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National Forest



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George Washington
National Forest

Summary

*of the Revised Land and Resource Management Plan
and the Final Environmental Impact Statement*



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SUMMARY

of the Revised Land and Resource Management Plan and the Final Environmental Impact Statement

George Washington National Forest

Alleghany, Amherst, Augusta, Bath, Botetourt, Frederick, Highland, Nelson, Page, Rockbridge, Rockingham,
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Hampshire, Hardy, Monroe and Pendleton Counties in West Virginia.

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ABSTRACT

The Forest Service has revised the 1993 Land and Resource Management Plan (Forest Plan) for the George Washington National Forest. The Revised Plan updates the management direction for the Forest's 1.1 million acres of land in Virginia and West Virginia by describing desired conditions, goals, objectives, suitable uses, standards and monitoring requirements. In accordance with the National Environmental Policy Act of 1969, the Forest has prepared a Final Environmental Impact Statement (EIS) for the Forest Plan. The EIS provides the purpose and need for Plan revision, presents issues addressed, describes management alternatives considered to respond to those issues, and analyzes the potential environmental effects of the alternatives. The Final Environmental Impact Statement describes nine alternatives including a "no action" alternative that would continue managing the land and resources of the Forest under the 1993 Forest Plan as amended. The Forest Service has identified Alternative I as the Agency's Selected Alternative. This summary document provides a brief overview of the Forest Plan and the accompanying EIS.

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OVERVIEW

WHAT IS THE FOREST PLAN?

The Forest Plan represents the agency's selected alternative for managing the land and resources of the George Washington National Forest (GWNF). The Forest Plan provides direction for the ecological, social and economic sustainability of the natural resources on the approximately 1.1 million acres of lands administered by the GWNF. It describes desired resource conditions, goals and objectives, management direction and practices, resource protection standards, monitoring, and the availability and suitability of lands for resource uses over the next 10 to 15 years. The Forest Plan is the implementing guide for fulfilling the Forest Service's mission "to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations."

The Forest Plan is programmatic in nature. It does not include site-specific project or activity decisions. Decisions on projects to implement the Forest Plan are based on a site-specific analysis and further public involvement, in compliance with the National Environmental Policy Act (NEPA) of 1969. Proposed projects are evaluated to determine if they are consistent with the management direction in the Forest Plan. The evaluation is documented in the project-level environmental document with a finding of Plan consistency incorporated into the decision document. The Forest Plan is adaptive, in that new knowledge and information can be analyzed and the Plan changed, if appropriate, at any time. Changes to plan components are made by a formal amendment process.

More specifically, the key decisions made in the Forest Plan for the George Washington National Forest are:

- Forest multiple-use goals and objectives that include a description of the desired condition of the forest and an identification of the quantities of goods and services that are expected to be produced or provided [36 CFR 219.11(b)]. These are identified as Forestwide Desired Conditions in Chapter 2 and as Objectives in Chapter 3.
- Establishment of multiple-use prescriptions for each management area, including proposed and probable management practices [36 CFR 219.11(c)]. All lands on the George Washington NF are allocated to one of 25 Management Prescription Areas that reflect different Desired Conditions and Suitable Uses, or allowable activities. Management direction for these areas is in Chapter 4.
- Establishment of management requirements, including associated standards and guidelines that would apply to implementation of the Forest Plan [36 CFR 219.11(c), 219.13 to 219.27]. These are identified as Forestwide Standards and Management Prescription Area Standards in Chapter 4.
- Descriptions of lands suitable or not suitable for specific resource activities, including timber production [(16 USC 1604(k) and 36 CFR 219.14)]. These are described as Suitable Uses in Chapter 3 and as Standards in Chapter 4.
- Establishment of the Allowable Sale Quantity (ASQ) of timber to ensure a sustained yield of wood products in perpetuity [16 USC 1611 and 36 CFR 219.16]. The ASQ is identified as an Objective in Chapter 3.
- Identification of lands as preliminary administrative recommendations for inclusion in the National Wilderness Preservation System [36 CFR 219.17; FSH 1909.12, Chapter 73.11]. These areas are allocated to Management Prescription Area 1B - Recommended Wilderness Study Areas in Chapter 4.
- Identification of Research Natural Areas (RNAs), which are examples of important forest, shrubland, grassland, alpine, aquatic, and geologic types that have special or unique characteristics of scientific interest and importance and that are needed to complete the national network of RNAs [36 CFR 219.25]. The Forest has two existing RNAs and is not identifying the need for additional areas.

- Identification of river segments that are suitable for inclusion in the National Wild and Scenic Rivers System [PL 90-542; 36 CFR 219.2(a)]. These segments are allocated to Management Area Prescriptions 2C2 - Eligible Wild and Scenic Rivers-Scenic and 2C3 – Eligible Wild and Scenic Rivers-Recreational in Chapter 4.
- The monitoring and evaluation requirements needed to ensure that Forest Plan direction is carried out and to determine how well outputs and effects were estimated [36 CFR 219.11(d)]. These requirements are in Chapter 5.

A separate decision, apart from the Forest Plan, that has been incorporated into this document is the determination of the National Forest System lands that are administratively available for oil and gas leasing, as well as the associated stipulations. The Forest Service considers the leasing availability decision to be separate from planning decisions, but it is closely linked. The leasing availability decision is also evaluated within the Environmental Impact Statement for the Forest Plan.

WHAT IS THE ENVIRONMENTAL IMPACT STATEMENT?

The Environmental Impact Statement (EIS) describes the analysis of nine alternatives for revising the Forest Plan for the George Washington National Forest and discloses the environmental effects of these alternatives. The EIS provides the purpose and need for Plan revision, presents the significant issues addressed, describes management alternatives considered to respond to those issues, and analyzes the potential positive and negative environmental effects and trade-offs of the alternatives. The Record of Decision documents the final decision for the selected alternative and supporting rationale.

THE RESPONSIBLE OFFICIAL

The Regional Forester is the responsible official for the analysis and decisions in the Forest Plan revision. Conducting analysis, developing alternatives, and preparing the EIS were done at the local Forest level under the direction of the Forest Supervisor for the George Washington and Jefferson National Forests.

FOREST PROFILE

The first tracts that would become the George Washington National Forest were purchased in 1912. The GWNF now extends for about 140 miles along the Appalachian and Blue Ridge Mountains and comprises lands located in Virginia (approximately 960,282 acres) and West Virginia (approximately 105,099 acres) and occurs in seventeen counties. The George Washington and Jefferson National Forests were administratively combined in 1995. However, each National Forest continues to have its own Forest Plan. The Jefferson National Forest's Forest Plan was revised in 2004.

The GWNF contains the Lee, North River, Warm Springs, James River and Pedlar Ranger Districts. The GWNF is located in the Northern Blue Ridge and the Northern Appalachian Ridges and Valleys. Hardwood-dominated forest types comprise over 70 percent of the acreage. There is much variation in the vegetation and many natural changes are taking place as forest succession progresses.

The Forest is located within two major river basins, the James and the Potomac Rivers, and is entirely within the Chesapeake Bay watershed.

Nine of the plants and animals species found on, or near, the Forest are listed by the U.S. Fish and Wildlife Service as threatened or endangered and include: the Indiana bat, the Virginia big-eared bat, shale barren rock cress, smooth coneflower, Virginia sneezeweed, swamp pink, northeastern bulrush, Madison Cave isopod, and James spiny mussel.

Major insect pests include the gypsy moth, southern pine beetle, and hemlock woolly adelgid. Major disease problems include oak decline, dogwood anthracnose, shoestring root rot and white-nose syndrome.

The Forest contains 1,171 miles of perennial streams, of which over 700 miles support a cold water fishery. At least 30 communities in Virginia and West Virginia, serving over one million people, use water from the Forest for all or part of their drinking water.

The Forest transportation network has about 1,800 miles of National Forest System Roads which range from paved highways to non-surfaced roads designed for high clearance vehicles. Many of these roads are available for pleasure driving, the removal of forest products, bicycling and scenic viewing. Interstate 81 and other U.S. and State highways cross or adjoin the National Forest; it is also traversed by the Blue Ridge Parkway.

The Forest is within 75 miles of over 10 million people. Developed recreation opportunities are offered at over 60 sites on the Forest. There are three individual ATV trail system areas offering a total of about 65 miles of motorized trails. The Forest has approximately 1,100 miles of non-motorized trails. Currently, the Forest has six designated Wildernesses (approximately 43,000 acres) and one National Scenic Area (8,000 acres).

The George Washington National Forest has very limited energy resource development at the current time. Only about 10,000 acres of the Forest is currently leased under federal oil and gas leasing procedures but there are no active wells. Mineral rights on about 16 percent of the forest are privately owned.

The GWNF has about 3,000 miles of boundary with private lands. The GWNF is expected to see expanding development of housing on adjacent private lands of between 10 and 25 percent by 2030. It is expected to have the most area of increases in housing density on adjacent lands of all national forests in the country.

REVISION PLANNING HISTORY

Under the Multiple-Use Sustained-Yield Act of 1960, the Forest and Rangeland Renewable Resources Planning Act of 1974, and the National Forest Management Act (NFMA) of 1976, National Forest System lands are managed for a variety of uses on a sustained yield basis to ensure a continued supply of goods and services. The NFMA specifies that forest plans will be developed for all national forests and should be revised at least every 15 years. Notification of initiation of the plan revision process for the 1993 George Washington National Forest Plan was provided in the Federal Register on February 15, 2007 under the planning procedures contained in the 2005 Forest Service planning rule. In March 2007 the revision was suspended due to a federal district court decision that enjoined the Forest Service from implementing the 2005 planning rule. The Forest Service adopted a new planning rule and the GWNF resumed the revision process on June 24, 2008. On June 30, 2009, the 2008 planning rule was enjoined. The current Planning Rule, published on April 9, 2012, allows for plan revisions initiated before May 9, 2012 to be revised in conformance with the provisions of the prior planning regulations, including its transition provisions (36 CFR part 209, published at 36 CFR parts 200 to 209, revised as of July 1, 2010). The 2014 Forest Plan was revised using the 1982 planning regulations as allowed in the 2000 planning rule.

Collaboration on the Plan with many individuals, community leaders, representatives of organizations, local, state and federal government officials, industry representatives, adjacent landowners, and others began with workshops in 2007. Over that time, we had a total of 32 public workshops where participants interacted with each other and with Forest personnel to identify issues and discuss options of responding to the issues while acknowledging the many competing interests.

A Draft EIS and Draft Revised Forest Plan were released for public review and comment. The Notice of Availability was published in the Federal Register on June 3, 2011 with a 90 day comment period ending September 1, 2011. The comment period was extended to October 17, 2011. Six public workshops were held during the comment period. By the end of the comment period, we received about 600 letters and an additional 53,638 comments through 24 separate campaigns of postcards, e-mails, and petitions. All of these comments were reviewed and considered in completing the final EIS and Forest Plan.

SUMMARY OF THE FOREST PLAN

The Forest Plan is based on the implementation of the selected alternative (Alternative I) from the Environmental Impact Statement. It lays out the desired conditions, goals, objectives, suitable uses, standards and monitoring requirements for managing the GWNF for the next ten to fifteen years. The Forest Plan is based on an allocation of the Forest into Management Prescription Areas. Each Management Prescription Area is focused on the desired condition of the land, and provides for multiple uses, resources, services, and values that are unique for that area on the Forest. A list of the Management Prescription Areas is found in Table 2. The Forest Plan also includes a separate map that displays the boundaries and allocations of these areas.

The Plan is organized into several major parts: Chapter 1-Introduction; Chapter 2-Vision; Chapter 3-Strategy; Chapter 4-Design Criteria; Chapter 5-Implementation and Monitoring; Appendices; Glossary; and References. For a quick preview of the Plan structure, glance at the Table of Contents.

Chapter 1-Introduction This chapter contains an introduction, the purpose and format of the Forest Plan, the context of the George Washington National Forest on local, regional and national levels and brief summaries of the Analysis of the Management Situation and Significant Issues.

Chapter 2-Vision This chapter describes the social, economic and ecological attributes (Desired Conditions) we would like to see in the future. Forestwide desired conditions apply across the entire forest's landscape, such as for water quality or non-native invasive species.

Chapter 3-Strategy This chapter describes how we will move toward our desired conditions. Objectives describe specific outcomes that can measure progress toward achieving or maintaining desired conditions. Suitable uses are summarized from the standards and other plan direction into a table that describes uses that are compatible with desired conditions. This chapter also includes Management Approaches, which are strategies likely to be used for achieving desired conditions and objectives. Management approaches incorporate priorities, program emphases, budget trends, past program accomplishments, and partnership opportunities.

Chapter 4-Design Criteria This chapter describes the standards (Design Criteria) that guide management activities. They ensure the protection of resources as we carry out projects to help us move toward the Desired Conditions. These Design Criteria are either forestwide or specific to a Management Prescription Area. These Design Criteria are then followed by Desired Conditions and Design Criteria that vary by Management Prescription Area.

Chapter 5-Implementation and Monitoring This chapter provides information to guide putting the Forest Plan into practice, or implemented. Monitoring and evaluation provide information to determine whether programs and projects are meeting Forest Plan direction, and whether the Plan should be amended or revised. This chapter also establishes Monitoring Questions that are to be answered over the course of Forest Plan.

HOW THE FOREST PLAN ADDRESSES SIGNIFICANT ISSUES

During the Forest Plan revision, the following significant issues were identified through extensive internal and external public collaboration. The following discussion describes key highlights of how the Forest Plan responds to these issues. Alternative I (the selected alternative) in Table 3 also outlines activities by resource area for the Forest Plan.

Access

The road system needed to manage the GWNF was identified through the Transportation Analysis Process (TAP), which examined the 1,823-mile system road network with respect to a variety of management objectives, opportunities for increased resource protection, maintenance and financial sustainability objectives, and better service to Forest users. Based on the TAP, approximately 160 miles of road are identified for decommissioning over the first decade of the Plan. Site-specific analysis with public involvement will occur before any road is decommissioned. Priorities for decommissioning are roads causing resource damage and roads in priority watersheds. While new roads will be needed for future access to manage the Forest, the Forest Plan has an objective that there will be no net increase in the current miles of open roads on the forest.

The Plan drops the 1993 Forest Plan objective to construct another all-terrain vehicle (ATV) trail system at Archer Knob, but retains the three current ATV systems and allows for some expansion of trails within those systems. The mileage of high clearance roads available for off-highway vehicle use remains the same or increases with the reduction in road maintenance for some roads.

Watersheds, Soil and Water Quality, Riparian Resources and Aquatic Diversity

The GWNF continues a tradition of watershed restoration, protection and stewardship to meet the needs of Forest resources and of downstream water users. Thirty public drinking water supplies on the Forest are identified and desired conditions are identified to recognize the importance of protecting water quality in these watersheds. Priority watersheds are identified and include those watersheds with sensitive aquatic species, impaired water quality, and watersheds providing drinking water. These watersheds are a priority for inventorying soil and water improvement needs, restoring streams and streamside systems to fully functioning systems, restoring habitat for sensitive aquatic and riparian species, addressing opportunities to reduce impacts from roads through relocation or decommissioning, and evaluating any new proposals for special uses that could affect water quality. Public Water Supply watersheds as identified by the Commonwealth of Virginia for North River, Dry River and Skidmore Fork (and the watershed upstream of the Dry River PWS), Pedlar River (and the watershed upstream), Smith Creek, North Fork of Shenandoah, North Fork Shenandoah-Cedar Creek, Jackson River, and Coles Run are identified as not suitable for oil and gas leasing.

Increased protection of the aquatic systems and riparian areas, including channeled ephemeral streams, is accomplished through expanding the width of the riparian protection corridors and changing the standards to match the protections of the Federally Listed Threatened and Endangered Mussel and Fish Conservation Plan used on the Jefferson National Forest. Riparian standards meet or exceed State Best Management Practices (BMPs).

Soils that are determined to be low in natural fertility and have low buffering capacity to acid deposition are managed to ensure that any planned activities will not affect the long-term productivity of the land. Woody biomass utilization (vegetation removed from the forest, usually logging slash, small diameter trees, tops, limbs, or trees non considered merchantable in traditional markets) is limited on soils identified as high risk for soil acidification and nutrient depletion due to atmospheric deposition.

Terrestrial Biological Diversity

The mature and late successional stages of forests are well represented across the GWNF, but grassland, shrubland, regenerating forest, and open woodland conditions are lacking. A large number of species are identified that depend on these open habitats at some point in their life cycle and these open conditions need to be well distributed on the landscape.

By restoring and maintaining the key characteristics, conditions, and functionality of the native ecosystems found on the GWNF to the extent possible, the Forest should be able to provide for most of the needs of the diverse plant and animal species on the forest (species diversity). The Forest Plan provides additional direction for species groups, such as cavity or den tree associates, whose needs are not necessarily met with ecosystem

objectives. Forest Plan direction is to manage vegetation structure (the successional stages and canopy conditions across a landscape) and species composition to support healthy, functioning ecological systems that are resilient to changing conditions and climate change. This often involves the use of timber harvest and fire. Prevention and control of non-native invasive species is another key component of restoring and maintaining these systems.

For the Forest Plan, the GWNF was mapped with an ecological zone classification system using the same methodology and framework that has been used for over 10 million acres of public and private lands across the Southern and Central Appalachian Mountains. The following nine ecosystems are identified on the GWNF:

Alkaline and Mafic Glade and Barrens Ecological System (4,000 acres): Forest strategies for maintaining, and enhancing the Mafic and Alkaline Glade systems include prescribed fire and managing wildfire, control of non-native invasive plants, and monitoring and managing recreation use in the areas. Key locations of alkaline and mafic glades and barrens are allocated to Special Biological Areas.

Caves and Karstlands (119,000 acres) are addressed through the establishment of cave and karstland standards. These standards are designed to protect the physical (including the hydrology), chemical and biological characteristics of the caves and karstlands. In addition, caves (and defined areas around the caves) identified by the Virginia Natural Heritage Program are established as Geologic Areas.

Cliff, Talus and Shale Barrens Ecological System (14,000 acres): Forest strategies for maintaining, and enhancing the Cliff, Talus and Shale Barren systems include prescribed fire and managing wildfire, control of non-native invasive plants, managing deer browsing, and monitoring and managing recreation use in the areas. Key shale barren locations are established as Special Biological Areas.

Northern Hardwood Forests Ecological System (13,000 acres): Forest direction for restoring, maintaining, and enhancing the Northern Hardwood Forests ecological system emphasize maintaining this system on the lands where it occurs. Some regeneration can take place, but it is not a high priority.

Cove Forests Ecological System (61,000 acres): The objectives are to maintain this system on its current sites. The management strategy is to utilize timber harvest to approach the early successional habitat objective since fire is not a common disturbance in this system.

Oak Forests and Woodlands Ecological System (756,000 acres): Forest strategies for maintaining and enhancing the Oak Forests and Woodlands system rely heavily on utilizing fire to restore and maintain the open canopy conditions and the openings. Grassy openings are created through clearing small patches of trees and maintained through mowing. Timber harvest is another frequent technique of creating regenerating forests and creating desired open canopy conditions. Given its importance as a food source for many wildlife species, maintaining a high percentage of oak in ages that produce mast is also important.

Pine Forests and Woodlands Ecological System (162,000 acres): Fire is the prime strategy for maintaining and enhancing the Pine Forest and Woodland systems. Timber harvest is also used to a lesser extent for regeneration.

Floodplains, Wetlands and Riparian Areas Ecological System (51,000 acres): An estimated 51,000 acres of Floodplains, Wetlands and Riparian Areas on the Forest continue to be present and functioning. Some wetland systems could increase in extent due to beaver activity.

Spruce Forests Ecological System (600 acres): The Spruce Forest system is limited to the Laurel Fork Special Biological Area. The short-term objective is to maintain the current acreage of approximately 600 acres of the Spruce Forests and the long-term objective is to reestablish spruce on an additional 700 acres.

Special Biological Areas are identified where the primary goal is to restore and maintain the rare community or unique assemblage of rare species. Fifty-seven areas are added in the Forest Plan and some existing areas are expanded for a total of 121,000 acres of Special Biological Areas. This includes about 58,000 acres of Cow Knob Salamander habitat (nearly its entire known range). Of the remaining 63,000 acres, about 10,000

acres are within Wilderness, Recommended Wilderness Study Areas, Recommended National Scenic Area, or Indiana Bat Primary Protection Areas.

White-nose syndrome is a fungus caused disease that has killed millions of bats since its first discovery in 2006. On the GWNF, important caves used as hibernacula by endangered bats have been gated and locked. In addition, there are numerous standards in the Forest Plan for protection of the endangered Indiana bat and Virginia big-eared bat and for protection of caves.

Old Growth

Old Growth is identified as described in Appendix B of the Plan and defined by the criteria from the *Guidance for Conserving and Restoring Old Growth Forest Communities on National Forests in the Southern Region*. Currently, it is estimated that about 245,000 acres of possible old growth (based solely on estimated age) occurs on the GWNF. It is termed "possible" because it has not been examined in the field to determine if all of the criteria for defining old growth are present. Old Growth, as it is identified, is managed based on the old growth forest type. In Northern Hardwood, Hemlock-Northern Hardwood, White Pine-Northern Hardwood, Spruce Northern Hardwood, Mixed Mesophytic, Hardwood Wetland Forests, Dry and Xeric Oak Forest, Xeric Pine and Pine-Oak Forest and Woodland, Eastern Riverfront, Rocky, Thin-Soil Conifer Woodland old growth forest types, any identified old growth is unsuitable for timber production. In the most commonly represented Dry-Mesic Oak Forest and Dry and Dry-Mesic Oak-Pine old growth forest types, any existing old growth within areas suitable for timber production will be evaluated during project analysis to determine its suitability for harvest. After ten years of implementing the plan, it is estimated that about 360,000 to 363,000 acres of possible old growth will be present. This is based on an estimate that, at the most, about 3,000 acres of old growth in the Dry-Mesic or Dry and Dry-Mesic Oak-Pine communities could be harvested during those ten years.

Forest Health

Management of all non-native invasive species focuses on four components: 1) prevention of new infestations; 2) elimination of new infestations before they become established; 3) containment or reduction of established infestations; and 4) reclamation of native habitats and ecosystems. Integrated pest management approaches will be used in all four of these components. Monitoring of new and existing infestations is an important part of the monitoring strategy (Plan, Chapter 5). Since non-native invasive species are a problem on all lands, a key component of the management strategy is coordination and cooperation with other federal, state, and local agencies and local interest groups. The Forest will contribute, whenever possible, to research aimed at suppression of hemlock woolly adelgid, beech bark disease, dogwood anthracnose and other introduced significant non-native invasive pest problems. The GWNF will actively participate with other groups in developing and implementing control strategies. Education of forest users, particularly in high use areas is another component of the management strategy.

Wind Energy

The Plan allows consideration of wind energy development proposals on some areas of the Forest. Proposals for wind development would be evaluated and if accepted, would be analyzed through the site-specific NEPA process. However, about 500,000 acres of sensitive areas are identified as unsuitable for wind energy development. These areas include: Designated Wilderness, Recommended Wilderness Study Areas, Eligible National Scenic and Recreational River Corridors, Appalachian National Scenic Trail Corridor, Research Natural Areas, Geologic Areas, Special Biological Areas, Key Natural Heritage Community Areas, Cultural Areas, Mount Pleasant National Scenic Area, Shenandoah Mountain Recommended National Scenic Area, Scenic Corridors and Viewsheds, Developed Recreation Areas, Blue Ridge Parkway Scenic Corridor, Indiana Bat Protection Areas, Shenandoah Mountain Crest–Cow Knob Salamander Area, and Remote Backcountry Areas.

Oil and Gas Leasing

The Record of Decision is making the decision on lands administratively available for gas and oil leasing on the George Washington National Forest. This decision does not affect the approximately 167,000 acres of subsurface mineral rights owned by private parties (also called outstanding or reserved). The approximately 10,000 acres of mineral rights under current federal oil and gas leases continue to be legally available for federal oil and gas leasing. All other areas of the GWNF are unavailable for federal oil and gas leasing. The plan identifies suitability and standards for oil and gas development that would be used for development of the lands with existing leases or for areas that could become available under future availability decisions.

Fire

Prescribed burning can be used in a controlled, well-planned manner to manage vegetation, restore fire-dependent ecosystems and species, create desired wildlife habitat conditions, and modify uncharacteristic fuel loads resulting from extended absence of fire and/or tree mortality from non-native insects and disease. Wildfire can be managed so that it functions in its natural ecological role as nearly as possible, while life and property (public and private) are protected and critical resource values, including soil, air, and water quality, are maintained. The annual objective for prescribed burning is between 12,000 to 20,000 acres per year.

Recreation

The focus is on improving trail conditions and long-term sustainability. Much of the focus on trails is expected to target high-use areas near larger urban population centers. This work is expected to emphasize bringing existing trails up to sustainable standards through redesign and reconstruction as necessary. New trail construction will be evaluated as opportunities arise, with emphasis on loop trails. The amount of All Terrain Vehicle trails and roads suitable for off-highway vehicles remain at current levels or could increase slightly. Developed recreation facilities area also expected to remain at current levels.

Wilderness/Roadless

The Forest Plan recommends for congressional designation several areas for Recommended Wilderness Study that includes two new stand-alone areas and four additions to existing Wilderness. These areas include the following (as mapped): Little River (9,500 acres), Beech Lick Knob (5,700 acres), Rich Hole Addition (4,600 acres), Ramseys Draft Addition (6,100 acres), Rough Mountain Addition (1,000 acres), and Saint Mary's-West Addition (300 acres). The recommended wilderness study areas total about 27,200 acres.

The Forest Plan recommends for congressional designation the Shenandoah Mountain Area as a Recommended National Scenic Area (about 90,000 acres that includes about 21,000 acres of existing and recommended wilderness) and has allocated a management prescription specific to this area.

All Inventoried Roadless Areas (242,000 acres) would be managed to retain their roadless character, prohibiting timber harvest and road construction with limited exceptions, in accordance with the 2001 Roadless Area Conservation Rule. Of the Potential Wilderness Areas that are not Inventoried Roadless Areas (140,000 acres), about 50,000 acres are assigned to the Backcountry Recreation management prescription area where timber harvest and road construction are not allowed. About 86,000 acres that have existing road access are assigned to the Mosaics of Wildlife Habitat management prescription area where vegetation is actively managed and road construction is allowed. However, any road construction would be subject to environmental analysis and that analysis would consider the impacts of the activities on the wilderness character of the area.

There are approximately 201,000 acres of remote areas of the Forest outside of Wilderness allocated to Remote Backcountry where timber harvest and road construction are not permitted. These areas include: Adams Peak, Archer Knob, Beech Lick Knob, Beards Mountain, Benson Run, Big Schloss, Crawford Knob, Church Mountain, Dolly Anne, Duncan Knob, Elliott Knob, Great North Mountain, High Knob, Jerkemtight, Laurel Fork, Lick Run, Little Alleghany, Little Mare Mountain, Mill Mountain, North Mountain (Lee), Northern Massanutten, Oliver Mountain, Paddy Mountain (Lee), Rough Mountain, Rich Patch, Shenandoah Mountain

(WV), Shaws Ridge, Southern Massanutten, The Friar, Three Ridges, Three Sisters, Vesuvius, Warm Springs Mountain, and West Blue Ridge (Whites Peak).

Timber Harvest

Timber harvest is used as tool to achieve some of the ecological objectives for regenerating forests and open woodlands. The timber sale program will also help maintain processes that allow for oak reproduction and may be used in the conversion of pine plantations to native pines and hardwood forests. A dual purpose of the timber management program is to provide a stable supply of wood products for local needs.

The Forest Plan has an objective to regenerate around 1,800 to 3,000 acres per year. The maximum amount of timber volume that can be harvested in the first decade (Allowable Sale Quantity (ASQ)) is 55.3 million cubic feet, or 276 million board feet. The amount of land suitable for timber production is about 452,000 acres.

Economics and Local Community

The Plan provides for a mixture of resources uses and opportunities to address the varied needs of users and the economic opportunities for local communities. Plan direction increases the total amount of area managed for remote settings which may increase the tourism opportunities for the segment of the population seeking this type of recreation and increasing jobs in the local communities. Standards are used to protect drinking water supplies and maintain the high quality of water needed to support the needs of local communities. Maintaining the timber harvest level at, or near, the current level is important for local communities and jobs since agriculture and forestry are a large part of Virginia's economic base. Maintaining safe access will continue to support recreation use and tourism generating jobs and income to local rural communities.

Climate Change

Climate change strategies in the Forest Plan focus on both adaptation (ways to maintain forest health, diversity, productivity, and resilience) and mitigation (such as carbon sequestration by natural systems, ways to provide renewable energy to reduce fossil fuel consumption). These strategies focus on: 1) reducing vulnerability by maintaining and restoring resilient native ecosystems; 2) providing watershed health; 3) providing carbon sinks for sequestration; 4) reducing existing stresses like non-native invasive species and acidification of streams and soils; 5) responding to demands for cleaner energy; and 6) providing sustainable operations and engaging in partnerships across landscapes and ownerships. Plan direction to respond to these strategies include land allocation that allows for adaptive management that can be adjusted as more detailed information on effects and mitigation becomes available. Actions to implement these strategies include the following actions that would be completed in cooperation with state, federal and private organizations:

- Improving connectivity of stream systems through replacement of standard culverts with crossing structures that allow for full passage of aquatic organisms.
- Constructing stream crossings and bridges to withstand major storm and runoff events.
- Controlling sources of erosion and sedimentation and restoring stream channels.
- Road decommissioning in areas where roads are not needed or are causing unacceptable resource damage.
- Encouraging active populations of beaver to facilitate wetland creation.
- Planting American chestnut seedlings in partnership with several chestnut organizations.
- Creating and maintaining high elevation grasslands and old fields in cooperation with the state game agencies.
- Increasing the use of fire as a tool to restore and maintain vegetation composition and structure in cooperation with many state and federal agencies, conservation organizations and adjacent landowners.
- Using fire and timber harvest to restore vegetation composition and structure, particularly in the Pine Forest and Oak Forest and Woodland systems.
- Expanding the Spruce Forest ecological system to its full extent in the Laurel Fork area.
- Creating and maintaining high elevation grasslands and old fields.
- Controlling the introduction and spread of non-native invasive species.

- Improving wetlands through removing drainage structures and ditches in old agricultural lands.
- Enhancing bottomland hardwoods in the few major floodplains on the GWNF.
- Retention of riparian buffers in the riparian corridor.
- Maintaining and improving habitat for mussels.
- Maintaining and improving habitat for rare community species.
- Maintaining the processes that allow for oak reproduction.
- Managing for warm season grasslands.
- Converting pine plantations to native pines and hardwoods.
- Closing abandoned mine lands and restoring native vegetation.
- Identifying priority watersheds for focusing restoration needs.
- Liming of streams that have high acidity levels.
- Maintaining connections of forested landscapes.

HOW THE FOREST PLAN ADDRESSES SUITABLE USES

National Forest System lands are suitable for a variety of multiple uses, including outdoor recreation, livestock grazing, timber harvest, wildlife habitat, Wilderness, energy resource development, mining activities, watershed restoration, and cultural and heritage interpretation, among others. The following table shows some of the key suitable uses generally defined in the Forest Plan by the allocation of management prescription areas. However, some of the uses have certain restrictions or circumstances related to a suitable use that are more fully described in the Forest Plan.

Table 1. Key Suitable Uses

Management Prescription Area		Timber Production	Timber Harvest for Other Resource Objective	Salvage	Permanent Road Construction	Temporary Road Construction
1A	Designated Wilderness	No	No	No	No	No
1B	Recommended Wilderness Study Areas	No	No	No	No	No
2C2	Eligible Scenic River Corridors	No	No	No	No	No
2C3	Eligible Recreation River Corridors	No	Yes	Yes	Yes	Yes
4A	Appalachian Trail Corridor	No	Limited	No	Limited	Limited
4B	Research Natural Areas	No	No	No	No	No
4C1	Geologic Areas	No	No	Limited	No	No
4D	Special Biological Areas	No	Limited	Limited	Limited	Limited
4D1	Key Natural Heritage Community Areas	No	Limited	Limited	Limited	Limited
4E	Cultural/Heritage Areas	No	Limited	Yes	Limited	No
4F	Mt Pleasant National Scenic Area	No	No	No	No	No
4FA	Shenandoah Mountain Recommended National Scenic Area	No	No	No	No	No
5A	Administrative Sites	No	Limited	Yes	Yes	Yes
5B	Communication Sites	No	Limited	Yes	Yes	Yes
5C	Utility Corridors	No	Limited	Yes	Yes	Yes
7A1	Highlands Scenic Tour Byway	Yes	Yes	Yes	Yes	Yes
7B	Scenic Corridor and Viewsheds	Limited	Yes	Yes	Yes	Yes

Management Prescription Area		Timber Production	Timber Harvest for Other Resource Objective	Salvage	Permanent Road Construction	Temporary Road Construction
7C	All-Terrain Vehicle Areas	Yes	Yes	Yes	Yes	Yes
7D	Concentrated Recreation Zones	No	Limited	Yes	Yes	Yes
7E1	Dispersed Recreation-Unsuitable for Timber Production	No	Yes	Yes	Yes	Yes
7E2	Dispersed Recreation-Suitable for Timber Production	Yes	Yes	Yes	Yes	Yes
7F	Blue Ridge Parkway Corridor	Limited	Yes	Yes	Yes	Yes
7G	Pastoral Landscapes and Rangelands	No	Yes	Yes	Yes	Yes
8E4a	Indiana Bat Primary Protection Areas	No	No	No	No	No
8E4b	Indiana Bat Secondary Protection Areas	Yes	Yes	Yes	Yes	Yes
8E7	Shenandoah Mtn Crest - Cow Knob Salamander	No	No	Limited	No	No
11	Riparian Areas and Corridors	Limited	Yes	Limited	Limited	Limited
12D	Remote Backcountry Areas	No	No	No	No	No
13	Mosaics of Habitat Areas	Yes	Yes	Yes	Yes	Yes

SUMMARY OF THE FINAL ENVIRONMENTAL IMPACT STATEMENT

Public involvement is a key part of the planning process. Providing for public comment helps identify what people want from the national forests in the form of goods, services, and environmental conditions. It also reveals new research and available science. Issues submitted by the public, as well as from within the Forest Service and other federal, and state agencies, guided the need to change current management strategies and formed the basis for developing alternatives in the Environmental Impact Statement (EIS).

Scoping for the GWNF plan revision identified thirteen significant issues. Different options to address these issues were explored in nine alternatives in the EIS. The environmental effects of these alternatives were then analyzed and compared.

Although the background for each significant issue highlights some of the disagreements in how these issues should be addressed, there were several topics on which many people found agreement:

- 1) Water is critical (on both NFS lands and private lands);
- 2) We need to restore and maintain ecosystems to meet GWNF needs and broader landscape level needs;
- 3) We need resilient systems to withstand impacts of climate change and adjacent land development;
- 4) We need to maintain the highly valued remote settings while we address our ecological needs;
- 5) We need sustainable access to the Forest;
- 6) We need to address energy development opportunities;
- 7) All of these issues can only be addressed through continued interaction with our stakeholders; and
- 8) All of these issues are important to sustain our local communities.

SIGNIFICANT ISSUES

Access

ISSUE STATEMENT: Forest management strategies may affect the balance between public and management needs for motorized access to Forest lands (for recreation, hunting, management activities, fire suppression) and protection of soil and water resources, wildlife populations and habitat, aesthetics, forest health, and desired vegetation conditions.

BACKGROUND: System roads are the primary means of motorized access to the national forest. However, they are also a source of concerns including the environmental effects of roads (on water quality, soil erosion, and habitat) and the social effects on remote settings. Some people would like to see the motorized access to the national forest increased, especially during hunting seasons for big game, for other recreational uses, or to meet forest management needs. Other people, however, feel that road construction should be limited and some existing roads decommissioned. Other comments were made that new roads should not be constructed for the purposes of logging or for off-highway vehicle use. The amount of motorized access should be balanced with wildlife habitat needs, the need to provide both motorized and non-motorized recreational opportunities, the need to protect soil and water resources, the need to have management access, and the financial capability of maintaining safe and environmentally secure roads.

Watersheds, Soil and Water Quality, Riparian Resources and Aquatic Diversity

ISSUE STATEMENTS: Management activities may affect soil quality, water quality (surface and groundwater) and riparian resources, including drinking water watersheds and those watersheds with streams impaired due to activities off the Forest. Management activities may affect the maintenance and restoration of aquatic biodiversity and may affect species with potential viability concerns.

BACKGROUND: Providing favorable flows of water was the main objective of the Organic Administration Act that created the forest reserves and of the Weeks Act that allowed the purchase of lands for national forests in the eastern U.S. Water continues to be one of the most important resources produced on the Forest. A number of communities in Virginia and West Virginia obtain their drinking water from the National Forest, whether their water supply watershed is completely within the Forest boundary or their supply is a river that is downstream from the Forest. The Forest is also an important component of the Chesapeake Bay watershed. There are streams within and downstream of the Forest that have impaired water quality. Most of these impairments are due to acid deposition or to agriculture and none have been attributed to management activities on the Forest. Water quality and aquatic systems can be affected by acid deposition, roads, trails, past storm events, insects and disease, non-native invasive species and other disturbances. Streams on the Forest provide habitat for a number of species at risk, including brook trout and the James spiny mussel. The projections for climate change in this area indicate an increase in temperature, which could affect aquatic species, especially trout populations. Climate change projections are more uncertain on whether precipitation will increase or decrease in the southeast over the next 30-100 years but droughts or extreme weather events each would have impacts to future water quantity and quality conditions. Climate change could also increase acid deposition effects on soil productivity. Currently, the biggest concerns for aquatic habitats on the Forest are sedimentation, future sources of large woody debris for self-maintaining diverse habitat components, canopy cover to maintain water temperature regimes, impacts from roads, and acidic deposition.

Terrestrial Biological Diversity

ISSUE STATEMENT: Forest Plan management strategies may affect the maintenance and restoration of the diverse mix of terrestrial plant and animal habitat conditions and may affect species with potential viability concerns.

BACKGROUND: Ecological communities provide the foundation for biological diversity. Ecosystems identified on the Forest include ecological communities that predominate on the landscape (e.g. Central Appalachian Dry Oak-Pine Forest); communities that are declining, rare, or unique (e.g. Caves and Karstlands); and communities that provide habitat for species with potential viability concerns (e.g. Special Biological Areas). For the GWNF, management of ecological communities primarily involves the use of timber harvest and fire to influence vegetation composition and structural diversity of habitats. Some comments were concerned about the current age class distribution on the forest being too skewed toward the mid- to late-successional habitats and that management is needed to provide a mosaic of habitats, especially early successional habitat, which is needed by many species. They cited bird and animal species in decline that require early successional habitat at some point in their life cycle. Others thought the focus on the GWNF should be on providing habitat for species requiring late successional habitat or large home ranges since these conditions are rarer on private lands. They stated that private lands can provide for early successional habitat needs and natural disturbances can create openings on the Forest. Some comments identified the importance of the oak-hickory community in the Central and Southern Appalachians for species diversity and are concerned about oak regeneration and the continuity of future hard mast production.

Old Growth

ISSUE STATEMENT: Forest management strategies may affect the potential biological and social values associated with the abundance, distribution and management of existing and future old growth.

BACKGROUND: Nearly all the lands that became the George Washington National Forest had been cut over at least once before becoming National Forest System lands. However, in many areas of the Forest, stands of trees have reached ages and structural conditions that qualify as "old growth" under the current definitions used in the Southern Region of the Forest Service. Old growth provides both biological and social values. Old growth communities provide large den trees for wildlife species such as black bear, large snags for birds and cavity nesters, and large cover logs for other wildlife. Ecologically, old growth provides elements for biologic richness, gene conservation, and riparian area enhancement. Old growth areas provide for certain recreational experiences, research opportunities, and educational study. Other areas have associated historical, cultural, and spiritual values. Some may never visit an old growth site but will receive satisfaction from just knowing that it exists. On the other hand, old growth areas can be a source of large-diameter, high-value hardwoods, which are limited in supply and in high demand for such products as furniture and finish construction work. Others

say that insect and disease risk can be relatively high in old growth stands and could (for some community types) threaten the retention of those stands as old growth. There is concern that fire exclusion could favor a buildup of fire-intolerant, but shade-tolerant, species that could eventually replace the original old growth type. Another view is that active management, including timber harvest and prescribed fire, could be used to accelerate the development of old growth attributes.

Forest Health

ISSUE STATEMENT: Forest Plan management strategies may affect the spread and control of non-native invasive species, forest pests, and pathogens, all of which have the potential to affect long-term sustainability, resiliency, and composition of forest ecosystems.

BACKGROUND: While the term “Forest Health” can have several meanings, it is used here to identify the effects of forest pest problems and non-native invasive species. It is a dynamic concept that considers the conditions of our forested ecosystems when subjected to insect and disease organisms and/or invasive species that may otherwise contribute to poor development. While not all non-native species are known to disrupt native ecosystems, of particular concern are those that are successful at invading and rapidly spreading through natural habitats. These include a wide variety of organisms such as the chestnut blight fungus, gypsy moth, hemlock woolly adelgid, didymo algae, and ailanthus. In addition to these non-native pests, it includes the native pine bark beetles. Invasive plants create a host of harmful environmental effects to native ecosystems including: displacement of native plants; degradation or elimination of habitat and forage for wildlife; extirpating rare species; impacting recreation; affecting fire frequency; altering soil properties; and decreasing native biodiversity. Invasive plants can spread across landscapes, unimpeded by ownership boundaries. Control of existing populations, prevention of the spread of known pests, mitigation of existing problems, and prevention of the introduction of new pests are all components of this issue.

Wind Energy

ISSUES STATEMENT: Responding to opportunities to develop wind energy generation may result in effects on a wide variety of resources (including birds, bats, scenery, trail use, soils on ridgetops, water, noise, remote habitat, local communities/economies, and social values).

BACKGROUND: Wind energy is renewable, can reduce the use of fuels generating carbon gases and can positively affect climate change effects. The USDA Forest Service and National Renewable Energy Laboratory (2005) identified 35,810 acres (primarily ridgetops) of the GWNF with a high potential for wind area development. The GWNF is in close proximity to growing population centers that would benefit from additional and clean energy production. However, there are concerns about the effects to water, birds, bats, views, visuals, aesthetics (height of towers), noise, carbon sequestration, and fragmentation of habitat. These concerns relate to both construction and operation of the wind turbines and the associated infrastructure development to support the turbines (roads, powerlines). Some people believe that this need for wind energy development can and should be met on private lands, or that the power would not be used to solve local needs. Other people believe that the National Forests should contribute to the development of renewable resources and green energy.

Oil and Gas Leasing

ISSUE STATEMENT: Use of National Forest System lands to support energy needs through federal oil and gas leasing may affect forest resources and impact adjacent private lands.

BACKGROUND: Energy production has long been a component of National Forest System management and gas development provides energy to meet national needs. There are no active gas wells currently in production on the Forest and only about 10,200 acres are currently under lease for gas and oil. A particular type of gas well operation is the development of gas deposits within the Marcellus shale formations, through horizontal drilling and use of hydraulic fracturing at numerous locations throughout the horizontal bore holes. Concerns about hydraulic fracturing include the quantity of water needed in the process, negative effects on water quality (ground and surface), wildlife, air quality, viewsheds, forest fragmentation, and ecotourism. Some public comments identified that developing Marcellus shale gas is acceptable when it is properly regulated and that

National Forest System land should be available for leasing Marcellus shale so that people can maintain their standard of living and meet energy needs. Benefits from hydraulic fracturing include a smaller footprint by having fewer well pads than vertical drilling to access the same amount of gas; its cost efficiency, and the potential to increase local employment and income. Other comments stated that there must be an effects analysis for hydraulic fracturing or that there should be a moratorium on development until federal/state regulations are in place and an on-going EPA study is complete. Other comments are opposed to this development or want limitations on where it could be used.

Fire

ISSUE STATEMENT: The management of fire to achieve goals related to protection of property, wildlife habitat, ecosystem diversity and fuels management may affect air quality, non-native invasive species, recreation, water quality, wildlife, and silviculture.

BACKGROUND: Fire is acknowledged as an important part of some ecosystems on the Forest. Aggressive control of wildfire (unplanned ignitions) throughout much of the twentieth century resulted in changes to these ecosystems. Management of prescribed fire and some wildfires can serve to restore and maintain these ecosystems, while also protecting National Forest and adjacent lands from the negative effects of fire. Some people support the continued use, and advocate an increase in the use, of prescribed fire to restore ecosystems, create habitat, encourage oak regeneration and reduce fuels. Some comments support the proposed increase in use of prescribed fire, but caution that fire does not replace timber harvest as a management tool; rather it should be considered an additional option for timber management. Some comments identified concerns with the burning program including impacts on adjoining private land, carbon emissions, impacts on native vegetation, opening up habitat for non-native invasive plants, stream sedimentation, and air pollution. Some comments indicated support for using lightning-ignited fires to achieve ecosystem restoration goals.

Recreation

ISSUE STATEMENT: Forest management strategies should determine an appropriate mix of sustainable recreational opportunities (including trail access) that responds to increasing and changing demands and also provides for public health and safety and ecosystem protection (such as soil and water resources, nesting animals, riparian resources and spread of non-native invasive species).

BACKGROUND: The Forest is within a day's drive for a large population of people in the eastern U.S. Local and regional visitors use the forest for a variety of recreational opportunities, from primitive hiking and camping to developed recreation sites and motorized travel. Developed recreation is not a significant issue; however, demand for long-distance trails for special recreation events, such as long-distance mountain bicycling, equestrian endurance rides and runner marathons, has increased in recent years. The demand is greatest among the equestrian and mountain biking communities. The public demand for motorized trail opportunities exceeds the national forest supply. Private lands are not a measurable provider at this time. Some comments stated that off-highway and all-terrain vehicle use is not appropriate at all on the Forest due to the noise, potential environmental damage, and the opportunity for the need to be met commercially on private lands.

Wilderness/Roadless

ISSUE STATEMENT: Forest management strategies may affect the balance between the desires for permanent protection of remote areas and the desires for management flexibility and ability to respond to changes in ecological, social and economic conditions when identifying areas to be recommended for Wilderness and determining how potential wilderness areas and other remote areas should be managed.

BACKGROUND: Management of remote areas on the Forest continues to be one of the most prominent issues raised in comments. Remote areas include existing Wilderness, the Inventoried Roadless Areas identified in the 1993 GW Forest Plan Revision (and incorporated into the 2001 Roadless Area Conservation Rule), and the Potential Wilderness Areas (identified as areas meeting the definition of wilderness that need to be evaluated in the current revision process). Public rationale for additional wilderness includes: ecological values of remote, intact areas; recreational values; proximity of large masses of people to the Forest; protection of

watersheds through permanent protection; carbon sequestration; ability for latitudinal range adjustments for species in response to climate change; future scientific reference; and a need to bring the amount of wilderness on the Forest more in line with amounts on other National Forests. Public rationale opposing wilderness includes: lack of balance of forest age classes (many species are at risk without early successional habitat); limitations on recreation use by those less physically fit; limitations on group size for recreation events; limitations on special use events; prohibitions for all motorized and mountain bike access; restrictions on treatment of invasive species; limitations on meeting energy resource demands; limitations on emergency access; firefighting restrictions; and limiting options as conditions or future demands change.

The GWNF has 23 Inventoried Roadless Areas (IRAs) with a total of 242,278 acres. As part of the revision process, the Forest has identified 37 areas as Potential Wilderness Areas (PWAs) with a total of 372,631 acres. The PWA inventory includes all of the IRAs, with the exception of Southern Massanutten and The Friars. For the remote areas in the PWA inventory that are not identified for Recommended Wilderness Study by Congress, some people would like to see them managed according to the direction in the 2001 Roadless Area Conservation Rule (RACR) and others would like to see them actively managed for wildlife habitat and timber production.

Timber Harvest

ISSUE STATEMENT: Forest Plan management strategies may affect: a) the amount and distribution of land suitable for the sustainable harvest of timber products; b) the amount of timber offered by the Forest; c) the role of timber harvest in benefitting local economies and other multiple use objectives; and d) the methods used to harvest the timber. If the Forest responds to needs for biomass for energy production, whole tree harvesting may affect nutrient cycling, wildlife habitat, and soil productivity and stability. Timber harvest may have effects on other resources.

BACKGROUND: Timber harvest is one of the tools used to manage vegetation on the Forest to create a diversity of habitat conditions. It also produces wood products that benefit local economies. The ecological, social, and economic effects of the timber management program on the GWNF, both positive and negative, are of great importance to many. Some people strongly state that the forest should reduce the acres suitable for harvest, reduce the Allowable Sale Quantity (ASQ), and decrease the commercial timber program due to adverse impacts to: water quality, competition with private lands, air quality, scenery, ecological habitats such as large areas of intact forest (fragmentation), and a variety of other ecological/environmental resources. Some indicate that commercial timber harvest on the Forest is not economically viable and competes with privately held timber, that demand for timber can be met on private land, or that the level of the timber sale program should be based on reasonable budget expectations. Other people strongly support an expanded timber program because of the positive impacts on: balancing age classes and reducing acres of an aging forest, maintaining species composition, wildlife habitat, responding to an increased demand for wood products (including biomass), reduction of hazardous fuels, and benefits to local economies.

The potential use of forest wood and fiber as biomass for energy production raises concerns on the effects on carbon sequestration and on the removal of too much organic material which could increase soil erosion and/or remove too many nutrients from the site, particularly in low site index areas or areas affected by acid deposition. Some people believe that the Forest should contribute to this green energy demand while meeting other resource needs (fuels reduction and wildlife habitat), that this will produce green jobs and wood products, and that it is better to burn the trees for fuel rather than burning them as part of prescribed burns. Other people don't believe that biomass fuels are a green source of energy, don't believe that energy should take precedence over forest health, or believe that biomass will compete with pulpwood and drive up prices.

Economics and Local Community

ISSUE STATEMENT: Management activities may affect the economic role of the Forest, particularly the role it plays in the economy of local communities, including the production of ecosystem services and commodity outputs. Increasing population and development near the Forest may influence access to the National Forest and management activities such as special use requests, fire management, and responses to additional recreation demands.

BACKGROUND: Some outputs from management activities can be readily valued in economic terms such as timber, firewood, and recreation fees. Ecosystem services are the suite of goods and services from the Forest that are vital to human health and livelihood and are traditionally viewed as free benefits to society, or "public goods", such as wildlife habitat and diversity, watershed services, carbon storage, and scenic landscapes. These outputs and services can all be important to many of the rural communities in and around the National Forest. Several categories of activities identified as important to local communities include tourism (family-based nature activities, recreation events, all-terrain riding opportunities, equestrian and mountain bike use, wilderness, new trails), habitat management that increases diversity for wildlife viewing and game populations for hunting, and timber production that supports the logging industry.

Climate Change

ISSUE STATEMENT: Changes in climate may require adaptation strategies that facilitate the ability of ecosystems and species to adapt to changes in conditions (such as stream temperature, community vegetation composition, and invasive species). Forest management activities may exacerbate the impacts of climate change or mitigate the impacts through adding to or sequestering carbon or enhancing opportunities for alternative energy sources (wind, biomass, solar).

BACKGROUND: In developing management strategies to deal with a changing climate, it has been recognized that forests can play an important role in both mitigating and adapting to climate change. Mitigation measures focus on strategies such as carbon sequestration by natural systems, ways to increase carbon stored in wood products, ways to provide renewable energy to reduce fossil fuel consumption, and ways to reduce environmental footprints. Adaptation measures address ways to maintain forest health, diversity, productivity, and resilience under uncertain future conditions so that forest resources can better adapt to change. Based on current projections, the primary regional-level and state-level predicted effects of climate change that would impact the GWNF include: (1) warmer temperatures; (2) extreme weather events; and (3) increased outbreaks of insects, disease, and non-native invasive species. Comments suggested that the Plan should address reducing current threats to forest conditions, such as from non-native invasive species, pests and pathogens, acid deposition, and human uses of forest resources. Some comments identify the need to provide migration corridors, which include altitudinal gradients, for plant and animal species, especially those most vulnerable to changing climate conditions. Other comments requested that we evaluate how management activities may exacerbate, mitigate or enhance effects of a changing climate. Others identified the importance of the forest's role in carbon sequestration.

ALTERNATIVES

Nine alternative ways of addressing the significant issues were developed in detail in the EIS. A brief description of each alternative follows.

Alternative A – "No Action" Alternative

Alternative A represents the 1993 Forest Plan. In this situation, 'no action' means no change from the current management direction and it provides the baseline for the effects analysis in the EIS. The 1993 Forest Plan provides a variety of resource benefits, including wood, wildlife, fish, range, dispersed recreation, developed recreation, minerals, wilderness and special uses, in a manner that maintains the diversity, productivity and long-term sustainability of ecosystems. Maintaining biological diversity is a major goal with standards designed to conserve specific elements of biodiversity and restore others. Conservation of biodiversity is an integral part of sustaining multiple uses of the Forest. Most of the Forest is available for gas leasing.

Alternative B

This alternative is based on changes to the 1993 Forest Plan as identified in the Analysis of the Management Situation. That analysis was based on a Forest Interdisciplinary Team evaluation of the 1993 Forest Plan direction, monitoring and evaluation results, new policies, new science and an attempt to balance public issues that were identified as of March 2010. The need to change items included the following: 1) Identify

desired conditions and objectives to maintain the resilience and function of ecological systems, determine the desired structure and composition of those ecosystems, and incorporate management direction to provide habitat for maintaining species viability and diversity across the forest; 2) Substantially increase the objective for using prescribed fire in ecosystem restoration and incorporate the use of wildfire for resource enhancement; and 3) Manage Remote Backcountry areas with standards to closely mirror the management restrictions that are described in the 2001 Roadless Area Conservation Rule, except to allow some salvage of dead and dying trees and allow active management in portions of some areas (about 8,000 acres) that have been actively managed for many years. About three-quarters of the Forest would be available for gas leasing, with a moratorium on horizontal drilling and additional stipulations to reduce impacts from drilling.

Alternative C

In this alternative, restoration and maintenance of sustainable ecological systems would be accomplished predominantly through natural processes, with little human intervention. It also addresses the need for non-motorized recreation opportunities. This alternative emphasizes low-impact activities and passive restoration of natural communities at a slow rate. Active management would be for the protection of Forest resources and meeting legal requirements, with limited exceptions. Recreation emphasis is on providing for semi-primitive settings and opportunities. This alternative features the most areas Recommended for Wilderness Study. The character would be of a landscape evolving through successional stages toward a natural-evolving appearance. This alternative would also emphasize linking together movement corridors and large undisturbed areas for forest interior species and late-successional species. Effects of native insects and diseases would be accepted but non-native species would be controlled. Road network mileage would be reduced through closure or decommissioning of roads not needed for ecosystem stewardship, restoration or dispersed recreation use. Many of the closed roads would be used to supplement the trail system for non-motorized uses. No new federal lands would be available for gas leasing.

Alternative D

In this alternative, restoration and maintenance of natural ecological systems would use practices that also produce a higher level of commodities and offer amenities that enhance tourism for local communities that benefit economically from forest visitors and forest products. This alternative would have the highest level of timber production. Mineral leasing decisions would respond to public need and maximize benefits to local communities. Mitigation measures for the effects of climate change could be met through providing opportunities for alternative energy, such as wind power, natural gas, timber and wood biomass energy. Public access would be increased in high-use areas and/or improved to provide for more opportunities for recreation and other forest uses. Habitats would be provided for game species, species with high public interest, species with demanding habitat requirements, species that are ecological indicators and keystone species. Management direction would support special use requests for facilities or developments that enhance economic development for local communities, such as communications towers or non-commercial wind towers. About three-quarters of the Forest would be available for gas leasing, with a moratorium on horizontal drilling and additional stipulations to reduce impacts from drilling.

Alternative E

Alternative E would actively restore and maintain vegetative compositional and structural conditions needed to provide for a variety of terrestrial and aquatic species in certain areas of the forest. Prescribed fire, timber harvest and maintenance of grasslands and shrublands would all be used to provide a diverse mix of habitats. In some areas of the forest large blocks of mature forest would predominate. Alternative E emphasizes improving soil and water conditions in high priority watersheds. As a result of restoration treatments, commodities such as sawlogs, wood biomass energy, and fuelwood would be available for local industry and individual needs. Restoration activities such as prescribed fire and thinning would be more intensive than in the other alternatives. A variety of recreation settings would occur in areas compatible with restoration activities. New recreation developments would be limited; the emphasis is on maintaining existing developments. About two-thirds of the Forest would be available for gas leasing, but horizontal drilling would not be allowed.

Alternative F

This alternative would restore and maintain the native ecological systems while also creating many opportunities for a variety of recreation settings. The emphasis is on recreation opportunities, scenery management, and wilderness designation, while focusing ecosystem health activities in support of wildlife based recreation. Resource management is designed to attract recreation users, both locally and from large population centers near the forest. A variety of recreation settings and experiences, both motorized and non-motorized would be provided. Developed recreation facilities would support dispersed recreation by providing access to water-based recreation, trailheads, cultural resource interpretation, and horse staging areas. In addition to open roads available for use, specific off-highway vehicle routes would be featured as in the 1993 Forest Plan. Large blocks of unroaded areas would provide remote, backcountry experiences not available on private lands. Habitat for early successional species would be maintained in a manner that would be unnoticeable to most forest visitors. High scenic quality would be a major emphasis. Active resource management would be concentrated in certain locations and support recreation use and visual quality. About sixty percent of the Forest would be available for gas leasing with a moratorium on horizontal drilling, additional stipulations to reduce impacts from drilling, and no horizontal drilling allowed within public water supply watersheds.

Alternative G

Alternative G was identified as the Preferred Alternative in the Draft EIS.

This alternative would actively restore and maintain vegetative compositional and structural conditions needed to provide for a variety of terrestrial and aquatic species in certain areas of the forest. Habitats would be provided for game species, species with high public interest, species with demanding habitat requirement, species that are ecological indicators and keystone species. It would substantially increase the objective for using prescribed fire in ecosystem restoration and incorporate the use of wildfire for resource enhancement. Prescribed fire, timber harvest and maintenance of grasslands and shrublands would all be used to provide a diverse mix of habitats in the ecological systems. In some areas of the forest large blocks of mature forest would predominate. Restoration treatments would focus on increasing structural diversity in ecological systems and on improving soil and water concerns in high priority watersheds. As a result of restoration treatments, commodities such as sawlogs, wood biomass energy, and fuelwood would be available for local industry and individual needs. Road network mileage would be reduced through closure or decommissioning of roads not needed for ecosystem stewardship, restoration or dispersed recreation use. Many of the closed roads would be used to supplement the trail system for non-motorized uses. A variety of recreation settings and experiences, both motorized and non-motorized would be provided. Large blocks of unroaded areas would provide remote, backcountry experiences not available on private lands. About two-thirds of the Forest would be available for gas leasing, but horizontal drilling would not be allowed.

Alternative H

Alternative H was developed after reviewing public comments received following release of the Draft EIS. It is based on Alternative G with changes made in response to the comments and additional analyses. It has the same description as Alternative G with the following major differences. Alternative H recommends more Wilderness Study Areas and a National Scenic Area on Shenandoah Mountain for congressional designation. It identifies about 44 percent of the Forest as available for gas leasing and allows horizontal drilling with high-volume hydraulic fracturing (HVHF). It removes the following areas from leasing: public water supply watersheds, existing and recommended Wilderness, existing and recommended National Scenic Areas, the Laurel Fork area, and Indiana Bat Primary Cave Protection Areas. Special Biological Areas and Remote Backcountry Areas would only be available with no surface occupancy. Alternative H also added standards for approval of Surface Use Plans of Operations with Applications for Permits to Drill to require: no withdrawal of surface water or groundwater from NFS lands; only closed loop systems for hydraulic fracturing; removal of drill cuttings from the drill site and disposal at approved site off NFS lands; secondary containment infrastructure; no surface disposal of flowback water or produced waters; and treatment of any non-native invasive species introduced at the site. It also identifies Scenic Corridors and Viewsheds as unsuitable for industrial wind development.

Alternative I – The Selected Alternative

Alternatives H and I were added to the FEIS after the Draft EIS was released and are the same except for the decision on lands available for oil and gas leasing. For the decision on lands available for oil and gas leasing, Alternative I uses the approach for administrative availability in Alternative C, where all areas would be administratively unavailable except for lands that have private (outstanding or reserved) mineral rights, lands under current oil and gas lease, or lands that are legally unavailable (Wilderness and Mount Pleasant National Scenic Area). The difference between Alternatives I and C is that Alternative I allows those lands currently under lease to remain available for leasing after the current leases expire, terminate or are relinquished. In total, 1,056,000 acres of the 1,066,000 GWNF federal mineral estate are unavailable for oil and gas leasing under Alternative I.

COMPARISON OF ALTERNATIVES

This section compares the nine alternatives. The information presented here is intended to highlight the major differences between the alternatives. Table 2 displays the allocation of lands to management prescription areas by alternative. Land allocation is one of the main ways used to address the significant issues. Table 3 summarizes the effects of implementing particular alternatives.

Table 2. Allocation of Lands to Management Prescription Areas, as hierarchically mapped by management restrictions

RX	RX DESCRIPTION	ALT A		ALT B		ALT C		ALT D	
		Acres	%	Acres	%	Acres	%	Acres	%
1A	Designated Wilderness	43,000	4%	43,000	4%	43,000	4%	43,000	4%
1B	Recommended Wilderness Study Areas	1,000	<1%	20,000	2%	387,000	36%	15,000	1%
2C2	Eligible Wild and Scenic River-Scenic	4,000	<1%	3,000	<1%	4,000	<1%	4,000	<1%
2C3	Eligible Wild and Scenic River-Recreation	4,000	<1%	3,000	<1%	4,000	<1%	4,000	<1%
4A	Appalachian Trail Corridor	9,000	1%	9,000	1%	7,000	1%	9,000	1%
4B1	Research Natural Areas	3,000	<1%	2,000	<1%	2,000	<1%	2,000	<1%
4C1	Geologic Areas	0	0%	0	0%	0	0%	0	0%
4D	Special Biological Areas	24,000	2%	51,000	5%	21,000	2%	52,000	5%
4D1	Key Natural Heritage Community Areas								
4E	Cultural Areas		<1%		<1%		<1%		<1%
4F	Mount Pleasant National Scenic Area	8,000	1%	8,000	1%	8,000	1%	8,000	1%
4FA	Recommended National Scenic Areas							8,000	1%
5A	Administrative Sites		<1%		<1%		<1%		<1%
5B	Communication Sites		<1%		<1%		<1%		<1%
5C	Utility Corridors	7,000	1%	7,000	1%	7,000	1%	7,000	1%
7A1	Scenic Byways	5,000	<1%	5,000	<1%	5,000	<1%	5,000	<1%
7B	Scenic Corridors/Viewsheds	44,000	4%	38,000	4%	1,000	<1%	35,000	3%
7C	ATV Use Areas	11,000	1%	10,000	1%	10,000	1%	10,000	1%
7D	Recreation Areas					1,000	<1%	1,000	<1%
7E	Dispersed Recreation Areas								
7E1	Dispersed Recreation Areas-Unsuitable for Timber	39,000	4%	28,000	3%	22,000	2%	21,000	2%
7E2	Dispersed Recreation Areas-Suitable for Timber	5,000	<1%	4,000	<1%			5,000	<1%
7F	Blue Ridge Parkway Corridor			4,000	<1%	4,000	<1%	4,000	<1%
7G	Pastoral Landscapes	6,000	1%	4,000	<1%			4,000	<1%
8A1	Mix of Successional Habitats	258,000	24%					317,000	30%
8A1U	Mix of Successional Habitats-Unsuitable	70,000	7%						
8B	Early Successional Habitats	39,000	4%					34,000	3%
8BU	Early Successional Habitats-Unsuitable	1,000	<1%						
8C	Black Bear/Remote Habitats	74,000	7%					125,000	12%
8CU	Black Bear/Remote Habitats-Unsuitable	61,000	6%						
8E4a	Indiana Bat-Primary Areas	2,000	<1%	2,000	<1%	2,000	<1%	2,000	<1%
8E4b	Indiana Bat-Secondary Area	11,000	1%	14,000	1%	14,000	1%	14,000	1%
8E7	Shen Mtn Crest-Cow Knob Salamander Area	43,000	4%	47,000	4%	20,000	2%	54,000	5%
9A1	Source Water Watershed Protection					143,000	13%		
10B	Timber Production Area	87,000	8%					91,000	9%
10BU	Timber Production-Unsuit	5,000	<1%						
11	Riparian Areas	51,000 acres which are embedded within other prescription areas							
12D	Remote Backcountry	199,000	19%	192,000	18%	114,000	11%	190,000	18%
13	Mosaics of Habitat-Suitable			569,000	53%				
13U	Mosaics of Habitat-Unsuitable					246,000	23%		
Water	Lake Moomaw	2,500	<1%	2,500	<1%	2,500	<1%	2,500	<1%
Total		1,066,000		1,066,000		1,066,000		1,066,000	

Table 2. Continued

RX	RX DESCRIPTION	ALT E		ALT F		ALT G		ALTS H and I	
		Acres	%	Acres	%	Acres	%	Acres	%
1A	Designated Wilderness	43,000	4%	43,000	4%	43,000	4%	43,000	4%
1B	Recommended Wilderness Study Areas	24,000	2%	113,000	11%	20,000	2%	27,000	3%
2C2	Eligible Wild and Scenic River-Scenic	4,000	<1%	2,000	<1%	4,000	<1%	2,000	<1%
2C3	Eligible Wild and Scenic River-Recreation	4,000	<1%	4,000	<1%	4,000	<1%	4,000	<1%
4A	Appalachian Trail Corridor	9,000	1%	9,000	1%	9,000	1%	9,000	1%
4B1	Research Natural Areas	2,000	<1%	2,000	<1%	2,000	<1%	2,000	<1%
4C1	Geologic Areas	4,000	<1%	0	<1%	4,000	<1%	3,000	<1%
4D	Special Biological Areas	52,000	5%	30,000	3%	51,000	5%	53,000	5%
4D1	Key Natural Heritage Community Areas					3,000	<1%	3,000	<1%
4E	Cultural Areas		<1%		<1%		<1%		<1%
4F	Mount Pleasant National Scenic Area	8,000	1%	8,000	1%	8,000	1%	8,000	1%
4FA	Recommended National Scenic Areas			128,000	12%			67,000	6%
5A	Administrative Sites		<1%		<1%		<1%		<1%
5B	Communication Sites		<1%		<1%		<1%		<1%
5C	Utility Corridors	7,000	1%	7,000	1%	7,000	1%	7,000	1%
7A1	Scenic Byways	5,000	<1%	5,000	<1%	5,000	<1%	5,000	<1%
7B	Scenic Corridors/Viewsheds	34,000	3%	32,000	3%	35,000	3%	34,000	3%
7C	ATV Use Areas	10,000	1%	10,000	1%	10,000	1%	10,000	1%
7D	Recreation Areas	1,000	<1%	1,000	<1%	1,000	<1%	1,000	<1%
7E	Dispersed Recreation Areas								
7E1	Dispersed Recreation Areas-Unsuitable for Tbr	21,000	2%	15,000	1%	24,000	2%	24,000	2%
7E2	Dispersed Recreation Areas-Suitable for Timber	4,000	<1%	1,000	<1%	4,000	<1%	4,000	<1%
7F	Blue Ridge Parkway Corridor	4,000	<1%	4,000	<1%	4,000	<1%	4,000	<1%
7G	Pastoral Landscapes	4,000	<1%	4,000	<1%	4,000	<1%	4,000	<1%
8A1	Mix of Successional Habitats								
8A1U	Mix of Successional Habitats-Unsuitable								
8B	Early Successional Habitats								
8BU	Early Successional Habitats-Unsuitable								
8C	Black Bear/Remote Habitats								
8CU	Black Bear/Remote Habitats-Unsuitable								
8E4a	Indiana Bat-Primary Areas	2,000	<1%	2,000	<1%	2,000	<1%	2,000	<1%
8E4b	Indiana Bat-Secondary Area	14,000	1%	14,000	1%	14,000	1%	14,000	1%
8E7	Shen Mtn Crest-Cow Knob Salamander Area	50,000	5%	23,000	2%	47,000	4%	24,000	2%
9A1	Source Water Watershed Protection								
10B	Timber Production								
10BU	Timber Production-Unsuit								
11	Riparian Areas	51,000 acres which are embedded within other prescription areas							
12D	Remote Backcountry	264,000	25%	148,000	14%	251,000	24%	201,000	19%
13	Mosaics of Habitat-Suitable	491,000	46%	350,000	33%	508,000	48%	508,000	48%
13U	Mosaics of Habitat-Unsuit	3,000	<1%	109,000	10%				
Water	Lake Moomaw	2,500	<1%	2,500	<1%	2,500	<1%	2,500	<1%
Total		1,066,000		1,066,000		1,066,000		1,066,000	

Table 3. Summary of Effects of Alternatives

Issue	Alternative									
	A	A ¹	B	C	D	E	F	G	H	I
Transportation System										
Current System Roads (miles)	1,805	1,805	1,805	1,805	1,805	1,805	1,805	1,805	1,805	1,805
Minimum Roads System, after 1st decade (miles)	1,655	1,644	1,479	1,319	1,581	1,471	1,445	1,479	1,477	1,477
Watershed										
Areas of Ground Disturbance, average annually (acres)	182	72	178-262	66	276-413	175-254	138-200	183-267	183-267	183-267
Riparian Corridor Width-perennial streams (feet)	66'+	66'+	100	100	66'+	100	100	100	100	100
Diversity										
Percent of Forest in Habitat Component after 10 Years										
Early Successional Forest (currently 3%)	4%	2%	3-4%	2%	4-6%	3-4%	3%	3-4%	3-4%	3-4%
Open Woodlands (currently 4%)	5%	7%	8-11%	2%	6-8%	11%	8-11%	8-11%	8-11%	8-11%
Grassland/Shrublands (currently 0.05%)	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%
Mid- to Late Successional Hard Mast Producing Forest (currently 89%)	88%	90%	87%	90%	86%	88%	89%	87%	87%	87%
Old Growth										
Percent of Possible Old Growth (245,000 acres) in Prescriptions Unsuitable for Timber Production	56%		45%	100%	46%	56%	67%	53%	53%	53%
Fire										
Acres Prescribed Burned, annually	3,000	7,400	12,000-20,000	Limited	5,000-12,000	20,000	12,000-20,000	12,000-20,000	12,000-20,000	12,000-20,000
Wilderness										
Area Recommended for Wilderness Study (acres)	1,500	1,500	20,400	386,800	14,600	24,500	113,300	20,400	27,200	27,200
Potential Wilderness Areas Allowing Management (acres) Total area of PWAs = 372,000 acres	164,900	164,900	142,700	0	126,100	52,300	31,100	83,700	85,800	85,800
Wind										
Area in Wind Power Classes 3 through 7 (117,000 acres) Not Suitable for Wind Development (acres)	8,000	8,000	70,000	117,000	53,000	117,000	76,000	78,000	82,000	82,000

Issue	Alternative									
	A	A ¹	B	C	D	E	F	G	H	I
Recreation										
Change in Trails for Hiking, Pack-and-Saddle, Mountain Bicycling (Change in mileage)	Increase 0-3%		No net change	Increase <3%	Increase 5-10%	No net change	Increase <3%	Increase <3%	Increase <3%	Increase <3%
All-Terrain Vehicles and Motorcycles (Change in mileage)	Increase 10-25%		No change	No change	Increase 25-60%	No change	Increase up to 10%	Increase 5-10%	Increase 5-10%	Increase 5-10%
Off-Highway Vehicles (Change in mileage)	Increase 0-25 miles		Current level of high clearance roads	No roads managed for OHVs	Increase 20-40 miles	No roads managed for OHVs	Current level of high clearance roads			
Gas leasing										
Area by Gas Leasing Terms (Thousands of acres)										
Administratively Available	995		983	0	981	980	763	983	461	0
Standard Lease Terms	139		615	0	609	535	495	550	236	0
Controlled Surface Use Stipulation	815		152	0	157	160	105	161	88	0
Timing Stipulation	0		14	0	14	14	14	14	0	0
No Surface Occupancy Stipulation	41		202	0	201	271	149	259	137	0
Administratively Unavailable	10		22	1,005	25	26	242	22	128	1,005
Legally Unavailable	51		51	51	51	51	51	51	51	51
Administratively Available Decision Deferred	0		0	0	0	0	0	0	416	0
Available, Under Existing Lease	10		10	10	10	10	10	10	10	10
Additional Control Measures on Drilling Operations	0		983	0	981	0	731	0	461	0
Horizontal Drilling Moratorium	0		983	0	981	0	731	0	0	0
No Horizontal Drilling Stipulation	0		0	0	0	980	32	983	0	0

Issue	Alternative									
	A	A ¹	B	C	D	E	F	G	H	I
Characteristic										
Timber										
Age Class Distribution in 2040										
0-10 (1% in 2010)	2	0	3	0	4	2	1	3	3	3
11-40 (9% in 2010)	6	2	7	1	9	5	3	7	7	7
41-80 (7% in 2010)	10	10	10	10	10	10	10	10	10	10
81-100 (36% in 2010)	1	1	1	1	1	1	1	1	1	1
101-130 (33% in 2010)	35	41	36	40	34	38	40	36	36	36
131-150 (8% in 2010)	26	26	23	28	22	24	25	23	23	23
150+ (6% in 2010)	20	20	20	20	20	20	20	20	20	20
Lands Suitable for Timber Production (Thousand acres)	350	350	499	0	495	367	281	449	452	452
Acres Harvested in First Decade (Thousand acres)	24	5	30	0	42	18	10	30	30	30
Allowable Sale Quantity in First Decade (MMBF)	235*	235*	279	0	529	155	96	276	276	276
Allowable Sale Quantity in First Decade (MMCF)	47	47	55.8	0	105.8	31.1	19.1	55.2	55.3	55.3

*In order to compare across the alternatives, the volume shown for Alternative A (current Forest Plan) is shown using the same current Regional conversion factor as the other alternatives, which is different from the conversion factor used in the 1993 Forest Plan.

Alt A¹ represents the level of activities accomplished during the past three years (2009 through 2011)