The settlement of this appeal resulted in a 1987 Forest Plan Amendment that reassigned lands out of MAs 2.1, 3.1, and 6.1 — where timber harvesting and road construction would be allowed — to two new MAs, 2.1A and 9.4, and into 6.2 lands, that preclude timber harvesting and road construction. The land allocated to MAs 2.1A and 9.4 have been reallocated to other MAs in Alternatives 2-4. The allocation and distribution of these lands differ across the three alternatives.

Experimental Forest Expansion

The Bartlett Experimental Forest, MA 8.2, will be expanded by almost 3,200 acres in Alternatives 2-4 to better accommodate landscape level research projects.

Candidate Research Natural Areas (RNAs)

RNAs provide and protect areas of unique or outstanding scientific, biological, geological, historical, recreational, or scenic significance. Ten candidate RNAs were proposed for designation in the 1986 Forest Plan and two, Alpine Garden and Nancy Brook were designated. Eight remained: Monroe Flats, Cone Pond, Church Pond Bog, Bowl Extension, Gibbs Brook, Mountain Pond, Owls Head, and Peabody Mountain. Seven of the eight are being retained as CRNAs in the 2005 Forest Plan. Peabody Mountain was dropped from consideration as it is not a representative example of an important biological community. One additional Candidate RNA, Shingle Pond, is identified in the 2005 Plan. Candidate RNAs will be evaluated for RNA designation over the next planning period.

Wilderness Management

In order to provide a range of Wilderness recreation opportunities and to better protect low-use areas, Wilderness will be zoned A through D, with A being the most primitive and D being the most heavily used. Each zone will be managed for its unique attributes, with goals and thresholds in place to prevent degradation of Wilderness character. Direction for Wilderness management will be found in one Forest-wide Wilderness Management Plan (see Appendix E of the revised Forest Plan). There are approximately 114,000 acres of designated Wilderness on the Forest.

Alternatives Considered in Detail

The four alternatives considered in detail offer a range of management activities and environmental, social, and economic effects. They were developed in order to demonstrate differing ways of responding to the issues of Management Area Allocation, Vegetation Management and Wildlife Habitat, and Recreation Management.

The following narratives provide brief descriptions of the alternatives that are studied in this FEIS. Tables 1-4 compare the alternatives by major indicators for each issue.

Similarities and Differences among Alternatives

Much of the direction and rationale for the management activities and approaches is the same for all alternatives and is described below. Most of the differences among alternatives are found in the levels, amounts, or intensity of management proposed. These differences are disclosed in the following alternative descriptions and associated tables.

1. Management Area (MA) Allocation

The revised Forest Plan will identify management direction through the use of MAs that provide a mix of resource management emphases.

The total acreage of the Forest is allocated to management areas — some provide dispersed recreation opportunities in unroaded landscapes, while others allow timber harvest and the full range of recreation opportunities, including developed sites and motorized trails, in roaded landscapes. These areas of more development also provide early-successional habitat needed by some plant and wildlife species.

The alternatives differ by the percent of land allocated to management areas with dispersed recreation, low development, and unroaded emphases vs. the percent of land allocated to management areas allowing a full range of management activities and recreation opportunities, with a higher level of development.

Alternatives 2-4 differ in how the former MA 2.1A and MA 9.4 lands are reallocated.

The alternatives also differ in the amount and locations of Recommended Wilderness.

2. Vegetation Management and Wildlife Habitat

Vegetation management is a tool used to provide a sustainable flow of wood products and to create particular habitats for plants and wildlife. Habitat composition and forest age class objectives are identified for the General Forest Management area (MA 2.1, and 3.1 in Alternative 1), and timber harvest may be used to move the habitat toward these objectives.

Habitat composition objectives are based on a combination of land capability and a desire to maintain or increase levels of aspen-birch and openings for species that depend on these early-successional habitats. Forest composition changes naturally and usually slowly over time. Even with focused management to reach habitat objectives, a relatively small portion of the Forest is changed annually. Conversion at the Forest-wide level may therefore take decades or even centuries.

Age class objectives for regeneration, young, mature, and old habitat are intended to provide a variety of conditions for wildlife. The regeneration age class can be created immediately through even-aged harvest, making this a short-term objective that should be met during the first decade of implementation. The young age class develops as the new stand ages. Most of the land in the General Forest Management area is in the mature age class, and can be created with a variety of silvicultural treatments, usually developing within 40-70 years of an even-aged harvest. The old age class objective is based on the amount of General Forest Management area lands not available for timber harvest.

Age class objectives in the alternatives differ. The objectives drive the acreage of lands suitable for timber harvest, the allowable harvest volumes, and the balance of even- and uneven-aged management.

3. Recreation Management

All alternatives strive to provide a range of quality developed and dispersed recreation opportunities, and to minimize overall impacts by concentrating use at specific sites or locations rather than dispersing use.

Recreation Management Approach — The alternatives differ in approaches for managing increasing use and levels of development. Alternatives 1 and 4 attempt to meet recreation demand to the extent practical by allowing higher use levels and more development. Alternatives 2 and 3 set the stage for controlling increasing recreation use so that the visitor experience and opportunity for solitude can be maintained near current levels.

Developed Recreation — The Forest will maintain a range of quality campgrounds, day use areas, and other roadside recreation opportunities where the natural forest setting is an important part of the visitor's experience. The Forest would continue to provide developed recreation opportunities not normally found in the private sector. The Forest is open to roadside camping unless closed under Forest Protection Area guidelines. Developed recreation facilities will be managed to minimize their inconsistency with the designated Recreation Opportunity Spectrum (ROS).

The alternatives differ in the maximum number of new campground sites allowed.

Backcountry Facilities — Very little, if any, new backcountry facilities are proposed in the alpine zone, Wilderness, Research Natural Areas, Candidate Research Natural Areas, and Scenic Areas under all alternatives.

Minimal expansion of existing cabins, shelters, and tent platform sites is allowed, except where prohibited, to resolve impacts that cannot be otherwise mitigated, or to meet the Forest recreation management objectives. Expansion of existing backcountry facilities in the alpine zone (Grey Knob Cabin and AMC huts) would occur only to address unusual and extraordinary public safety or resource issues that cannot be mitigated in any other way. AMC Huts will not increase in capacity, and physical changes in the AMC Huts would be authorized only in response to safety or health concerns.

Reconstruction and relocation of existing cabins, shelters, and tent platforms is allowed to resolve unacceptable resource or social conditions or to meet the Forest recreation management strategy. Reconstruction and relocation of backcountry facilities may occur wherever existing facilities occur on the Forest, but would most likely happen in the more heavily used areas where demand is the greatest.

The alternatives differ in the allowable increase in capacity at backcountry facilities.

Dispersed Campsites — The Forest is open to dispersed camping unless closed, with most dispersed sites user-generated. Dispersed campsites may be designated, relocated, or reclaimed to resolve unacceptable conditions that cannot otherwise be mitigated, or to manage increasing recreation use.

Dispersed campsites would be restricted near water and trails, in the alpine zone unless on two or more feet of snow, and where closed. Dispersed campsites may be provided or relocated throughout the Forest to better manage existing recreation use.

Non-Motorized Trails — All alternatives allow the construction of new trails, except where prohibited, to provide access to existing trails, address resource impacts, maintain health and safety standards, or to meet management area direction, Forest recreation management objectives, or growth in trail use. New trails are prohibited in Research Natural Areas, Candidate Research Natural Areas, and the alpine zone. Reconstruction and relocation of trails are allowed in all locations when unacceptable resource conditions exist that cannot be mitigated any other way.

The alternatives differ in the miles of new trail construction allowed.

Rock and Ice Climbing — In all alternatives, the Forest is open to both traditional and sport climbing unless stated closed. Alternatives 2-4 prohibit fixed anchors for new climbs in Wilderness and Recommended Wilderness.

Mountain Biking — In all alternatives, mountain bikes are prohibited in Wilderness and on the Appalachian Trail. The alternatives differ in the range of locations where mountain bikes *are* allowed.

Summer Motorized Trails — In all alternatives, motorized administrative use is permitted for any federal, state, or local officer or member of an organized rescue or firefighting force who is in the performance of an official duty, or persons whose actions are authorized by a contract or permit issued by the Forest Service.

Alternatives 1 and 4 allow summer motorized trail use by the general public, with differences in locations and miles.

Winter Motorized Trails — In all alternatives, snowmobile trail use is allowed only on designated trails; off trail, cross-country use is prohibited. Proposals for new snowmobile trails to increase the quality of current opportunities would be evaluated on a case-by-case basis.

The guideline prohibiting no net increase in packed over-the-snow trails in suitable lynx habitat will be an important consideration in all potential increases in snowmobile trails.

The alternatives differ in the increased miles of new trails allowed.

Alternative Comparison

The matrix following this chapter compares the land allocations, activities, outputs, and effects of the four alternatives. The matrix indicates how each alternative responds to the issues, and displays measurable differences between the alternatives.

Alternative 1

1. Management Area Allocation

See Table 1, Management Area Allocation by Alternative.

Alternative 1 maintains the management area allocations under the 1986 Forest Plan, emphasizing dispersed recreation experiences within unroaded landscapes on approximately 54 percent of the Forest. The remaining 46 percent of the Forest includes management emphases that provide for developed recreation areas, roads, timber management activities, and motorized trails.

MA 8.1, Special Areas, includes experimental forests, the Appalachian Trail, Research Natural Areas, and Scenic Areas. These areas have newly assigned MAs in Alternatives 2-4. Segments of the Appalachian Trail that pass through MA 2.1, MA 3.1, and the AT transfer lands also are assigned to MA 8.1. Other segments of the trail are allocated to MAs 5.1, 6.1, 6.2, and 6.3.

MAs 2.1A and 9.4 are holding areas and would remain as holding areas under Alternative 1. The lands in these holding areas are allocated to other MAs in Alternatives 2-4.

Alternative 1 includes the alpine zone as part of Management Areas 6.2, 8.1 (Special Areas), and 9.3. Area closures and restrictions are applied as needed under Forest Protection Area guidelines.

The current level of Wilderness remains unchanged. No lands are allocated to MA 9.1, recommended Wilderness.

2. Vegetation Management and Wildlife Habitat

See Table 2, Age Class Objectives by Alternative, and Table 3, Timber Harvest Volume and Acres by Alternative.

Age class objectives for regeneration, young, mature, and old habitat are intended to provide a variety of conditions for wildlife. Table 2 shows the objectives for each age class by habitat type.

Habitat Composition Objectives – MA 2.1 and MA 3.1 Lands

These objectives are based on a combination of land capability and a desire to provide increased levels of aspen-birch and openings for species that depend on these early-successional habitats.

The Habitat Composition Objectives for Alternative 1 are designed to increase the percentage of aspen-birch and wildlife openings for species that depend on these habitats. They also allow for the natural conversion of mixedwood to spruce-fir habitats.

Characteristics of Planned Harvest:

- 287,200 acres suitable for timber harvest.
- Up to one mile of road would be constructed and up to 10 miles reconstructed per year to support timber harvest activities.

Table 1. Management Area Allocation by Alternative.

Management Area		Alt. 1		Alt. 2		Alt. 3		Alt. 4	
		Acres	% Total Forest	Acres	% Total Forest	Acres	% Total Forest	Acres	% Total Forest
2.1	General Forest Management	119,300	15.0	358,200	45.0	296,100	37.0	365,900	46.0
2.1A	Holding Area	1,000	0.1	*	*	*	*	*	*
3.1	General Forest Management	237,900	30.0	*	*	*	*	*	*
5.1	Wilderness	114,000	14.0	114,000	14.0	114,000	14.0	114,000	14.0
6.1	Semi-Primitive Recreation	95,500	12.0	86,300	11.0	89,400	11.0	87,900	11.0
6.2	Semi-Primitive Non-Motorized	151,100	19.0	105,600	13.0	102,400	13.0	112,300	14.0
6.3	Semi-Primitive Winter Motorized	16,200	2.0	15,300	2.0	14,400	2.0	15,300	2.0
7.1	Alpine Ski Areas	4,000	0.5	3,700	0.5	3,700	0.5	3,700	0.5
8.1	Special Areas	40,700	5.0	*	*	*	*	*	*
8.1	Alpine Zone	NA		5,100	0.6	5,100	0.6	5,100	0.6
8.2	Experimental Forests	NA		13,400	2.0	13,400	2.0	13,400	2.0
8.3	Appalachian Trail	NA		39,000	5.0	38,800	5.0	39,400	5.0
8.4	Research Natural Areas	NA		3,200	0.4	3,200	0.4	3,200	0.4
8.5	Scenic Areas	NA		15,200	2.0	15,200	2.0	15,200	2.0
8.6	Wild and Scenic Rivers	NA		900	0.1	900	0.1	900	0.1
9.1	Recommended Wilderness	0	0	34,500	4.0	97,800	12.0	18,000	2.0
9.2	Alpine Ski Area Expansion	2,200	0.2	2,200	0.2	2,200	0.2	2,200	0.2
9.3	Candidate Research Natural Areas	1,800	0.2	2,100	0.2	2,100	0.2	2,100	0.2
9.4	Holding Area	15,100	2.0	*	*	*	*	*	*
Total	**	796,700	100.0	796,700	100.0	796,700	100.0	796,700	100.0

* Management Area does not exist in this alternative.
** MA acres do not total to Forest total due to some overlap of boundaries and to rounding.

Table 2. Vegetation Management — Age Class Objectives by Alternative.

	Age Class Objectives															
	% in Regeneration Habitat Age Class				% in Young Habitat Age Class				% in Mature Habitat Age Class				% in Old Habitat Age Class			
	Alt. 1	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**
Northern Hardwood	4-7	3-4	1	4-6	20-35	15-20	5-6	20-30	43-61	61-67	80-81	45-63	15	15	13	19
Mixedwood	4-7	1	1	1	20-35	5	3	5	37-55	73	77	72	21	21	19	22
Softwood	1-2	1-2	1-2	1-2	3-6	3-6	3-6	3-6	64-68	66-70	68-72	64-68	28	26	24	28
Aspen-Birch	12-14	12-15	12-14	12-15	36-45	36-45	36-45	36-45	13-25	18-30	17-29	8-2-0	27	22	23	32

Table 3. Timber Harvest Volume and Acres by Alternative.

	Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**
Allowable Sale Quantity — MMBF/year	35.0	24.0	18.0	30.0
Even-Aged Regeneration Harvest (acres/year)	1,700	940	480	1,120
Uneven-Aged Regeneration Harvest (acres/year)	1,100	1,930	2,170	2,130

3. Recreation Management

See Table 4, Differences in Recreation Activities by Alternative.

Developed Recreation: Developed recreation expansion would be allowed to address health and safety problems, protect the environment, complement prescribed recreation opportunities, and meet public demand.

New campgrounds may be constructed or existing campgrounds may be expanded. Alternative 1 projects a 5 percent increase in campground capacity, with up to 54 sites being added during the planning period.

Trailhead parking lots may be constructed, improved, or expanded to accommodate increased recreation use; although the development level is based on the objectives of the backcountry areas served by the trailhead.

Backcountry Facilities: Construction of new shelters, cabins, and tent platforms is allowed in some backcountry areas to resolve unacceptable resource or social conditions that cannot be otherwise mitigated, to meet the Forest recreation management strategy, or to meet increased demand.

An increase in capacity of 45 people at one time is allowed.

Dispersed Campsites: Dispersed campsites may be provided or relocated throughout the Forest to better manage existing recreation use. These sites are managed on a site-specific need basis. There would be no direction on limiting use.

Non-Motorized Trails: A 3 percent growth of the Forest trail system, for a total of 40 miles, is allowed.

Rock and Ice Climbing: The Forest is open to both traditional and sport climbing unless stated closed.

Mountain Biking: The Forest is open to mountain biking unless closed.

Summer-Motorized Trails: Summer-motorized trail use is allowed on a trial basis in MAs 2.1 and 3.1 in one or two areas. Proposals submitted by the public would be evaluated on a case-by-case basis, with use limited to ATVs and two-wheeled motorbikes. This alternative would allow up to 60 miles of new summer motorized trails. A monitoring program would be established. If use is found to be creating irreversible resource or social damage, summer-motorized recreation would end. If monitoring results indicate resource or social impacts can be mitigated, summer-motorized use would continue. A second proposal for summer-motorized use on the Forest would be considered following a successful trial of the first ATV area.

Winter-Motorized Trails: An 8 percent growth of the Forest trail system, for a total of 30 miles, is allowed during the planning period.

Wilderness Management: The current Forest Plan assigns Wilderness to Management Area 5.1 to protect wilderness character, preserve natural ecosystems, and provide primitive and semi-primitive non-motorized recreation. Existing shelters and tent platforms will be maintained until major repairs are necessary, then removed after considering their historical value if appropriate and consistent with state laws. Motorized access is prohibited

Table 4. Recreation Activities by Alternative.

Recreation Activity	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Campground Sites	Up to 54 new sites.	Up to 32 new sites.	Up to 10 new sites.	Up to 99 new sites.
Snowmobile Trails	Up to 30 new miles.	Up to 20 new miles	Up to 10 new miles.	Up to 50new miles.
Summer Motorized Trails	Up to 60 miles in MA 2.1 and 3.1.	None		Up to 30 miles in one of two identified areas
Backcountry facility Capacity	Increased capacity of up to 45 people.	Increased capacity of up to 40 people.	Increased capacity of up to 35 people.	Increased capacity of up to 65 people.
Non-motorized Trails	Up to 40 new miles.	Up to 25 new miles.	Up to 10 new miles.	Up to 100 new miles.
Mountain Biking Opportunities off Forest Trail System	Forest open unless closed. AT and Wilderness closed. Off-trail travel authorized.	Forest Trail system open unless closed. AT and Wilderness closed. Off-trail travel corridors open unless closed, pending review.	Forest Trail system open unless closed. AT and Wilderness closed. Off-trail travel corridors closed unless open.	Forest Trail system open unless closed. AT and Wilderness closed. Off-trail travel corridors open unless closed.
Rock and Ice Climbing – permanent anchors in Wilderness	No restriction on permanent anchors for rock and ice climbing in Wilderness.	Prohibits permanent anchors for new climbs in Wilderness.		

except specific emergency situations such as search and rescue missions. Each Wilderness has an individual Operation and Maintenance Plan and Wilderness Management Plan.

Alternative 2

1. Management Area Allocation

See Table 1, Management Area Allocation by Alternative.

This alternative emphasizes dispersed recreation experiences within unroaded landscapes on approximately 53 percent of the Forest. The remaining 47 percent of the Forest includes management emphases that provide for developed recreation areas, roads, timber management activities, and motorized trails.

Alternative 2 creates individual management areas for lands previously combined into MA 8.1 (Special Areas). These new MAs are listed in Table 1.

The Appalachian Trail is one of the new MAs (MA 8.3), and generally consists of a half-mile corridor on either side of the trail, except in certain places where it narrows through the more restrictive Wilderness and Alpine Zone management areas. The MA 8.3 boundary also stops at legal boundaries such as private lands or ski area permit boundaries.

Alternative 2 eliminates the holding areas of MAs 2.1A and 9.4, and reallocates those lands to other management areas. Approximately 10,400 acres are allocated to MA 2.1, 600 acres to MA 6.1, 60 acres to MA 8.3, and 5,000 acres to MA 9.1.

MA 3.1 is also eliminated, with most of those lands consolidated into MA 2.1 unless recommended for Wilderness.

Wilderness recommendation

This alternative recommends, for Congressional action, approximately 34,500 acres of Wilderness in two locations:

- 10,800 acres added to the current Sandwich Range Wilderness.
- 23,700 acres creating a Wilderness in the Wild River watershed.

2. Vegetation Management and Wildlife Habitat

See Table 2, Age Class Objectives by Alternative, and Table 3, Timber Harvest Volume and Acres by Alternative

Age class objectives for regeneration, young, mature, and old habitat are intended to provide a variety of conditions for wildlife. Table 2 shows the objectives for each age class by habitat type.

Habitat Composition Objectives – MA 2.1 Lands

These objectives reflect land capability with adjustments to maintain aspen-birch and wildlife opening habitats in the management area at existing levels.

The Habitat Composition Objectives for Alternative 2 are designed to maintain the percentage of aspen-birch and wildlife openings at current

levels for species that depend on these habitats. They also allow for the natural conversion of mixedwood to spruce-fir habitats.

Characteristics of Planned Harvest:

- 281,300 acres suitable for timber harvest.
- Up to one mile of road would be constructed and up to seven miles reconstructed per year to support timber harvest activities.

3. Recreation Management

See Table 4, Recreation Activities by Alternative

Recreation Management Approach

Alternative 2 sets the stage for addressing increasing recreation use and the impacts that higher numbers of people and types of uses can have on others. More specifically it:

- Provides a range of quality developed and dispersed recreation opportunities.
- Concentrates use at specific sites or locations rather than dispersing use within the area or to other areas.
- Allows limited additions to the Forest's recreation facilities and infrastructure.
- Focuses additional resources on overall education, monitoring, and visitor information by the Forest Service and partner organizations to ensure Forest visitors understand the trade-offs and impacts of specific use-related issues on the Forest.
- Protects current low use developed and dispersed areas, including the prohibition of management actions that disperse use from high to low use areas.
- Minimizes increasing development levels in the backcountry.
- Calls for additional efforts by the Forest Service, partners, and Forest users upon completion of the Forest Plan to fully explore the components of the Forest's recreation niche and develop approaches to outline the overall limits of change.

Developed Recreation: New campgrounds may be constructed or existing campgrounds may be expanded, with an increase of up to 32 new developed campground sites allowed.

Except for safety and health reasons, or resource concerns, trailhead parking lots would not be constructed, improved, or expanded.

Backcountry Facilities: Construction of new shelters, cabins, and tent platforms is allowed in some backcountry areas to resolve unacceptable resource or social conditions that cannot be otherwise mitigated, or to meet the Forest recreation management objectives. Alternative 2 provides for an increase in backcountry camping facility capacity of up to 40 people at one time.

Dispersed campsites: Management direction is the same as Alternative 1, except future restrictions on the number of new campsites could be established.

Non-motorized Trails: This alternative allows up to 25 miles of additional trails.

Rock and Ice Climbing: The Forest is open to both traditional and sport climbing unless otherwise stated closed. Fixed anchors for new climbs would be prohibited in Wilderness and Recommended Wilderness areas.

Mountain Biking: Forest development trails and travel corridors are open to mountain bike use unless signed closed. Cross-country travel outside of forest development trails is prohibited. The intent is eventually to have a designated mountain bike trail system on the Forest. During the 10-year planning period, the Forest Service will work with mountain bike organizations to determine which travel corridors will be designated as forest development trails and which will be closed to mountain bike use.

Summer Motorized Trails: Summer-motorized trail use is prohibited except for any federal, state, or local officer or member of an organized rescue or firefighting force who is in the performance of an official duty, or persons whose actions are authorized by a contract or permit issued by the USDA Forest Service.

Winter-motorized Trails: This alternative allows for an increase of up to 20 miles of snowmobile trails.

Alternative 3

1. Management Area Allocation

See Table 1, Management Area Allocation by Alternative.

This alternative emphasizes dispersed recreation experiences within unroaded landscapes on approximately 59 percent of the Forest, with the remaining 41 percent of the forest includes management emphases that provide for developed recreation areas, roads, timber management activities, and motorized trails.

The management area designation for the Appalachian Trail is the same as Alternative 2 and 4.

Alternative 3 eliminates the holding areas of MAs 2.1A and 9.4, and reallocates those lands to other management areas. Approximately 900 acres are allocated to MA 2.1, 5,000 acres to MA 6.1, 2,500 acres to MA 6.2, 60 acres to MA 8.3, and 7,700 acres to MA 9.1.

MA 3.1 is also eliminated, with most of those lands consolidated into MA 2.1 unless recommended for Wilderness.

Recommended Wilderness

This alternative recommends almost 97,800 acres of Wilderness in five locations:

- 13,900 acres added to the existing Sandwich Range Wilderness.
- 26,600 acres of new Wilderness in the Wild River watershed.
- 23,800 acres of new Wilderness in the Kilkenny area.
- 7,300 acres of new Wilderness in the Dartmouth area.
- 26,200 acres to extend the existing Pemigewasset Wilderness.

2. Vegetation Management and Wildlife Habitat

See Table 2, Age Class Objectives by Alternative, and Table 3, Timber Harvest Volume and Acres by Alternative

Age class objectives for regeneration, young, mature, and old habitat are intended to provide a variety of conditions for wildlife. Table 2 shows the objectives for each age class by habitat type.

Habitat Composition Objectives – MA 2.1 Lands

These objectives reflect land capability with adjustments to maintain aspen-birch and wildlife opening habitats in the management area at existing levels.

The Habitat Composition Objectives for Alternative 3 are designed to maintain the percentage of aspen-birch and wildlife openings close to current levels for species that depend on these habitats. They also allow for the natural conversion of mixedwood to spruce-fir habitats.

Characteristics of Planned Harvest

- 243,800 acres suitable for timber harvest.
- Up to one mile of road would be constructed and up to 11 miles reconstructed per year to support timber harvest activities.

3. Recreation Management

See Table 4, Recreation Activities by Alternative

Recreation Management Approach

Alternative 3 sets the stage for addressing increasing recreation use and the impacts that higher numbers of people and types of uses can have on others. More specifically it:

- Provides a range of quality developed and dispersed recreation opportunities.
- Concentrates use at specific sites or locations rather than dispersing use within the area or to other areas.
- Allows limited additions to the Forest's recreation facilities and infrastructure.
- Focuses additional resources on overall education, monitoring, and visitor information by the Forest Service and partner organizations to ensure Forest visitors understand the trade-offs and impacts of specific use related issues on the Forest.

- Protects low use developed and dispersed areas, including the prohibition of management actions that disperse use from high to low use areas.
- Minimizes increasing development levels in the backcountry. Special emphasis will be placed on allowing development levels to move only in the direction of less development.
- Calls for additional efforts by the Forest Service, partners, and Forest users upon completion of the Forest Plan to fully explore the components of the Forest's recreation niche and to develop approaches to outline the overall limits of change.

Developed Recreation: This alternative allows an increase in capacity of up to 10 sites at developed campgrounds. Existing campgrounds may be improved or expanded. Except for safety and health reasons and resource concerns, trailhead parking lots would not be constructed, improved, or expanded.

Backcountry Facilities: Construction of new shelters, cabins, and tent platforms is allowed in some backcountry areas to resolve unacceptable resource or social conditions that cannot be otherwise mitigated, or to meet the Forest recreation management strategy. This alternative allows an increase in backcountry camping facility capacity of up to 35 people at one time.

Dispersed Campsites: Management direction is the same as Alternative 1, except future restrictions on the number of new campsites could be established.

Non-Motorized Trails: This alternative allows up to 10 miles of additional trails.

Rock and Ice Climbing: The Forest is open to both traditional and sport climbing unless otherwise stated closed. Fixed anchors for new climbs would be prohibited in Wilderness and Recommended Wilderness areas.

Mountain Biking: Forest development trails are open unless closed to mountain bike use. Cross-country travel outside of forest development trails is prohibited. Travel corridors are closed unless open to mountain biking.

Summer-motorized Trails: Summer-motorized trail use is prohibited except for any federal, state, or local officer or member of an organized rescue or firefighting force who is in the performance of an official duty, or persons whose actions are authorized by a contract or permit issued by the USDA Forest Service.

Winter-motorized Trails: This alternative allows for an increase of up to 10 miles of new snowmobile trail.

Alternative 4

1. Management Area Allocation

See Table 1, Management Area Allocation by Alternative.

This alternative emphasizes dispersed recreation experiences within unroaded landscapes on approximately 52 percent of the Forest The remaining 48 percent of the Forest includes management emphases that provide for developed recreation areas, roads, timber management activities, and motorized trails.

The management area designation for the Appalachian Trail is the same as Alternative 2 and 3.

Alternative 4 eliminates the holding areas of MAs 2.1A and 9.4 and reallocates those lands to other management areas. Approximately 12,600 acres were allocated to MA 2.1, 600 acres to MA 6.1, 60 acres to MA 8.3, and 2,900 acres to MA 9.1.

Wilderness Recommendation

This alternative recommends one new Wilderness:

- 18,100 acres of new Wilderness in the Wild River watershed.

2. Vegetation Management and Wildlife Habitat

See Table 2, Age Class Objectives by Alternative, and Table 3, Timber Harvest Volume and Acres by Alternative

Age class objectives for regeneration, young, mature, and old habitat are intended to provide a variety of conditions for wildlife. Table 2 shows the objectives for each age class by habitat type.

Habitat Composition Objectives – MA 2.1 Lands

These objectives reflect land capability with adjustments to maintain aspen-birch and wildlife opening habitats in the management area at existing levels.

The Habitat Composition Objectives for Alternative 4 are designed to maintain the percentage of aspen-birch and wildlife openings close to current levels for species that depend on these habitats. They also allow for the natural conversion of mixedwood to spruce-fir habitats.

Characteristics of Planned Harvest

- 284,300 acres suitable for timber harvest.
- Up to one mile of road would be constructed and up to 13 miles reconstructed per year to support timber harvest activities.

3. Recreation Management

See Table 4 — Recreation Activities by Alternative

Recreation Management Approach

Alternative 4 attempts to accommodate some of the additional use on the Forest by allowing additional facilities and accepting higher use levels across the Forest. More specifically it:

- Allows for the highest increase in number and capacity of recreation facilities, and allows increases to meet projected demand.
- Provides a range of quality developed and dispersed recreation opportunities.
- Concentrates use at specific sites or locations rather than dispersing use within the area or to other areas.
- Protects most low use developed and dispersed areas, while addressing increasing recreation demand by managing more areas to accommodate higher use.
- Allows concentrated developed and dispersed use within high use corridors and destinations. Appropriate mitigation will be provided to manage the effects of high use within acceptable impacts and limits. Use will not be allowed to increase indefinitely in high use areas.
- Focuses additional resources on overall education, monitoring, and visitor information by the Forest Service and partner organizations to ensure Forest visitors understand the trade-offs and impacts of specific use related issues on the Forest.
- Calls for additional efforts by the Forest Service, partners, and Forest users upon completion of the Forest Plan to fully explore the components of the Forest's recreation niche and develop approaches to outline the overall limits of change.

Developed Recreation: New campgrounds may be constructed, or existing campgrounds expanded, to accommodate increased recreation use. This alternative allows an increase of up to 99 developed campground sites. Trailhead parking lots may be constructed, improved, or expanded to accommodate increased recreation use.

Backcountry Facilities: Construction of new shelters, cabins, and tent platforms is allowed in some backcountry areas to resolve unacceptable resource or social conditions that cannot be otherwise mitigated, to meet the Forest recreation management strategy, or meet increased demand. Backcountry camping facility capacity could increase by 65 people at one time by the end of the planning cycle. This increase could come from new or expanded facilities.

Dispersed Campsites: Management direction is the same as Alternative 1, except future restrictions on the number of new campsites could be established.

Non-motorized Trails: This alternative allows up to 100 miles of additional trail.

Rock and Ice Climbing: The Forest is open to both traditional and sport climbing unless otherwise stated closed. Fixed anchors for new climbs would be prohibited in Wilderness and Recommended Wilderness areas.

Mountain Biking: Forest development trails and travel corridors are open unless closed to mountain bike use. Cross-country travel outside of forest development trails is prohibited.

Summer Motorized Trails: Summer motorized trail use would be allowed on a trial basis. One of two roaded areas on the Forest would be selected for use as a summer-motorized recreation area. Two locations, one in Landaff and the other in the Moat Mountain vicinity, are analyzed in the FEIS. The decision maker will select one of these areas as a trial summer motorized recreation area. Approximately 20 to 30 miles of trail would be open and limited to ATVs and 2-wheeled motorbikes. Site-specific NEPA would be completed when the specific trail locations are identified and prior to an area being opened for motorized use. A monitoring program would be established, and if use is found to be creating unacceptable resource damage or social conditions, summer-motorized recreation on the Forest would end.

Winter-Motorized Trails: This alternative allows an increase of up to 50 miles of new snowmobile trails.

Chapter 3 — Affected Environment and Environmental Effects

Chapter 3 describes the current condition for each resource area and the environmental effects that would be expected to occur as a result of implementing each alternative. The following discussion is a summary of effects for each resource section in Chapter 3 of the FEIS.

Soils

Soil Productivity

No impact is expected on forest health or soil productivity related to the timber harvest program. Soil productivity on the Forest continues to support the regeneration and growth of healthy hardwood and softwood forest on lands suitable for timber management. This is despite the effects of acid deposition on soil fertility and also considers historic and recent timber harvest. Acid deposition has a far greater estimated effect on soil nutrients, especially soil calcium, than timber harvest. However, since harvest removes soil calcium that would otherwise be recycled to the forest floor concerns over timber harvest continue to be evaluated. Clearcutting, especially whole-tree harvest, has the greatest estimated short-term impact on soil calcium. Long-term cumulative impacts may result from selective harvest, depending on the quantity of wood products removed over time. Based on amount of even-aged regeneration harvest and total volume removed, Alternative 1 would have the greatest potential for changes in soil productivity, then Alternatives 4 and 2. Alternative 3 would have the lowest potential effects. However, given that acid deposition is by far the paramount factor; differences among alternatives are probably not distinguishable. None of the alternatives would reduce exchangeable soil calcium, soil productivity, or forest health.

Soil Erosion

Construction and maintenance of roads and trails, skid trails during timber harvest, use of summer ATVs and mountain bikes, and ski area development, maintenance, and summer use can all accelerate erosion. All of these activities except summer ATV trail development occur in all alternatives. Effects would be proportional to the amount of road and trail construction and reconstruction, and of timber harvest. Alternative 4 proposes the most road reconstruction, trail construction, and acres of harvest, then Alternative 1 and Alternative 2. Alternative 3 proposes the least trail construction and timber harvest. Currently, and in all alternatives, landslide prone areas are avoided and best management practices are used to reduce erosion and potential effects to streams. Therefore increases in soil erosion are likely to remain local and be mitigated in all alternatives.

Water Resources

Water resources include surface and ground water as well as the features that transmit and store water. Most lakes and ponds on the forest are in a

proper functioning condition. Stream conditions continue to recover from the early 1900 logging and slash fires. Most streams currently meet state and federal water quality standards. Water is used for drinking and snow-making, and water bodies of all types are used for recreation.

All alternatives have goals and objectives for watershed improvement, protecting water quality, and providing for stream flow. All alternatives also use standards and guidelines, including project-level best management practices (BMPs), to mitigate effects so they are expected to be localized, short in duration, and recoverable. Effects to water quality from some activities (snowmobiles, ski areas, fire, dispersed camping, and road use and maintenance) would be the same across alternatives because the magnitude of the activity and management direction, including BMPs, would be the same.

Recreation use can result in increased bacteria levels in water. Packed surfaces from recreation facilities, roads, skid trails, and landings, and mountain bike and summer ATV use can increase runoff. Timber harvest can alter water temperature, water balance, water chemistry, and sedimentation. Alternative 4 proposes the largest increase in recreation facilities and most ground disturbance from timber harvest, which includes roads, skid trails, and landings. Therefore it has the greatest potential for associated declines in water quality. Alternative 1 proposes less development and road and skid trail work than Alternative 4. Levels in Alternative 2 are lower still and summer motorized use is prohibited. Alternative 3 proposes the smallest increase in facilities, allows no summer motorized use, and would have road and skid trails levels similar to Alternative 2. Therefore Alternative 3 has the lowest potential for reducing water quality. None of the alternatives propose enough timber harvest or fire use in the next 20 years to measurably alter water yield and peak flows.

Non-priced Benefits

Water resources provide numerous non-priced benefits to both physical and biological resources. These benefits will be maintained in each alternative through the use of standards and guidelines.

Stream Fisheries and Associated Riparian Areas

On the White Mountain National Forest, most streams are coldwater streams, though some of the larger rivers may provide warm water habitat. Riparian areas on the Forest are predominantly forested, which maintains cool stream temperatures. Much of the riparian forest is second-growth, which provides wood to the streams, but at lower levels than old growth forest. Stream temperatures, water quality, and riparian conditions are not considered degraded on the majority of the Forest. Continued succession of forested riparian areas would allow more complex ecological functions to develop along stream reaches.

Improperly placed trails, facilities, and stream crossings can alter stream channel location and conditions, canopy closure, water storage capacity, and wood loading in adjacent streams. Use and development of recreation facilities can result in reduced forested area, site compaction, development

of user-created sites and trails, and local loss of dead wood in streams. Guidelines in all alternatives would discourage construction of new facilities adjacent to streams. Potential for user-created sites and trails, and resulting loss of down wood in streams, may vary slightly among alternatives. In all alternatives, there would be local impacts to wood levels in streams near recreation use areas, but effects would be minimal at a landscape scale. Relocation of facilities away from streams can enhance stream and riparian habitats.

Timber harvest can reduce canopy cover over streams and availability of large-diameter trees in riparian areas. Guidelines in all alternatives would discourage harvest within 25 feet of perennial streams and recommend retaining 70 percent of basal area within the rest of the riparian area. Overall, small amounts of riparian areas likely would be harvested in all alternatives, with more potential for effects as acres of harvest increases. Guidelines would ensure that temperatures are maintained and dead wood recruitment continues to increase. Timber harvest could be used to promote softwood forest in riparian areas, which would be beneficial.

Standards and guidelines also prevent poor road placement that could result in effects similar to those for trails. In all alternatives, guidelines would avoid road construction and reconstruction within the riparian area except at stream crossings. Local loss of riparian forest and alteration in stream habitat conditions would be expected from stream crossings, but those would be mitigated at the project level in all alternatives.

Non-priced Benefits

Most of the many reasons for maintaining biodiversity cannot easily have an economic value assigned to them. Many fish species provide recreation and food to anglers. For many visitors to the White Mountain National Forest, seeing clear streams and mature riparian forest is important. They place a high value on knowing that these natural communities and the species they support will be maintained on the Forest. All alternatives will provide public benefit by maintaining or improving stream habitats and sustaining species that people value for fishing.

Vegetation

Wildlife and Plant Habitat

The type and amount of vegetation on the landscape in part determines the habitat available to plant and wildlife species. Most terrestrial ecological communities on the Forest can be grouped into seven broad habitats for coarse-filter biodiversity discussions: northern hardwood, mixedwood, spruce-fir, aspen-birch, oak-pine, hemlock, and permanent openings. The distribution of these habitats is the result of land capability, natural disturbance, and past management practices, all of which are affected by landscape position and associated topographic and climatic conditions. Low elevation lands are more suitable for some habitats and species, but are also more likely to be affected by natural and human disturbance. The amnount of low elevation land in MAs that allow timber harvest varies among the

alternative. However all alternative have more than 20 percent of the low elevation land in MAs that prohibit timber harvest, which ensures that a substantial portion of these lands will evolve primarily through natural processes.

Currently, the spruce-fir habitat is less abundant across the Forest than expected under natural processes. This is due to intense logging more than a hundred years ago. Without this intense and widespread disturbance, northern hardwood and mixedwood forest would be less abundant.

National Forest land outside MA 2.1 (and 3.1 in Alternative 1) would change primarily as a result of natural processes. Habitat composition would slowly move toward spruce-fir forest in many areas. In the next 20 years, much of the aspen-birch forest would evolve into spruce-fir or hardwood habitat. Over the next 150 years, oak-pine forest also would convert into other habitat types. Regeneration age forest would occur in areas of large-scale natural disturbance, which are usually limited to one to six percent of the Forest. As a result, most forest habitat would be in the mature and old age classes.

Within MA 2.1 (and 3.1 in Alternative 1), management would move habitat toward identified composition and age class objectives. In Alternative 1, meeting habitat composition objectives would require creation of aspen-birch and permanent opening habitats to provide habitat for species that prefer these habitats. This would reduce hardwood and spruce-fir forest in the short-term. If identified habitat objectives are pursued over the long-term, spruce-fir habitats would increase as succession is encouraged in mixedwood forest and some hardwood stands. Aspen-birch and permanent opening habitats would continue to increase, which would result in further declines in hardwood forest. Other habitat types would remain stable across all time periods.

Habitat composition objectives for MA 2.1 are the same in Alternatives 2, 3, and 4. They propose maintaining aspen-birch and permanent opening habitats, along with oak-pine and hemlock, at current levels. Therefore all habitat types would remain stable in the short term. Over the long-term, spruce-fir habitat would increase even more than under Alternative 1 as a result of targeted management to gradually convert mixedwood and hardwood stands on spruce-fir capable lands. All other habitats would remain at stable levels.

Forest habitats on the White Mountain National Forest are divided into four broad age classes: regeneration, young, mature, and old. Currently the majority of each forest habitat is in the mature and old age classes. No more than one percent of any habitat type is in the regeneration age class.

Age class objectives vary among all the alternatives, with the largest amount of regeneration forest habitat proposed in Alternative 1 and the smallest amount in Alternative 3. In the next 20 years, even-aged regeneration timber harvest would at least triple the amount of current regeneration-age hardwood forest in Alternatives 1, 2, and 4. This habitat would remain stable in Alternative 3. All alternatives focus even-aged regeneration harvest in the aspen-birch forest. Even with proposed increases in regeneration-age forest, even-aged regeneration harvest would occur on less than two percent

of the Forest in any given decade with all alternatives. As the Forest ages, the mature age class would decline in all habitats, except aspen-birch. While some would be harvested to meet the regeneration age class objectives, most would advance into the old age class. The majority of MA 2.1, and the Forest, would remain in the mature or old age classes. Habitat for all wildlife species should remain present on the Forest and all except aspen-birch forest should be well distributed. Timber harvest would not occur in old growth forest.

Standards and guidelines require that snags, cavity trees, and down logs be retained through both even and uneven-aged management in all alternatives. As a result, enough snags, cavity trees, and down logs would be retained to maintain populations of all dependent species. Development and use of recreation facilities would result in loss of snags and down wood at some sites, but the loss would be minimal compared to the amount available. Individual animals could be affected, but overall snag and cavity dependent wildlife populations should not be affected under any alternative.

Non-priced Benefits

Most of the many reasons for maintaining wildlife habitats cannot easily have an economic value assigned to them. Many people place a high value on seeing wildlife in their natural habitats and knowing that all species and natural communities will be maintained, even if they may never see them. All alternatives will provide public benefit by maintaining or improving habitat and wildlife diversity across the Forest.

Timber Resources

On the White Mountain National Forest, timber harvest is used for wildlife habitat management, culturing stands of trees, utilization of forest products, and scenery management. Forest Plan revision determines the level of timber harvest that can occur for these purposes while providing for ecological sustainability, and the amount and location of land suitable for timber production. The four alternatives propose to harvest different volumes of timber, with the highest levels in Alternative 1 and the lowest in Alternative 3. All alternatives propose harvest levels well within the long-term sustained yield. Management Area allocations result in fewer acres of suitable forestland in Alternative 3 than all other alternatives.

Even-aged treatments in general, and regeneration harvests in particular, have not been implemented at the rate the 1986 Forest Plan projected. Uneven-aged treatments have occurred at a slightly higher rate than proposed. Alternative 1 would maintain even-aged harvest at or above levels in the current Plan. Alternatives 2 and 4 would reduce the level of even-aged harvest. In Alternative 3, uneven-aged methods would be used on the majority of acres harvested. All types of harvest combined would generally occur on less than one percent of the White Mountain National Forest each year.

The demand for forest products from the Forest remains strong. In much of MA 2.1, past management and natural aging (stand development) have resulted in increasing levels of high quality sawtimber, which is important

to local and regional sawmills. Marketability of sales varies among alternatives based on volume per acre yields, portion of harvest that would be sawtimber, and potential for thinning of commercially marginal stands. Alternatives 1 and 2 would produce the most marketable sales due to high volume per acre and sawtimber levels and low likelihood that marginal stands would need to be thinned. However Alternative 1 requires extensive clearcutting, which may be difficult to achieve given current public sentiment. Alternatives 3 and 4 would produce less marketable sales. Both these alternatives have higher proportions of pulp to sawtimber which makes timber sales less desirable. In addition

The allocation of less land to MA 2.1 in Alternative 3 (compared to current and other alternatives) would reduce the availability of special forest products and firewood, and could reduce the Forest's ability to address forest health concerns if they arise.

Some non-priced benefits would tend to follow the same pattern as Allowable Sale Quantity with Alternative 1having the most, followed by Alternatives 4, 2 and 3. These benefits would consist of wildlife habitat improvement and opportunities to demonstrate forestry practices and silviculture. Recreational use of new harvest roads and skid trails is a non-priced benefit and would be relatively similar under all alternatives.

Non-Native Invasive Species

Non-native invasive species are plants or animals whose origin is generally somewhere other than North America that can disrupt the function of local ecosystems and become especially aggressive or difficult to manage. Two-thirds of the invasive plant occurrences documented within or adjacent to the Forest boundary were found on private land. Almost half (47 percent) of these occurrences were intentionally planted (e.g., in landscaping). Thirty percent of the occurrences are found along roads, especially along the I-93 corridor. Currently almost 90 percent of these occurrences contain less than 100 individuals.

All alternatives propose standards and guidelines to prevent establishment of non-native invasive species on the Forest and eradicate or control the spread of existing populations. Management activities that perpetuate open conditions are more likely to result in spread of non-native invasive species. Therefore potential for spread of these species varies among alternatives based on road and trail construction and maintenance and even-aged regeneration harvest levels.

The risk for spread of non-native invasive species is highest in Alternative 1 because of the higher even-aged regeneration harvest levels, moderate reopening and reconstruction of roads, and potential for construction of summer ATV trails. Risk of non-native invasive species establishment is least for Alternative 3, which proposes the fewest acres of even-aged regeneration harvest, less road reopening, and no ATV trail construction. Effects from Alternative 2 would be somewhat above those for Alternative 3 due to higher harvest levels. Alternative 4 would be closer to Alternative 1 because summer ATV trails would be constructed.

Wildlife

The Forest uses a combined coarse filter-fine filter approach to conserving biological diversity and ensuring the viability of species occurring on the Forest. For the coarse filter, habitat composition and age class objectives are established; and, special communities such as floodplain forest and oak-pine communities are conserved. The effects management has on the broad suite of common terrestrial wildlife species using the Forest are evaluated by analyzing four focus areas: Management indicator species; Ecological indicators; Fragmentation; and migratory birds.

Management Indicator Species

Management Indicator Species (MIS) and Ecological Indicators are mechanisms to assess the effects of alternatives on plants, animals, and biological communities. For this analysis, five MIS were used to evaluate the effects of proposed vegetation management on wildlife and plant populations.

Management Indicator Species	Habitat Represented
Chestnut-sided warbler	Regeneration hardwoods
Scarlet tanager	Mature/old hardwoods
Magnolia warbler	Regeneration softwoods
Blackburnian warbler	Mature/old softwoods
Ruffed grouse	Aspen/Paper birch

Past management resulted in dramatic increases in regeneration-age forest and in aspen-birch and hardwood habitats 100 years ago on lands that are now part of the White Mountain National Forest. Since then, forest habitats have matured and aspen-birch habitat has begun to decline. Populations of the MIS would have followed trends similar to their habitats. Therefore chestnut-sided warblers are probably decreasing from historic highs while blackburnian warblers are recovering from past declines.

Each alternative would affect the MIS differently based on:

- Amount of land in Management Areas that allow timber harvest.
- Amount of Forest that will be in hardwood, softwood, or aspen-birch habitat.
- Amount of even-aged regeneration harvest.
- Amount of habitat in the appropriate age class for each MIS.

Alternative 3 allocates less land to MA 2.1 than other alternatives, limiting the Forest's ability to provide habitat for chestnut-sided and magnolia warblers and ruffed grouse.

In the first two decades, all alternatives would result in a decline in aspen-birch habitat and a corresponding increase in hardwood and softwood forest. The decline would be slightly less in Alternative 1 as more aspen-birch habitat would be created. Over 150 years, softwood habitats would increase in all alternatives, with greater increases in Alternative 2, 3, and 4. Hardwood

forest would decrease as softwoods increase. Aspen-birch habitat would continue to decline and eventually stabilize at low levels.

Based on allocation, composition, and even-aged regeneration harvest levels, Alternatives 1, 2, and 4 would result in increased habitat for all MIS except the ruffed grouse over the first 20 years. Ruffed grouse habitat would decline in all alternatives because of the conversion of aspen-birch habitat to other forest types, although there would be more regeneration-age aspen-birch forest.

Based on the degree of habitat change in each alternative, population changes can be estimated for each MIS and the species they represent. Alternatives 1, 2, and 4 would promote increases in populations of chestnut-sided warblers and ruffed grouse represented species in the short and long-term because of higher levels of regeneration habitat. Alternative 3 would result in a continued decline in chestnut-sided warblers and stable ruffed grouse levels represented species across all timeframes. Populations of scarlet tanager, magnolia warbler, and blackburnian warbler represented species would remain stable in all alternatives in the short-term. If proposed management continued for 150 years, all alternatives would maintain stable populations of magnolia and blackburnian warblers represented species. Alternatives 1, 2, and 4 would result in declines in scarlet tanagers and associated species as hardwood habitat decreased. Alternative 3 would promote an increase in tanagers because so little mature and old habitat would be regenerated.

Ecological Indicators

Communities and groups of species were identified as Ecological Indicators and used to evaluate the effects of recreation use and management on communities of concern.

Ecological Indicator	Condition being evaluated
Alpine dry-mesic heath/meadow community Alpine snowbank/wet ravine community	Trampling or other direct habitat loss in alpine
Bicknell's thrush, blackpoll warbler, yellow-bellied flycatcher, boreal chickadee, spruce grouse	Human disturbance levels in high elevation (>2500') spruce-fir
Peregrine falcon	Vegetation cover on cliffs Disturbance and habitat alteration on cliffs

The two alpine communities encompass the majority of the alpine zone. Backcountry recreation use on the Forest is expected to increase in all alternatives. Some of this increase would certainly occur in the alpine zone, which is very popular with the public. More people using the area means the likelihood of off-trail use, and trampling of plants, would be proportionally higher. Standards and guidelines in all alternatives would limit some types of use in the alpine and encourage people to stay on trails. As a result, recreation use in the alpine zone likely would increase about the same amount in all alternatives so effects would be the same in all alternatives. Loss of individual plants in these communities is likely, as is

degradation of local colonies, but effects would not jeopardize community viability.

Whether current recreation use is contributing to population declines of high elevation birds, such as Bicknell's thrush, is unknown, but given the existing high use levels in these habitats, some level of effect would be expected. Backcountry recreation use on the Forest is expected to increase in all alternatives. Whether the dispersal of use expected in some alternatives from increased facilities would result in different effects is unknown. Monitoring is proposed to evaluate effects of recreation on high elevation wildlife.

Rock climbing can result in disturbance of wildlife and removal of vegetation. This type of use is expected to increase over the next 20 years in all alternatives. Standards and guidelines would allow for route closures and other measures to protect species of concern and other resources. For peregrines these measures have been successful in the past and should continue to protect this species. Management direction should prevent loss of vegetative communities, but loss of individuals or populations may occur in all alternatives.

Fragmentation

Many species require some level of habitat connectivity at a landscape-scale. American marten (*Martes americana*) are used to evaluate effects on fragmentation because landscape conditions determine if marten will occur in an area. Studies estimate that 80 percent of a marten's home range must be over 30 feet tall with a basal area of at least 80 square feet per acre to be suitable habitat. Currently, 87 percent of the WMNF is in forested habitat that is at least 60 years old and therefore should meet height and basal area requirements.

Even-aged regeneration harvest and land development can reduce the basal area of a stand below suitable levels, resulting in fragmentation of habitat. Therefore the effects from each alternative would vary based on acres of even-aged regeneration harvest and facility construction. Alternative 1 proposes the most even-aged regeneration harvest and the second-greatest increase in recreation facilities; so, would reduce the canopy on the largest number of acres of all alternatives. Alternatives 4 and 2 propose less even-aged regeneration harvest and would therefore have less effect. Alternative 3 proposes the smallest amount of even-aged regeneration harvest and construction of facilities so would reduce canopy closure the least. The majority of the Forest would remain suitable for marten under all alternatives, indicating low levels of forest fragmentation.

Migratory Birds

The Forest provides habitat for 30 species that were identified by local experts as of highest or high priority in Bird Conservation Region 14, though eight of these only stop in during migration. Effects to habitat for all but three species, bobolink, chimney swift, and common nighthawk, are addressed elsewhere in the FEIS. The bobolink and common nighthawk forage on the Forest but are unlikely to breed here due to a lack of large grassland habitat.

Therefore no alternative is likely to affect these species. Standards and guidelines to conserve snags and cavity trees should maintain habitat for chimney swifts across the Forest in all alternatives.

Wind turbines and communication towers may impact individual birds, but guidelines should mitigate some of these effects. Management on the WMNF would not result in a loss of viability for any migratory bird species under any alternative.

Non-priced Benefits

Most of the many reasons for maintaining biodiversity and protecting wildlife species cannot easily have an economic value assigned to them. Game species provide recreation and food to hunters. For many visitors to the White Mountain National Forest, seeing wildlife in their natural habitats is an essential part of their trip to the Forest. Many people place a high value on knowing that all species and natural communities will be maintained on the Forest. All alternatives will provide public benefit by maintaining or improving habitat and wildlife diversity across the Forest for public enjoyment.

Rare and Unique Features

Species viability and outstanding exemplary communities are analyzed as part of the fine filter approach to assessing biological diversity.

Species Viability

The White Mountain National Forest provides potential habitat for six federally-listed endangered or threatened species. Of these, one (small whorled pogonia) is currently known to occur on the Forest. The others may occur on the Forest in very limited numbers or as transients (Indiana bat and bald eagle), or occurred historically but are currently considered absent from the Forest (Canada lynx, eastern cougar, and gray wolf). The WMNF also manages for 39 Regional Forester's Sensitive plant and animal species (sensitive species). In addition to these officially-recognized species of concern, the Forest identified 58 animal and plant species of potential viability concern. Many of these species are on the New Hampshire or Maine State endangered and threatened species lists. Some are known to occur on the WMNF, while others were identified as likely to occur by local experts.

All alternatives include goals, objectives, standards, and guidelines to protect and enhance species of viability concern and the habitats on which they depend. All alternatives could result in loss of individual plants or animals and alteration of habitats at a local level due to a variety of management activities. The amount of impact varies among alternatives, habitats, and species.

The Biological Evaluation determines that no alternative would result in an adverse affect to any federally-listed species. Habitat would be maintained for all species, even those that do not currently occur on the Forest, and population monitoring would continue. All alternatives include standards and guidelines derived from the Lynx Conservation Assessment and Strategy. The Biological Evaluation also determines that all alternatives may

affect individual sensitive plants or animals, but none are likely to result in a trend toward federal listing or loss of viability. Standards and guidelines would mitigate many potential effects in all habitats at the project level.

Although individuals and occurrences of the species of concern may be affected, management of the White Mountain National Forest would not result in a loss of viability for any species under any of the alternatives. Populations of 35 of the 109 species of concern are expected to decrease in one or more alternatives. Seven of these would only decline with Alternative 1 due to the higher level of even age regeneration harvest. Viability for four species is expected to improve in one or more alternatives.

Outstanding Exemplary Communities

The Forest identified five outstanding natural communities in need of special consideration during Forest Plan revision: montane circumneutral cliffs and associated talus, old growth enriched upland forest, northern white cedar – hemlock swamp, northern white cedar seepage forest, and pitch pine – scrub oak woodland. Other communities were considered but dropped for one of three reasons: they are common on the Forest, they are conserved through another means, or they are difficult to identify or to determine which occurrences warrant protection.

Old growth enriched upland forest occurs in a few small, isolated patches on the White Mountain National Forest. Most are currently in Research Natural Areas or candidate Research Natural Areas. Therefore impacts in all alternatives would be limited to existing recreation use, which would not alter the community. Rock climbing may result in loss of vegetation and alteration of montane circumneutral cliffs in all alternatives although standards and guidelines would help minimize impacts. Management direction should prevent alteration of local hydrology and other impacts in the two northern white cedar communities in all alternatives. All alternatives allow prescribed fire and well-planned timber harvest to maintain the pitch pine – scrub oak woodland occurrence.

Non-priced Benefits

Most of the many reasons for maintaining biodiversity and protecting wildlife and plant species cannot easily have an economic value assigned to them. For many visitors to the White Mountain National Forest, seeing wildlife and plants in their natural habitats adds to the quality of their trip to the Forest. Many people place a high value on knowing that all species and natural communities will be maintained on the Forest, even the rarest species and communities that are not likely to be seen. All alternatives will provide public benefit by striving to maintain the long-term viability of all species and maintaining or improving all natural communities.

Recreation

The White Mountain National Forest is an "Urban Forest" that provides a place of both wildness and naturalness within a day's drive of 70 million people. High recreation use puts intense public pressure on the facilities and natural resources of the Forest.

Mountain scenery, forested public land, and the extensive trail network are the major recreational interests of Forest visitors. Non-motorized dispersed recreation, especially primitive and semi-primitive recreational opportunities, is the Forest's recreation management emphasis, and occurs throughout the National Forest. The White Mountain National Forest provides some of the most spectacular mountain terrain and scenery in the eastern U.S. It provides a background for driving for pleasure, multi-day backpacking trips, and shorter hikes and bike-rides. The number of visitors coming to the Forest is expected to grow in future years as development in and around the Forest increases and populations in the region continue to grow. All alternatives would provide a range of quality recreation opportunities, including hiking, camping, driving for pleasure, snowmobile use, hobby mineral collecting, and natural and cultural resource interpretation. The Forest uses the Recreation Opportunity Spectrum (ROS) to inform the management of a range of recreation activities and opportunities. Each of the alternatives provides a different mix of recreation activities.

General Recreation

In Alternative 1, development of a comprehensive approach to address challenges associated with increasing use levels is less likely to occur. As a result, low use areas and facilities may move to higher use, narrowing the range of recreation experiences available on the Forest. Construction of up to two summer motorized trail areas would change the summer setting and recreation experience in certain locations.

In Alternatives 2, 3, and 4, the Forest proposes to work with stakeholders to determine appropriate ways to maintain resources and quality of experience despite increasing recreational use. Alternatives 2 and 3 would maintain low use areas and facilities, and prohibit summer motorized trail use.

Alternative 4 could result in some low use areas moving to a higher use level, but not as many as are likely with Alternative 1. Summer motorized trail use would be considered in one identified area, changing the summer setting and experience in that location.

If designated, the varying amounts of recommended Wilderness in Alternatives 2, 3, and 4 would increase the amount of Wilderness recreation and restrict mountain bike use and backcountry facilities correspondingly. Vegetation management could result in displacement of trail users, trail reroutes or temporary closures, and short-term effects to ROS objectives. The level of effect would vary among alternatives based on total acres of timber harvest. From a Forest-wide perspective the effects would be low in all alternatives, but they could be substantial to people whose favorite trail is temporarily or permanently relocated as a result of harvesting operations.

Recreation Activities and Use

The White Mountain National Forest will continue to provide a diversity of high quality recreation opportunities. The anticipated increase in recreation use will affect all types of recreation and most facilities on the Forest. As a result, demand for new trails and facilities is expected to increase. This may

affect resources and the recreation experience. Updated standards and guidelines to improve the recreation experience, protect resources, and provide more consistent management would apply in all alternatives to varying degrees.

Balancing the demand for trail and backcountry facilities against maintaining the sense of remoteness and naturalness that many people expect when they come to the White Mountain National Forest is difficult. Each alternative proposes different levels of trails and facilities. As previously mentioned, Alternatives 2, 3, and to some extent 4, also include a recreation management approach that would help Forest recreation managers evaluate how management actions fit within the overall goals of preventing increased development levels in the backcountry and protecting and managing both high and low use areas and facilities.

All alternatives allow for increases in campground and backcountry facilities, non-motorized trails, and snowmobile trails. Alternative 3 proposes the smallest increases in all types of trails and facilities; Alternative 2 allows for slightly more. Increases in Alternative 1 are greater than 2, and Alternative 4 allows for the most new campsites and miles of new trail. Proposed increases in campgrounds are expected to bring more people to the Forest in all alternatives, proportional to increases in developed campsites. Some people looking for developed camping opportunities in the White Mountain region will likely have to look off-Forest in Alternatives 1, 2, and 3. Alternative 4 would strive to meet the anticipated demand.

Increases in backcountry camp sites are not expected to meet the demand for these facilities with any alternative. People not accommodated at backcountry sites likely would use existing dispersed campsites, create new dispersed sites, or go off the Forest.

The alternatives allow for construction of 10 to 100 miles of new non-motorized trail on the Forest. As the number of hikers increases, the density of people on many trails also will rise. Constructing new trails could alleviate some of this increase in density, but no alternative proposes enough miles of new trail to maintain current use levels on many trails. Therefore the quality of the trail experience could decrease for some users in all alternatives. The density of trails on the Forest would increase in each alternative, based on miles of new trail construction, which would reduce trailless areas and the opportunities for solitude on the Forest.

Alternatives 1 and 4, with larger increases in miles of snowmobile trails, could result in more secondary access trails to state corridor trails, or more linkages among existing trails, both of which should improve the experience. Alternatives 2 and 3 would allow for some improvements in trail connectivity but to a more limited extent.

Most activities would be allowed in all alternatives. Summer motorized trail use, however, would be considered in Alternatives 1 and 4, and prohibited in Alternatives 2 and 3. Therefore Alternatives 1 and 4 would expand the range of recreation opportunities offered on the Forest, adding use by ATV and trail bike riders. Alternative 1 would consider proposals for up to two

trail systems. If monitoring does not show unacceptable resource damage after implementation of the first proposal, a second proposal for summer motorized trails would be considered. Alternative 4 allows one trail system in a predefined area near either Landaff or Moat Mountain. Both alternatives require extensive monitoring and coordination with the state and local ATV clubs for implementation. Alternatives 2 and 3 would maintain the current range of opportunities by prohibiting this use.

Alternative 1 allows cross-country mountain bike use, while all other alternatives limit use to system trails and, to varying degrees, on travel corridors. Therefore Alternative 1 provides the most opportunities for mountain bike use, but could result in unmanaged use with the associated effects to resources. The other alternatives would reduce potential negative effects, but also would reduce the mountain biking experience opportunities for some users (Alternative 4 reduces this the least, and Alternative 3 the most).

In all alternatives there are standards and guidelines to protect the range of climbing opportunities and natural resources. This direction includes restrictions on equipment that can be used and potential limits on use. Alternative 1 allows the use of permanent anchors for new rock climbs in Wilderness, while other alternatives prohibit these fixtures. As a result, Alternatives 2, 3, and 4 would favor traditional climbing in Wildernesses, while sport climbing would be equally feasible in Alternative 1.

Alpine Ski Areas

The White Mountain National Forest manages land that is part of four alpine ski areas. These permitted ski areas offer recreation opportunities that are highly developed. Alpine ski areas have become four-season resorts that offer snow-oriented activities when conditions are favorable, and other opportunities, such as hiking and mountain biking, through the rest of the year.

All alternatives propose allocation of the same lands to management areas in which permitted alpine ski area activities can occur (MA 7.1) and in which expansion of ski areas will be considered (MA 9.2). Development of new facilities and expansion of existing ones would be allowed. Types of development allowed would not vary among alternatives. The establishment of new ski areas would not be allowed. Alpine ski areas would continue to provide diverse recreation opportunities that attract people to the White Mountain region.

Non-priced Benefits

Non-priced values placed on recreation on the WMNF are generally described in terms of outcomes derived from recreation experiences. A number of positive and negative outcomes have been identified by researchers. These outcomes are manifested at community or societal levels, individual levels and through "existence" values (simply knowing that areas exist for different types of recreation is enough for people to cast value and meaning onto that place).

At the community or societal scale some of the positive, non-monetary societal outcomes that can be attributed to the presence of recreation activities on the White Mountain National forest are:

- A sound environment from preserved open space for recreation;
- Increased family and community bonding, due to time spent together recreating;
- Better collective health due to physical and activities and stress relief; and
- Greater perceived quality of life, compared to places where recreational amenities are not available (Pandolfi, 1999).

Among negative outcomes at the community or societal scale are:

- Increased crowding from recreational visitors;
- A number of seasonal and/or low-paying recreational service jobs; and
- Changing community character during times when visitation numbers are high.

At the level of the individual, many closely related outcomes of recreation and recreational activities exist. These include:

- Health benefits from physical activities and stress release;
- Increased self-esteem and self-confidence,;
- Increases in knowledge from various sources before, during, or after an activity;
- Closer relationships and increased social bonding; and
- Increased physical skills, typically from taking on new or challenging activities.

The positive outcomes related to recreational activities nearly always outweigh the negatives heavily.

Finally, at an individual and societal level, recreational programs and amenities are typically valued for their existence. In the case of the WMNF, studies have shown that both local and non-local individuals recognize the unique existence of large undeveloped areas in a heavily populated region like New England.

Wilderness

Wilderness is designated by Congress to preserve a variety of values, including "… ecological, geological, or other features of scientific, educational, scenic, or historical value" (Wilderness Act). The Wilderness Act also recognizes that designated Wilderness should have "outstanding opportunities for solitude or a primitive and unconfined type of recreation…."

The White Mountain National Forest contains approximately 114,000 acres of Wilderness in five separate areas: Great Gulf, Presidential Range/ Dry River, Pemigewasset, Sandwich Range, and Caribou-Speckled Mountain. During Forest Plan revision, the Forest is required to reinventory all National

Forest System lands for roadless area status. The Forest then evaluated Inventoried Roadless Areas to determine whether they should be recommended for Wilderness designation. The alternatives propose different amounts of Recommended Wilderness, ranging from no acres in Alternative 1 to about 97,800 acres in five areas in Alternative 3.

Demand for Wilderness recreation is expected to increase along with all other types of recreation use. Alternative 1 would focus increased recreation use on existing acres, potentially eroding Wilderness character of these areas. Alternatives 4, 2, and 3 recommend increasing amounts of Wilderness, which would allow more area for expected Wilderness use.

Currently, the amount of Wilderness distributed across the Forest's land type associations varies with low elevation lands showing lower levels of representation. Alternative 1 would retain this distribution. Alternatives 4, 2, and 3 would recommend incrementally larger amounts of low elevation land as Wilderness, making Wildernesses more representative of the Forest as whole. Recommended Wildernesses would reduce acres in other Management Areas in Alternatives 2, 3, and 4. In all alternatives, the majority of these lands would come from MAs that emphasize semi-primitive non-motorized recreation, but some would come from lands that currently allow timber harvest.

Once Wilderness is designated, management and stewardship, such as managing visitor use and monitoring air and water quality, help ensure that Wilderness values are protected. Alternative 1 would continue the use of separate Wilderness management plans and implementation schedules, and includes no standards to direct monitoring or management of recreation use. As a result, it would be more difficult to manage Wilderness to standard with this alternative. Alternatives 2, 3, and 4 propose one Forest-wide Wilderness Management Plan and standards and guidelines for monitoring and management of Wilderness character, including recreation, if standards are exceeded. This approach would make it easier to manage Wilderness to standard.

Non-priced Benefits

Non-priced benefits for Wilderness include existence values, recreation opportunities that cannot be found in non-wilderness, and the services of healthy ecosystems such as clean water, clean air and mature habitats for wildlife. Other non-priced benefits include spiritual, aesthetic, heritage, psychological, cultural and intrinsic values. These benefits vary by the amounts of Wilderness. Because of this, Alternatives 3 and 2 have the most potential non-priced benefits, while Alternatives 1 and 4 have the least.

Wild and Scenic Rivers

In October 1988, Congress passed legislation designating approximately 15 miles of the Wildcat River and its tributaries as components of the National Wild and Scenic River System. There are approximately 1,100 acres of river corridor with the majority of acres in White Mountain National Forest ownership, about 100 acres in Jackson town ownership, and about 90 acres in private ownership. On the Forest, the river corridor is described as 500

feet from the center of the river. Off-Forest, the corridor boundary is the edge of the 100-year floodplain.

A Comprehensive River Management Plan (CRMP) was drafted to guide management of the designated segments of the Wildcat River and its tributaries, including management of non-federal land in the river corridor. The CRMP would help protect the remarkable values for which the Wildcat River and its tributaries were designated.

The designated segments on the National Forest are a Management Area with unique standards and guidelines; those standards and guidelines are also part of the CRMP. Management of the Wildcat River and its tributaries would be the same under all alternatives.

Given the expected level of recreation use in this management area, effects of recreation use on the characteristics and conditions of the designated river segments should be minimal. Vegetation management would be limited, occurring when necessary to meet habitat, salvage, and scenery objectives. As a result, the effects to the designated river segments are expected to be minimal. Standards and guidelines would prevent adverse effects from in-stream projects, such as fish habitat improvements and bridge construction.

In addition to the Wildcat River, the White Mountain National forest identifies 36 rivers as eligible for Wild and Scenic River designation. Under all alternatives, the Forest will continue to manage attributes of these rivers to protect their eligibility at the highest possible classification.

Wildland Fire

Wildfire is not a common natural disturbance factor on the White Mountain National Forest. For more than 100 years, most fires on the Forest have been human-caused, especially during the railroad-logging era. Wildfires alter the vegetation on the landscape, sometimes for centuries. The types of effects would not vary among alternatives. Campfires cause a majority of fires, but campfire levels are not likely to vary among alternatives. Allowing summer motorized trail use in Alternatives 1 and 4 could increase the risk of wildfire because off-highway vehicles are a potential ignition source.

Management-ignited prescribed fire and lightning-ignited wildland fire is allowed in certain management areas in all alternatives. Both types of fire use would help maintain fire-adapted communities, restore fire to its natural role, provide wildlife habitat, reduce fuel loads, and maintain scenic vistas. Weather conditions, appropriate sites, and limited staffing would probably limit prescribed fire use to less than 400 acres per year. The extent of wildland fire use is likely to range from none to several hundred acres, depending on fuel and weather conditions. The effects of fire use, including fuels reduction, particulate and smoke emissions, and removal of shrubs from openings and forest understories, would be the same in all alternatives.

Air

Air quality affects visibility, water quality, soil productivity, and the health of people, vegetation, and aquatic species. These factors are considered Air

Quality Resource Values. The White Mountain National Forest manages two Wildernesses as Class I areas under the Clean Air Act, as amended. Monitoring of air quality and coordination with other federal and state agencies to protect Air Quality Resource Values in these areas is an important aspect of Forest management. This work would continue under all alternatives.

Currently air quality across the White Mountain National Forest meets National Ambient Air Quality Standards. However concerns remain regarding ground level ozone, regional haze, mercury emissions, increasing concentrations of greenhouse gasses, and acid deposition. The primary sources of chemicals and particles in the air over the Forest are upwind emissions as well as local and regional vehicle emissions. As a result of these non-Forest sources, acidification of streams, reduced visibility, and intermittent unhealthy levels of ground level ozone are expected to continue into the future regardless of Forest management.

Emissions caused by Forest Service activities fall into three main categories: emissions from fires, emissions linked to visitor use, and emissions related to construction activities. Prescribed and wildland fire, and visitor use levels are not expected to change noticeably among alternatives, so effects to air quality would not vary. Construction activities do differ among alternatives, but the activities and their emissions are short-lived, localized, and unlikely to affect air quality standards. Therefore lasting effects from construction activities would not vary between alternatives. Emissions from National Forest management activities are small compared to those from outside sources. Of the on-Forest sources of pollutants, only motor vehicle use during peak seasons has the potential to noticeably reduce air quality. Expected increases in vehicle use would not change among the alternatives; although, under alternatives 2 and 3, management actions to address these increases would be more likely explored.

Non-priced Benefits

Non-priced benefits associated with air resources include clean and clear air. None of the alternatives would cause additional impacts form Forest activities; however, effects to these benefits are caused by emissions from off-Forest.

Scenery Management

The beauty and diversity of the scenery in the White Mountains have long drawn people to the area. Despite a long history of varying land uses, the Forest currently presents a predominantly natural-appearing landscape. A large alpine area, forested mountain slopes and valley bottoms, rock outcrops, and mountain streams and ponds contribute to a landscape rich in scenic resources.

The White Mountain National Forest completed the inventory process that is part of the Scenery Management System, and established Scenic Integrity Objectives. Currently, 92 percent of the Forest is natural-appearing. The goal for scenic resources is to maintain that natural-appearing landscape by achieving the identified Scenic Integrity Objectives across the Forest.

A variety of management activities may result in changes in the character of the landscape and scenic quality. Downhill ski area development, telecommunication facilities, wind generation towers, utility corridors, and mineral extraction have the greatest probability of creating highly visible and more permanent impacts on the landscape. The activities would not vary among the alternatives. Mitigation measures could reduce negative effects to scenery somewhat, but these activities are always likely to affect scenery.

Recreation facilities are also fairly permanent, but can often be integrated into the setting, reducing the effects to scenery. Trail construction can alter scenic resources. Therefore the effects of recreation on scenery would be greatest in Alternatives 4 and 1, as these allow the largest increases in development and construction of summer ATV trails. Alternative 2 allows less development, and Alternative 3 would have the smallest effect on scenery from recreation.

Even-aged regeneration harvests and concentrated group selection cuts can create highly visible, but temporary, changes in scenic quality across the Forest. Guidelines in Alternative 1 allow more intensive harvest in a viewshed. In addition, this alternative proposes the highest harvest volume and second-highest harvest acreage. Alternatives 2-4 limit even-aged regeneration harvest in a viewshed. Alternative 4 proposes the next highest harvest volume and the most acres of harvest, but with more uneven-aged management, which should result in reduced effects on scenery compared with Alternative 1. Alternatives 2 and 3 would result in even smaller changes to scenery from vegetation management.

Overall, Alternative 1 has the greatest potential to impact scenic resources. Alternative 2 would maintain a higher portion of the landscape in a natural-appearing condition. Alternative 3 would do the most to meet the scenic resource goals. Alternative 4 would allow for noticeable visual change on the landscape.

Non-priced Benefits

Research indicates that beyond their contribution to tourism, high quality scenery and a natural appearing landscape enhance people's physical and psychological well being. Given the large population within a day's drive of the White Mountains and increasing populations near the Forest, the scenic attributes of the White Mountain National Forest benefit a large portion of the people in the northeast. All four alternatives would retain the vast majority of the Forest in natural appearing conditions, so all should continue providing these non-priced benefits.

Geologic and Mineral Resources

The White Mountain National Forest ranks low to moderate in mineral potential. The costs and methods of extraction and processing make mineral resources on the Forest uneconomical. There are no known viable energy-related mineral resources on the National Forest. Geologic resources that are pursued include amethyst, smoky quartz, sand, and gravel.

Management approaches to mineral resources are grouped into four categories on the Forest: reserved or outstanding mineral rights, leasable minerals, mineral materials, and recreational minerals. Reserved or outstanding mineral rights, which are held in private ownership, total about 10,000 acres. Management of all other mineral resources varies among management areas.

Commercial mineral resources on the White Mountain National Forest are managed as leasable minerals. Prospecting and exploration are allowed across the National Forest, though some MAs have restrictions on the type of activity allowed. Currently almost 85 percent of the Forest is open to production and development of leasable minerals. Under all alternatives, the amount of land available for this use would decrease substantially, to 61-65 percent, because additional management areas would be administratively unavailable. Due to the mostly low potential and poor economic practicability of local minerals, it is unlikely that extraction of traditional minerals would occur during the next 20 years. The small differences among alternatives in acres available for leasable mineral development are unlikely to result in different levels of mining activity.

There are only a few sand and gravel operations on the Forest, and these are mostly small pits used by the Forest Service and local agencies for road construction and maintenance. No difference in the amount of sand and gravel extraction is expected among the alternatives.

Recreational mineral collecting is a popular activity on the White Mountain National Forest that is expected to increase in the future. Currently, collection of mineral specimens for personal use is allowed without a permit. Collection activity that involves ground disturbance has resulted in resource degradation in some areas. To help prevent additional adverse effects, surface-disturbing recreational collecting will be managed through a permit system in all alternatives. Increased monitoring also is proposed to allow management actions to be taken in a timely manner, which should minimize effects.

Non-priced Benefits

Non-priced benefits from geologic and mineral resources are largely related to recreational rock and mineral collecting activities, which provide enjoyment to many as a hobby. There is no difference in the level of this benefit by alternative; however, with time, opportunities for this activity may diminish due to its limited nature.

Heritage Resources

More than 1100 heritage sites have been identified across the Forest. Two sites are listed on the National Register of Historic Places, and another 24 sites have been determined to be eligible for listing. Native Americans were using the White Mountain region at least 10,000 years ago. Euro-Americans have been present in the area since the mid-1600s.

Heritage resources are non-renewable. Although restoration may be possible in some cases, the historic nature and value of the resource is generally compromised once it has been disturbed. Certain aspects of Forest use and

management may result in alteration or loss of heritage resources. Surveys and research during project planning and adherence to standards and guidelines for the protection and conservation of heritage sites would minimize the potential for effects in all alternatives. Inventory and evaluation of heritage sites would enhance the Forest's understanding of heritage resources, improve management decisions, and possibly lead to interpretation of heritage sites. Monitoring would help determine the most effective means of protecting and conserving heritage resources.

Non-priced Benefits

Knowledge gained from studying the cultural sites and landscapes within the National Forest provides factual information about how the land has reacted to all past disturbances, human and non-human. These facts can provide Forest managers with the historical perspective to make defensible land management decisions at present and in the future.

Environmental history of Forest-managed lands and studies of land use history can be supportive of state historic preservation plans and state tourism initiatives.

Social and Economic

Social

The four counties that encompass the White Mountain National Forest (Forest Region) are very homogenous in race and culture, but have marked differences in social and economic characteristics. For many social indicators, there is a gradient from south to north. To the south, in Carroll and Grafton Counties, there is a rapidly growing population with an economy that is expanding in service sectors and increasing development. In contrast, the two northern counties of Coos and Oxford have slower population and economic growth, with a greater dependence on natural resource-based industries.

The Forest is used by locals and people in surrounding states for recreational, educational, and economic purposes. Recreation and education uses are diverse and expected to continue increasing in the foreseeable future. People living and recreating in the White Mountain region see the National Forest as important in maintaining the rural character of the area and quality of life components such as drinking water, scenic beauty, and healthy ecosystems.

Rural character is affected by activities that alter development levels and access. Most of these changes are occurring outside the Forest boundary. Growth in housing is tied to factors that have little to do with management of the National Forest, but in some local areas, proximity to the Forest results in increased development. On the White Mountain National Forest, rural character would be most affected by recreation development. However even with Alternative 4, which proposes the most such development, the amount would be small and effects would be limited by standards and guidelines. Therefore no alternative would result in measurable effects to the rural character of the area.

Management activities could affect some components of quality of life – water quality, scenery, ecosystems, employment, and heritage resources. Standards and guidelines in all alternatives are designed to protect the Forest resources that contribute to quality of life. Overall, there should not be noticeable adverse effects to quality of life from any alternative.

Economic

As with social indicators, there is a gradient in economic indicators from south to north in the Forest Region. In the southern two counties, unemployment rates are at or below the state average, and per capita income is near the state average. In the northern two counties, unemployment rates are above state averages and per capita income is below state averages.

Recreation and tourism are essential to the Forest Region's economy, and the Forest is a primary recreation attraction. Recreation visitors to the Forest spend more than 65 million dollars annually in the Forest Region. Commercial wood production also is important to the local economy, and the National Forest is a key source of high value sawtimber. As land is increasingly developed, the Forest provides a greater portion of the timberland in the area. In addition to these contributions to the local economy, the Forest Service also makes payments to states, counties, and towns based on Forest revenues, acreage, and other factors.

The majority of the jobs and income in the Forest Region that result directly or indirectly from National Forest activities are due to recreation on the Forest. Most of the jobs and income are in the retail sales and service sectors of the economy. These jobs are often lower paying with fewer benefits than positions in other sectors of the economy.

In all alternatives, the number of jobs and income associated with the Forest would increase. The jobs and income resulting from recreation on the White Mountain National Forest would exceed those for all other Forest activities combined. Recreation use is expected to increase in all alternatives. The expected creation of summer motorized trails and larger increases in developed recreation capacity in Alternatives 1 and 4 would attract additional visitors to the Forest. However these changes would not result in substantial increases in jobs or income relative to Alternatives 2 and 3 or the current condition because most increases in recreation use will be due to population trends and the popularity of the region with tourists.

The primary economic difference among the alternatives is a result of the amount of timber harvest proposed. Increases in the Allowable Sale Quantity would result in more jobs, more income, and larger payments to the states, counties, and towns. The jobs attributed to timber harvest generally provide higher pay and better benefits than those found in the retail and service sectors. Alternative 1 would result in the largest increase in jobs and income related to timber harvest, then Alternatives 4 and 2, with Alternative 3 producing fewer jobs and income because of the lower harvest level.

Over a 100 year period, it is estimated that in all four alternatives revenue-generating activities would cost more to implement than they would bring in to the federal government (financial efficiency). However, when

Economic Indicator	Current		Annual Average – Decade 1			
	Area Totals	Forest Portion*	Alt. 1	Alt. 2	Alt. 3	Alt. 4
Employment						
Total (jobs)	139,538	2,051	2,494	2,390	2,303	2,426
% of Area Totals	100%	1.5%	1.8%	1.7%	1.7%	1.7%
% Change from Current*	—	—-	21.6%	16.6%	12.3%	18.3%
Labor Income						
Total ($ million)	$5,720.9	$46.5	$60.1	$56.2	$53.3	$57.6
% of Base	100%	0.8%	1.0%	1.0%	0.9%	1.0%
% Change from Current*	—	—	29.2%	20.8%	14.7%	24.0%

*Current reflects 2000-2003 averages for employment, income and timber harvested.

combining this with the value the public places on Forest conservation, their recreational experiences, Forest research, and long term sustainability all alternatives would contribute more to society than they would cost (economic efficiency). Alternative 2 is the most financially and economically efficient of the alternatives, and Alternative 3 is the least efficient.

Non-priced Benefits

The analysis of jobs and income generated in each of the alternatives only captures part of the economic benefit of the White Mountain National Forest. There are non-priced benefits that are not captured in this analysis that play a very important role in the perceived value of the Forest. The Forest Service, through its management practices, provides for the protection of water quality, air quality, wildlife, ecosystem diversity, and scenic attractiveness. Additionally, there are other benefits that the Forest contributes to but are difficult to estimate a value. The Forest generally contributes positively to home values for the homes near the Forest or with a view of the mountains of the Forest. Another non-priced benefit results from the draw the Forest has on visitors to the region, even though these visitors may not actually come onto the Forest in the course of their visit. The scenic attractiveness and sense of being able to get away to the mountains contributes very positively to the mental and physical health and well being of many users of the Forest. While these additional benefits don't have a dollar value associated with them, they unquestionably contribute to the economic development throughout the Forest region. These benefits are common to all alternatives.