

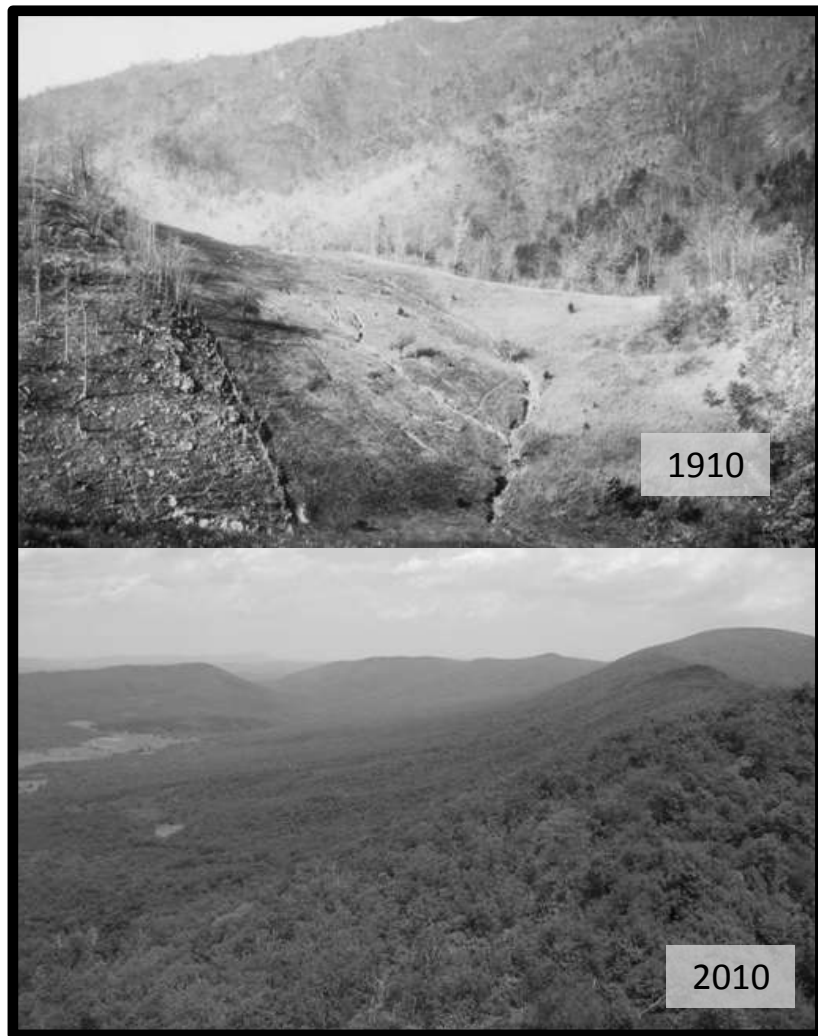


U.S. Department of Agriculture  
Forest Service  
Southern Region

## Summary

**for the Draft Environmental Impact Statement  
and Draft Revised Land and Resource Management Plan**

*George Washington National Forest*



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**Summary**  
**for the Draft Environmental Impact Statement**  
**and the Draft Revised Land and Resource Management Plan**  
**George Washington National Forest**

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**ABSTRACT**

The Forest Service proposes to revise the 1993 Land and Resource Management Plan (Draft Forest Plan) for the George Washington National Forest. The proposal 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 Draft Environmental Impact Statement (DEIS) for the Draft Forest Plan. The DEIS 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 Draft Environmental Impact Statement describes seven alternatives including a "no action" alternative which would continue managing the land and resources of the Forest under the 1993 Forest Plan as amended. The Forest Service has identified Alternative G as the Agency's Preferred Alternative. This summary document provides a brief overview of the Draft Forest Plan and the accompanying DEIS.

**COMMENTS**

**Comment period ends 90 days after the date the Notice of Availability is published in the Federal Register**

It is important that reviewers provide their comments at such times and in such a way that they are useful to the Agency's preparation of the EIS. Therefore, comments should be provided prior to the close of the comment period and should clearly articulate the reviewer's concerns and contentions. The submission of timely and specific comments can affect a reviewer's ability to participate in subsequent administrative review or judicial review.

Comments received in response to this solicitation, including names and addresses of those who comment, will be part of the public record for this proposed action. Comments submitted anonymously will be accepted and considered; however, anonymous comments will not provide the respondent with standing to participate in subsequent administrative review or judicial review.

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## OVERVIEW

### What is the Environmental Impact Statement?

The Draft Environmental Impact Statement (DEIS) describes the analysis of seven alternatives for revising the Forest Plan for the George Washington National Forest (GWNF) and discloses the environmental effects of these alternatives. The DEIS 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 final decision will be based on the analysis contained in the Final EIS, which considers public comments on the DEIS. The Record of Decision issued after the Final EIS will document the final decision and supporting rationale. This will accompany the Final Forest Plan.

### What is the Forest Plan?

The Draft Forest Plan represents the agency's preferred alternative for managing the land and resources of the 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 George Washington National Forest (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 management 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. Any 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. 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 Forest-wide 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 Forest-wide 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 to planning decisions. Therefore, the Forest has included it in this document. The leasing availability decision is evaluated within the Environmental Impact Statement for the Forest Plan.

## 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 DEIS 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 (GWNF) 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). 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 Forest 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.

Eight of the plants and animals species found on the Forest are listed by the US 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, 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, and shoestring root rot.

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.

Developed recreation opportunities are offered at over 60 sites on the Forest. There are three individual ATV trail systems 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 12,000 acres of the Forest is currently leased under federal oil and gas leasing procedures. Mineral rights on about 16 percent of the forest are privately owned.

The combined GW and Jefferson National Forests have over 5,400 miles of boundary with private lands. The GWNF is expected to see expanding development of housing on adjacent 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 Forest Plan is now being 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, state and federal government officials, industry representatives, adjacent landowners, and others began with workshops in 2007. Since then, we've had a total of 28 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.

## **SUMMARY OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT**

Scoping for the GWNF plan revision identified thirteen significant issues. Different options to address these issues were explored in seven alternatives in the Draft Environmental Impact Statement (DEIS). 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**

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. 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 DEIS.

#### **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 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 on 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 acid rain.

### **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 12,000 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 hydrofracturing at numerous locations throughout the horizontal bore holes. Concerns about hydrofracturing 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. Other comments stated that there must be an effects analysis for hydrofracturing 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. 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. There is more demand than supply for motorized trail opportunities as opportunities for such use is very limited on private land. 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 but are often not easily valued in economic terms. These services include wildlife habitat and diversity, watershed services, carbon storage, and scenic landscapes, for example. 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, aggressive trail experiences like all-terrain vehicle trails, 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

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

### Alternative A – “No Action” Alternative

Alternative A represents the 1993 Forest Plan, as amended through ten amendments. 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. While Alternative A represents the 1993 Plan, it is important to note that annual budgets affect implementation of a Forest Plan. In the DEIS, where annual accomplishments have varied substantially from Forest Plan direction and assumptions, the actual accomplishment level will be noted.

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. There is no specific direction on wind energy or climate change in the 1993 Plan.

### 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, best available science and an attempt to balance public issues that were identified as of March 2010. The need to change items that were listed in the Notice of Intent in March 2010 to begin preparation of the EIS included the following: 1) Identify desired conditions and objectives to maintain the resilience and function of nine identified 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; 3) Move the remote backcountry boundaries to match the Inventoried Roadless Area boundaries; 4) Portions of a few Inventoried Roadless Areas (about 8,000 acres), where the boundary of the Inventoried Roadless Areas is along existing roads and the adjacent forest has been actively managed for many years, should remain in active management rather than in remote backcountry; 5) Manage the remote backcountry areas with standards to closely mirror the management restrictions on road construction and timber harvest that were

described in the 2001 Roadless Area Conservation Rule, except that salvage of dead and dying trees without road construction is allowed if the roadless character of the area is maintained.

### **Alternative C**

In this alternative, restoration and maintenance of sustainable ecological systems is 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 is for the protection of Forest resources and meeting legal requirements, with limited exceptions. Recreation emphasis is on semi-primitive settings and opportunities. This alternative features the most area recommended for wilderness study. The character will 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.

### **Alternative D**

In this alternative, restoration and maintenance of natural ecological systems would use practices that also produce a higher level of commodities and offers 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. A mixture of timber outputs would be focused on species/product combinations with strong demand. 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 biomass. Public access (travelways, use corridors, waterways, and trails - including off-highway vehicles) would be increased in high-use areas and/or improved to provide for more opportunities for recreation and other forest uses to occur when compatible with other resources. Additional roads may be needed to support the production of wood products and natural gas development. Roads would still be analyzed for decommissioning but opportunities for using unneeded roads for trail access would be preferable. 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. This alternative responds to public desires for more accessibility to national forest system lands.

### **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 the ecological systems. In some areas of the forest large blocks of mature forest would predominate. Alt E emphasizes improving soil and water concerns in high priority watersheds. As a result of restoration treatments, commodities such as sawlogs, biomass, and fuelwood are 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 are limited; the emphasis is on maintaining existing developments.

### **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. 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.

### **Alternative G – The Agency Preferred Alternative**

Alternative G was developed after reviewing public comments and agency concerns received and developed throughout the entire process, including the last public meeting in October 2010. Each significant issue was reviewed in relation to how it was addressed by the various alternatives, the environmental effects of the alternative in relation to the issue and the benefits or outputs related to the issue. This alternative contains aspects of each of the other alternatives.

This alternative 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. It 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, biomass, and fuelwood are 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. Management of all Inventoried Roadless Areas would closely mirror the management restrictions on road construction and timber harvest that were described in the 2001 Roadless Area Conservation Rule.

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. Large blocks of unroaded areas would provide remote, backcountry experiences not available on private lands. High scenic quality would be a major emphasis.

### **Comparison of Alternatives**

This section compares the seven alternatives. The information presented here is intended to highlight the major differences between the alternatives. Table 1 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 2 summarizes the effects of implementing particular alternatives.

**Table 1. Allocation of Lands to Management Prescription Areas**

Rx	RX DESCRIPTION	ALT A		ALT B		ALT C		ALT D	
		Acres	%	Acres	%	Acres	%	Acres	%
1A	Designated Wilderness	42,954	4%	43,049	4%	42,992	4%	42,992	4%
1B	Recommended Wilderness Study	1,413	0%	20,422	2%	386,786	36%	14,627	1%
2C2	Eligible Wild and Scenic River-Scenic	4,147	0%	3,101	0%	3,749	0%	3,881	0%
2C3	Eligible Wild and Scenic River-Recreation	4,117	0%	2,730	0%	4,663	0%	4,219	0%
4A	Appalachian Trail	8,945	1%	8,505	1%	6,783	1%	8,513	1%
4B1	Research Natural Area	1,979	0%	1,980	0%	1,979	0%	1,979	0%
4C1	Geologic Area	176	0%	178	0%	176	0%	176	0%
4D	Special Biological Area	24,454	2%	51,427	5%	21,303	2%	51,574	5%
4D1	Key Natural Heritage Community Area								
4F	Mt Pleasant Natl Scenic Area	7,753	1%	7,742	1%	7,744	1%	7,744	1%
4FA	Recommended Scenic Area							8,241	1%
5B	Communication Site					13	0%	13	0%
5C	Utility Corridor	6,731	1%	6,750	1%	6,754	1%	6,754	1%
7A1	Scenic Byway	4,720	0%	4,954		4,956	0%	4,956	0%
7B	Scenic Corridors/Viewsheds	43,925	4%	38,286	4%	1,042	0%	35,403	3%
7C	ATV Use Area	11,399	1%	9,889	1%	9,933	1%	9,933	1%
7D	Concentrated Recreation					664	0%	664	0%
7E	Dispersed Recreation Areas								
7E1	Dispersed Recreation Areas-Unsuitable	41,408	4%	30,550	3%	21,889	2%	21,348	2%
7E2	Dispersed Recreation Areas-Suitable	5,499	1%	4,181	0%			5,236	0%
7F	Blue Ridge Parkway			4,414	0%	4,147	0%	4,418	0%
7G	Pastoral Landscapes	6,012	1%	4,331	0%			4,112	0%
8A1	Mix of Successional Habitats	258,339	24%					316,872	30%
8A1U	Mix of Successional Habitats-Unsuitable	69,736	7%						
8B	Early Successional Habitats	38,885	4%					34,031	3%
8BU	Early Successional Habitats-Unsuitable	766	0%						
8C	Black Bear/Remote Habitats	74,421	7%					124,835	12%
8CU	Black Bear/Remote Habitats-Unsuitable	61,204	6%						
8E4a	Indiana Bat-Primary	1,672	0%	1,672	0%	1,671	0%	1,671	0%
8E4b	Indiana Bat-Secondary	11,056	1%	13,709	1%	13,713	1%	13,713	1%
8E7	Shen Mtn Crest-Cow Knob Salamander	43,137	4%	46,692	4%	20,343	2%	53,855	5%
9A1	Source Water Watershed Protection					142,612	13%		
10B	Timber Production	86,698	8%					91,257	9%
10BU	Timber Production-Unsuitable	4,685	0%						
12D	Remote Backcountry	198,858	19%	191,935	18%	113,852	11%	190,423	18%
13	Mosaics of Habitat-Suitable			569,421	53%				
13U	Mosaics of Habitat-Unsuitable					245,678	23%		
Water	Lake Moomaw	2,479	0%	2,479	0%	2,479	0%	2,479	0%
Total		1,065,918		1,065,918		1,065,918		1,065,918	

Table 1. Continued

Rx	RX DESCRIPTION	ALT E		ALT F		ALT G	
		Acres	% of Forest	Acres	% of Forest	Acres	% of Forest
1A	Designated Wilderness	42,992	4%	42,992	4%	42,992	4%
1B	Recommended Wilderness Study	24,325	2%	112,144	11%	20,314	2%
2C2	Eligible Wild and Scenic River-Scenic	3,834	0%	2,176	0%	3,848	0%
2C3	Eligible Wild and Scenic River-Recreation		0%	4,341	0%	4,179	0%
4A	Appalachian Trail	8,513	1%	8,513	1%	8,519	1%
4B1	Research Natural Area	1,979	0%	1,978	0%	1,979	0%
4C1	Geologic Area	3,879	0%	176	0%	3,881	0%
4D	Special Biological Area	51,574	5%	30,438	3%	51,565	5%
4D1	Key Natural Heritage Community Area					3,308	0%
4F	Mt Pleasant National Scenic Area	7,744	1%	7,744	1%	7,744	1%
4FA	Recommended National Scenic Area			127,940	12%		
5B	Communication Site	13	0%	13	0%	13	0%
5C	Utility Corridor	6,754	1%	6,754	1%	6,714	1%
7A1	Scenic Byway	4,956	0%	4,956	0%	4,956	0%
7B	Scenic Corridors and Viewsheds	34,045	3%	32,358	3%	34,876	3%
7C	ATV Use Area	9,933	1%	9,933	1%	9,933	1%
7D	Concentrated Recreation Areas	664	0%	615	0%	662	0%
7E	Dispersed Recreation Areas					27,915	2%
7E1	Dispersed Recreation Areas-Unsuitable	21,263	2%	14,524	1%		
7E2	Dispersed Recreation Areas-Suitable	4,086	0%	1,125	0%		
7F	Blue Ridge Parkway	4,418	0%	4,390	0%	4,418	0%
7G	Pastoral Landscapes	4,112	0%	4,107	0%	4,280	0%
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	1,671	0%	1,671	0%	1,671	0%
8E4b	Indiana Bat-Secondary	13,698	1%	13,713	1%	13,698	1%
8E7	Shen Mtn Crest-Cow Knob Salamander	49,644	5%	23,382	2%	46,812	4%
9A1	Source Water Watershed Protection						
10B	Timber Production						
10BU	Timber Production-Unsuitable						
12D	Remote Backcountry	264,184	25%	147,622	14%	252,159	24%
13	Mosaics of Habitat-Suitable	491,763	46%	350,453	33%	507,006	48%
13U	Mosaics of Habitat-Unsuitable	3,308	0%	109,380	10%		
Water	Lake Moomaw	2,479	0%	2,479	0%	2,479	0%
Total		1,065,918		1,065,918		1,065,918	

**Table 2. Summary of Effects of Alternatives**

Issue	Alternative						
	A	B	C	D	E	F	G
Characteristic							
<b>Transportation System</b>							
Current System Roads (miles)	1,823	1,823	1,823	1,823	1,823	1,823	1,823
Minimum Roads System, after 1st decade (miles)	1,695	1,521	1,382	1,624	1,514	1,494	1,520
<b>Watershed</b>							
Areas of Ground Disturbance, average annually (acres)	254	292-384	79	635-785	189-275	260-323	315-407
Riparian Corridor Width-perennial streams (feet)	66'+	100	100	66'+	100	100	100
<b>Diversity</b>							
Percent of Forest in Habitat Component after 10 Years							
Early Successional Forest (currently 3%)	4%	2-3%	2%	3-5%	2-3%	2-3%	2-3%
Open Woodlands (currently 2%)	5%	11%	2%	8%	11%	11%	11%
Grassland/Shrublands (currently 0.05%)	0.05%	0.06%	0.02%	0.05%	0.06%	0.06%	0.06%
Mid- to Late Successional Hard Mast Producing Forest (currently 90%)	89%	89%	92%	88%	90%	91%	89%
<b>Old Growth</b>							
Area Providing for Most Large Blocks (>= 2,500 acres) of Future Old Growth (acres)	452,317	363,247	840,677	371,435	445,750	603,621	426,873
<b>Fire</b>							
Acres Prescribed Burned, annually	3,000	12,000-20,000	Limited	5,000-12,000	20,000	12,000-20,000	12,000-20,000
<b>Wilderness</b>							
Area Recommended for Wilderness Study (acres)	1,500	20,700	386,809	14,600	24,500	113,209	20,400
Potential Wilderness Areas Allowing Management (acres) Total area of PWAs = 372,000 acres	144,209	135,409	0	119,700	49,900	31,300	83,800
<b>Wind</b>							
Area in Wind Power Classes 3 through 7 Suitable for Consideration of Wind Energy Development (acres)	116,871	46,625	0	54,533	0	40,841	39,236

Issue	Alternative							
	A	B	C	D	E	F	G	
<b>Recreation</b>								
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%	
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%	
Off-Highway Vehicles (Change in mileage)		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	Current level of high clearance roads	
<b>Gas leasing</b>								
Area by Gas Leasing Terms ( Thousand acres)								
Standard Lease Terms*	145	625.1	0	614.4	541.2	496.3	555.9	
Controlled Surface Use Stipulation*	825	151.8	0	161.6	159.6	105.3	161	
Timing Stipulation*	0	13.7	0	13.7	13.7	13.7	13.7	
Stipulation for No Surface Occupancy *	41	202.4	0	200.9	274.7	158.1	262.7	
Horizontal Drilling Moratorium Stipulation, Horizontal Drilling Operations Control Stipulation	0	993	0	990.6	0	742	0	
Stipulation for No Horizontal Drilling	0	0	0	0	989.2	31.5	993.2	
Administratively Unavailable	3.1	22.1	1,015.20	24.5	26	241.8	22	
Legally Unavailable	50.7	50.8	50.7	50.7	50.7	50.7	50.7	
<b>Timber</b>								
Age Class Distribution in 2040	0-10 (1% in 2010)	3	3	0	5	2	1	2
	11-40 (9% in 2010)	7	7	1	10	5	3	5
	41-80 (7% in 2010)	10	10	10	8	10	10	10
	81-100 (36% in 2010)	1	1	1	1	1	1	1
	101-130 (33% in 2010)	34	34	40	34	35	38	35
	131-150 (8% in 2010)	25	25	27	24	26	26	26
	150+ (6% in 2010)	20	20	21	18	21	21	21
Lands Suitable for Timber Production (Thousand acres)		350	486	0	482	366	278	439

Issue	Alternative						
	A	B	C	D	E	F	G
Characteristic							
Acres Harvested in First Decade (Thousand acres)	30	30	0	42	18	10	18
Allowable Sale Quantity in First Decade (MMBF)	235	271	0	505	155	102	271
Allowable Sale Quantity in First Decade (MMCF)	47	54.3	0	101	31.1	20.4	54.3

## SUMMARY OF THE DRAFT FOREST PLAN

The Draft Forest Plan is based on the implementation of the preferred alternative (Alternative G) from the Draft 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. A list of the Management Prescription Areas is found in Table 1 above.

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. Forest-wide 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. They describe the management practices that will be used to move the Forest towards the Desired Conditions identified in Chapter 2. The management approach is not a required section of the plan and is not binding. It provides a framework to describe the measures expected to be used.

**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 under the plan guidance to help us move toward the Desired Conditions. These Design Criteria are either forest-wide or specific to a Management Prescription Area. This section also references other existing guidance outside this Plan found in public laws, regulations, Forest Service manuals, and handbooks. Other existing guidance is generally not repeated in this Plan. 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 Revised 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 Draft Forest Plan Addresses Significant Issues

The following discussion summarizes how the preferred alternative addresses each significant issue as outlined in the DEIS.

### Access

Road recommendations based on the Travel Analysis Process conducted for the Forest, including the identification of the minimum road system necessary to meet management objectives, are incorporated into the Forest Plan. Approximately 160 miles of road are identified for decommissioning over the first decade of the Plan. Priorities for decommissioning are roads causing resource damage and roads in priority watersheds. There will also be a reduction in road maintenance levels for some roads. The Plan will drop the 1993 Forest Plan objective to construct another all-terrain vehicle (ATV) trail system at Archer Knob, but will retain the current ATV systems and allow for some expansion of trails within those systems. The roads available for off-highway vehicle use will remain the same or increase.

### 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.

Protection of the aquatic systems and riparian areas would be accomplished through expanding the width of the riparian protection corridors and changing the standards to match the protections of the Mussel and Fish Conservation plan used on the Jefferson National Forest. Riparian standards would meet or exceed State Best Management Practices.

### Terrestrial Biological Diversity

Proposed Forest Plan direction for moving toward desired conditions for ecosystem diversity is to manage vegetation structure and composition to support healthy, functioning ecological systems that are resilient to changing conditions and climate change. Management of ecosystems is directed at developing landscapes that represent typical disturbance regimes for each ecological system. This often involves timber harvest and fire management. Prevention and control of non-native invasive species is another key component of restoring these systems. The forest was broken into ecological systems which are addressed as follows:

**Alkaline and Mafic Glade and Barrens Ecological System:** 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** 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 special geologic areas.

**Cliff, Talus and Shale Barrens Ecological System:** 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 Biologic Areas.

**Northern Hardwood Forest Ecological System:** Forest direction for restoring, maintaining, and enhancing the Northern Hardwood Forest ecological system emphasize maintaining this system on the lands where it occurs. Some regeneration could take place, but it would not be a high priority.



**Cove Forest Ecological System:** 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 Forest and Woodland Ecological System:** Forest strategies for maintaining and enhancing the Oak Forest and Woodland systems rely heavily on utilizing fire to restore and maintain the open canopy conditions and the openings. Grassy openings will be created through clearing small patches of trees and maintained through mowing. Timber harvest will be 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 Forest and Woodland Ecological System:** Fire will be the prime strategy for maintaining and enhancing the Pine Forest and Woodland systems. Timber harvest will also be used to a lesser extent for regeneration.

**Floodplains, Wetlands and Riparian Areas Ecological System:** An estimated 54,000 acres of Floodplains, Wetlands and Riparian Areas on the Forest will continue to be present and functioning. Some wetland systems could increase in extent due to beaver activity.

**Spruce Forest Ecological System:** 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 Forest and the long term objective is to reestablish additional spruce sites of about 1,300 acres.

Most species needs are covered by direction for managing the ecological systems. However, additional standards and strategies were incorporated into the Plan to address needs for some species. 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 were identified that depend on these open habitats and these open conditions need to be well distributed on the landscape. Objectives to meet these needs include increasing the annual prescribed burning program from 3,000 acres to a range of 12,000 to 20,000 acres and maintaining the annual timber harvest areas in a range of 1,800 to 3,000 acres (less than .3% of the GWNF). While it may take many decades to completely achieve these ecosystem shifts, actions initiated during the next 15 years covered by this Plan will set the stage for continued progress.

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 were added and existing areas were expanded to a total of 23,000 additional acres of Special Biological Areas.

## Old Growth

Old Growth will be identified as described in Appendix B of the Plan and in accordance with *Guidance for Conserving and Restoring Old Growth Forest Communities on National Forests in the Southern Region*. Currently, it is estimated that about 244,000 acres of possible old growth occurs on the GWNF. It is termed "possible" because it has not been examined in the field to determine if all of the characteristics of old growth are present. It is based on inventories of the age of the dominant trees in the area. Old Growth, as it is identified, will be 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 will be unsuitable for timber production. In the Dry-Mesic Oak Forest and Dry and Dry-Mesic Oak-Pine old growth forest types, any existing old growth, in areas suitable for timber production, will be evaluated during project analysis to determine its suitability for harvest. After ten years of implementing the proposed 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 will focus 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 will be another component of the management strategy.

## **Wind Energy**

The Plan would allow 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 450,000 acres of sensitive areas are identified as unsuitable for wind energy development. These areas include: Wilderness, Recommended Wilderness Study Areas, Special Biological Areas, Research Natural Areas, Special Geologic Areas, Shenandoah Mountain Crest - Cow Knob Salamander Area, Indiana Bat Protection Areas, Appalachian Trail Corridor, Blue Ridge Parkway Scenic Corridor, Remote Backcountry Areas, and Mount Pleasant National Scenic Area.

## **Oil and Gas Leasing**

The GWNF is making the decision on lands administratively available for gas and oil leasing along with its Forest Plan. This decision would make over 990,000 acres of land administratively available. A controlled surface use stipulation would be used on 160,000 of the acres, a timing restriction would be part of 14,000 acres, and a no surface occupancy stipulation would be used on 263,000 acres. Concern about the development of gas resources in the Marcellus shale formation led to Plan direction that horizontal drilling would not be allowed on any federal leases. This restriction is based on concerns about the impacts of extensive hydraulic fracturing associated with horizontal drilling on water quality, the unknown potential for developing the Marcellus shale formation on the GWNF, and the limited experience with horizontal drilling in the immediate vicinity of the GWNF.

## **Fire**

Prescribed burning will 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 will 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 will increase from the current Plan level of 3,000 acres per year to a range of 12,000 to 20,000 acres per year.

## **Recreation**

The focus will be 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 will remain at current levels. Developed recreation facilities area also expected to remain at current levels.

## **Wilderness/Roadless**

The Forest Plan identifies one new area (Little River) and three additions to existing Wildernesses (Rich Hole, Ramseys Draft, and St. Mary's) as recommended wilderness study areas for a total of about 20,000 acres. About 80% of the areas identified by wilderness advocates are assigned management prescription areas that result in management for the remote characteristics of the areas.

Plan direction increases the total amount of area managed for remote settings. In the proposed Plan, about 80% of the Potential Wilderness Areas (including all of the Inventoried Roadless Areas) would be managed to retain their roadless character by prohibiting timber harvest and road construction with limited exceptions. To address concerns about wildlife habitat, the other 20% of the areas that have road access would allow vegetation management to continue.

### **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 Plan objective is to slightly reduce the annual Allowable Sale Quantity (ASQ) from 6.6 to 5.4 million cubic feet (MMCF) [27 million board feet (MMBF)]. The amount of land suitable for timber production is increased from 350,000 acres to about 440,000 acres to allow for greater flexibility in locating regeneration areas where they are needed for ecological restoration.

### **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**

The strategies for the GWNF 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.
- Construct 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.
- Increase 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.
- Maintaining and improving habitat for rare community species
- Maintain connections of forested landscapes.
- Prevent new infestations and treat 5,000 to 10,000 acres of non-native invasive plants annually in cooperation with state agencies, local groups and adjacent landowners.