



LAND AND RESOURCE MANAGEMENT PLAN FOR THE DANIEL BOONE NATIONAL FOREST

United States
Department of
Agriculture

Forest Service

Southern Region

Daniel Boone
National Forest

Winchester, KY

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Rock Creek (of Big South Fork watershed) on the Stearns Ranger District.

Chapter 1

Mission of the Daniel Boone National Forest

The Daniel Boone National Forest's mission is to sustain the ecological health and productivity of the lands and waters entrusted to its care and provide for compatible human uses.

PURPOSE OF THE FOREST PLAN

For the next 10 to 15 years, the 2004 Land and Resource Management Plan (also called the 2004 Forest Plan or the Plan) will guide coordination of multiple uses (such as outdoor recreation, minerals, timber, watersheds, fish and wildlife, and wilderness, etc.) and promote sustained yields of products and services on the DBNF.

As a framework for decision-making, this Plan does not commit the Forest Service to any specific project or local action. Rather, it describes general management direction; estimates production levels, and assesses the availability and suitability of lands for resource management practices.

Starting with the concept of forest as a complex and not entirely understood ecosystem, the 2004 Forest Plan follows an "adaptive" approach to resource management. By monitoring outcomes in their ecosystem context -- a central element of adaptive management -- managers will be able to continually appraise results. Assumptions can then be reviewed and management direction adjusted in the light of knowledge gained from monitoring.

The Forest Service, with its research capability and practical experience, is positioned to advance ecosystem management far into the 21st century. The adaptive approach to forest management should enhance these efforts.

The 2004 Forest Plan will be implemented through a series of project-level decisions based on appropriate site-specific analysis and disclosure. The Plan does not contain a commitment to select any specific project. Instead, it sets up a framework of Desired Future Conditions with Goals, Objectives, and Standards to guide project proposals. Projects are proposed to solve resource management problems, move the Forest environment toward Desired Future Conditions, and supply goods and services to the public.

Goals, Objectives, and Standards, as well as land-use allocations, spell out management direction. Projected resource yields, types and amounts of services provided, and rates of implementation will depend on annual budgets.

Prior to drafting the proposed Forest Plan revision, an expanded interdisciplinary team representing the physical, biological, economic, and other sciences conducted a comprehensive analysis of the DBNF's management situation. This team of professionals from all levels of the Forest Service, as well as scientists from southern research agencies and academic institutions, documented the need to revise the 1985 Plan. Then a comprehensive notice and comment process engaged a broad spectrum of the public in compiling a list of issues facing the DBNF.

The issues were used to develop alternative management strategies, six of which were ultimately considered in detail. Utilizing the analysis of anticipated environmental consequences for each alternative, the Forest Supervisor for the Daniel Boone National Forest recommended, and the Regional Forester for the Southern Region of the Forest Service approved, the selection of Alternative C-1 as the preferred alternative for this Plan.

RELATIONSHIP OF THE FOREST PLAN TO OTHER DOCUMENTS

This Forest Plan is based on the selected alternative for managing the land and resources that is analyzed and described in an accompanying Environmental Impact Statement.

In addition to direction found in a Forest Plan, projects are also implemented through direction found in laws, rules, regulations, and the Forest Service directive system (a listing of these can be found in Appendix B); and the following programmatic decision documents:

- Record of Decision, Final Environmental Impact Statement for the Suppression of the Southern Pine Beetle (USDA Forest Service 1987)
- Record of Decision, Final Environmental Impact Statement for Gypsy Moth Management in the United States: A Cooperative Approach (USDA Forest Service and APHIS 1995)

Other sources which helped guide development of this Plan included but were not limited to:

- Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests of the Southern Region (USDA Forest Service 1997)
- An Assessment and Strategy for Conservation of Aquatic Resources on the Daniel Boone National Forest, Interim Report (USDA Forest Service 2001)
- Forest Scale Roads Analysis, Daniel Boone National Forest, (USDA Forest Service 2003)
- Viability Assessment for the Daniel Boone National Forest (USDA Forest Service 2003)
- National Fire Plan (www.fireplan.gov)

PLAN STRUCTURE

This Forest Plan consists of five chapters, a glossary, and appendices:

Chapter 1 - introduces the Forest Plan; explains its purpose, structure, and relationship to other documents; includes a brief description of the DBNF; and summarizes the analysis of the management situation as well as the significant issues that guided the revision.

Chapter 2 - outlines proposed Forestwide management direction, including Desired Future Conditions, Goals, Objectives, and Standards.

Chapter 3 - describes Prescription Areas and the specific management direction applied to each Prescription Area, including their Desired Future Conditions, Goals, Objectives, and Standards.

Chapter 4 - describes the four Management Areas.

Chapter 5 - gives direction for Plan Implementation, Monitoring, and Evaluation.

Appendices - provide supplemental information about the Plan.

FOREST PROFILE

The Daniel Boone National Forest proclamation boundaries encompass two separate areas. The larger area is a relatively narrow strip running 140 miles along the western edge of the Cumberland Plateau from the Tennessee border to within 20 miles of the Ohio border. This area was proclaimed in 1937 as the Cumberland National Forest. A second area, located to the east and separate from the original proclamation area and known as the Redbird Purchase Unit, was added in 1964. In 1966 the Forest was renamed the Daniel Boone.

Today, about one-third of the proclamation area's over two million acres -- nearly 700,000 acres -- is federally owned and managed by the USDA Forest Service. The federally owned tracts are discontinuous and scattered within the proclamation boundary. Individuals hold most of the privately owned land in tracts averaging from 100 to 300 acres.

The Daniel Boone lies mostly within the Northern Cumberland Plateau Section of the Eastern Broadleaf Forest (Oceanic) Province. The Northern Cumberland Plateau, an uplifted plateau, has been moderately dissected by stream action. Steep-sided, winding valleys and ridges mark the Forest's hilly to mountainous terrain. Clifflines, caves, and geologic arches are prominent features. Local relief varies from about 400 feet in the north to about 2,000 feet in the south. Thousands of miles of small branches and streams dissect this combination of flat-topped ridges and rolling hills.

More than 80 different kinds of soils are currently mapped on the Forest. Acid sandstone, shale, and some siltstone and limestone in alternating layers underlie the Forest. Soils formed from these various materials are mostly of mixed mineralogy, generally acidic, and possess low to moderate fertility.

Soil erosion losses range from an average low of about 0.1 ton per acre per year on undisturbed forested land; 10 tons per acre on cropland being cultivated under special-use authorization; to as

much as 50 to 100 tons or more per acre at surface-mining sites, development sites, and road construction sites.

Three rivers, the Licking, Kentucky, and Cumberland, drain portions of the Forest. Water quality is generally excellent, except in some smaller streams that are impacted by activities on private lands such as brine disposal from oil and gas drilling and acid discharges from abandoned surface and deep coalmines. However, streams with substandard water quality account for only three percent of the water flow.

Forested lands of the Daniel Boone are generally classified as mixed mesophytic forest and Appalachian oak forest. An extremely wide variety of species thrive in both the under- and over-stories, including more than 40 commercially valuable tree species. The Forest is a mosaic of various developmental stages of ecological succession with mostly upland hardwood types. Oak-hickory is the most common forest type. Shortleaf pine-oak forest type was well represented on the southern end of the DBNF until a major outbreak of the southern pine beetle, which began in late 1999, destroyed or damaged a majority of shortleaf pines across the Forest

The Daniel Boone provides habitat for a wide variety of terrestrial and aquatic fauna. Some of these species are relatively rare, including a number that are federally listed as threatened or endangered. Most species are relatively abundant, including huntable populations of white-tailed deer, wild turkey, gray squirrel, and ruffed grouse. Recent efforts by the Kentucky Department of Fish and Wildlife Resources and other partners have resulted in the establishment in and near the Daniel Boone of the largest elk herd in the eastern United States. Game fish are plentiful in the large lakes and a number of streams are stocked annually with trout.

The Forest's five million annual visitors make recreation one of the largest of its multiple uses. Within the Forest are 18,000 acres of designated Wilderness and 19 miles of Wild and Scenic Rivers. The proclamation area of the Forest is also home to three state parks and four Corps of Engineer-managed lakes. The Big South Fork National River and Recreation Area abuts the Forest's southern boundary.

About 75 percent of subsurface mineral rights on the DBNF are either outstanding in third parties or reserved by the previous surface owners. Minerals currently being extracted include coal, petroleum, natural gas, and limestone.

ANALYSIS OF THE MANAGEMENT SITUATION SUMMARY

This revised Forest Plan for the Daniel Boone National Forest replaces the Forest Plan in effect since 1985. The National Forest Management Act of 1976 (NFMA) requires that each national forest develop a Land and Resource Management Plan that is revised every 10 to 15 years, or when conditions change significantly. Efforts to revise the 1985 Plan began with an analysis of the management situation (AMS), which documented the need for a Plan revision.

Released in May 1996, the AMS confirmed the need for major changes in management direction by looking at the results of monitoring and assessing resource conditions, including supply and demand factors. It also reviewed changes in public policy and administrative direction. Input from the public as well as Forest Service employees was also taken into account.

Determinations of the AMS were divided into three categories:

- 1) Changes warranting a Plan revision: These are changes typically of a nature or magnitude that require a revision of a forest plan.
- 2) Changes warranting a Plan amendment: These are changes typically of a nature or magnitude that could be made through an amendment to a forest plan, but could also be included as part of a revision.
- 3) Changes within authority of the 1985 Plan: These are changed circumstances that could be addressed without change to forest plan management direction.

The official proposal to revise the 1985 Plan, included in a Notice of Intent to Prepare an Environmental Impact Statement, was based largely upon results of the AMS. A summary of its major findings follows.

CHANGES WARRANTING A PLAN REVISION OR AMENDMENT

- 1) **Ecosystem Management and Biological Diversity:** Current Forest Service policy places an emphasis on management for sustainable ecosystems. New tools and data are available that facilitate planning at the landscape level. The long-term objectives of the 1985 Plan did not consider some of the ecosystem functions, processes, and biological diversity concepts known today. Also, the significant cost of additional resource inventories, monitoring, and analysis are not covered in the 1985 Plan.
- 2) **Timber Management:** Changes in policy have affected the factors used to predict timber yield in the 1985 Plan. Forest management, which once emphasized timber production, now focuses on ecosystem management. This re-ordering of priorities has reduced the amount of suitable timberland by 26 percent. Since harvest volumes per acre have been significantly below projections, the timber program needs to be reviewed with the Forest Plan amended or revised accordingly. An increased interest in reducing timber sales in which returns are below-cost has resulted in an emphasis on harvesting stands having a higher per-acre value. Timber harvesting has come to be seen as a silvicultural tool that can improve overall forest health as well as create or enhance habitat for desirable species.
- 3) **Recreation Demand and Use:** Although overall recreational use has increased more slowly than predicted, some recreation areas have deteriorated over the past nine years due to

changes in use patterns and funding below levels anticipated by the 1985 Plan. Types of recreation uses have changed, with faster growth in horseback riding and off-highway vehicle use but slower increases in hiking and backpacking, for example. The 1985 Plan does not adequately address these changes. Dealing with such changes will bring significant costs and, for some facilities, will include the cost of improving accessibility in accordance with the Architectural Barriers Act of 1968 and Section 504 of the Rehabilitation Act of 1973.

- 4) **Federal Oil and Gas Leasing:** Under the Federal Onshore Oil and Gas Leasing Reform Act of 1987, the Forest Service must identify federal lands for which oil and gas leases could be sold and determine appropriate stipulations to protect surface resources. Leasing decisions will be subject to conditions listed in the National Environmental Policy Act of 1969.
- 5) **Non-timber Forest Products:** There is an increased demand for non-timber forest products, such as ginseng, mushrooms, etc., as well as timber and other traditional forest products. The Plan needs to address the economic, biological, and management impacts the increased demand will have on the overall Forest conditions.
- 6) **Heritage Resources:** The cost of the heritage resources program and the number of potentially significant sites are greater than predicted by the 1985 Plan. The cost of addressing heritage resources is great enough to affect a variety of management objectives and warrants a Plan amendment.
- 7) **Urban/Rural Interface, Commercial and Residential Development Adjacent to Forest lands:** The urban interface adjacent to the Forest has seen an increase in development as well as new types of development. These changes affect management options on lands immediately adjacent to Forest boundaries. The Plan should be amended to more accurately address the impacts of changing land ownership patterns adjacent to the Forest. A review of desired landownership patterns and associated guidelines for landownership adjustments is necessary to assure that both public interests and resource management needs are being met.
- 8) **Riparian Areas:** Riparian community habitat on the Forest merits review. These areas should be evaluated in the context of surrounding watersheds. Standards should be developed to ensure the biological and ecological integrity of riparian and aquatic resources and their contribution to long-term forest diversity.
- 9) **Monitoring:** Plan monitoring direction needs revision. Review of the Forest's management indicator species (MIS) is needed to incorporate assemblages of species that better represent habitat conditions. New Forest MIS need to be identified and incorporated into the Plan to represent communities that have been more clearly identified during implementation of the 1985 Plan.
- 10) **Forest Insects and Disease:** Although the 1985 Plan includes provisions for controlling newly identified pests, it does not address all of the currently threatening forest pests and invasive species, both native and non-native. Minor pests and invasive species can be addressed without amendment or revision of the 1985 Plan, but the major impacts expected from the gypsy moth and hemlock woolly adelgid need to be fully assessed and incorporated into new Objectives and Standards.¹

¹ The southern pine beetle outbreak that began in late 1999 was unexpected and occurred after the AMS was completed.

CHANGES WITHIN AUTHORITY OF 1985 PLAN

- 1) **Water Quality/Abandoned Mines:** The public has become increasingly aware of the need for mine reclamation on the Forest. This issue should be considered as part of the resolution of other issues in a Plan revision.
- 2) **Hazardous Materials:** New laws concerning the handling of hazardous materials have come into effect since the 1985 Plan was adopted. Although not specifically identified in the Plan, compliance with such laws were considered a part of doing business during the development of the Plan.
- 3) **Forest Type Conversion:** In 1994, forest type distribution was within one percent of the range allowed by Amendment Six of the 1985 Plan. To provide habitat for the red cockaded woodpecker (RCW), an increase in pine and pine/hardwood stands in conformance with the Southern Regional RCW Management Plan would be necessary.
- 4) **Special Areas:** There has been an increased interest in identification of unique and special areas on the Forest such as potential Research Natural Areas and caves. Nominations of new areas can be addressed without Plan amendment or revision. A Plan revision could incorporate specific constraints and costs as other adjustments are made in Desired Future Conditions, Standards, and Monitoring.
- 5) **National Wild and Scenic Rivers:** The 1985 Plan called for changes relating to Wild and Scenic Rivers within the Forest. If Wild and Scenic River management plans alter the Forest Plan Objectives, then an amendment would need to integrate these without management objectives.

Note: Since the AMS was prepared in 1996, conditions have continued to change on the Daniel Boone and new information has been gathered. The most significant event was the southern pine beetle outbreak, beginning in late 1999, which destroyed or damaged most southern yellow pine over approximately 100,000 acres of the DBNF. The proposed Plan revision includes management direction to address restoration of the severely diminished southern yellow pine ecosystem.

SUMMARY OF ISSUES

Public involvement played a key role in the Plan revision process, including development of the Significant Issues. The DBNF made extensive efforts to inform all individuals and groups concerned with, or affected by, management of the Forest. Numerous and diverse opportunities were provided for individuals and organizations to be involved and offer comments throughout the process.

An early goal was to reach an informed understanding with the public regarding the resource management issues confronting the Forest. This collaborative effort proceeded to develop and then refine a range of alternatives for addressing the issues. Finally, this revised Plan was based on the selected alternative.

Public comments were essential in establishing a general direction for management of the Forest, including the type and amounts of goods and services that should be provided as well as environmental conditions that should be maintained.

Public involvement began with publication in the Federal Register on June 21, 1996, of the Notice of Intent (NOI) to prepare an environmental impact statement for a revised Forest Plan. The NOI included a list of preliminary issues and alternative management themes based on public comments gathered during evaluation of site-specific projects over the 10-year implementation of the 1985 Plan. Over the next year, a variety of public meetings, open houses, and listening sessions were held throughout the eastern part of the state and in Louisville and Lexington, the state's two largest cities.

Also in June 1996, the first edition of *The Boone Planner*, the Forest's newsletter, was published. This free publication informed interested individuals and organizations that the Forest Service was gathering information as a first step in the revision process. News releases were distributed to media in the region and direct notification was given to local and state officials as well as other federal agencies and private institutions.

After the initial phase of public involvement, the following issues were identified and then used to develop alternatives for the Plan revision:

- 1) **Fragmentation:** The wide-ranging nature of many forest-wildlife species requires relatively large, continuous parcels of habitat to meet their behavioral needs. This is especially important for wide-foraging, forest-nesting bird species native to the Daniel Boone. How and to what extent the Forest will provide for interior dependent species, particularly by reducing or mitigating the causes of fragmentation is a fundamental issue to be addressed in the Plan revision.
- 2) **Old-Growth:** Although older-aged forest is represented in the 1985 Plan, old-growth has not been adequately documented and may be under-represented in the Daniel Boone. On the other hand, old-growth conditions may be adequately provided for within current Wilderness and roadless areas as well as lands identified as unsuitable for timber production. The amount, distribution, and perpetuation of old-growth remain issues to be addressed in the Forest Plan revision.
- 3) **Rare Communities:** The Daniel Boone contains a diverse landscape with many rare or uncommon communities and associations. These include caves, clifflines, glades, small bogs and wetlands, and others. Many unique or special biological areas contain a relatively high density of rare species, some of which are federally listed as endangered or threatened. The 1985 Plan addresses federally listed and Forest-sensitive species but not their associated communities. Some management actions and forest uses can adversely affect rare communities. What communities or features should have some special designation and how should they be managed?
- 4) **Endangered, Threatened, and Sensitive Species:** A number of plant and animal species found on the Forest have declined in number to the point their rarity indicates a potential for losing viability. However, rebuilding populations of endangered, threatened, or sensitive species remains a possibility. Methods of species recovery should be considered in the revision. The revised Forest Plan will also need to identify measures for protecting populations of and habitat for Proposed, Endangered, Threatened, and Sensitive (PETS) species.
- 5) **Fish and Wildlife Management:** National Forest System lands provide opportunities to address wildlife management and interests in ways not always possible on most other lands. The DBNF is large enough to accommodate the wide-ranging habitat needs of numerous

species. As public land, the Forest can make hunting, fishing, and viewing opportunities available to help fulfill public interests that may be limited or restricted on private lands. Sustaining habitats that can support populations sufficient to meet public expectations for hunting, fishing, and viewing should be a goal of the Forest Plan revision. Where conflicts occur between habitat needs, the revision must determine acceptable trade-offs while retaining diverse and healthy species groups across a wide variety of community types.

- 6) **Aquatic and Riparian Areas:** Some Forest uses and management activities can degrade the health of aquatic and riparian habitats as well as water quality. The interrelation of riparian habitat to neighboring lands and streams dictate that an entire watershed be used as the context for managing aquatic systems and riparian habitats. Management options range from excluding any activities in riparian areas to varying levels of vegetative manipulation and use in designated areas.
- 7) **Fire Management:** Wildland fire can be a serious threat to forest resources as well as to urban and other non-forest development. Prescribed fire can be a valuable tool for manipulating vegetation to achieve such management objectives as improved forest health. Timing, frequency, and location of prescribed burns remain issues. In all cases, the agency must provide adequate protection from the threat of unwanted fire, while also allowing fire to achieve planned objectives.
- 8) **Forest Health:** The spread of native and non-native invasive species of plants, insects, and pathogens; increased levels of stocking; and the continued suppression of wildland fire take a toll on Forest ecosystem health altering native forest composition, structure, and ecosystem function, while imposing economic and social costs. Some believe these damaging agents should be allowed to act upon the ecosystem without human intervention, but others believe management should act to reduce negative impacts.
- 9) **Timber Products:** Timber production raises several issues, including methods, amounts, locations, and types for harvest. Appropriate goals, including economic goals, need to be determined for this program.
- 10) **Minerals:** The American economy is highly dependent on mineral resources such as petroleum, natural gas, and coal. These resources occur on the DBNF, and in many cases the mineral rights are privately owned. While the rights of property owners must be respected and national needs accommodated, mineral extraction can adversely affect other resources such as soil and water, flora and fauna, heritage, and scenery. The Forest Plan revision should seek to balance these sometimes-conflicting interests.
- 11) **Recreational Opportunities:** The Daniel Boone National Forest provides a variety of dispersed and developed recreational opportunities to five million visitors each year. Growth in demand for recreational opportunities is likely to continue and new types of recreation may be introduced. While recreational activities can adversely affect Forest resources in various ways, differing recreational activities may create user conflicts or compete for the same resources. The Forest Plan revision should develop an appropriate mix of recreational opportunities that responds to increasing and changing demands and also provides adequate ecosystem protection.

- 12) Scenery Resource Management:** Visitors generally expect to find natural appearing, visually pleasing landscapes in the National Forest. Many uses and management actions can either enhance or degrade the visual esthetics that users seek in the Forest. This important issue should be kept in mind as management decisions are made.
- 13) Access Within the Forest:** The DBNF offers a variety of natural resources and recreational opportunities to the public. Access to the Forest via the road and trail systems is essential to fulfill these objectives. On the other hand, too many roads or trails as well as inappropriate types, placement, or use of roads and trails can limit the Forest's ability to sustain public benefits.
- 14) Specially Designated Areas:** Management direction can be tailored to distinctive parts of the Forest. While Congress may designate certain waterways as Wild and Scenic Rivers or set aside certain areas as Wilderness, the Forest Service can assign special status to Geological, Botanical, Heritage, or Scenic and other areas. Should any new sections of the Forest receive special administrative status or be recommended for Congressional designation?



Natural Arch, Somerset Ranger District.