



LAND AND RESOURCE MANAGEMENT PLAN

United States Department
of Agriculture

Forest Service

Southern Region



LAND BETWEEN THE LAKES NATIONAL RECREATION AREA

Land and Resource Management Plan

Land Between The Lakes National Recreation Area

Trigg and Lyon Counties in Kentucky
Stewart County, Tennessee

US Department of Agriculture, Forest Service

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Preface

UNDERSTANDING THE AREA PLAN FORMAT

This Land and Resource Management Plan (LRMP), or Area Plan for the Land Between The Lakes National Recreation Area (LBL), fulfills one of the mandates of the LBL Protection Act of 1998 (the Protection Act), which transferred LBL from the Tennessee Valley Authority (TVA) to the United States Department of Agriculture (USDA) Forest Service. The Protection Act required the Forest Service to develop a suitable Area Plan in accordance with the National Forest Management Act of 1976 (NFMA) as amended in 1982.

During the course of finalizing the Area Plan, the Forest Service concluded that the original outline used in the draft did not provide sufficient clarity to the public, nor provide program and project managers with a practical working management tool. A decision was made to restructure the Area Plan's outline, without omitting any information or sections. The result is this revised outline, which contains the same sections and information as the Draft Plan presented to the public, but is now in a more comprehensive and concise order.

The Preface contains an overview of LBL's Niche, a brief historical review and other important background information, and the basis for the Area Plan.

The Area Plan is organized into three parts:

Part 1 outlines the current conditions across LBL as the basis for describing the desired conditions for LBL's future. The Vision describes what visitors to LBL will see, or could see, over the life of this Area Plan. Included in this Part are the land allocations, or management direction, for the different land areas (forest, open lands, recreation and environmental education (Rec/EE) areas, etc.) of LBL. Finally, this Part contains the area-wide goals for LBL and encompasses the objectives and monitoring questions by which progress toward the goals will be gauged;

Part 2 describes the suitable uses for the land areas, and describes the program strategies for supporting the area-wide goals and objectives in Part 1. This part includes a prospectus of recent performance trends and projected future outcomes that follow the objectives in Part 1. It further outlines the performance risks, and monitoring and evaluation requirements of this Plan;

Part 3 contains the Design Criteria. These include Area Plan standards as well as an index of other sources of guidance that will be used at the project level in implementing this Area Plan.

Mission

LBL's mission is clearly and carefully stated in the Protection Act: "to protect and manage the resources of the Recreation Area for optimum yield of outdoor Rec/EE through multiple use management; to authorize, research, test, and demonstrate innovative programs and cost-effective management of the Recreation Area; to help stimulate the development of the surrounding region; and to extend the beneficial results as widely as possible."

Congress clearly dictated to the Forest Service what it intended in the Purposes (Sec.503) and Emphases (Sec. 511.b.2.) sections of the Protection Act. These and other parts of the Protection Act are legally binding directives that the Forest Service must follow, and which comprise the bulk of LBL's mission statement.

In addition, as a unit of the Forest Service, LBL will actively fulfill its role in support of the Forest Service's National Strategic Goals. There are four National Strategic Goals that are set forth in the USDA Forest Service Strategic Plan (2003 Revision.): ecosystem health, multiple benefits to people, scientific and technical assistance, and effective public service.

These national goals were developed to support the Forest Service's mission, which is "to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations." The area wide goals stated in Part 1 are reflective of LBL's commitment to fulfill the management mission for LBL, while supporting these national goals. Further support for both LBL's mission and the national Strategic Goals is found in the Program Strategies listed in Part 2.

Purpose

This Area Plan will guide the management of multiple uses, such as outdoor Rec/EE, and promote enjoyment and sustainable management of LBL's natural resources.

The outcome of the planning process is to create a management guide that describes the Regional Forester's expectations for future conditions and the strategies by which they will be achieved. This strategic document will not resolve issues in detail; it will provide a framework and guidance for future decisions. Similar to other kinds of strategic plans, this document does not commit the Forest Service to any specific project or local action. Rather, it describes general management direction, estimates levels of outcomes and outputs, and assesses the availability and suitability of lands for resource management practices and public uses.

The Area Plan will be implemented through a series of project-level decisions based on appropriate site-specific analyses and disclosures. It sets up a framework of land-use allocations, desired conditions, strategic goals, program strategies, and design criteria. During implementation, projects will be proposed to supply goods and services to the public, solve resource management problems, and move the resources and environment

toward the desired conditions. Public involvement will continue to be a priority during project implementation. Projected resource yields, types and amounts of services provided, and rates of implementation, will depend on future operating budgets.

The LBL “Niche”

From its creation as a unique peninsular land mass, LBL has provided a rich, majestic natural resource setting for a wide range of recreation opportunities and environmental education experiences. This combination sets LBL apart from other public lands across the country. The heritage of the area lends itself to a deep sense of pride and ownership among local residents, many of whom are former residents of the area that now makes up LBL.



LBL's shoreline and access to the lakes attract many visitors.

The two lakes, which make up 96 percent of LBL's boundary, attract approximately two million visits from throughout all 50 states to LBL and surrounding communities. Some 70 million Americans live within a six-hour drive of LBL, making it one of the most accessible National Recreation Areas in the United States.

Visitors to LBL can choose from a wide range of the most popular outdoor recreational activities. Campers find ample accommodations at more than 1,500

campsites in LBL's developed recreation areas. There are thousands of acres of backcountry areas that provide solitude for more primitive camping and exploring opportunities. Special use areas offer facilities specifically for equestrian sports and off-highway vehicle (OHV) riding. Biking, hiking, and nature viewing enthusiasts are afforded many opportunities, challenges and rewards along more than 260 miles of non-motorized trails. The surrounding communities provide still more options for overnight accommodations, attractions, and services that visitors desire.

LBL also provides an extensive array of environmental education facilities, programs and specialists that support individuals, families, and school groups, and provide educational opportunities to visitors. The environmental education effort at LBL offers approximately 1,200 interpretive programs to the general public and 900 formal education programs a year at both developed facilities and remote sites.

Within LBL's rolling landscape and forests is an abundant range of wildlife habitat, including a restored prairie that is home to a combined herd of bison and elk in the Eastern US. This Elk & Bison Prairie provides wildlife viewing in a setting designed to restore a part of what the region may have looked like before the arrival of European settlers.

All of these opportunities, resources, and characteristics have given LBL considerable leverage in its Demonstration role. The Demonstration Area designation for LBL encompasses three levels of action: Demonstrations within LBL; Demonstrations within the surrounding region; and Demonstrations with national impact or potential to impact at a national level.

Because of this three-tiered structure, Demonstration programs that may begin with results within LBL can be adapted and moved to both regional and national applications as they are refined and improved. These Demonstration projects include vegetation and wildlife management programs, Rec/EE programs and projects, business management, and fiscal processes.

LBL is a regional economic centerpiece, a national destination, and a national Demonstration Project site. Facilities and services provided across LBL need to support and complement, not compete with, local interests. The planning process is crucial to analyzing this fine balance and identifying the benefits LBL is uniquely positioned to provide within the region.

Historical View

Before the formation of LBL, the geographic area was known as the land Between the Rivers or simply Between the Rivers. Artifacts found by archeologists document Paleo-Indians (10000 - 7000 B.C.) as the first people to arrive in this area. The Archaic Period (7000 B.C. - 1000 B.C.) saw larger groups hunting and foraging in smaller territories. During the Woodland Period (1000 B.C. - 1000 A.D.), foraging and hunting continued. With the rise of the Mississippian Period (1000 - 1500 A.D.) agriculture began to supplant hunting and foraging as the basis of economy. An increased supply of food encouraged rapid population growth, and permanent villages developed into complex societies. In the Between the Rivers region, the tribes included the Creeks, Chickasaw, Choctaw, Shawnee, Yuchi, and Cherokee.

As early as 1540, European explorers passed through the area, followed by fur traders who established trading posts as early as 1692. Then in the late eighteenth century, settlers moved into Western Kentucky and Tennessee. These settlers saw a landscape that differs greatly from today. The local vegetation was described by these settlers as either swampy, upland and bottomland hardwood forests, or open savannas, prairies or barrens. The upland forests were in an open and mixed woodland condition, with canebrakes found along rivers and creeks (Close, *et.al.*, 2002).

American Indians maintained grasslands, also called savannas, by setting extensive and frequent fires for various life-sustaining activities, such as attracting large game animals to tender new shoots of grass. As settlers pushed the American Indians farther west, burning of the prairies stopped, and by 1810 the barrens had become almost completely overgrown by small trees and brush.

Post-European settlers to the Between the Rivers area came from Ireland, Scotland, England, Germany, and other European countries. Many of these first settlers were Revolutionary War veterans who were given land grants in lieu of pay for their military service to the new nation.

By the 19th century, agriculture was the dominant way of life Between the Rivers, and businesses grew up around agricultural communities. The most important industry of the 1800s in Between the Rivers was iron production. Vast tracts of timber covered the landscape, providing wood for the production of charcoal, which fueled the iron furnaces. The iron industry flourished Between the Rivers from 1820 until the beginning of the Civil War.



The Great Western Furnace is one of the many remaining heritage sites on LBL.

The Civil War brought a close to the iron industry era. Workers who had depended on the iron industry for their livelihoods had to turn to other sources such as logging and farming for income.

Beginning in the 1930s, the area that is now LBL was acquired by the federal government in several stages. The first acquisition occurred in 1937, when 65,000 acres of land was acquired and designated as the Kentucky Woodlands National Wildlife Refuge, managed by the US Department of the Interior.

Subsequent acquisitions came over the next three decades and were done to complete the Lake Barkley and Kentucky Lake projects. These two projects were primarily for the hydro-electric dams that resulted in the formation of the two lakes. The remaining private lands within the created peninsula were acquired to form a national recreation demonstration area, Land Between The Lakes, beginning in 1963. All public lands within the boundary were deemed more appropriately suited to development of the new area.

This lengthy history of displacement, forced relocation, and finally complete removal from the area, was marked by bitterness, resentment, and distrust among some of the former residents. They feel a closeness and relationship with the lands that are LBL because of the ties families had to the land for generations.

When TVA assumed the overall management of LBL in 1964, the condition of the natural resources in some areas was considered poor from an environmental standpoint. The forest occupied about 82 percent of the land base (as opposed to 92 percent today). In some areas, overgrazing, timber overharvesting, and erosion had reduced the productivity of the land. Some of the former residents had already instituted programs aimed at repairing the landscape, improving wildlife habitat conditions, and enhancing aesthetic qualities of the area. TVA continued this effort and provided an example of leadership in managing public natural resources to support Rec/EE.

In 1998, Congress passed The Protection Act to transfer the management of LBL to the Forest Service in the event TVA did not receive appropriated funding. In 1999, the management of LBL was transferred to the Forest Service through the Protection Act, which provided explicit directives.

Basis for the New Area Plan

The LBL Protection Act of 1998 called for the Forest Service to develop an Area Plan for LBL that complies with the basic laws that apply to all National Forest units. In the interim, LBL has been managed under the 1994 Natural Resource Management Plan (1994 Plan) developed by TVA as the Plan of Record.

It is important to note that portions of the management direction of the 1994 Plan will not change and is reflected in this Area Plan accordingly.

Development of the Area Plan

The Forest Service determined that three specific issues needed to be addressed in the revision of the 1994 Plan. The following issues are identified and addressed in the accompanying Final Environmental Impact Statement (FEIS):

- 1. Recreation and Environmental Education:** How will LBL best manage resources for the optimum yield of outdoor Rec/EE?
- 2. Vegetation Management:** How will the vegetation on LBL be managed, and what desired conditions would contribute best to the optimum yield of outdoor recreation, environmental education, and stimulation of regional economies?
- 3. Special Designations:** Should areas with special management designation continue to be managed under these designations or be changed? Should additional areas be designated for special management?

Four alternatives, or management approaches, addressing these issues were developed and analyzed in the FEIS, which lead to the development of this Area Plan. These alternatives represent a broad spectrum of management activities, and address the public concerns resulting from the input received during the public comment period. The Preferred Alternative, based on scientific analysis, evaluations, and public concerns, was developed into this Area Plan.

Additional Guidance of the LBL Protection Act

The LBL Protection Act provides clear and legally-binding direction for the Forest Service on the management of three other specific areas: cemeteries, mineral rights, and the ability to collect fees. This direction states that the Forest Service will “maintain an inventory of, and ensure access to, cemeteries within the Recreation Area for purposes of burial, visitation, and maintenance.”

In the mineral rights arena, the Protection Act states that “The land within the Recreation Area is withdrawn from the operation of the mining and mineral leasing laws of the United States”. Additionally, it allows the Forest Service to “use mineral materials for the development and maintenance of the Recreation Area.”

On the subject of fees, the Protection Act provides authority to charge reasonable fees for specific facilities and programs within LBL, but states that no general entrance fee to LBL may be assessed.

Public Involvement

The LBL Protection Act called for establishment of the LBL Advisory Board to advise LBL management on the means of promoting public participation for the planning process. The Board provided valuable recommendations that have been utilized throughout the planning process.

The Forest Service followed the guidance of NFMA and the National Environmental Policy Act (NEPA) for all public involvement during the Area Plan development. The Forest Service used many forms of communication and a wide variety of opportunities to engage the public and solicit public input during the planning process.

The Draft EIS and Draft Area Plan were released to the public on March 26, 2004, which marked the beginning of the public comment period. The official public comment period ran through June 30, 2004. Early in this period, the Forest Service held four open house public information sessions in gateway communities to provide the public with general guidance and information about the Draft documents. The Forest Service distributed more than 400 complete Draft document sets or its individual components (Summary, Draft EIS, and Draft Plan) to a variety of public locations (libraries, county executive officers, state and national Congressional offices, etc.), as well as to private groups and individuals. Complete details of the public involvement are found in Appendix A of the FEIS. Summaries of all public sessions are contained in the Project Record for this Area Plan.

The Forest Service received 286 responses to the Draft documents from across the country in the form of letters, emails, and faxes. The public comments received represent a wide range of viewpoints about the complete spectrum of LBL and the four alternatives evaluated in the Draft EIS. Each response was reviewed for specific actions that the

commenter wanted to see the Forest Service take in preparing the Area Plan, along with any supporting rationale about their recommended actions.

The comments received and their analysis proved an invaluable resource to the planning process in helping to maintain a focus on the important and relevant aspects of the direction for this Area Plan and the FEIS. The comments and responses are discussed in Appendix A of the FEIS.

Part 1

VISION

Introduction

The Area Plan for LBL serves two important functions. First, it is the primary management tool that governs, directs, and limits all of the programs and projects at LBL. Forest Service program managers and project coordinators will use this Area Plan as the basis for developing proposals for programs and projects. The Area Supervisor will use the Area Plan to gauge the appropriateness of the details of a program or project.

The Area Plan also serves as the standard the public will use to determine and measure how well the Forest Service is fulfilling its role as the manager of these public lands. In all future project proposals, the public will be involved at the levels established according to the laws that helped develop this Area Plan.

In order for this Area Plan to fulfill its role in both these areas, it must present a starting point or basis from which all future management decisions and proposals can be judged, as well as the future desired conditions that proposals and projects should work toward. This Part establishes that basis and describes the desired conditions the Forest Service will pursue through implementation of project-level proposals and programs. It also sets the goals and objectives by which the public and the Forest Service will gauge future management decisions.

Current Conditions

Visitation

Based on traffic counts and a calculation of visitors per vehicle, LBL receives close to two million visits each year. Visitation can be generally divided into three major geographic groups: 67 percent local visitors (from the seven counties surrounding LBL), 21 percent regional visitors (outside the surrounding counties but from adjoining states), and 12 percent national and international visitors. Peak visitation period runs between April and November.

The majority of LBL's visitors come from Kentucky, Tennessee, and Illinois, followed closely by Indiana and Missouri. The second tier of visitation comes from Arkansas, Ohio, Mississippi, Alabama, Georgia, Florida, Texas, Michigan, and Wisconsin. The third tier of visitation comes from Louisiana, Kansas, North Carolina, Virginia, Pennsylvania, New York, Iowa, Kansas, Minnesota and California.

There are many reasons why people come to LBL. The top five reasons, as reported in the 1998 Visitor Profile Survey, are:

- Fishing
- Family camping
- Scenic driving
- Hunting or scouting
- Wildlife viewing or study

Recreation Opportunities

The opportunities for visitors to experience a wide range of outdoor activities and educational experiences can make a trip to LBL exciting and different each time. A mix of active and passive, motorized and non-motorized, and developed and backcountry activities are currently permitted across LBL. Camping, hiking, biking, boating, swimming, fishing, hunting, wildlife viewing, driving for pleasure, horseback riding, off-highway vehicle riding, picnicking, canoeing, and nature photography comprise most of the recreational activities participated in at LBL. The level of participation, location of each activity, and their long-term sustainability, present a significant management challenge to the Forest Service. That challenge is determining how to supply the levels and types of outdoor experiences people desire while providing sufficient, proven measures that minimize the impact those activities have on the natural and cultural resources.

LBL currently offers recreation activities in a range of settings, from Semi-Primitive Non-Motorized (SPNM) to Rural (R). These settings have been classified utilizing the Recreation Opportunity Spectrum (ROS) which is a planning tool used to identify and evaluate the supply of recreation settings on national forests (see Appendix for further explanation). Most of LBL falls into the Roaded Natural ROS classification. The ROS map in the Appendix illustrates the distribution of these settings across LBL.

Camping is the largest single facility-based recreation activity on LBL with more than 416,000 visits in FY03. There are approximately 1500 campsites spread across LBL, with the vast majority of these sites located in four highly-developed campgrounds and six lesser-developed campgrounds, also known as lake access areas. The remaining campsites are called backcountry areas and offer limited facilities. These areas are more isolated than the developed campgrounds, and most have boat ramps. For these reasons, backcountry areas are popular among visitors seeking more solitude and/or easy access to the lakes. All campgrounds on LBL have been classified by their appropriate Development Level. See the Appendix for a complete list of campgrounds and lake access areas and their respective Development Level.

LBL offers more than 250 days of hunting opportunities for large and small game and waterfowl. Spring quota and non-quota hunts for turkeys and fall archery and quota gun hunts for deer are offered annually. Between 15,000 and 20,000 hunters apply annually for deer and turkey quota hunt permits. Approximately 20 percent of the visitors

surveyed in 1998 indicated participation in hunting or scouting for hunts while at LBL. Approximately half of the LBL survey respondents participated in fishing (Freeman,1998). Fishing piers, boat ramps, and access to the interior lakes and impoundments are available throughout LBL for fishing opportunities.

More than 260 miles of non-motorized trails traverse LBL, including the 68-mile North/South National Recreation Trail and approximately 100 miles of designated equestrian trails. Sections of the North/South Trail are shared by hikers with mountain bikers or horseback riders. The Canal Loop Trail system also serves multiple needs and is open for hiking and mountain biking. Other popular trails include the Fort Henry National Recreation Trail system and Hematite Lake trail. Hiking, backpacking, and mountain biking are experiencing an increase in popularity across LBL. In some areas, conflicts exist among the different types of user groups.

The 2200-acre Turkey Bay OHV Area offers many miles of designated routes for off-road driving experiences. Scenic driving and wildlife viewing activities are supported by more than 400 miles of classified roads.

Environmental Education

LBL has a long history of providing environmental education opportunities for both the general public and students of the region through facility-based and non-facility-based delivery methods. Environmental Education (EE) is an integrated program targeted at helping individuals become aware of their relationship with natural and cultural resources while supporting stewardship of these resources through individual visitor action.

The EE initiatives at LBL, like the larger Conservation Education and Interpretive Services initiatives of the Forest Service, target individuals of all ages, backgrounds, and interests. These individuals may be recreational visitors, scout troops or groups of teachers and/or students participating in formal educational programs. Utilizing various delivery methods, such as personal interpretation, printed media, exhibits, interpretive signage, and special events, these EE programs help visitors develop a better understanding, appreciation, and knowledge of natural and cultural resources.

Woodlands Nature Station, The Homeplace, South Bison Range, the Golden Pond Planetarium, and the Elk & Bison Prairie currently receive thousands of day-use and special-event visitors annually. Likewise, Brandon Spring Group Center provides overnight accommodations and extended-stay experiences for more than 120 organized groups every year. Within these facilities, visitors can experience firsthand the natural and cultural history of LBL and this region, often guided by trained interpretive staff. Numerous displays, multimedia shows, and literature provide visitors with varying levels of information designed to engage first time visitors, as well as inform and educate the more ardent nature and heritage enthusiasts.

The EE programs at LBL also offer a wide variety of non-facility-based programs and opportunities, which work in conjunction with the facility-based efforts. Non-facility-

based EE programs are presented away from a designated EE facility and can include staff-directed as well as self-guided opportunities. Interpretive signs, trails, and printed materials are often not associated with facilities and fall within this category. Forest Service personnel or volunteers leading educational programs in remote locations or campgrounds is considered a non-facility-based EE activity. Some examples of these programs are Junior Forest Ranger program, Passport In Time (PIT) project, Respect the Resources, and campground interpretive programs.

Heritage Resources

Heritage means different things to different people. To an archeologist, it may mean a site that is greater than 50 years old that meets the eligibility criteria for nomination to the National Register of Historic Places, as laid out in the National Historic Preservation Act of 1966 (as amended). To a former resident of this area, heritage may mean the family connections that date from the 1790s to present day. To American Indians, it may mean spiritual connections focused on the burial grounds of their people.

The LBL Heritage Resource Management Plan (USDA Forest Service, 2003) provides a detailed review of the area's history and the current state of knowledge regarding prehistoric and historic sites on LBL. The LBL Heritage Resource Management Plan has been reviewed by the Kentucky and Tennessee State Historical Preservation Officers (SHPO), as well as the Cherokee, Chickasaw, and Shawnee Tribes, and documents appropriate standards, guidelines, and heritage resource goals for LBL.

A list of sites cannot capture all the different meanings of history on LBL; the specific sites mentioned below are not intended to address all of the aspects that are important to all people. For one thing, no prehistoric sites are listed although they certainly exist on LBL. Many sites have been developed or marked in some way, so they may provide visitors with an appreciation of one aspect or another of the history of this area.

The iron industry that once flourished through this region is showcased at two locations on LBL: Center Furnace and the Great Western Furnace. Fort Henry, on the southwest portion of LBL, was one of three important outposts in this area for the Confederacy at the onset of the Civil War. Along with Fort Heiman, across the Tennessee River to the west, and Fort Donelson to the southeast on the Cumberland River, Fort Henry provided the South's first line of defense for Middle Tennessee.

There are more than 240 cemeteries located throughout LBL. These are important links for family lineage, and many are cared for by descendents of the families or by organized groups of former residents of the land Between The Rivers. The Forest Service is legally obligated by the LBL Protection Act to "maintain an inventory of and ensure access to cemeteries within the Recreation Area for purposes of burial, visitation, and maintenance."

The St. Stephen Church represents the architectural style of the period when LBL was in private ownership, and was restored by a volunteer group of former residents.

Vegetation

The essence of why people come to LBL for Rec/EE lies in the biological and physical components of the landscape. These environments are varied, distinctive, and unique for a variety of reasons. They enhance and support all of LBL's activities and programs, and their management is key to achieving LBL's mission.

Approximately 92 percent of LBL's land base is forest cover, primarily mature forest dominated by oak and hickory species. Other species and cover types include maple, beech, yellow poplar, pine, bottomland hardwood, and reverted old fields. TVA's 1994 Plan for the forest management program called for a mature, productive oak-hickory forest with a range of size and age classes. Under that plan, some areas of forest have been actively managed, including use of timber harvests, while other areas have received little to no active management.

Current management of the forest is designed to meet wildlife habitat needs, enhance visual quality of the landscape, promote use of environmentally responsible management practices, demonstrate sustainable forest management compatible with other uses, and support research methods and techniques in ecosystem management.

The Continuous Forest Inventory (CFI) from the 1996 survey demonstrated a 30-year trend toward big trees, with a major shift from intermediate-sized trees (12-16 inches diameter) to an abundance of trees more than 16 inches in diameter within the past decade. Because LBL management results in cutting only a small percentage of the net annual growth, the forest will continue to grow older and larger.

The CFI 30-year trend further indicates an increase of maple and poplar trees and a decrease in oak trees. Maple trees are increasing in the understory, mainly within the mesic sites below 460 feet elevation. American beech clumps are found in limited mesic locations. However, even on drier ridges and above 460 feet elevation, oak regeneration is often sparse. The age of the oak component of the forest and condition of advanced oak regeneration raise concern over the potential for future oak decline from disease and insect infestation.

Core Areas and Deferred Core Areas (as defined in the 1994 Plan), comprising approximately 45,600 acres of forested land, provide a baseline control for long-term ecological research. These areas are protected and managed to perpetuate their rare or unique attributes. Seven Core Area blocks range in size from approximately 2,500 to 11,000 acres, totaling more than 35,200 acres. Most of these larger tracts encompass entire watersheds. The remaining Core Areas fall in smaller blocks throughout LBL.

Mature forests on LBL generally range from 60 to 90 years old, which does not meet the age criteria for possible or existing old growth as defined in the Forest Service Region 8 Old Growth Guidelines. Until an Old Growth Inventory is completed by the Forest Service, Core Area acres are classified as future old growth.

Open lands management provides early plant succession to meet wildlife habitat needs, enhance visual quality and wildlife viewing opportunities, provide supplemental wildlife food and cover, and demonstrate ecological restoration measures. Approximately 10,650 acres of open lands are divided into two major cover types, cultivated and grassland. Cultivated openings include cropland and wildlife plantings, while grasslands include hayfields, maintenance openings, ecological restoration openings, old fields, and road and utility rights-of-way (ROW). Open land acreages have decreased (down from seven percent to approximately six percent of the land base) over the past decade due to forest encroachment and reduced active management.

Water and Soil

The water resource program at LBL is designed to maintain and enhance water quality, provide diverse aquatic and wetland habitat, protect riparian area functions, and provide information about water resource values to the public. Recent regional water quality assessments have not shown problems in LBL waters.

LBL contains very little interior wetland habitat, as most high-quality wetlands were inundated when the rivers were impounded to form Kentucky Lake and Lake Barkley. LBL's wetland habitats are identified on the National Wetlands Inventory (NWI) mapping system, a project of the U.S. Fish and Wildlife Service. Constructed wetlands at LBL are managed principally using moist-soil techniques. Existing developed wetlands are at Bear Creek, Long Creek, and Prior Creek. These provide resting and feeding habitat for shorebirds and migrating waterfowl. In addition to constructed wetlands, beaver ponds provide habitat for waterfowl, shorebirds, and other wildlife.

Most sizable floodplains on LBL were inundated by the lakes, leaving smaller headwater riparian areas. LBL has fewer riparian areas than most landscapes because of this inundation. Riparian area functions of concern are filtering runoff pollutants, interchange of surface and ground waters, stabilizing stream banks and channels, and providing large woody debris and shade to the channels.

LBL is divided into numerous watersheds that drain east and west into the two lakes. While most of LBL's watersheds are in good condition, watersheds at Turkey Bay/Turner Hollow, Crooked Creek, and Lick Creek are considered at risk, based on the 2003 Roads Analysis and Modeling in the accompanying EIS.

LBL contains numerous small, rather uniform, stream drainages. There are only 11 perennial streams. Most drainage catchments are too small to retain enough water to maintain year-round flow. Because most are intermittent, they offer little opportunity for recreation and do not support sport fisheries. The channels are downcut from original base elevation, and headcuts are prevalent along the stream profile. Substrates are gravel and cobble. Large quantities of bedload move after rainfall events and accumulate behind logs, outside channel bars, and at stream crossings. Many springs and seeps are present in LBL, and most appear to be seasonal. LBL has five constructed interior lakes: Energy Lake, Bards Lake, Honker Lake, Hematite Lake, and Duncan Lake.

Soils derived from parent materials (limestone or Cretaceous gravels) are low in nutrients over much of LBL. These soils are not favorable to cultivation or intense cultural activity because of rough topography and low site quality. Bottomland soils, composed of fluvial sediments, are relatively more favorable for cultivation and pasture but subject to flooding. Wind-deposited loess, derived from wide flood plains of the Ohio and Mississippi rivers, covers many of the slopes of LBL.

There are differences in soil types between Kentucky and Tennessee counties, in part because loess and coastal plain gravels are generally absent in Stewart County. Limestone outcrops are more common in the southern half of LBL, resulting in thinner, rockier soils. Overall, about half of the soils within LBL are classified as erodible.

Fish, Plants, and Wildlife

Habitat management is designed to provide for a diversity of cover types and successional stages. Forest community diversity is naturally relatively low, with mature oak forests predominating. Open land maintenance, prescribed fire, and timber removal are used to enhance habitat diversity.

There are an estimated 1,300 plant species and 355 animal species supported by LBL's landscape (TVA's 1994 Plan). Of these, the TVA Plan identified 119 species as endangered, threatened, or sensitive. As part of the analysis for this new Area Plan, 101 species of potential viability concern were identified through cooperation with the US Fish and Wildlife Service (USFWS), Kentucky State Nature Preserves Commission, and Tennessee Department of Conservation and Education. Currently, LBL cooperates with the USFWS to manage for five federally listed species: the bald eagle, the Interior least tern, gray bat, Indiana bat, and Price's potato bean.

Seven locally-rare communities are identified on LBL. Rare communities contribute significantly to plant and animal diversity. They occur infrequently on the local landscape, can provide key habitat attributes for threatened, endangered, and sensitive species, are generally characterized by discrete boundaries, and are small in area. The rare communities on LBL include calcareous cliffs and talus, canebrakes, springs and seeps, rocky shores and bars, lakeshores and mudflats, Virginia pine, and mountain-laurel.

Twenty-one species of fish inhabit LBL's interior lakes, while more than 75 species are found in streams. Invertebrate studies have found eight species of gastropods (Blair, 1985) and numerous populations of macroinvertebrates (Phillipi and Richter, 1990). Thirty-one species of fish were captured in the 11 perennial streams of LBL during a recent survey.

Demand species are associated with recreational wildlife pursuits such as hunting, fishing, and viewing. Because these activities are generally limited or restricted on private lands, LBL offers a unique opportunity within the region for those wishing to participate in these activities. Some demand species of interest at LBL are the bald eagle, Eastern bluebird, white-tailed deer, eastern wild turkey, gray squirrel, northern bobwhite, and fallow deer.

Infrastructure

Most of LBL's current infrastructure was developed during the late 1960s and 1970s, and many facilities are nearing the end of their design life. In previous years, several facilities were closed due to declining appropriated budgets, increasing maintenance costs, inflation, and low use. Forest Service efforts have focused on standardization of utilities, upgrading the electrical service, improving reliability, and influencing the built environment. This is being accomplished by reducing the deferred maintenance backlog, focusing on restoration activities at heavily-visited sites for safety, operational efficiencies, and other factors. The natural features are the focus on LBL with the goal that buildings should blend in with landform and setting. The types of buildings on LBL are listed in the Appendix. A synopsis of key facilities, as of 2004, can be found in the Prospectus in Part 2.

The transportation system on LBL is a mix of roads that were in place at the time of designation, and new routes that access facilities built since that time. The Protection Act delegates maintenance of LBL's paved highways to the two states: 43.1 miles in Tennessee and 75.6 miles in Kentucky. Safe, well-designed roads are essential for LBL to provide safe, adequate access for the public. The INFRA database contains 450 miles of classified roads. (See table in the Appendix.) There are approximately 290 miles of additional roads that were inventoried during the 2003 Roads Analysis, and must be evaluated based upon access needs and road condition. The Federal Highway Administration estimates \$34 million is needed for maintenance and upgrades of these roads over the next 10 years. For additional information on structures and roads, see the Appendix.

Vision for the Future and Desired Conditions of LBL

As regional and local populations grow and urban areas expand, the need for more recreational and environmental education experiences and opportunities will increase. The responsibility for meeting this increasing demand will fall to those areas and entities capable of providing outdoor recreational opportunities while sustaining natural environments. LBL will continue to fulfill its current role of providing this service to the public.

LBL will continue to be a destination point for visitors throughout the region and nation, thereby contributing to the local and regional economy. Maintaining and developing partnerships will be important to keeping LBL positioned as a premiere Rec/EE destination.

LBL will play a pivotal role in supplying and supporting the recreational and environmental education experiences people seek. Forest management will transition from the basic reforestation and erosion control work of the past 40 years, to managing for diverse, resilient, biological communities. Habitats will be provided for native and desired non-native plants, fish, and wildlife. All vegetation management activities will be designed to sustain or improve wildlife habitats, forest health, recreation opportunities,

or environmental education experiences. The public will continue to play an important role in project-level actions and decisions.

The Forest Service will maintain current management direction for the majority of recreational and educational facilities and developed sites. Developed facilities will continue to provide the degree of services and programs visitors have come to expect from a well managed site. However, management will also promote and increase support for dispersed day-use and extended-stay activities in anticipation of increased demand in dispersed recreational and educational activities and experiences. Dispersed activities and opportunities will become an extension of the developed Rec/EE facilities and sites that currently exist.

Program and project efforts will be directed toward improving and developing self-guided trail systems for nature viewing, hiking, biking, and horseback riding. Scenic lake vistas will be opened up, and the road system will support scenic driving, access to cemeteries, and access to dispersed recreational opportunities. Visitors will see some shift in the types of use or management emphases at some lake access areas, where shore fishing and swimming opportunities may replace some of the lesser-used boat ramps and campsites. Hunting and fishing will continue to be important dispersed recreation opportunities at LBL. Damage to natural resources caused by unmanaged recreation activities will be reduced, while managed recreational opportunities will continue to be provided. There will be more opportunities for accessing dispersed recreation and semi-primitive experiences. These semi-primitive experiences will be emphasized in land areas with Recreation Opportunity Spectrum (ROS) classifications of Semi-Primitive Non-Motorized, Semi-Primitive Motorized, and the sub-classification of Remote Roaded Natural. (See ROS map and classification information in the Appendix.)



Hiking and backpacking are popular dispersed recreation opportunities.

Environmental Education will emphasize more non-facility-based messages, programs, and projects. The current EE facilities will remain hubs for expansion of the reach and effect of the EE programs and projects. Environmental education messages, information and principles will be incorporated into all projects on LBL through diverse cooperative, interdisciplinary efforts designed to potentially reach every visitor to LBL. Environmental education programs will be integrated with recreation activities and will provide messages and information to recreational visitors that make them more aware of the importance of sustaining their environmental surroundings while participating in their desired activity. Through these targeted messages and programs, visitors' understanding about the environment, and the cultural resources and heritage of Between the Rivers will be increased. Visitors will be encouraged to develop personal commitments to actively minimize their impact on the environment at LBL and elsewhere.

A significant addition to the environmental education and recreation programs will be the creation of two Nature Watch Demonstration Areas. These two areas, one in Kentucky and one in Tennessee, will provide nature viewing opportunities, natural history interpretation, and environmental education. Vegetation in these areas will be managed for aesthetics and more viewable wildlife, as well as for showcasing a variety of vegetation management activities. The Woodlands Nature Station will serve as a hub for the Nature Watch Area in Kentucky, while the South Welcome Station will serve as a launching point for the Nature Watch Area in Tennessee. Initial development will be focused in Kentucky around the former environmental education area, because much of the infrastructure there needs only minimal improvements. Self-guided loop trails, road pull-offs, viewing blinds, and environmental education messages in these areas will engage visitors with the natural environment.



Nature watching is another popular opportunity for LBL's visitors.

Creation and development of two Oak-Grassland Demonstration Areas will establish open woodland conditions with rich and diverse understories of grasses and wildflowers, sustained by periodic prescribed fire. These demonstration areas will showcase ecological restoration and the benefits it provides to native wildlife and public recreational use. Restoration within these areas will re-create conditions similar to those which occurred in the region prior to European settlement and which are preferred habitat for many rare and declining species. Environmental education will be an integral component of activities in the Oak-Grassland Demonstration Areas. Visitors will be able to watch and learn about the application of various vegetation management practices used to restore native ecological communities.

Visitors to LBL will see active management of forests and other vegetation designed to support ecological needs for forest health and wildlife habitat, in addition to supporting recreational and environmental education goals. Much of the vegetation management program will be aimed at restoring ecological conditions to those best suited for sustaining native wildlife species. Vegetation management will target restoration and maintenance of oak woodlands and open oak forests, native shortleaf pine forest, canebrakes, and diverse structures characteristic of Old growth forests. Restoration of riparian area functioning and improvements of priority watersheds will be another focus of the resource improvements. Vegetation management activities will incorporate environmental education messages, themes, and information in programs and projects as much as practical.

Active management techniques will include the increased use of prescribed fire, which is documented to sustain native ecological communities and improve habitat for many

wildlife species. Prescribed fire will be used to maintain open lands and to stimulate understory growth in open forests and woodlands. Some tree cutting and thinning will be used to open dense forests, providing for growth of wildflowers and wildlife food plants; to diversify forest structure for songbirds and other wildlife; and to stimulate establishment and development of young trees that will increase the diversity of tree ages, making forests less susceptible to forest health threats. Tree cutting will often be accomplished through timber harvest, an economically efficient method that also provides economic benefits to local businesses.



Prescribed fires provide vegetation benefits and support Rec/EE opportunities.

Visitors will also see more large trees and many areas that are undisturbed. Large trees will develop over time across LBL as old trees are retained in both actively-managed and minimally-managed areas. Old growth forests, now currently rare or missing from LBL, will develop over time and become much more common. Forest Core Areas will typically receive minimal active management. These areas will provide large blocks of undisturbed forest for Old growth development, habitat for mature forest wildlife, opportunities for semi-primitive recreational experiences, and settings for environmental education. Two Tennessee State Natural Areas, located within Core Areas, will be managed in cooperation with the State of Tennessee. Core Areas may also serve as gauges or benchmarks in the monitoring and evaluation of ongoing ecosystem management practices at LBL and in the region. In addition to Core Areas, smaller patches within the general forest will also be managed for development of old growth forest characteristics.

Sustainable open land management will be demonstrated through ecological restoration of native grasslands, maintenance of hayfields, and rights-of-way, and continued agricultural practices. Open lands management is directed at providing habitat for wildlife, especially those species in demand for hunting and viewing. Open lands located on sites incompatible with sustaining other resources (such as in riparian corridors) will be allowed to revert to forest, or will be maintained in native grassland or canebrake.

The built environment, comprised of infrastructure, buildings, facilities and sites, will blend into the landscape as much as possible. These areas will support recreational, educational, administrative, and environmental objectives. Infrastructure maintenance activities will be performed in the most efficient and cost-effective manner possible while promoting the protection of natural and cultural resources. Reduction of backlog maintenance will continue to be a priority. The dark night sky resource will be protected by installation of appropriate lighting structures. Empire Farm and the Youth Station will

be decommissioned. The future of other facilities will be evaluated on a case-by-case basis, as needed.

Roads will continue to be integral to many activities at LBL but will be kept to the minimum number needed to meet the needs of multiple use management. The road system and its road segment maintenance levels will continue to be evaluated and modified, as appropriate. Evaluations will result in reconstruction or decommissioning of roads, when necessary, to improve watershed condition, facility and activity access, and wildlife habitat.

In its demonstration role, LBL will develop and test the programs, methods, and systems by which recreation, environmental education, and vegetation are managed, with the intention of promoting those elements that would provide benefits to other public and private land managers and units. Through the Demonstration Project role, the Forest Service will continually seek to sharpen its management policies and techniques with an eye toward exporting these innovative and beneficial approaches to others locally, regionally, and nationally. The programs and methods used at LBL will be in a constant state of evaluation for improvement and refinement, assuring that LBL will maintain a cutting-edge management focus in all disciplines.

Responsible fiscal management of operations and maintenance costs will optimize the Rec/EE mission of LBL. Fees will continue to be collected for appropriate activities and events in order to assist in recovering some operational costs. Management will create more opportunities for low-income visitors to be able to enjoy the fee-based activities mainly in the form of free or discount weekends. As stated in the Protection Act, there will not be a general fee for access to LBL.

Land Allocation Prescriptions

Description of Prescriptions (Geographical Desired Conditions)

In area plans, the land allocations, their management emphases, and desired conditions are described using prescriptions. Each prescription highlights the types and extent of management or activity that visitors to LBL can expect to see in a given land allocation or area. Within the descriptive paragraphs of the Land Allocation, there may be further sub-divisions of the overall allocations than are listed in the table at the end of this section. This is necessary to ensure complete and responsible management of all parts of each land allocation.

1. Natural Resource Stewardship

1.A. General Forest Areas

Emphasis:

General forest areas provide for a wide range of uses and conditions. Primary emphasis is to provide dispersed Rec/EE opportunities, a diversity of habitats, vigorous forests that are resistant to insects and disease, and functioning watersheds.

Awareness of resource management and protection is encouraged through environmental education within these areas. Resource management planning considers both the needs of the resource and that for dispersed Rec/EE activities and opportunities.

A diversity of wildlife habitats and native communities are provided, contributing importantly to the Area Wide goal of providing for viability of native and desired non-native plants, fish, and wildlife. Habitat diversity may be accomplished through favorable natural causes or through active management. Active vegetation management occurs using a wide range of tools and methods, most commonly including vegetation thinning, prescribed fire, commercial timber harvest, pesticide (herbicide) treatments, and open lands maintenance. Forest regeneration is typically accomplished through partial cutting methods, especially modified shelterwood and group and single-tree selection methods. Use of these methods results in a diversity of structural conditions for tree ages and sizes primarily distributed within two-aged or uneven-aged forests. Prescribed fire is used across large areas of the landscape, but in ways that result in variable effects to vegetation, contributing to overall habitat diversity.

Open lands are maintained using a variety of tools and methods, including prescribed fire, mechanical treatments, and herbicide treatments. Open lands management will provide a sufficient distribution of native vegetation, grain, and green forage for wildlife habitat diversity while enhancing visual variety. It will test and demonstrate sustainable open land management through native warm season grass restoration, maintenance of open lands, and agricultural practices and techniques. A portion of the open lands may be maintained in traditional row-crop cultivation and hay fields through a cooperative farming program to help maintain open lands at a minimal cost.

Desired Condition:

Forests within this area are predominantly mature oak-hickory forests, however mesophytic and riparian forests and planted pine are not uncommon. These large forests provide diverse habitats with abundant wildlife. Rare and special habitats are in good ecological condition supporting rare species. Older trees are abundant and widely distributed, providing snags, den trees, and downed wood for wildlife such as squirrels and owls. In many places, spacing between trees is wide enough to allow light at various levels of the canopy and forest floor, promoting vigorous crowns with reduced susceptibility to insect and diseases, and stimulating ground vegetation including oak regeneration. A variety of forest age classes and structures is present on the landscape, with naturally appearing transitions between vegetation cover types. Patches of young trees and dense areas of regenerating forests provide habitat for early-successional species such as yellow-breasted chats, and food and cover for species such as white-tailed deer and wild turkey. Although disturbance to forest vegetation is evident, such disturbances resemble natural patterns because mature trees are usually present on most acres, and edges are feathered and follow natural contours. Tree cutting operations are occasionally encountered with logging equipment present. Stumps and reclaimed skid trails are visible in past tree cutting areas. Evidence of fire is present in many areas in the form of blackened lower trunks. Occasional



Open lands provide wildlife habitat diversity and various viewing opportunities.

freshly-burned areas, with blackened ground and scorched vegetation, are encountered, but these conditions are short-lived as green-up occurs quickly and results in lush understories of grasses and wildflowers. Open lands, which include cultivated fields, wildlife plantings, maintained grasslands, and hayfields, are dispersed across the landscape. Ponds and waterholes are generally present in association with open land types. Wet depressions are scattered across the landscape.

The forest areas are actively managed providing a variety of motorized and non-motorized recreational opportunities. The area has a well-developed transportation system including roads and trails, which are removed when no longer needed. Management planning takes into account the compatibility of each activity with the specified ROS class of the area in which the treatment will occur. Settings meet ROS classification of Roaded Natural to Semi-Primitive Motorized. Commonly-occurring sounds from people and motorized activities, such as “watchable” wildlife viewing and driving for pleasure, are prevalent. Scenic vistas are dispersed across the landscape. Signs provide users with information and educational messages.

Watersheds are properly functioning by catching, storing, and slowly releasing precipitation. Stream channels have stable, well-vegetated banks and increased amounts of large woody debris budgeting sediment transport and flows. Road and trail crossings,

fewer in number than once existed, are located at stable sites and allow for adequate passage of peak flows and migration of aquatic life.

On xeric and dry sites (upland sites) oak-hickory forests are the predominant forest type. Major oak species on these sites include scarlet, chestnut, black, and black-jack oaks. Major oak forest community types are represented by mature open forest and mature woodland conditions, primarily maintained by fire. In treated areas, some levels of overstory are usually present, as are sustainable levels of oak regeneration in the understory. Most shade-tolerant species on these sites are sparse, as a result of open conditions and periodic fire. Sensitive vegetation and soils are minimally impacted from prescribed fires. Old growth conditions are most frequently in the form of oak woodland, but also include other mature oak forest conditions. Native grasses and herbaceous species are present in the understory of mature open forests and woodlands. Animal species that may be observed include squirrels, bats, bobcats, fence lizards, prairie warblers, Northern bobwhite quail, and great-crested flycatchers. Ephemeral headwaters are well vegetated with few defined channels. Old gullies are healed and channels are not expanding.

Oak species are also dominant on dry-mesic (transitional) sites. A mixture of upland oaks and more mesic northern red and white oaks, and yellow poplar are not uncommon. Forests on these sites are a little more multi-storied in structure than on xeric and dry sites. There is advanced oak regeneration in the understory and occasional regenerating forest patches are present.

Mesophytic and riparian forests are most common on mesic and alluvial sites. Species associated with these sites include a mixture of trees such as yellow poplar, northern red and white oaks, maples, American beech, black walnut, sycamore, and hackberry. Some examples of wildlife and understory vegetation that may be observed include the Louisiana waterthrush, wood thrush, Acadian flycatcher, Dutchman's breeches, trout lilies, trilliums, and Virginia bluebells. Multi-storied canopies with canopy gaps are common compared to two-storied or two-age (structure). There is less evidence of fire and timber harvest. Intermittent stream channels run cool and clear water for long periods after storm events and snowmelt. Seeps are located within stream valleys and feed stream flows. Streambanks are stable with little bank cutting and vegetated with plants adapted to moist sites and large trees with stabilizing root masses. Stream channel substrates are dominated by gravel and cobble. Large wood within the channels is prevalent and helps to stabilize banks and stream bottoms.

Planted pine forest types occur on all site types and include loblolly, Virginia, shortleaf, and white pines. These forests generally have a more closed canopy with variable understory densities, providing hiding and thermal cover. Foliage and structural form of pine species provides visual contrast with adjacent hardwood forest types. Some canopies may be more open when managed in association with adjacent mature open forests and woodland cover types.

In open lands, visitors may observe a diversity of wildlife such as white-tailed deer, bobcat, and coyote; many migrant and resident bird species such as red-tailed hawk, bald eagle,

Eastern bluebird, Northern bobwhite, and neotropical songbirds. Open lands consist of traditional row-crops, hayfields, wildlife plantings, old fields, and ecological restoration areas. The ecological restoration areas have a dominance of native short warm-season grasses, such as little bluestem and broomsedge; native tall warm season grasses, such as big bluestem, switchgrass, and Indian grass; or, a mosaic of short and tall grasses with a native forb and legume composition. Visitors may observe portions of the traditional row-crops remaining in fields after harvest for wildlife. Access to these areas consists of public roads, administrative roads, hiking trails, horse trails, and bike trails. Visitors enjoy a diverse pastoral landscape, set against the backdrop of naturally-appearing forested landscapes. These openings vary in size and shape, generally resulting from traditional cultural land use patterns; some exhibiting geometric straight-edged shapes, and others following natural landforms and watercourses.

Riparian areas and corridors are dominated by native vegetation that includes forests, grasslands, and canebrakes. Mesophytic forests are also common as well as the presence of some oak forests. These forests are inclusive of species such as sycamores, Northern red oak, canebrakes, and native warm-season grasses. Limited evidence of timber harvest may be present from the creation of canopy gaps and occasional forest regeneration patches. There are low densities of roads and trails, and low levels of exposed soil. Stream channels are well developed and stable, passing both intermittent and perennial flows.



Riparian corridors are a vital ecosystem component.

Springs and seeps feed cool, clear water to these systems. Substrates within intermittent channels and upper perennial channels are gravel and cobble. Transport of sediment load is regulated by copious amounts of large wood in the system. Gravel bars are stable along outside meander bends. The channels migrate laterally only after large storm events. Banks are vegetated by native vegetation with stabilizing root masses, including river canebrakes, bottom hardwoods, and other large riparian forest types. Most roads and trails are located 100 feet beyond the edge of the channels. Beavers are active in lower reaches and floodplains, providing regulated flows, large wood, and elevated water tables. Wetlands are increasing and expanding.

1.B. Core Areas

Emphasis

The Core Areas comprise approximately 42,000 acres designed to facilitate greater understanding of forest environments through collaborative research, administrative studies, and other working relationships. These areas serve as controls in comparative management

and, in most cases, have little to no management disturbance. Core Areas provide remote, semi-primitive recreational opportunities that have minimal impacts to ecological systems. They serve as large, medium, and small patches of future old growth and they include two State Natural Areas (SNA) including a native shortleaf pine restoration area. The two SNAs, Devils Backbone and Bear Creek, are managed in cooperation with the Tennessee Department of Environment and Conservation.

These areas provide good to optimal habitat for mid- to late-seral eastern deciduous hardwood forest associates. Management activities are limited to include only those needed to deal with forest health emergencies, wildfire, restoration and maintenance of native communities, and recovery of threatened and endangered (T&E) species. Vegetation management may be necessary to prevent a widespread outbreak of insects or disease. In particular, active management, including prescribed fire and timber harvest, will be needed to restore and maintain native shortleaf pine forests in the Devil's Backbone State Natural Area.

Desired Condition:

Core areas appear as having a naturally-evolving structural condition on the landscape due to low-intensity management within forested areas. Forests are primarily older with areas of continuous canopy and occasional gaps as a result of storms, insect or disease outbreak, fire, and reverting fields. A mix of species, including more shade-tolerant species than general forest, occurs in forest cover types across all site types. Forest cover types vary in canopy and understory structure and include many canopy gaps, snags, downed wood, and den trees.

Low impact environmental education and recreation activities are enjoyed by visitors. Visitors to these areas enjoy remote dispersed recreation opportunities such as scenic driving, bird-watching, wildlife viewing, nature photography, horseback riding, hunting, fishing, hiking, and reminiscing. Visitors enjoy a natural setting; however, they are not always completely isolated from sights and sounds of other human activity.

Within the Devil's Backbone State Natural Area, native shortleaf pine occurs primarily on xeric and dry sites with some evidence of fire and timber harvest. Open forest and woodland conditions exhibit grassy understories and shortleaf pine regeneration. Stands have well developed crowns with abundant cone production and some mixture of oak. Occasional areas of two-aged regenerating forest patches are present.

1.C. Oak-Grassland Restoration Demonstration Area

Emphasis:

The focus of these areas is to restore upland vegetation to conditions approximating those found at the time of European settlement. Based on historical accounts and ecological research, it is believed upland oak forests in this region were more open and interspersed with grasslands than they are today. Open conditions were created and maintained in large part through the use of fire by American Indians. Emphasis is to approximate these

conditions across the landscape within these Demonstration Areas through the use of tree thinning and prescribed fire.

These open conditions are expected to benefit many species of wildlife, including some that are rare or declining. They are also expected to provide a beautiful and diverse setting for dispersed recreation, wildlife viewing, natural history study, environmental education activities, and hunting. Although these conditions may be found in relatively small patches elsewhere on LBL, these Demonstration Areas seek to create such conditions over a large contiguous landscape in order to demonstrate the feasibility of ecological restoration at this scale, and the benefits it can provide to native wildlife and public recreational use. In order to gauge effectiveness of this restoration at meeting ecological objectives and public desires, an emphasis on monitoring and research is part of the vision for these areas. These areas have been selected adjacent to Core areas that can serve as unmanaged controls in monitoring and research studies. Additional



Oak-grassland areas provide many benefits for wildlife, recreation, and environmental education.

emphasis on enhancing opportunity for wildlife viewing, EE activities, and natural history study will be made at the Demonstration Area adjacent to The Homeplace.

These open areas will provide substantial opportunities for dispersed recreation and non-facility-based EE. A significant role will be played by the EE program during the development of the Oak-grassland areas. Providing

experiences in which visitors may observe and learn how application of various management practices may improve and sustain upland vegetation is an important aspect of these areas. As these areas evolve, the opportunities for dispersed recreation and education will continue to expand, providing a wide variety of experiences for visitors.

Desired Condition:

On upper slopes and ridges across the area, grasslands (less than 10 percent canopy closure) and open oak woodlands (10-60 percent canopy closure) are interspersed in variable mixtures. In general, tree density increases as one moves down slope, but densities are variable and transitions gradual. Understories are dominated by native grasses and wildflowers. Most mid and lower slopes support open oak forests (60-80 percent canopy closure), with understories containing oak regeneration in sufficient numbers to provide for sustaining oak on these sites over time. Mesophytic and riparian forests occur on some lower slopes, where, because of topography and moisture, understory fires burn at low intensities or not at all. In addition to the grasslands found predominately on upper slopes and ridges, other open lands, such as hayfields and croplands, may also be present. These are maintained by a variety of methods, with emphasis on restoring native grasses where compatible with other objectives.

The productive grassy understories, created by opening canopies and using periodic fire, provide abundant herbage, seeds, and insects to support a diverse and abundant assemblage of wildlife. Rare species that are adapted to open forests and grasslands, but have declined due to disappearance of these habitats, are present in viable numbers. These include Henslow's sparrow, barn owl, whip-poor-will, southern prairie aster, barbed rattlesnake-root, buffalo clover, and prairie parsley. Small mammals, such as field mice, voles, and rabbits are abundant, supporting increased populations of predators, such as hawks, foxes, and bobcats. Diversity of native wildflowers is high, supporting a diversity of pollinators, such as bees and butterflies. Deer and turkey use open forests and grasslands for feeding, and northern bobwhite populations are significantly enhanced.

In the long term, the setting for dispersed recreation and EE, wildlife viewing, nature study, and hunting is enhanced by diverse and abundant wildlife, abundant understory grasses and wildflowers, a historic natural context, and open forests that provide great depth of view. Some evidence of fire is present in the form of blackened lower trunks. Occasionally, fresh burns will be evident, with blackened ground and scorched leaves, but these conditions are short-lived due to quick re-growth of fire-adapted vegetation. In the short term, green-up may be slower until fire-adapted plant assemblages become well established. Evidence of tree thinning may be seen in the form of stumps and downed branches and trunks. Especially in the Demonstration Area adjacent to the The Homeplace, aids to wildlife viewing are present, such as signs, trails, or observation platforms or blinds.

The EE program should enjoy the most wide-spread application in these areas as they are actively managed and developed. As restoration activities progress the public will be encouraged to learn about them, their effects on native plants and animals, and their historical context.

1.D. Managed Wetlands

Emphasis:

LBL contains natural wetlands which are protected by plan direction and standards, and artificially created wetlands referred to as "managed wetlands." Managed wetlands are seasonally flooded to produce desired wetland habitat for a variety of wildlife. These wetlands also serve as recreation sites for wildlife viewing and environmental education. Existing managed wetlands on LBL are in the Cumberland River watershed at Long Creek in Kentucky, and at Prior Creek in Tennessee. These managed wetlands provide resting and feeding habitat for shorebirds and migrating waterfowl, and also provide habitat for amphibians, crustaceans, and insects.

Moist-soil management techniques are used in managed wetlands. These techniques involve seasonal water level manipulation to stimulate production of moist-soil plants and aquatic invertebrates. Using moist-soil techniques, impounded water is drained from flooded soils during the growing season to encourage native moist-soil plant growth. Gradual reflooding to a preferred depth of one foot or less in the fall and winter inundates the plants. This technique provides natural foods for shorebirds, waterfowl and other

wildlife through winter and early spring. Periodic maintenance of the wetlands levees and water control structures will occur.

Desired Condition:

Multiple shallow-water managed wetlands are present on LBL to provide beneficial habitat for shorebirds, waterfowl, amphibians, crustaceans, and insects. These wetlands will provide numerous opportunities to support the Rec/EE goals of LBL. Access to these areas will help provide sites that can be used to educate the public about the value of wetlands in ecosystems and the need to maintain and restore wetlands in the United States and throughout the world. Access will also provide multiple recreational opportunities for hiking and wildlife viewing of many species of shorebirds, waterfowl, amphibians, and other wetlands-associated wildlife.

Additional wetlands could be created as time and funds become available. The need for additional managed wetlands would largely be driven by EE objectives and habitat needs.

1.E. Wildlife Refuges and No Hunting Areas

Emphasis:

Wildlife refuges initially were designated to provide resting and feeding areas for migratory waterfowl. As bald eagle populations began to recover and their presence on LBL increased, the purpose of refuges was expanded to provide undisturbed sanctuaries for eagles as well as other wildlife such as shorebirds, and their designation was changed from waterfowl refuge to wildlife refuge. Wildlife refuges also serve as recreation sites for wildlife viewing and environmental education.

Additional areas within LBL are designated as No Hunting areas. Most of these areas provide safety zones around recreation and educational facilities.

Desired Condition:

Wildlife Refuges provide sanctuaries undisturbed by human entry for shorebirds, wintering waterfowl, eagles, and other wildlife. Refuges contain above average numbers of wildlife compared to surrounding non-refuge areas during refuge periods. Refuges provide abundant and unique wildlife viewing and environmental education opportunities during the refuge periods, and are very popular for migratory bird viewing, especially bald eagles, shorebirds, and waterfowl. Wildlife observation takes place from the perimeter of refuges or in specially designated areas within refuges (e.g. an observational blind where human presence is not visible to wildlife).

2. Administrative Areas

2.A. Utility Corridors

Emphasis:

Existing linear authorizations for electronic transmission lines and a pipeline for natural gas will continue within these designated corridors. Utility corridors authorized by prior agreement under the Tennessee Valley Authority will remain. Local distribution lines that are covered under the LBL Protection Act or an agreement with the utilities on the maintenance of their right-of-way (ROW) will be continued. These uses serve a public benefit like high voltage electric transmission lines and buried pipelines for natural gas.

Desired Condition:

Where possible, existing corridors will be expanded to add new transmission lines as needed, rather than creating additional areas. Where appropriate for other needs, burial of utilities will be encouraged. Compatible multiple uses and Memoranda of Understanding (MOU) are encouraged including collocation of communication and electronic towers on existing electric transmission towers and vegetation/wildlife habitat management areas. Coordination with utility companies will help in the development of appropriate management strategies for each right-of-way.

Utility corridors, electric transmission lines, and gas pipelines provide additional Rec/EE opportunities. Because of their wide clearings and easy access along many roads and trails, they are prime areas for viewing wildlife species that favor grass, shrubs, old fields, and forest edges. Wildlife species that rely upon habitats consisting of the grass/forb, shrub/seedling/sapling, pine woodland, and habitat generalist associations are most likely to be found on these corridors. Trees and shrubs typically do not exceed 20 feet in height and make up about one-third of the corridor's vegetation. The remaining two-thirds is a mixture of grass and forb species. The landscape character could range from natural appearing to pastoral/cultural. These lands are unsuitable for timber production.

Recreation use is generally hunting related, although trail systems often cross these corridors and can contribute to the natural experience. Dispersed recreation opportunities take advantage of the wide openings and easy access for new trails, trail extensions or for loop trails adjacent to Demonstration areas. EE efforts provide educational and information benefits to those dispersed recreationists who use these areas.

2.B. Infrastructure, Administrative, Maintenance, and Closed Facilities

Emphasis:

The emphasis in this allocation is to provide sites and facilities that are located and managed in a manner to best serve and support recreation, environmental education, and environmental stewardship programs. They will be maintained to provide for staff and visitor safety, to meet or exceed applicable codes, and to protect capital investment. Areas served and supported include offices, campgrounds, interpretive sites, wildlife viewing areas, work centers, visitor centers, welcome centers, and intern quarters.

Desired Condition:

LBL will provide administrative sites and facilities efficiently, effectively, and safely to serve the public and accommodate the work force. Forest Service maintenance facilities provide garage, shop spaces, storage and laydown area, as well as office space for the maintenance contractor serving LBL. Sites are readily accessed by road. The facilities will have barrier-free access.

Common architectural elements will be incorporated in a way that enhances the Forest Service image envisioned for LBL whenever facilities are built or renovated. Standardized mechanical, electrical, and structural materials and products will be used to improve safety and energy efficiency, increase reliability, and reduce maintenance costs. The landscape character could range from natural appearing to urban. Vegetation management techniques can include mechanical treatment or prescribed fire. Pest management will be conducted in support of the function of each facility.

Forest Service offices and/or visitor centers provide educational and interpretive opportunities such as exhibits and displays, books, videos, and brochures. Where feasible and appropriate, short hiking trails are provided in conjunction with visitor centers. Hunting and fishing are generally not allowed within administrative sites.

Former Youth Station and Empire Farm are decommissioned. Other closed facilities are maintained in a manner to slow degradation of buildings, utilities, and roads until a decision can be made during implementation of this Area Plan regarding their use, reuse, or disposal. The Forest Service will evaluate the historical and practical uses or benefits of any closed building or facility for its future potential. Minimum numbers of facilities require less active maintenance, thereby reducing the cost of maintenance and upkeep. Future decisions about facilities are determined at the project-level using all legally-required processes.

2.C. Designated Communications/Electronics Sites

Emphasis:

Communications across LBL are vital to maintain visitor safety and security, and to facilitate the maintenance and upkeep of the facilities and resources. Communication sites provide both a public and Forest Service benefit. Types of communication sites include self-supporting and guide-wired towers with related facilities and structures. The functions of the communications sites are primarily categorized into two areas. The first are public elements which include cell-phone, radio communications and other electronics networks. The second function is in support of LBL's communications and computer network. These designated areas are managed to minimize adverse impacts on other resources.

Desired Condition:

Existing special-use authorizations and forest requirements for communications and electronics will continue within these designated areas. Each site is developed and

utilized to its greatest existing potential, or expanded rather than creating additional areas. All user and forest equipment will be compatible to forest surroundings and other users' equipment and frequencies. New equipment should be as inconspicuous to the surrounding terrain as possible. Special-use permits will be issued for all communication uses not covered by provisions in the LBL Protection Act.

The landscape character could range from natural appearing to urban. Scenery management techniques are used to mitigate adverse impacts. Existing and proposed towers will be utilized to accommodate as many users as possible within technical constraints to reduce tower clutter. These areas are managed to retain low-growing vegetation, which conforms to the safe operating requirements of the utility and which reduces surface water runoff and erosion. Prescribed fire may be used for vegetation management. Recreation is not emphasized or encouraged at these sites.

3. Recreation and Environmental Education Areas

3.A. Developed Recreation Areas

Emphasis:

A developed recreation area is managed to provide the public with a variety of recreational opportunities in visually-appealing and environmentally-healthy settings. Large campgrounds, picnic sites, boat ramps, lake-access campgrounds, swimming beaches, primitive backcountry areas, and trails for hikers, horseback riders, and bicycle riders are all examples of the diverse opportunities and facilities found in developed recreation areas. Facilities are provided to enhance the quality of the recreational experience and/or to mitigate damage to the affected ecosystems. Campgrounds of various development levels are maintained to accommodate the varying interests of the camping public. (Further information on development levels and the current classifications of LBL's campgrounds can be found in the Appendix.) Visitors feel comfortable bringing their entire family to participate in recreational activities. These areas also serve as "gateways" to the wide diversity of recreational opportunities on the remainder of LBL.



Camping is among the most popular activities at LBL.

Desired Condition:

Visitors to LBL's developed recreation areas will be presented with diverse opportunities to enjoy the natural resources and landscapes across LBL. Choices for their recreation activities will include such activities as: shoreline fishing; day hiking; swimming; mountain biking; driving for pleasure; wildlife viewing; and hunting. Visitors will be able to choose from a wide variety of recreation opportunities in high-quality, well-

maintained settings. In developed recreation sites, the emphasis will be on those sites that serve as hub zones for dispersed recreation opportunities. Boat ramps, trailheads, and smaller dispersed campgrounds are examples of a hub zone developed recreation area. Other facilities, such as the Development Level 5 campgrounds, will be maintained under existing management guidelines. Improvements will be considered in developed sites based on needs for resource protection, actual and projected use, and visitor satisfaction. The land within the boundary of the developed recreation area will be managed for “watchable” wildlife species. Environmental education messages and information will be provided through interpretive signage and displays within developed recreation areas. These messages will provide education and information relevant to recreational users on topics such as littering, wastewater and runoff, soil compaction, and wildlife habitat needs.

Vegetation, wildlife, and pest management will be conducted in support of the function of each facility. All wildfires will be extinguished at these sites. However, use of prescribed fire is appropriate for reduction of hazardous fuels and vegetation management. All management activities are conducted in a manner which promotes sensitivity to the experience of visitors to each site.

Priorities for improvements are to:

1. Upgrade, relocate, or consolidate selected boat ramps with improved parking and lake access capabilities.
2. Develop public swimming areas on both lakes by upgrading selected backcountry camping areas with beaches and picnic areas. These areas will be made day-use only.
3. Create loop trails to enhance hike/bike opportunities, to make trail connections to gateway communities, and to add additional interpretative trails with environmental education emphasis.
4. Upgrade selected campgrounds with improved or additional utility hookups.

As these changes are made, some of these facilities will move to a higher development level. However, no additional recreation sites will be upgraded to Development Level 5 status. Following site evaluation, many sites could drop in level of development or be decommissioned and no longer be classified as developed recreation sites. No significant change in the ROS classification of the site is expected to occur with these improvements or changes.

The level of camper amenities will remain stable at developed sites. Development Level 5 campgrounds will be the only recreation facilities providing outpost type amenities. Wranglers Campground will remain the only recreation site providing food service in its outpost.

3.A.1. Developed Recreation – Elk & Bison Prairie and South Bison Range

The Elk & Bison Prairie (EBP) and South Bison Range (SBR) are two recreation/education facilities managed to provide nature viewing and environmental education opportunities. The EBP, located in the center of LBL, is a 700-acre restoration of the “barrens” of Kentucky that contains bison, elk and other native wildlife. A three-and-one-half mile scenic drive, with self-guided tours and interpretive stops, winds through the area. The SBR, located in the Tennessee portion of LBL, contains 180 acres of cool-season pasture and a herd of American bison. The South Bison Range features wildlife viewing pull-offs along The Trace, an interpretive kiosk, and a hiking trail that circles the entire range.

Emphasis:

The emphases of the EBP and SBR include nature viewing, environmental education, and restoration of native habitats and wildlife. The EBP features self-guided entry and drive-through tours, with a volunteer staff (called “The Bugle Corps”) that provides interpretation and security during peak visitation periods. Staff-led tours and educational programs are scheduled periodically at the EBP. The SBR provides self-guided wildlife viewing and interpretation.

Desired Condition:

The EBP seeks to restore the natural habitat and wildlife that sustained native peoples in the region long before the first European settlers came to Kentucky. With its unique mix of cultural and natural history and its design for year-round self-guided drive-through tours, the EBP provides an exciting outdoor experience that appeals to a broad range of local, regional, and national visitors. Further, the EBP serves as a magnet to bring additional visitors to LBL and to increase the length of stay for those visitors, resulting in additional benefits for LBL and the region. Historic native habitats will be restored through active habitat management, including use of fire and grazing. The elk herd will continue to serve as a catalyst and source of elk for reintroductions of free-ranging herds in the eastern United States.

The SBR is home to the largest publicly-owned herd of bison east of the Mississippi River, and continues to be an extremely popular visitor attraction for the Tennessee portion of LBL. From massive historic herds to near extinction, the south bison herd exemplifies how conservation efforts can lead to eventual recovery of a species. Pastures will be maintained through conventional pasture management practices, and future efforts will focus on a gradual shift toward native species of grasses and forbs.

3.B. Turkey Bay OHV Area

Emphasis:

Turkey Bay’s emphasis is to provide for off-highway vehicle (OHV) recreational opportunities on a system of designated trails within a well-defined area. A gatehouse, well house, bulletin boards, trailheads, and sanitary facilities are provided to enhance the quality of the recreation experience. Area attendants are onsite to promote safe and responsible riding and to provide other appropriate visitor services for users during their

visit. Area boundaries, route information and regulations are adequately communicated to make the visitor's experience safer and more enjoyable. Areas within Turkey Bay that have been denuded of vegetation and topsoil as a result of OHV impacts are a high priority for restoration and reclamation.

Although Turkey Bay provides primarily for motorized recreational opportunities, other day-use recreational opportunities such as hunting, fishing, berry picking, wildlife viewing and cemetery visits occur within the boundary. Turkey Bay is the only off-road motorized recreation opportunity at LBL.

Desired Condition:

The Turkey Bay OHV Area is managed in a sustainable manner to provide for a variety of motorized recreational opportunities. Designated routes are identified and managed; cross-country travel is eliminated. The area is managed for the long-term sustainability of natural and cultural resources and to meet all applicable standards for resource management.

Designated trails are established with input from the public. Trail difficulty levels vary within the area. User groups assist in the various aspects of constructing and maintaining trails as well as rehabilitating damaged areas. They also help provide safety training to users and promote responsible rider behavior.



Enthusiasts enjoy miles of designated trails inside Turkey Bay OHV Area.

Environmental education messages are communicated to foster current and future generations of riders who display safe and environmentally sustainable riding habits. Messages promote responsible rider behavior in order to develop habits that are appropriate both at Turkey Bay and other OHV riding locations on public lands. Programs such as Respect the Resources are used to assist in the delivery of educational messages.

Vegetation management may be conducted within a trail corridor as a means of enhancing the trail user experience or mitigating damage caused by insects, disease or natural disaster. Timber harvesting practices are modified to recognize the recreational and aesthetic values of these suitable lands. Prescribed fire may be implemented for wildlife habitat management, fuel reduction and scenery management.

This area is managed and monitored to absorb moderate to high levels of use while protecting natural and cultural resources. The landscape character is natural appearing with variations created by recreational facilities and uses. Recreationists enjoy traveling routes through a variety of landscapes. Along many of the routes, the views are restricted to the immediate foreground by vegetation and natural landforms, but occasional openings reveal middle ground or distant background and lakeside vistas. Constructed routes blend well with the natural environment. Visitors may see evidence of resource

management activities. However, treatments blend with the natural landscape, and vegetation diversity is enhanced over time.

Funding emphasis is aimed at resource protection measures, such as rehabilitation and restoration. Maintenance is performed to protect designated routes and minimize effects to soil, water, vegetation, and wildlife resources. The entire Turkey Bay area or portions thereof may be closed during periods of inclement weather or for rehabilitation work in order to protect natural and cultural resources.

Opportunities to provide camping facilities for OHV users will be considered in a separate analysis. Any further development of camping opportunities within Turkey Bay or at other locations in LBL will be limited by the ability of the Forest Service to sustain the natural and cultural resources as well as allot adequate funding to support the development.

3.C. Environmental Education (EE) Facilities

Emphasis:

The primary focus for the EE facilities is the delivery of environmental programs and activities to the general visiting public, as well as formal education groups (i.e., school groups) through a variety of personal and non-personal methods. The facilities and sites are managed to not only facilitate this delivery, but are also an important delivery tool. Through a diversity of interpretive, educational and recreational opportunities, visitors learn about LBL's natural and cultural resources, the management of those resources, and their personal stewardship roles and responsibilities. The EE facilities include Woodlands Nature Station, Golden Pond Planetarium and Observatory, The Homeplace Living History Farm, and Brandon Spring Group Center.

Desired Condition:

Visitors to the EE facilities will find accessible, barrier-free infrastructure, exhibits, and programs; well-maintained facilities and sites; and, delivery of high-quality interpretive and educational programs, activities, and exhibits.

Interpretive and educational programs, activities, and facilities are designed to provide opportunities at many levels of the educational process. Visitors should have the opportunity to:

- Understand and learn more about the ecological, cultural, economic, scenic, scientific, educational, and recreational values of LBL;
- Directly experience LBL's natural and cultural resources through hands-on activities, programs, or recreational activities occurring at the facilities or in other LBL locations (i.e., campgrounds, trails, wildlife refuges, wetlands, historic sites, etc.). Outreach opportunities with the surrounding communities and school districts are also explored.

- Be inspired to demonstrate their knowledge and understanding through personal stewardship actions (responsible behavior, volunteering, public involvement, donations, etc.).

Formal education groups (i.e., school groups) find programs and activities that connect to classroom educational objectives. Emphasis is placed on active, experiential learning.

Opportunities for enhancing existing facilities are evaluated periodically, and will include direction and priorities for improvements, such as wildlife exhibit upgrades and additions at Woodlands Nature Station; new interpretive center exhibit at The Homeplace; habitat study sites at Brandon Spring; and additional ways for utilizing the Golden Pond Planetarium and Observatory. Facilities are staffed at appropriate levels to ensure a high quality, comprehensive education program. Interpretive exhibits and displays meet or exceed industry standards, and supplement as well as complement each facility's purpose.



A group of students take part in a program at Hematite Lake near the Nature Station.

Facility sites are appropriate for most dispersed (non-motorized, non-mechanized) recreation activities, such as hiking, canoeing, nature photography, bird-watching, etc. However, open camping is not appropriate for these areas.

Vegetation and wildlife management activities will be in support of the function and purpose of each facility and its program. All wildfires will be extinguished at these sites.

Where current EE facilities exist in Special Areas, they will continue to be maintained, and may be improved or expanded. No new EE facilities will be built within Special Areas.

Access to cemeteries will be maintained. Few roads and trails will be created or improved to support the facilities and EE program. Utility corridors will only exist for serving the facilities.

Collection permits and permits for military operations/maneuvers are not appropriate for this designated area. Other special uses will be considered on a case-by-case basis and within policies and guidelines established for evaluation.

Maintenance buildings and other outbuildings necessary to support the EE facilities are as visually unobtrusive as possible. Administrative facilities are not to be collocated with EE facilities.

3.D. Nature Watch Demonstration Area

Emphasis:

The primary purpose for this recreational area is to offer nature-viewing opportunities and activities to LBL visitors. In addition to the EE facilities, a Nature Watch Demonstration Area provides an additional delivery tool for EE. This area may be managed intensely in order to provide nature-viewing opportunities, such as watching wildlife and viewing wildflowers, using a variety of vegetation, transportation, aquatic, landscape, and view shed improvements. Nature viewing, natural history interpretation, and environmental education activities are emphasized. Existing facilities are well maintained and updated as needed. A variety of scenery with an emphasis on natural features and characteristics would be appropriate.

Desired Condition:

Visitors to the Nature Watch Demonstration Area depart with a memorable, enjoyable, and educational experience. Well-designed accessible features that permit visitors a closer, more intimate experience with the natural world facilitate this experience. Examples of such features include improved roads; road pull-offs; interpretive panels, signs, and brochures; viewing blinds and platforms; and interpretive trails.

Viewing opportunities are designed primarily for two types of visitors:

- Those who enjoy seeing wildlife and scenic vistas and are “curious,” but have limited experience with nature viewing. Lack of knowledge about where, when, and how are barriers to participation.
- Those who have more nature-viewing experience and seek out opportunities as part of their recreational choices. These visitors may be described as “aspiring” viewers. They are also eager to learn more about what they are seeing and begin discovering how ecological systems function.



Wildlife and nature viewing are growing in popularity across the country.

For both types, viewing success is important to engage and then inspire the visitor so that additional knowledge and understanding leads to personal actions that result in stewardship of our natural resources. To facilitate viewing success, emphasis is placed on managing resources for more viewable wildlife species such as waterfowl, turkey, bald eagles and other raptors, hummingbirds, herons and other wading birds, butterflies, turtles, beavers, squirrels, raccoons, and deer, as well as for fall colors, wildflowers, and other native plants; and circumstances that allow

wildlife species to become more tolerant to human presence and provide closer viewing opportunities.

Visitors will find the northern Nature Watch Demonstration Area to be developed first in the planning cycle. The northern area is divided into two sections and managed for different types of nature-viewing experiences (see prescription map in appendix):

- 1) The eastern section will take advantage of existing infrastructure, habitat diversity, and proximity to Lake Barkley to provide viewing opportunities mostly from roads. Visitors will find the former Empire Farm and Youth Station areas utilized for providing scenic lake vistas, one-way drives, and access to viewing blinds and platforms, interpretive displays, or short trails. Structures associated with these former environmental education sites may be incorporated into the area's opportunities and settings, while others will be removed from the setting. In later stages of the planning cycle, the former Youth Station site may be determined as an appropriate area for providing a rustic camping and learning experience for families with young children, youth groups, or novice campers. Hunting pressure in this section would be greatly reduced to facilitate these types of experiences.
- 2) The western section will provide nature-viewing experiences that require higher levels of viewing skills and increased time investments. Hiking trails and old roads provide access into this section. Visitors find much less infrastructure and fewer "guided" viewing opportunities, but are rewarded with more personal and self-directed viewing experiences. While hunting pressure is also reduced in this area to facilitate nature viewing, wildlife management objectives may allow for additional hunting opportunities in this section, including additional youth hunting, quota bow hunting, or opportunities for physically challenged hunters.

Woodlands Nature Station plays an important role as a "hub" or center for nature-viewing and other EE and recreational activities in the northern Nature Watch Demonstration Area. It serves as the primary information source for the season's nature viewing, provides staff-led programs and activities in the area, and facilitates opportunities for school and other organized groups.

New developed recreation sites would not be appropriate within this Nature Watch Demonstration Area. This area would be suitable for minimal recreation activities that complement the Nature Watch objectives; however, open camping is not appropriate.

Visitors to the southern Nature Watch Demonstration Area will find nature viewing opportunities that are accessed primarily by trails. Viewing blinds or platforms, interpretive displays, and self-guided interpretive trails may be appropriate tools to facilitate viewing



Migrating bald eagles are popular subjects for nature viewing enthusiasts.

opportunities.

An integral part of the education process and purpose of the Nature Watch Demonstration Area is demonstration examples showcasing active as well as minimal management activities. Examples of active management activities would include stream rehabilitation, prescribed fire, and vegetation management including logging, open lands management, and vegetation type conversion. Determination for handling wildfires is decided on a case-by-case basis in this designated area.

Interpretation and education about threatened and endangered species and their habitats, and rare plant and animal communities, will be included within the education program goals and objectives. Management activities within the Nature Watch Demonstration Area, related to these species and habitats of special concern, must meet conservation and protection objectives as defined in other parts of this plan.

Various activities in general forest and open fields areas are interpreted and highlighted to increase knowledge of natural resource management. An integral part of these demonstrations is education about the “whole” – comparisons, benefits and trade-offs, and successes and failures.

Collection permits and permits for military operations/maneuvers are not appropriate for this designated area. Other special uses will be considered on a case-by-case basis and within policies and guidelines established for evaluation.

Utility corridors existing in this area will be evaluated for demonstration opportunities, such as choosing native vegetation for view shed enhancement or managing as long strips of barrens or prairies.

Heritage resources within the area will be managed as part of the educational emphasis. Research that will further the enhancement of nature viewing and environmental education is appropriate. Core Area designation is compatible within this Nature Watch Area with exceptions of existing facilities, intensely managed areas supporting the facilities, and current access. Other compatible designations include wildlife refuges and study areas.

Compatible Uses and Use Strategies

The natural and physical resources of LBL can be used in a variety of ways to support a wide range of Rec/EE opportunities. Management activities designed to enhance Rec/EE opportunities while sustaining the resources occur across LBL. Just as important as providing opportunities, is determining what activities and management functions are compatible in each land allocation. These uses support the emphasis and desired conditions in each land allocation. As noted in Table 1.1, most of LBL is suitable for timber production according to analysis in the FEIS. However, because the mission of LBL centers around sustainable resources to support LBL's legislated mission, forest management will center around needs of the wildlife, forest health, recreation, and environmental education, rather than timber production.

Table 1.1 - Compatible Uses. These uses, and those not listed, are subject to the standards and other direction of the Area Plan. (S=Suitable; NS=Not Suitable)

Use	General Forest	Core Areas	Oak Grassland Demo	Admin. Areas	Developed Rec./EE Areas	Turkey Bay	Nature Watch Demo	Cemeteries
Timber Harvest	S	NS ⁽¹⁾	S	NS	S	S	S	NS
Prescribed Fire	S	S	S	S	S	S	S	NS
OHV	NS	NS	NS	NS	NS	S	NS	NS
Administrative Access	S	S	S	S	S	S	S	S
Hunting	S	S	S	NS	S ⁽²⁾	S	S	NS
Camping	S	S	S	NS	S	S	NS ⁽³⁾	NS
<p>⁽¹⁾ Except for rare or special communities, or catastrophic events and emergencies.</p> <p>⁽²⁾ Special scheduled late season hunts.</p> <p>⁽³⁾ Unless by special permit or program.</p>								

Acreage Table of Land Allocation Prescriptions

In order to better understand the effect that management activities may have in a given land allocation, it is necessary to know the sizes of the areas that may be influenced or changed because of these activities. The table below gives the sizes of the major land allocation categories in acres. These acres are also mapped in the Appendix.

Acreage Disclaimer: Prescription allocations were mapped for each alternative using GIS applications and existing coverages. Acreage discrepancies reflect a margin of error created by the digital representation of conceptually based alternatives. These acres have been rounded to give approximated acres for each prescription area.

Table 1.2 Prescription Area Acres

Prescription	Acres
1. Natural Resources Stewardship	
1.A. General Forest Areas	104240
Forested	(98940)
Open Lands	(5300)
1.B. Core Areas	41800
1.C. Oak-Grassland Demonstration Areas	8630
1.D. Managed Wetlands	160
1.E. Wildlife Refuges and No Hunting Areas	30
2. Administrative Areas	
2.A. Utility Corridors	760
2.B. Infrastructure – Administration, Maintenance, Closed facilities*	4550
2.C. Designated Communication/Electronics Site	9
3. Recreation and Environmental Education	
3.A. Developed Recreation Areas	3780
3.B. Turkey Bay OHV Area	2160
3.C. Environmental Education Facilities	1270
3.D. Nature Watch Demonstration Area	3890
Total Acres	171280

*Acreages for Roads and Road Rights of Way are included to account for land area associated with roads

Area Wide Goals

The foundation of this Area Plan lies in the Area Wide Goals and Objectives. The goals are concise statements that begin to focus the picture of how LBL will look in the future. These goal statements form the basis from which the objectives are formed, which in turn drive the focus of the Program Strategies listed in Part 2.

The objectives listed below each of the goal statements form the time-specific or measurable, planned results that will help meet the established goals. They give form to the monitoring and evaluation processes that will eventually gauge how successful LBL is in moving toward the desired conditions. The monitoring questions and measures listed with each goal are incorporated into the Area Plan's Monitoring and Evaluation sections of Part 2 and in the Appendix.

Goal 1: Prioritize projects to provide the greatest recreation, environmental education, and resource stewardship benefits.

- OBJ1a: Eighty percent of all special projects will have identified and demonstrated benefits to recreation, environmental education, and resource stewardship. (Special projects are those projects in addition to routine operations and maintenance.)

Some key focus areas for projects may include:

- Unmanaged recreation, including OHV in Turkey Bay
- Watershed improvements in priority watersheds
- Forest health, including invasive species
- Operational efficiency and infrastructure consolidation
- Nature Watch Demonstration Area projects
- Dispersed recreation projects
- Oak-Grassland Demonstration Area projects

Monitoring Questions:

- Has the Forest Service made progress toward providing satisfactory recreational and environmental educational experiences to visitors while providing for resource stewardship?
- Have resource management projects been integrated?

Goal 2: Emphasize partnerships and cooperation with citizen groups, community businesses, private corporations, tourism organizations, and government agencies.

- OBJ2a: Establish at least one local partnership for tourism, economic development, or environmental education; and at least one new cooperative with a regional, state, and federal agency or organization annually in support of the LBL mission.

- OBJ2b: Increase visitation to more than 2 million visitors per year by the end of 2015 to support local and regional economies.

Monitoring Question:

- Has the Forest Service made progress toward supporting vitality of gateway communities and maintaining/enhancing relationships with its neighbors and regional organizations?

Goal 3: Utilize a variety of methods and opportunities to provide an environmental education message to every visitor.

- OBJ3a: Insure that 80 percent of LBL communications, programs, and activities have an interwoven environmental education message.
- OBJ3b: An average of one to two user impact challenges will be addressed annually through environmental education. Some key focus areas for targeting education messages may include:
 - Responsible OHV use in Turkey Bay
 - Shoreline litter
 - Invasive species
 - Responsible equestrian activities
 - Responsible nature viewing behaviors
 - Protection of trees within developed areas

Monitoring Question:

- Has the Forest Service made progress toward successfully changing behaviors as a result of environmental education experiences to visitors?

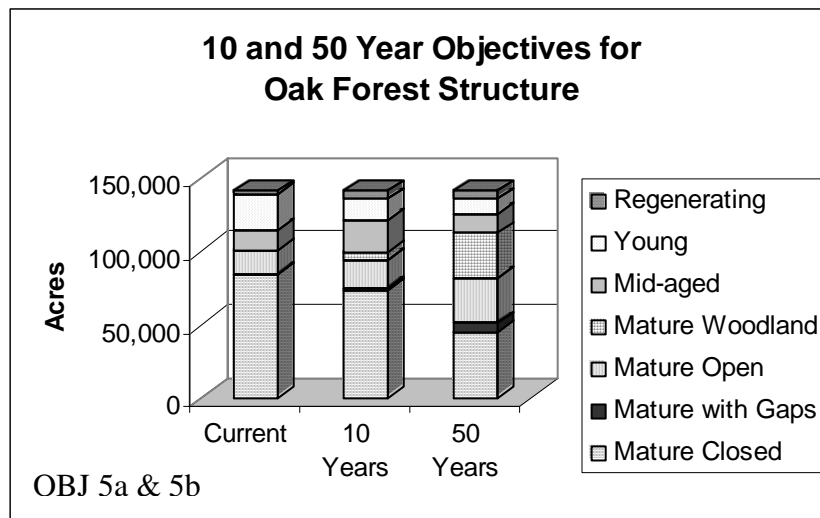
Goal 4: Manage natural and physical resources, and authorized Forest Service activities, to reduce erosion or deterioration of riparian areas and watershed conditions.

- OBJ4a: Within a 10 year period, improve two watersheds by one condition class (see definition of watershed condition class in glossary).
- OBJ4b: The 10-year trend will be to reconstruct 10 to 15 miles of trail annually.
- OBJ4c: Unneeded roads will be decommissioned to improve watershed condition and wildlife habitat. The 10-year trend will be one to three miles per year.
- OBJ4d: Maintain to objective maintenance level, 75 percent of system roads and 75 percent of trails annually

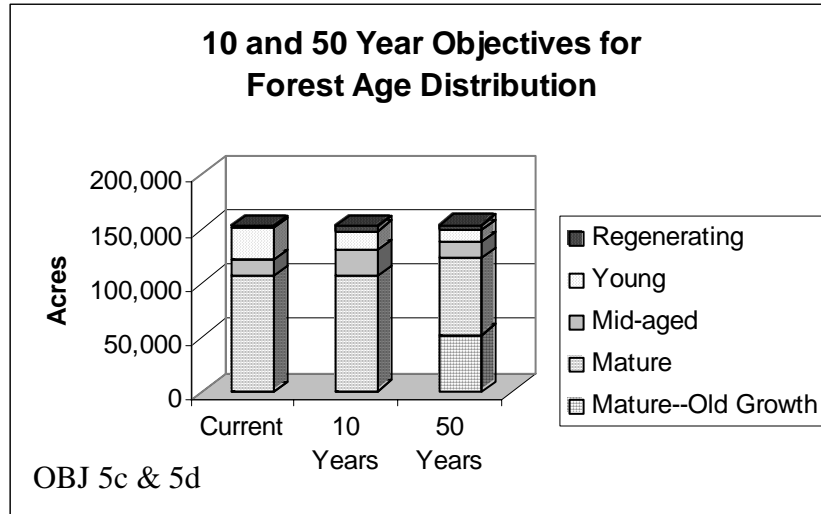
Monitoring Questions:

- Has the Forest Service made progress in reducing erosion and improving watershed conditions and how was this accomplished?
- Has the Forest Service established baseline data for channel classification of its major intermittent and perennial streams?

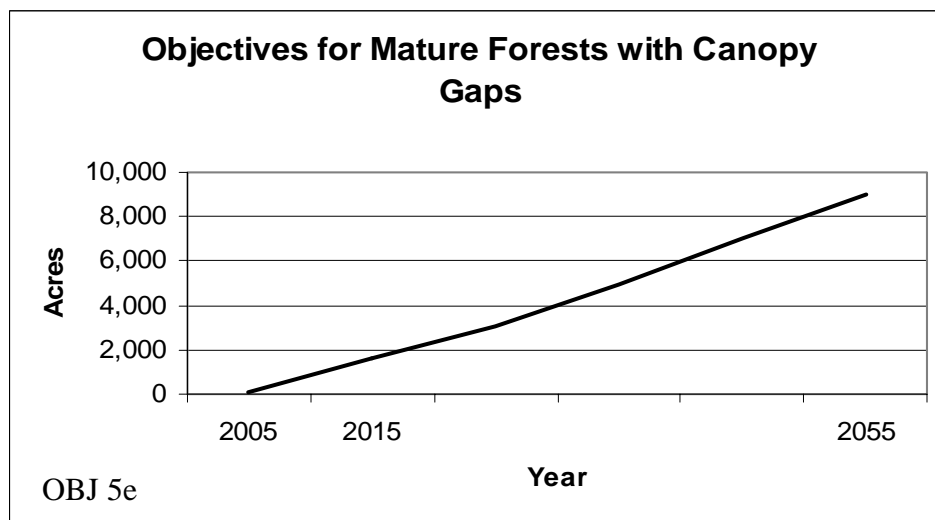
Goal 5: Use a collaborative approach to maintain and restore: 1) a diversity of plant and animal communities that support viability of associated plants, fish, and wildlife; and, 2) sustainable levels of habitat and wildlife populations to support public demand for wildlife-related recreation.



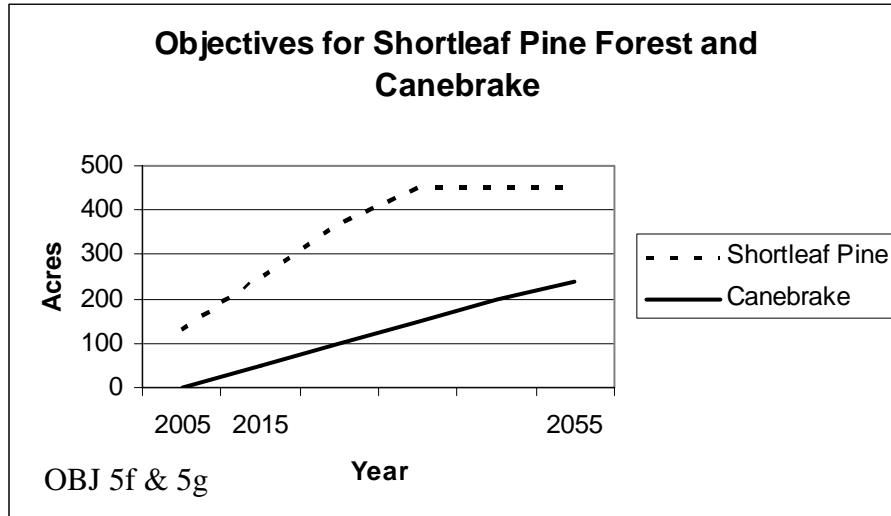
- OBJ5a: In mature oak forests, provide open forest structure on approximately 19,000 acres by the end of the first decade with a long-term objective of 31,000 acres.
- OBJ5b: In mature oak forests, provide woodland structure on approximately 6,000 acres by the end of the first decade with a long-term objective of 30,000 acres.



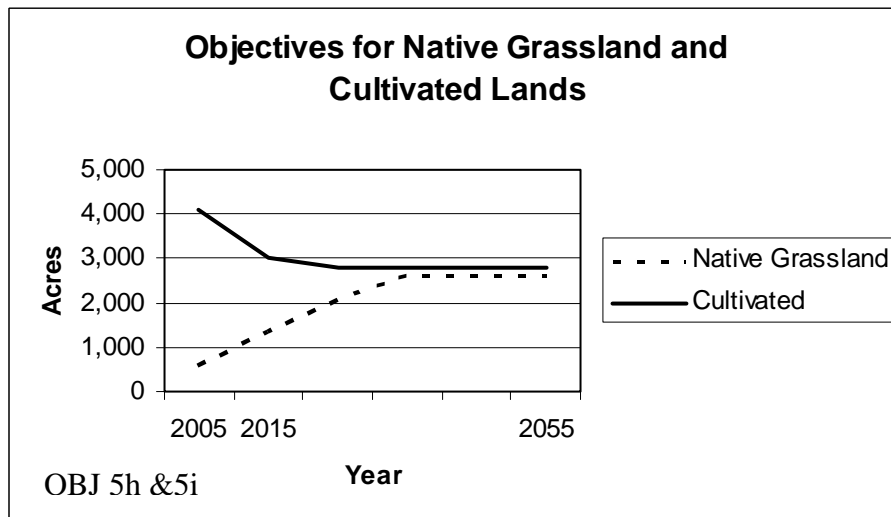
- **OBJ5c:** Provide a sustained supply of regenerating forest habitats totalling approximately 5,400 acres at any point in time. Regenerating forest will be treated predominantly within oak forest although other forest types and natural disturbances will be included.
- **OBJ5d:** Increase the abundance of mature forest habitats toward achieving the long-term objective of approximately 123,000 acres of mature forest, of which 52,000 acres will meet old growth criteria.



- **OBJ5e:** In mature forests on moist sites, provide canopy gaps on a minimum of 1,600 acres by the end of the first decade with a long-term objective of a minimum of 9,000 acres.

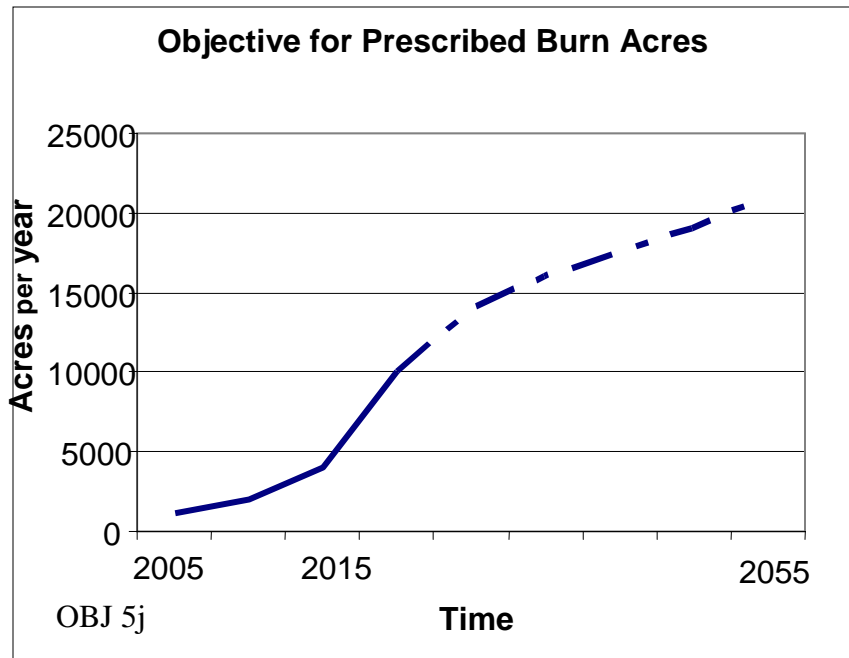


- OBJ5f: Create and maintain at least 250 acres of shortleaf pine forest by developing desired mature open forest and woodland structural conditions over the first decade with a long-term objective of 450 total acres of shortleaf pine forest.
- OBJ5g: Restore 50 acres of canebrake over the first 10 years of Area Plan implementation, with a long-term objective of 240 total acres of canebrake.



- OBJ5h: In addition to the approximately 600 acres of open lands currently in native grasses, restore native grasses and forbs to another 750 acres of current open lands within the first 10 years of Area Plan implementation, with a long-term (50-year) objective of 2600 total acres of native grassland.
- OBJ5i: Maintain approximately 10,600 acres in open lands - cultivated and grassland cover types to - support game species, early successional species, and watchable wildlife. Approximately 1100 acres of this 10,600 will be converted

from cultivated field to grassland within riparian corridors over a 10-year period to improve riparian functions.



- OBJ5j: Restore and maintain fire regimes and fire return intervals in fire dependent communities by prescribed burning an average of approximately 10,000 acres per year by the end of the first decade, with a long-term objective of 21,000 acres per year on average. Some acres will incur repeat fire application during the planning period.

Monitoring Questions

- How well are species of viability concern being maintained on LBL?
- Are non-native invasives an increasing threat to LBL?
- How is management of LBL affecting recovery of threatened and endangered species?
- How is management of LBL affecting demand for wildlife-related recreation?
- How is management of LBL affecting special habitats and major biological communities?
- Is the forest less likely to be affected by insects, disease, and wildfire?
- Has the Forest Service made progress toward identifying old growth stands on the ground?

The following Management Indicator Species (MIS) have been selected to help indicate effects of management on the resource issue identified.		
Common Name	Habitat Objectives	Resource Issue
Price's potato bean	OBJ 5e	Recovery of this Endangered Species
Pileated woodpecker	OBJ 5d	Providing snags within forests
Eastern bluebird	OBJs 5b, 5i, and 5j	Providing snags in open habitats, and meeting demand for nongame wildlife viewing
Acadian flycatcher	OBJ 5d	Provision of mature forest within riparian areas
Whitetail deer	OBJs 5c, 5d, 5i, and 5j	Meeting demand for hunting
Eastern wild turkey	OBJs 5c, 5d, 5i, and 5j	Meeting demand for hunting
Northern bobwhite quail	OBJs 5h,, 5i, and 5j	Meeting demand for hunting and providing quality native grasslands
Prairie warbler	OBJ 5b	Restoring oak woodlands
Great-crested flycatcher	OBJ 5a	Providing mature oak forest in open structural conditions
Wood thrush	OBJ 5e	Providing complex canopy structure within mesophytic and riparian forests and providing mature forest interior habitat
Eastern meadowlark	OBJs 5h and 5i	Providing grassland habitat
Yellowbreasted chat	OBJ 5c	Providing regenerating forest habitat

Goal 6: Demonstrate and widely export innovative, efficient, and effective management techniques that can benefit others.

- OBJ6a: Each year, export three to five demonstration products.

Monitoring Questions:

- Has LBL produced measurable results from demonstration projects that have led to positive changes on other units?
- How many demonstration products have been exported?

Goal 7: Enhance dispersed recreational and environmental education opportunities throughout LBL.

- OBJ7a: Rehabilitate one to two areas contributing to dispersed recreation opportunities (e.g. backcountry, lake access, etc) annually as determined by the realignment process, based on meeting present and anticipated user needs, providing resource protection, reducing maintenance costs, and reducing infrastructure.
- OBJ7b: An average of one to two miles of trail will be constructed annually.

- OBJ7c: Complete an average of one interpretive project annually within the Nature Watch Demonstration Areas and Oak-grassland Demonstration Areas.

Monitoring Question:

- Have dispersed recreational and environmental educational opportunities at LBL been enhanced?

Goal 8: The LBL Area Plan will remain effective and usable and lead to accomplishments that support National Strategic Goals.

- OBJ8a: A user-friendly and informative Area Plan monitoring and evaluation report will be produced annually and include comparison of LBL accomplishments and National Strategic Goals.

Monitoring Questions:

- Are the goals of the LBL Plan leading to accomplishments that support national objectives?
- Are Plan objectives and standards being applied, and are they accomplishing their intended purpose?

Part 2

STRATEGY

Introduction

Part 2 of the Area Plan contains the overall strategy that will be applied to achieve the Vision of LBL. The operation and coordination of the various programs within LBL are key in the Forest Service's success in progressing toward the desired conditions discussed in Part 1. The Strategy of the Area Plan supports both the Forest Service National Strategies and the mission as stated in the Protection Act. This part also describes how progress toward the desired conditions will be monitored and discusses how research will support the Operational Monitoring Plan.

Program Strategies

Environmental Education

Primary Strategies:

- Develop the Nature Watch Demonstration Areas to provide nature-viewing opportunities and experiences as avenues for engaging “curious” and “aspiring” viewers in order to deliver environmental education concepts, principles, and messages. Use an interdisciplinary approach to manage the Nature Watch Demonstration Areas to provide these opportunities while protecting and improving the natural and cultural resources of LBL.
- Design and provide environmental education opportunities desired by the public that increase knowledge, appreciation, understanding, and stewardship of LBL's natural and cultural resources and promote the values of public lands.
- Provide interpretive services and environmental education to a wide spectrum of the public, including school groups, other organized groups, and recreation users.
- Encourage formal educators to view and utilize LBL as an outdoor classroom.

Supporting Strategies:

- Enhance the role of Woodlands Nature Station as a hub for a variety of recreational and educational activities and opportunities within the northern Nature Watch Demonstration Area.
- Encourage involvement of school groups and other organized educational groups in biological surveys and monitoring studies within the Nature Watch Demonstration Areas and Oak-Grassland Demonstration Areas.

- Utilize the Respect the Resource program as a means to foster responsible individual behavior to minimize visitor impacts throughout LBL.
- Provide experiential activities that meet educational, recreational, and social objectives for a wide spectrum of organized groups utilizing Brandon Spring Group Center.
- Illustrate past and present interrelationships of humans and the natural world through programs, native wildlife and plant exhibits, and activities at Woodlands Nature Station.
- Provide educational programming at Golden Pond Planetarium that illustrates the connection between humans and our universe; utilize programming at the Planetarium and Observatory to educate visitors about the importance of a dark night sky.
- Provide the highest level of care for animals at The Homeplace and Woodlands Nature Station as outlined in the most current protocols and procedures.
- Ensure unity of design for all interpretive signs, exhibits, information handouts, and brochures by adhering to established LBL design elements and most current professional industry standards.
- Maintain a professional, well-trained environmental education staff by having individuals obtain or work toward professional certification from a nationally recognized professional environmental education or interpretation organization.
- Maintain the historical integrity to the 1850s time period of The Homeplace - A Living History Farm, through programs and activities portraying the culture and lifestyles of the people who lived “between the rivers” during the mid-19th century.

Recreation Management

Primary Strategies:

- Provide a wide variety of recreation opportunities which complement tourism in the surrounding region. Emphasis will be on balancing dispersed opportunities with the existing developed facilities.
- Support, protect, and enhance natural resource sustainability through effective recreation management of developed facilities and dispersed opportunity areas in order to provide for future recreational opportunities.

- Consolidate or relocate the lake access ramps to be cost effective and meet visitor demands.
- Evaluate development Level 2 and 3 campgrounds for possible consolidation, decommissioning, or change in use emphasis based on user need and cost effectiveness.

Supporting Strategies:

- Offer facilities that are safe, cost effective, enjoyable, and well maintained.
- Provide cost-efficient access for shoreline fishing that is angler friendly.
- Manage and evaluate LBL's network of trails to provide a variety of Rec/EE opportunities on properly-designed routes that meet visitor expectations, while minimizing conflicts between different recreational uses.
- Provide and maintain designated trails for off-highway-vehicle (OHV) riders within Turkey Bay OHV Area for opportunities and experiences enthusiasts desire, in a manner that promotes resource sustainability.
- Manage and operate the Special-Use permit system to allow services and activities that enhance the recreational and educational experience of the users, protect resources, and support the regional economy.
- Manage recreation activities consistent with Recreation Opportunity Spectrum (ROS) classes.
- Maintain or rehabilitate, to the degree possible, campsites in developed recreation areas to meet visitor satisfaction and continue resource protection. Emphasis will be on hardening or relocating sites currently within the flood zone of the lakes.
- Review fees and policies annually to determine if they are comparable to the private sector within the region and are providing the appropriate level of user services.
- Inventory and evaluate all user-made lakeside backcountry camping areas and associated access. Develop and implement a plan to manage the sites and their access, for resource protection, utilization efficiency, and variety of recreational opportunities.
- Emphasize hunting and fishing opportunities that provide quality recreation experiences that are safe and meet wildlife management objectives.

- Educate and encourage LBL recreationists to understand and appreciate the multiple-use mandate of National Forest lands in order to minimize conflicts among different recreational interests.

Wildlife Management

Primary Strategies:

- Work cooperatively with the Kentucky Field Office of the U.S. Fish and Wildlife Service to contribute to the conservation and recovery of federally-listed plant and animal species, and to avoid listing other species under the Endangered Species Act.
- Identify and implement management activities necessary to maintain or restore characteristic structure, composition, and function of known rare community sites.
- Use an interdisciplinary approach to manage wildlife and habitats in Nature Watch Demonstration Areas, Oak-Grassland Demonstration Areas, Elk & Bison Prairie, South Bison Range, and other areas to increase nature viewing opportunities and facilitate the delivery of environmental education messages.
- Manage LBL's recreational hunting and fishing programs in cooperation with state fish and wildlife agencies, Rec/EE staffs, and sportsmen and women, to support LBL's Rec/EE mission, and to support the regional economy.

Supporting Strategies:

- Manage existing wetlands to provide for associated plant and animal communities. Create and restore additional wetlands through partnerships with interested organizations.
- Test and demonstrate new and innovative wildlife management techniques, and transfer technology to other professional wildlife managers, private landowners, and the general public.
- Support elk reintroduction efforts by providing surplus animals from the Elk & Bison Prairie when available.

Forest Management

Primary Strategies:

- Promote or release oak regeneration and woodland habitat conditions through silvicultural two-aged methods (generally two-tiered stands with canopy complexity and structural diversity).

- Apply and manage forest treatments that favor numerous size classes and species on moist sites.
- Demonstrate how sustainable forest management on a public recreation and education area can be compatible with other uses, stimulate the local economy, and appropriately utilize the resources.
- Inventory, maintain, and manage for a variety of large, medium, and small patches of old growth forest across all site types.

Supporting Strategies:

- Improve collection techniques and verify forest vegetation condition inventories.
- Manage for predominantly oak-hickory forest types on drier sites to meet wildlife habitat needs.
- Demonstrate forestry methods and practices to re-establish species composition and canopy structure of the oak-grassland matrix through a combination of prescribed fire, timber harvests, and native grass/herb conversion.
- Manage forests to minimize widespread disease and insect outbreaks.
- Enhance scenic quality, improve structure diversity, and promote desired shade-intolerant species through creation of canopy gaps within some mesophytic and riparian forest stands.
- Use Core Areas to compare minimal vegetation and soil disturbances with practices outside the Core Areas to develop a greater understanding in the scientific management of LBL's resources.
- Minimize burning in mesic forest types by focusing on areas where northern red and cherry bark oak management is practical.
- Integrate the Environmental Education program and promote the use of environmentally-responsible management practices into all projects.
- Provide visual quality and scenic vistas as recreational settings appropriate to the Region 8 management direction through proven vegetation management.

Fire Management

Primary Strategies:

- Ensure that Wildland Fire Response, Fire Management Plans, Prescribed Fire Burn Plans, and related activities reflect firefighter and public safety as the first priority.
- Reduce hazardous fuels accumulations and manage for a healthy, predominantly oak-hickory forest with respect to both species composition and forest canopy structure, and associated wildlife species. Reintroduce fire to improve fire regime and condition class in targeted landscapes.
- Enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs. These programs will be modified through timely and effective exchange of information, and will be designed to increase public awareness of the fundamental role of fire in oak-hickory ecosystems.
- Suppress fires at minimum cost (consistent with resource management objectives), considering firefighter and public safety, benefits, and values to be protected by using the full range of appropriate management responses.
- Apply the full range of fire/fuels management activities to achieve ecosystem sustainability, including its interrelated ecological, economic, and social components, with the premise that fire is both an essential ecological process and a tool for accomplishing resource management objectives.
- Use wildland fire, when practical, to protect, maintain, and enhance natural and cultural resources and, as nearly as possible, be allowed to function in its natural ecological role. Use of wildland fire will be based on approved Fire Management Plans and will follow specific prescriptions contained in operational plans.

Open Land Management

Primary Strategies:

- Provide for desirable stages and types of early plant succession to meet a variety of wildlife habitat needs.
- Manage open lands vegetation to provide visual quality and scenic vistas, and increase opportunities for nature viewing and hunting.
- Test and demonstrate sustainable management through ecological restoration and use of conservation agricultural practices. Integrate EE and contribute to public knowledge and understanding of biological conservation issues, strategies, and

activities with emphasis in the Nature Watch and Oak-Grassland Demonstration Areas.

- Reduce non-native invasive plant species in open lands using Integrated Pest Management (IPM) strategies.
- Minimize herbicide use for routine open lands maintenance activities.

Scenic Management

Primary Strategies:

- Conserve, maintain and enhance the scenic attractiveness and landscape character of LBL. Manage the landscape to the highest scenic integrity practical.
- Utilize information in LBL's *Sightseeing Master Plan* and guidelines of the Scenery Management System (SMS) to enhance sightseeing opportunities.
- Re-establish and maintain native and desired non-native vegetation including native grasses, herbs, wildflowers, trees, and shrubs, especially along primary travel ways and in developed facilities.
- Complete an SMS inventory for the landscape of LBL.

Soil Water and Air Management

Primary Strategies:

- Manage watersheds (and where necessary restore) to provide resilient and stable conditions to ensure the quality and quantity of water necessary to protect ecological functions and support intended beneficial uses. Improve watershed conditions in high priority watersheds of Turkey Bay/Turner Hollow, Crooked Creek, and Lick Creek.
- Protect and maintain diversified aquatic and wetland ecosystems for no net loss of acres to meet the requirements of various species.
- Design and implement projects in ways that will maintain or improve the long-term productive capacity of the soil resource and reduce erosion.
- Design management activities using best available smoke management practices to minimize air pollution originating on LBL and provide good air quality for the health and safety of people and the forest environment.

Supporting Strategies:

- Provide information to the public relating the values of high-quality water to the overall quality of the regional environment.
- Protect the stability of stream banks and channels during management activities. Manage ephemeral streams to minimize sediment transport.
- Protect existing large woody debris within channels and provide for recruitment of wood to improve channel stability and aquatic habitat.
- Maintain managed wetlands through periodic maintenance of levees and water control structures. Control undesirable plants through disking.

Pest and Non-Native Invasives Management

Primary Strategies:

- Use Integrated Pest Management (IPM) strategies to maintain pest populations below nuisance levels. Nuisance levels are determined from analysis of pest populations and/or visitor and employee complaints.
- Conduct pest management operations in a safe, cost-effective manner, while minimizing pesticide use when pests exceed nuisance levels.
- Apply best available science to minimize the introduction of non-native invasive plant and animal species.
- Integrate the implementation of management measures with EE efforts to promote understanding and prevention of introduction of non-native invasive species into new areas.

Demonstration/Innovation

Primary Strategies:

- Identify, develop, and demonstrate new management innovations and efficiencies.
- Export results widely by sharing with visitors, area communities, and public land management agencies locally and beyond. Offer support to regional and national initiatives, and pilot test projects of potential benefit.

Heritage Resources

Primary Strategies:

- Maintain an inventory of, and ensure access to, cemeteries within LBL for purposes of burial, visitation, and maintenance.
- Provide a preservation and stabilization program for significant archeological sites, historic structures, and other historic features.
- Provide a broadened public interpretation and education program of LBL's heritage resources.
- Support requests from former residents and their family members.

Infrastructure Management

Primary Strategies:

- Purchase and install equipment, products, and other building materials that are environmentally friendly, improve energy efficiency, increase reliability, improve safety, and reduce maintenance costs.
- Reduce the number of facilities to the minimum needed to support the operational and public service needs. Reduce the maintenance backlog and operations and maintenance costs at all facilities, sites, and areas to the lowest practical levels, taking into account long-range planning, budget, usage, and status.
- Provide a high quality, multi-purpose road system that efficiently supports public use of the land and protects the resources through maintenance, restoration, decommissioning, reconstruction, and design.

Supporting Strategies:

- Review all repair, renovation, and construction projects to ensure that the results meet the direction given by the Area Plan, Facility Master Plan, Accessibility Plan, and comply with or enhance LBL's built environment.

Law Enforcement and Investigation

Primary Strategies:

- Protect visitors, property, and natural resources.
- Promote relationships with visitors and local communities through contacts and education to prevent accidents, injuries, and crimes.

- Enforce all applicable laws and aggressively investigate crimes that affect LBL.
- Closely coordinate with other agencies that have enforcement responsibilities on LBL.

Business Management

Primary Strategies:

- Develop community partnerships and support regional economic development with a focus toward complementing and cooperating with area businesses.
- Further stimulate the regional economy through various means including, but not limited to, targeted contracting initiatives (to include underrepresented minority- and woman-owned businesses and other “set-aside” contracts such as 8A, HUBZONE, and small business).
- Use sound business principles to maximize effectiveness by maintaining the most efficient operations feasible.
- Consider and account for visitor income levels in decisions regarding appropriate fees for services and facilities.
- Support the decision-making process by analyzing collected data streams from various sources relating to public demand, resource protection, financial performance, public satisfaction, visitation, productivity, and program performance.

Communications Management

Primary Strategies:

- Support the programs, emphases and management strategies of LBL through clear and accurate communications materials, programs, products, and activities.
- Produce public information materials that maximize the public’s understanding and involvement of the land management activities of the Forest Service.
- Apply sound and innovative communication strategies to increase public awareness of, and participation in, the recreation and education opportunities offered at LBL.
- Develop and maintain positive working relationships with local and regional tourism partners by keeping them supplied with current and accurate information

on the recreational and educational opportunities and management activities at LBL.

Supporting Strategies:

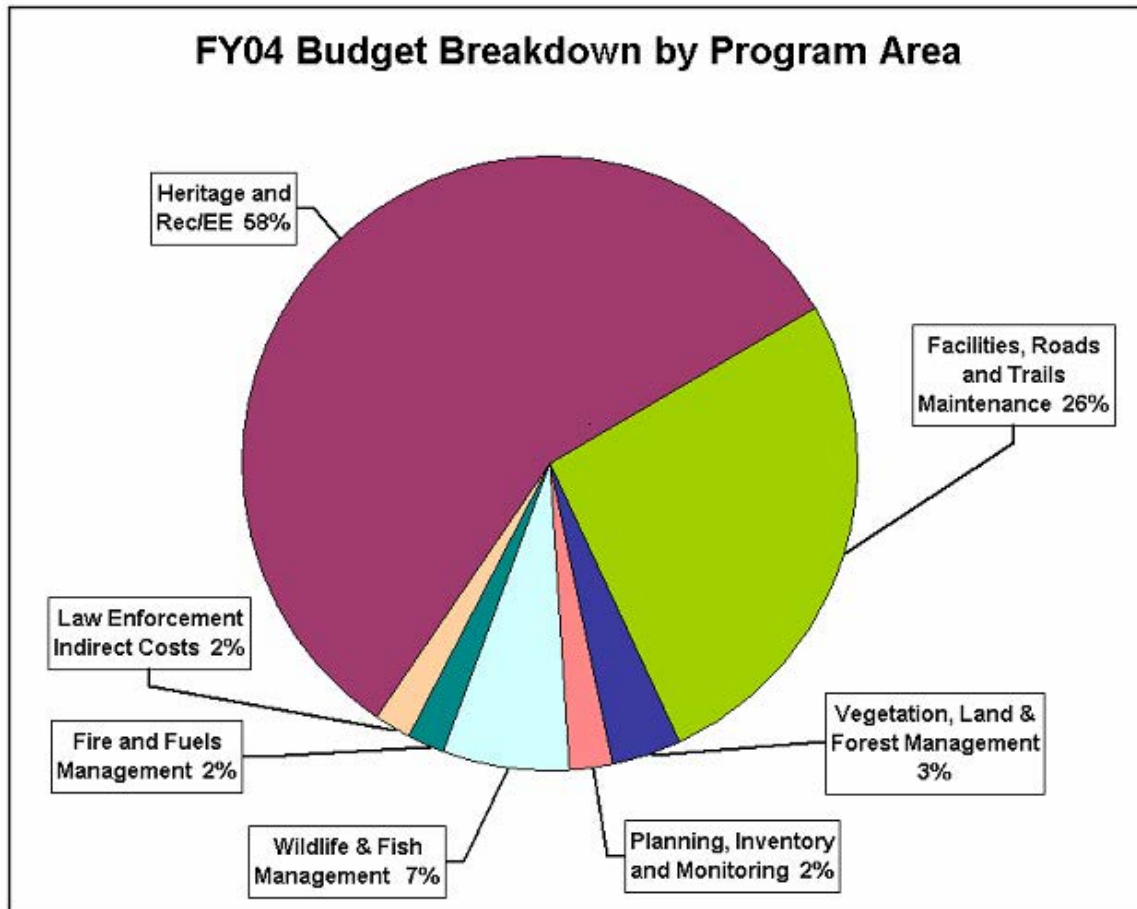
- Develop, produce and distribute effective information products that add value and safety to the visitor experience.
- Strengthen and maintain state, regional, and local relationships with key elected officials to maintain LBL's position as a valued regional partner and strong tourism resource.
- Deliver internal communications that keep staff and key partners informed on issues, topics, and decisions that affect their programs or management functions.

Prospectus

How well the Forest Service distributes, manages and controls the annual budget is directly related to the effectiveness by which it both manages for the natural resources and provides the recreation and EE opportunities and experiences visitors expect. Future decisions will also be framed within these fiscal constraints, and will have to rely upon historical principles and strategies to continue this focus.

In FY04, LBL's annual operating budget was approximately \$12 million: \$8.2 million in federal appropriations and \$3.7 million in revenue. However, appropriated budget levels in the future are expected to decrease slightly. Over half of the FY04 budget was applied to the Recreation, Environmental Education, and Heritage programs at LBL. Approximately 26 percent was allocated to facilities, roads, and trails maintenance to support and provide Rec/EE opportunities. (See Chart 2.1.)

Chart 2.1 LBL Budget



Performance History and Future Projections

The information in Table 2.2 describes recent trends and future projections regarding levels of experiences, goods, and services provided by LBL. The Area Supervisor will plan and implement projects that are consistent with the overall direction of this Area Plan and that help support the Goals, Objectives, and Program Strategies listed in Part 2. The information in Table 2.2 will be updated as part of the annual monitoring and evaluation process to reflect changes in emphasis or budgets. Figures in the table are approximations and have been rounded for ease of reading. Future projections are estimates of the average yearly outputs over the first 10 years of the Area Plan. Outputs may be more or less than projected in any given year.

Table 2.2 - Performance History and Future Projections

Outputs and Activities	Units	FY01- FY03 Average	LRMP Annual Average Est.
Environmental Education			
Facility-Based interpretive programs	Each	2,110	2,110
Non-Facility-Based EE projects	Each	20	25
Recreation			
Rehabilitate, realign or create areas leading to dispersed recreation to meet use and demand	Areas	0	1
Rehabilitate or upgrade developed recreation sites	Sites	65	60
Trail rehabilitation	Miles	1	10
Trail construction	Miles	0	1
Natural Resource Management			
Total forest management through timber harvest	Acres	2,880*	2,200
Total fuels treatments and prescribed fire	Acres	550	10,000
Allowable Sale Quantity (ASQ) of saw timber	mcf	1000*	990
Anticipated harvest of marketable saw timber	mcf	810**	660
Roads			
Road miles decommissioned	Miles	<1	1
System road construction	Miles	0	0
Visitation			
Overall LBL Visitation (in millions of visits)	Visits	1.8	>2.0
Demonstrations			
Exported demonstrations	Each	5	5

* During the transition from TVA to the Forest Service, annual accomplishments do not reflect an average level of the program. Therefore, the 1994 Plan allowable figures are shown.

** As noted above, the three years prior to the transition (1995, 1996, 1997) are displayed as a more appropriate comparison.

Despite expected budgetary reductions efficient management of maintenance and operational costs will optimize the Rec/EE mission of LBL. Three outposts, five gift shops and two facility food services will remain open. Table 2.3 outlines a more extensive list of future expectations, compared to 2004, for facility operations, types, and numbers at LBL.

Table 2.3 Number of LBL Facilities

Facility/Category	2004	2019	Remarks
Permanent Gift Shops	5	5	Welcome Stations, Visitor Center, Nature Station, Homeplace
Campground Outposts	3	3	Wranglers, Hillman Ferry, and Piney Campgrounds
Campgrounds (CG)*	29	24	Total Campgrounds
Level 5 CG	3	3	Wranglers, Hillman Ferry, and Piney Campgrounds
Level 4 CG	4	5	Development of Level 4, 3, and 2 campground estimates for 2019 is dependant on use and operations reviews.
Level 3 CG	11	10	
Level 2 CG	11	6	
Recurring Food Service	2	2	Wranglers and Brandon Spring
Environmental Education Day-Use	4	3	Nature Station, Planetarium, Homeplace (Empire Farm will be decommissioned.)
OHV Area	1	1	Turkey Bay
Boat Ramps	28	25	Consolidate, upgrade, decommission. Final number dependant on review.
Residential Centers	2	1	Brandon Spring (Youth Station will be decommissioned.)
Golf Course	0	0	This use will not be considered.
Gas Stations	0	0	This use will not be considered.
Convenience Stores	0	0	This use will not be considered.

* For discussion of Development Level and names of campgrounds currently in each level, refer to the Appendix.

Fees will continue to be collected for things such as facility usage, camping, and hunting to help recover some operational costs. Appropriateness of fees will generally be determined by fee reviews on a regular basis. However, it has been decided that certain activities and services will not be associated with fees based on The Protection Act or other information gained during the planning process.

Fees will not be charged for the following activities:

- General access to LBL
- Picnicking
- Boat launching
- Cemetery access – even if cemetery is in an area where fees are charged

Revenue will be collected or fees charged for the following activities:

- Hunting
- Developed camping and associated utilities
- OHV Area
- Timber harvest

Fees may or may not be charged for the activities listed below based on one of two factors: a case by case basis for each activity type; or information gathered during a fee review process. Fees for many of these activities are waived on specified days and under certain circumstances:

- Dispersed camping
- Special events
- Interpretive programs
- EE facilities

Performance Risks

Many factors will play into future management decisions that are beyond the control of the Area Supervisor or program managers to foresee or control. These inherent risks or unknowns include budget allocations, weather-related catastrophes, disease or insect infestation, or changes in national Forest Service goals or strategies affecting LBL. Performance is also influenced by legal mandates, Congressional intent as directed by annual budgets, and national issues over which the Area Supervisor has little or no control. The above tables and lists are the best estimation of how LBL will operate based on the information available at the writing of this Area Plan. Given this situation, the mix and level of activities will be evaluated and set each year utilizing every opportunity to move toward desired conditions and to contribute to the National Strategic Plan goals of the Forest Service.

Monitoring and Evaluation

Monitoring constitutes an important link between the goals of the Area Plan and annual program accomplishments. The planning process has identified the key monitoring questions that address each of the priority goals and objectives; they are listed in Part 1 of the document under the Area Wide Goals. The monitoring program will focus on some of the risks mentioned previously while addressing suitable uses, use strategies, and design criteria.

Monitoring will track the wide variety of components of the Area Plan. Roles and contributions identified include the LBL interdisciplinary program specialists who will complete data gathering and evaluation of the Area Plan's implementation. Additionally, both the general public and stakeholders will be involved to capture the perceptions of how successfully LBL achieves the area wide goals and objectives. Monitoring will track how well the implementation of the Area Plan's goals and objectives is bringing the conditions of LBL to the desired conditions specified by the Area Plan.

Because this Area Plan also supports the Forest Service National Strategic Goals, the monitoring program will also weigh the Area Plan's progress and achievements in supporting these national goals. However, as these national goals are likely to change over time as national issues and special initiatives dictate, they were not included as formal goals of the Area Plan. This monitoring program, therefore, will include a comparison of this Area Plan's goals, annual LBL program accomplishments, and current or future national goals as part of the monitoring process.

By applying the evaluation questions and measures for each area goal, results and trends will provide a clearer picture of progress toward the vision. The evaluation of monitoring information will measure how close LBL is to reaching the desired conditions identified in the Area Plan, including goals, objectives, and susceptibility to emerging issues.

An important concept incorporated in this Area Plan is the continuing use of some of the evaluation factors that were used in the analyses of the Environmental Impact Statement (EIS) alternatives. This approach allows for those EIS evaluation factors to serve as benchmarks from which original assumptions can be tested, and progress toward the desired conditions can be measured.

Evaluations will serve as the springboard from which the resource specialist can identify changes needed in the Area Plan or its implementation, or research needed to clarify and address management issues. Results will also be used to help set shorter-term (three- to five-year) strategic direction, as well as annual work plans. Existing strategies will be updated as needed, based on these evaluations. Results will be reported annually in the Area Plan monitoring and evaluation report. The Monitoring Summary Table in the Appendix includes a complete list of questions, measures, method of collection, frequency, and responsible staff.

Operational Monitoring Plan

The regulations in 36 CFR 219 describe the NFMA monitoring requirements. The specific techniques and protocols to be used are identified in the Annual Operational Plan, which is developed in conjunction with the annual budget and the work planning process. This operational plan will incorporate the questions established in Part 1 of this Area Plan as gauges and benchmarks by which future progress of the programs and this Plan will be measured and evaluated. This allows monitoring to be defined based on emerging issues, LBL priorities, and the operating budget. Measures, frequency, and methods of collection are displayed in the Monitoring Summary Table in the Appendix.

Research Needs

Research and monitoring are related activities that help to meet information needs for adaptive management of National Forests. Research involves rigorous study under controlled conditions, following accepted scientific methods. Research activities include study planning, design, quality control, peer review, and relatively rigid publication standards. Monitoring is generally conducted under less controlled conditions and results are often more general compared to research. Ongoing monitoring will identify needs for further research as the Area Plan is implemented. At its inception, however, the Area Plan can identify areas of concern that can develop into “research needs” and are periodically reviewed during monitoring and evaluation of implemented projects.

Research needs identified during development of this Area Plan are listed below:

- There is a need for more information to determine the sustainable level of various recreational uses and to aid our ability to manage OHVs on designated trails. Impacts of equestrian use and varied OHV sizes are part of this topic;
- We need to conduct research on what Recreation and Environmental Education experiences visitors enjoy and participate in at LBL, including information about the opportunities the FS can and should provide to meet their needs and LBL’s mission;
- We need to know more about stream conditions and the role of large woody debris in the streams of LBL;
- Forest management actions have also been studied for years and will be the subject of further study under this plan. The effects of cutting and the use of prescribed burning on mesic cove communities that include American beech could bear further research;
- We need to better understand factors affecting the distribution and abundance of the federally threatened Price’s potato bean, and management practices that will stimulate its natural reproduction and establishment.

Research needs identified while monitoring the implementation of the Area Plan will be reported in annual monitoring and evaluation reports.

Part 3

DESIGN CRITERIA

Introduction

This Part of the document describes and lists the design criteria to be applied in future management decisions. These criteria govern implementation of projects and activities at LBL. This Part incorporates standards as required in 36 CFR 219 and an index of other guidance that will be used in the management of LBL.

Plan Standards

Standards are plan decisions that establish requirements and limitations for land uses and management actions needed for the achievement of desired conditions and objectives. All of these Standards follow the management principles detailed in the Selected Alternative for this Area Plan or are legally required for the resource management of LBL by other criteria listed in this Part.

Soil, Water, and Air Resources

1. Locate fords only where stable channel conditions will support the designed use. Maintain stream pattern and channel geometry when modifying a crossing.
2. Within the area, 25 feet either side of an ephemeral stream, management activities will maintain the ability of the area to filter sediment from upslope disturbances, provide sediment control within the area, and maintain channel stability downstream. New projects within areas adjacent to ephemeral streams will be designed and mitigated for soil types classified as hydric, highly erodible, or occurring on slopes greater than 30 percent.
3. All new stream crossings will be designed and constructed to allow passage of aquatic organisms, and to not significantly alter the natural stream flow regime.
4. When constructing stream crossings, ensure that approach sections are aligned with the stream channel at as near a right angle as possible in order to minimize the length of streamside disturbances. Wherever feasible, locate riparian corridor crossings to minimize the amount of fill material needed and minimize channel impacts.
5. If crossings and culverts are removed, stream banks and channels will be restored to a natural size and shape.
6. Disturbed soil must be stabilized promptly by mulching, geo-textiles, vegetation, or other approved means.

7. All areas requiring re-vegetation for erosion control will be treated within three months following the closeout of the ground disturbing activity. The areas will be considered successfully treated when 85 percent or greater vegetation cover is established within two years of the initial treatment.
8. Limit the sum of severely burned and detrimentally compacted, puddled, and displaced land (as defined in the R8 SWCP) to no more than 15 percent of any project or unit area.
9. Soil disturbing activities (excluding roads, trails, and restoration areas) will not take place on water-saturated soils. Standing water and puddling are evidence of a saturated condition. When soil moisture conditions make the soil prone to compaction, soil disturbing activities will not take place.
10. Closure of extensively-used trails and riding areas will be considered for rainfall events exceeding 4.5 inches within a 24-hour period (approximately 20 percent chance of occurrence per year). However, closure may be considered after lesser rainfall events depending upon time of year, expected use, and recent precipitation totals.
11. Water control structures, necessary for the control of surface water movement from disturbed sites, will be installed during construction for temporary roads and within two weeks following the completion of disturbing activity for skid trails.
12. Water control structures necessary for the control of surface water movement on prescribed fire lines will be installed during fire line construction.
13. Permanent fire lines will have water control structures maintained. Temporary fire lines will be rehabilitated as soon as practicable after any fire.
14. Existing barriers (e.g. streams, lakes, wetlands, roads, and trails) are used whenever possible to reduce the need for fire line construction and to minimize resource impacts. Fire line construction within riparian corridors must be designed in coordination with a resource advisor.

Forest and Open Lands Management

15. Intentional establishment of non-native, invasive plant species, as defined by the Regional Forester's invasive species list, is prohibited.
16. Areas are not burned under prescription for at least 30 days after herbicide treatment.

17. Weather is monitored and the herbicide treatment is suspended if temperature, humidity, or wind become unfavorable as follows:

	Temperatures Higher Than	Humidity Less Than	Wind (at Target) Greater Than
Ground:			
Hand (cut surface)	N.A.	N.A.	N.A.
Hand (other)	98°F	20%	15 mph
Mechanical (liquid)	95°F	30%	10 mph
Mechanical (granular)	N.A.	N.A.	10 mph
Aerial:			
Liquid	90°F	50%	5 mph
Granular	N.A.	N.A.	8 mph

18. A certified pesticide applicator supervises each Forest Service application crew and trains crew members in personal safety, proper handling and application of herbicides, and proper disposal of empty containers.
19. Application equipment, empty herbicide containers, clothes worn during treatment, and skin are not cleaned in open water or wells. Mixing and cleaning water must come from a public water supply and be transported in separate labeled containers.
20. No herbicide is ground applied within 30 horizontal feet of lakes, wetlands, or perennial or intermittent springs and streams. No herbicide is applied within 100 horizontal feet of any public or domestic water source. Selective treatments (which require added site-specific analysis and use of aquatic-labeled herbicides) may occur within these corridors only to prevent significant environmental damage such as noxious weed infestations. Corridors are clearly marked before treatment so applicators can easily see and avoid them.
21. Herbicide mixing, loading, or cleaning areas in the field are not located within 200 feet of private land, open water or wells, or other sensitive areas.
22. Herbicides and application methods are chosen to minimize risk to human and wildlife health and the environment. Diesel oil will not be used as a carrier for herbicides except as it may be a component of a formulated product when purchased from the manufacturer. Vegetable oils will be used as the carrier for herbicides when available and compatible with the application proposed.
23. Herbicides are applied at the lowest rate effective in meeting project objectives and according to guidelines for protecting human (National Research Council 1983) and wildlife health (EPA, 1986). Application rate and work time must not exceed levels that pose an unacceptable level of risk to human or wildlife health. If the rate or exposure time being evaluated causes the Margin of Safety (MOS) or the Hazard Quotient (HQ) computed for a proposed treatment to fail to achieve the current Forest

Service R8 standard for acceptability (acceptability requires a MOS > 100 or a HQ of < 1.0 depending on the standard reported in the Risk Assessment cited), additional risk management must be undertaken to reduce unacceptable risks to acceptable levels, or an alternative method of treatment must be used.

24. Nozzles that produce large droplets (mean droplet size of 50 microns or larger) or streams of herbicide are used. Nozzles that produce fine droplets are used only for hand treatment or open land treatment where distance from nozzle to target does not exceed 8 feet.
25. With the exception of permittee treatment of right-of-way corridors that are continuous into or out of private land and through Forest Service managed areas, no herbicide is broadcast within 100 feet of private land or 300 feet of a private residence, unless the landowner agrees to closer treatment. Corridors are clearly marked before treatment so applicators can easily see and avoid them.
26. With the exception of treatments designed to release designated vegetation selectively resistant to the herbicide proposed for use or to prepare sites for planting with such vegetation, no soil-active herbicide is applied within 30 feet of the drip line of non-target vegetation specifically designated for retention (e.g., den trees, hardwood inclusions, adjacent untreated stands) within or next to the treated area. Side pruning is allowed, but movement of herbicide to the root systems of non-target plants must be avoided. Corridors are clearly marked before treatment so applicators can easily see and avoid them.
27. No herbicide shall be broadcast ground-applied within 60 feet of any known threatened, endangered, proposed, or sensitive plant. Corridors are clearly marked before treatment so applicators can easily see and avoid them. Exceptions will be made when a treatment using herbicide is necessary to protect or prevent the loss of habitat, and a site-specific analysis and BE confirms that an acceptable risk from such use is possible.
28. No herbicide is broadcast on rock outcrops or sinkholes. No soil-active herbicide with a half-life longer than three months is broadcast on slopes over 45 percent. Such areas are clearly marked before treatment so applicators can easily see and avoid them.
29. Snags and den trees will not be intentionally felled during vegetation management unless necessary to protect employee or visitor safety, to control insect or disease infestations, or for timber salvage in cases of significant events of tree mortality. In timber salvage cases, a minimum of six snags per acre must be retained. Retained snags may be clumped within salvage areas. Den trees are defined as being a minimum of 10 inches DBH and having a visible cavity.
30. Timber sale areas and associated reforestation practices will have a minimum 30-foot, no-equipment zone around gully heads and sidewalls. Timber may be selectively

removed from within the 30-foot zone through directional felling and end-lining of logs.

31. Forest management treatments, within Core Area Prescriptions, will be limited to the minimum necessary level for maintenance and restoration of native ecological communities or to provide visitor safety. Treatments may be considered to control or prevent insect infestation and disease, and invasive, non-native plant species.
32. Slash burns are to be prescribed so they do not consume all litter and duff and do not alter structure and color of mineral soil on more than 20 percent of the burn area.
33. No heavy equipment will be used for mechanical site preparation treatments on sustained slopes greater than 35 percent. Mechanical site preparation treatments are prohibited on erodible or failure-prone soils on sustained slopes greater than 20 percent.
34. When necessary to include deciduous forest communities on mesic and alluvial site types within burning blocks, allow low intensity fires such as backing fires. Direct firing will not be done unless needed to secure control lines and to encourage ecological restoration of native communities such as canebrakes.
35. Within General Forest and Oak-Grassland Demonstration Prescription Areas, riparian corridors of native vegetation will be maintained along each side of perennial and intermittent stream courses in order to maintain fluvial and riparian functions. Corridors along perennial streams will be 100 feet measured from bankfull stage. Corridors along intermittent streams will be 50 to 75 feet measured from bankfull stage at a minimum. If a 50-foot corridor is used, a minimum of 20 feet adjacent to management activities must be in a maintained native grass or other suitable vegetative filter strip. The remaining corridor should be in shrubs and trees. Without a native grass or other suitable vegetative filter strip, the minimum corridor along intermittent streams must be 75 feet of natural vegetation.
36. The removal of embedded, large woody debris (pieces greater than four feet long and four inches in diameter) from stream channels is not allowed unless it poses a risk to public or employee safety or damage to infrastructure. The need for removal is determined on a case-by-case basis.
37. The maximum size of an opening created by forest management treatments is 40 acres. These acreage limits do not apply to areas treated as a result of catastrophic conditions such as wildland fire, insect outbreak, or severe storms. Areas managed as open lands or non-forested areas (e.g. rights-of-way and grassy openings) are not subject to this standard and are not included in the calculations of opening size, even when within or adjacent to created openings.
38. Temporary openings created by forest management treatments will be separated from each other by a minimum of 330 feet. Such openings may be clustered closer than

330 feet as long as their combined acreage does not exceed the maximum opening size. A forest management area will no longer be considered an opening when the certified re-established stand has reached an age of five years.

39. Regeneration cuts must be done only where adequate stocking of desirable species (based on management objective) is expected to occur within five years after the final cut. In two-aged systems, the final cut is the establishment cut which leaves a residual overstory. The newly established regeneration must meet the minimum stocking levels of 150 trees per acre for hardwoods and pine (except for woodlands which will be guided by the desired conditions of the prescription). This Standard applies to both artificial and natural means of stand regeneration.
40. Vegetation management activities may be conducted within 200 feet of a trail only as a means of enhancing the trail use experience or mitigating damage caused by insects, disease, or natural disaster. Where trails cross through, or are adjacent to fields and wildlife openings, open lands management may be conducted adjacent to the trail.
41. Rare communities are to be protected from detrimental effects associated with management activities and recreational use. Site-specific analysis of proposed management actions and proposed uses identifies any protective or active management practices to enhance the rare community.
42. Mesic coves and dry-mesic transitional sites that contain clumps of mature American beech larger than one acre will be protected from detrimental effects caused by management activities. Management activities occur within these sites only where maintenance or enhancement of composition or structure is expected. Areas are surveyed for beech communities prior to initiating projects that may adversely affect them.

Heritage Resources

43. Rights of former residents regarding access, burial, decoration, and maintenance of cemeteries will be protected. Access to cemeteries will meet or exceed the type that existed when it became federal property.

Wildlife Management

44. Wildlife refuges are closed to hunting year-round. Wildlife refuges are closed to other human disturbances during specified refuge periods.
45. Where roads, utility corridors, and recreational sites intersect with riparian corridors, the resulting interruption of the riparian corridor affecting both sides of the drainage should be of minimum width needed and no more than 60 feet in length. Interruptions affecting one side of a drainage should be no greater than 300 feet parallel to the drainage.

46. Protection zones, as specified in the current guidelines for bald eagle habitat management from the US Fish and Wildlife Service, will be delineated and maintained around all bald eagle nests and communal roost sites, unless exempted or modified by the US Fish and Wildlife Service.
47. Buildings, cisterns, old bridges and other structures will be surveyed for bats prior to modification or demolition. If significant bat roosting is found, structures are maintained or alternate roosts provided. Alternate roosts must be appropriately based on species and size of colony and must be provided prior to modification.

Infrastructure, Recreation, and Administration

48. OHVs are restricted to routes and areas specifically designated as open to such vehicles. Permits may be issued for special events according to appropriateness and timing of the event.
49. Administrative uses of OHVs for activities such as maintenance and inspection of trails, open lands and prescribed fire, and emergencies such as wildfire and search and rescue will be allowed. All other cross-country motorized use (all vehicle types) is prohibited.
50. Unnecessary roads and trails, identified by an interdisciplinary team and a transportation analysis, are to be eliminated or mitigating measures planned where soil and water quality cannot be maintained within acceptable standards.
51. If unacceptable resource damage is identified to a section of trail, that section will be closed for mitigation, rerouted, and/or obliterated.
52. Utility corridors within riparian corridors or those that provide critical habitat will limit exposed soil and utilize habitat-sensitive maintenance strategies.
53. Outdoor lighting will be limited to meet minimum safety and security needs and provide protection of the dark night sky.

Environmental Education

54. All project-level decisions will involve EE staff during project development and design to integrate appropriate EE messages.

Visual Resource

55. A Scenic Integrity Objective (SIO) of Moderate or higher will be applied to new projects within Visual Quality Zones (defined below). Existing conditions will be managed as closely as feasible to the assigned SIOs.

56. Along maintenance level 3, 4 and 5 roads, Visual Quality Zones (VQZs) will be a minimum of 100 feet from road shoulders.
57. VQZs will be a minimum of 100 feet from trails, the LBL shoreline, and around facilities.
58. A long-term SIO of Moderate will be applied to those areas of LBL that lie outside of the Visual Quality Zones.

Other Sources of Design Criteria

The Area Plan is a single integrated document. The following documents are referenced to provide additional administrative, program, and project guidance for activities at LBL. Some are legal requirements while others are policies, procedures, and manuals that will be used as guidance in project level decision-making. This is not intended to be an all-inclusive list, as it is expected that over time some of these will be amended or deleted, while others will be added. LBL will comply with applicable laws, regulations, Executive Orders, and policies.

National Environmental Policy Act (NEPA) of 1969

National Forest Management Act (NFMA) of 1976, as amended in 1982

Land Between The Lakes Protection Act of 1998

USDA Forest Service National Strategic Plan Goals (as amended)

USDA Forest Service Handbook and Manual

United States Department of the Interior, Fish and Wildlife Service, Biological Assessment for the Land Between The Lakes Land and Resource Management Plan, FWS #05-0008, October, 2004

Tennessee Valley Authority Natural Resources Management Plan of 1994

Land Between The Lakes Heritage Resource Management Plan

Habitat Management Guide for the Bald Eagle in the Southeast Region

R8 Soil and Water Conservation Practices

Memorandum of Agreement incorporating the Land Between The Lakes National Recreation Area into the Regional Programmatic Agreement Between The USDA Forest Service, Southern Region; the State Historic Preservation Officers of AL, AR, FL, GA, KY, LA, MS, NC, OK, PR, SC, TN, TX, VA, WV; and the

Advisory Council on Historic Preservation Concerning the Management of Historic Resources on Land Between The Lakes NRA, FS #01-MR-11086001-01.

Title 2600 – Wildlife Management; Memorandum of Understanding between Kentucky Department of Fish and Wildlife Resources and USDA Forest Service, May 19, 2000.

Title 2600 – Wildlife Management; Memorandum of Understanding between Tennessee Wildlife Resources Agency and USDA Forest Service, September 11, 2000.

Sportsmen's Access to Federal Public Lands Memorandum of Understanding between USDA Forest Service, USDI Bureau of Land Management Fish and Wildlife Service and Sportsmen's Groups; FS Agreement Number: 03-MU-11132424-275, July, 2003

Other federal statutes (as amended) are applicable to resource management at LBL include:

The National Historic Preservation Act of 1966

The Endangered Species Act of 1973

The Migratory Bird Act (Executive Order 13186)

The Clean Air Act of 1990

The Clean Water Act of 1977

Native American Graves Protection and Repatriation Act

Government to government relations with Native American Tribal governments (Executive Order dated 04/29/1994)

Indian Sacred Sites (Executive Order 13007, 05/24/1996)

Consultation and Coordination with Indian Tribal governments (Executive Order dated 05/14/1996)

Multiple Use Sustained Yield Act of 1960

The Archeological Resources Protection Act of 1979

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Appendices

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I. Glossary

Term	Definition
Accessible/Accessibility	The relative ease or difficulty of getting to or from someplace, especially the ability of a site, facility or opportunity to be utilized by persons of varying physical and mental abilities.
Advanced Regeneration	New growth which appears spontaneously or is induced under existing stands.
Aesthetics	How visual features are perceived in relation to the sense of beauty.
Age-class	An aggregation of trees that are essentially the same age. Age-class is often used synonymously with "size-class."
Alluvial site	Pertains to and generally representative of the bank of a river, lake, or other body of water, wetness for a period of time. See Section 3.2 and Appendix E of the FEIS for a full description of this site type.
Alternative	In Area planning, a mix of resource outputs designed to achieve a desired management emphasis as expressed in goals and objectives, and in response to public issues or management concerns.
Annual growth	Plant growth over a single growing season. Usually expressed in terms of height or diameter growth.
Bankfull stage	The flow that just begins to overtop the active floodplain (the flat depositional feature formed by the current hydrologic regime). The term is a surrogate for the sequence of flows forming the channel. This stage is reached or exceeded two out of every three years in most locations.
Biological assessment	A "biological evaluation" conducted for major federal construction or planning projects requiring an environmental impact statement, in accordance with legal requirements under Section 7 of the Endangered Species Act (16 U.S.C. 1536(C)). The purpose of the assessment and resulting document is to determine whether the proposed action is likely to affect an endangered, threatened, or proposed species.
Biological evaluation	A documented Forest Service review of its programs or activities in sufficient detail to determine how an action or proposed action may affect any proposed, endangered, threatened, or sensitive species.
Board foot	A unit of timber measurement equaling the amount of wood contained in an unfinished board 1 inch thick, 12 inches long, and 12 inches wide.
Bottomland	The normal floodplain of a stream. Low-lying alluvial land adjacent to a river or stream.
Bottomland hardwood	Extensive wooded area on low alluvial land next to a forest river containing various tree species with hard compact woods such as oak, cherry, or maple.
Canopy	The layer of vegetation comprised of the foliage of tree crowns in a forest.
Canopy cover	The percent of a fixed area covered by the crown of an individual plant species or delimited by the vertical projection of its outermost perimeter. Small openings in the crown are included. Used to express the relative importance of individual species within a vegetation community, or to express the canopy cover of woody species. Canopy cover may be used as a measure of land cover change or trend. Often used for wildlife habitat evaluations.

Canopy gap	In forest ecology, a space occurring in the general forest crown cover caused by the fall or death of one or more trees forming the canopy.
Community	An assemblage of plants, animals, bacteria, and fungi that live in an environment and interact with one another; forming a distinctive living system with its own composition, structure, environmental relations, development and functions.
Conservation	The protection, preservation, management, or restoration of wildlife and of natural resources such as forests, soils, and water.
Core Area	A designated section of the General Forest area where minimal management measures are applied. These areas were formerly labeled as Biosphere Reserve Core Areas in the Draft Plan and Draft EIS.
Cover	Any physical or biological features or arrangements of features that provide shelter from weather or concealment from predators.
Cultural resources	The physical remains (artifacts, ruins, burial mounds, petroglyphs, etc.) and conceptual content or context (such as a setting for legendary, historic, or prehistoric events for native people) of an area which is useful in gaining knowledge about man's past. Cultural resources are nonrenewable.
Deferred maintenance	Any routine maintenance (weekly, monthly, semi-annually, etc.) that is delayed for any reason.
Desired condition	An expression of resource goals that have been set for a unit of land. It is written as a narrative description of the landscape as it will appear when the goals have been achieved. The condition also includes a description of physical and biological processes, the environmental setting, and the human experience.
Desired non-native species	A non-indigenous species to an area that has been approved to focus management due to their non-invasive and non-threatening characteristics to native species.
Developed Recreation Site	A discrete place containing a concentration of facilities and services used to provide recreation opportunities to the public and evidencing a significant investment in facilities and management under the direction of an administrative unit in the National Forest System. See Development Levels in Appendix.
Diameter at breast height (dbh)	Tree diameter (outside bark) at breast height (4.5 feet above the ground).
Dispersed Recreation	Recreation opportunities or use occurring away from developed sites, providing very little or no contact with Forest Service or volunteer staff.
Diversity	The distribution and abundance of different plant and animal communities and species within a given area.
Dry site type	Representative of soils with conditions which are very limited or devoid of moisture. See Section 3.2 and Appendix E of the FEIS for a full description of this site type.
Early successional	A vegetative condition typically characterized by low density to no tree canopy cover and an abundance of herbaceous and/or woody ground cover. This condition may include early-successional forest, maintained openings, pastures, balds, and open woodlands.

Ecosystem	The interacting populations of plants, animals, and microorganisms occupying an area, plus their physical environment.
Endangered species	Any species in danger of extinction throughout all or a significant portion of its range. Designated as an endangered species in the <i>Federal Register</i> by the Secretary of Interior.
Endangered Species Act of 1973	An act that enables endangered and threatened species to be conserved. It provides a program for the conservation of such species, and takes appropriate steps to achieve the purposes of the (relevant) treaties and conventions.
Environmental Education (EE)	Programs targeted at helping individuals become aware of their relationship with the natural, physical, and cultural resources, and the importance of being good stewards of those resources.
Environmental Impact Statement (EIS)	A disclosure document revealing the environmental effects of a proposed action, which is required for major federal actions under Section 102 of the National Environmental Policy Act, and released to the public and other agencies for comment and review. Final Environmental Impact Statement (FEIS) is the final version of the statement disclosing environmental effects required for major federal actions under Section 102 of the National Environmental Policy Act.
Ephemeral stream	A stream or dry wash that flows during, and for short periods following rain or snowmelt. Ephemeral streams have a functional channel with streambed and banks, and are annually cleared of debris and litter.
European Settlement	This refers to non-American Indian settlement. European settlement began in 1790 for LBL.
Even-aged methods	Regeneration methods designed to maintain and regenerate a stand with a single age class.
Facility	A single or contiguous group of improvements that exists to shelter or support Forest Service programs. The term may be used in either a broad or narrow context; for example, a facility may be a lookout tower, leased office, work center, separate housing area, visitor center, recreation complex, utility system, or telecommunications site.
Facility-based Environmental Education	Portion of overall EE program which utilizes components of highly developed facilities to assist in presentation of educational programs, activities, and messages.
Federally listed species	Animals or plants that have been formally added to Federal lists of endangered or threatened wildlife or plants by the US Fish and Wildlife Service and/or the National Oceanic and Atmospheric Administration Fisheries. In legal terms, also includes species formally proposed for addition to these lists.
Filter strip	Strips of grass, trees, and/or shrubs planted between water and cropland, situated between a potential, pollutant-source area and a surface-water body that receives runoff. Filter strips provide water quality protection by reducing the amount of sediment, organic matter, and some nutrients and pesticides, in the runoff at the edge of the field, and before the runoff enters the surface water body. They also provide localized erosion protection since the vegetation covers an area of soil that otherwise might have a high erosion potential.

Floodplains	Lowland or relatively flat areas joining inland and coastal water including, at a minimum, the area subject to a 1-percent (100-year return period) or greater chance of flooding in any given year. Although floodplains and wetlands fall within the riparian area, they are defined here separately as described in the Forest Service Manual.
Forage	Food eaten by wild or domestic animals usually through browsing or grazing.
Forb	Any herbaceous plant other than a grass or grass-like form species growing in its native habitat (e.g. field, prairie, or meadow).
Foreground	The area between the viewer and the middle ground in a landscape; generally from 0 to ½ mile distance.
Forest	An area managed for the production of timber and other forest products, or maintained under woody vegetation for indirect benefits as protection of a watershed, recreation, or wildlife habitat.
Forest cover type	A descriptive classification of forest land based on present occupancy of an area by tree species. See complete listing of cover types described in Section 3.2 of the FEIS to this Area Plan.
Forest health	The perceived condition of a forest derived from concerns about factors such as age, structure, composition, function, vigor, presence of unusual levels of insects or disease, and resilience to disturbance.
Forest land	Land area with a minimum size of one acre and 100 feet in width, at least 10 percent stocked with trees of any size. Minimum stocking is determined by either crown cover or basal area: (1) tree crowns occupy at least 10 percent of the potential canopy area and/or; (2) there are at least 100 seedlings and saplings combined per acre.
Forest type	A category of forest defined by its vegetation (particularly its dominant composition) as based on a percentage cover of trees.
Game species	Any species of wildlife or fish for which hunting/fishing seasons and/or bag/creel limits have been prescribed, and which are normally harvested by hunters, trappers, and fishermen under State or Federal laws, codes, and regulations.
Goal	A concise statement that describes a desired condition to be achieved sometime in the future. It is normally expressed in broad, general terms and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principal basis from which objectives are developed.
Grassland	Areas on which vegetation is dominated by grasses, grass-like plants, forbs, and/or cryptogams (mosses, lichens, and ferns), provided these areas do not qualify as built-up land or cultivated cropland. Areas identified in the FEIS include currently existing, maintained open land, ecological restoration areas, old fields, hayfields, and utility and road rights-of-way.
Gully head	The narrow beginning of a gully.
Habitat	The total environmental conditions on a unit of land as they relate to the distribution of food, cover, and water.
Habitat diversity	The variety and variability of habitat types, as well as their interrelationships in a given area.

Hardwoods	Angiosperms, usually broadleaf and deciduous. Soft hardwoods are soft-textured hardwoods such as box elder, red and silver maple, hackberry, sweetgum, yellow poplar, blackgum, sycamore, black cherry, and elm. Hard hardwoods are hard-textured hardwoods such as sugar maple, hickory, dogwood, persimmon, black locust, beech, ash, black walnut, and oaks.
Harvest (timber)	Cutting and removal of trees from the forest.
Herbicide	A chemical used for killing or controlling the growth of undesirable vegetation.
Historic site	Cultural sites more than 50 years old.
Infestation	The attack by macroscopic organisms in considerable concentration. Examples are infestations of tree crowns by budworm, timber by termites, soil or other substrates by nematodes or weeds.
INFRA	An integrated database for collection/storage/use of information about features, land units, facilities and utilities, accessibility and real property. For recreation management, INFRA holds information on operation and maintenance costs, recreation funding shortfalls, recreation use data, information on accessibility, and inventories of facilities. INFRA, as a trademarked software program, brings together Oracle, Arc Info and Arc View GIS technology, and supplements recreation management systems.
Infrastructure	The basic facilities, services, and installations needed for the functioning of LBL, such as roads, communications systems, water, power lines, and buildings.
Integrated Pest Management (IPM)	The comprehensive systems approach to achieving economical pest control in an environmentally acceptable manner. The individual components of integrated pest management in forestry include: mechanical, manual, prescribed fire, biological, chemical, and other regulatory means.
Intermediate tree	Trees shorter than those in the dominant or codominant classes but with crowns extending into the general level of the canopy; receiving little direct light from above and none from the sides; characterized by small crowns considerably crowded on the sides.
Intermittent stream	A stream that flows in a well defined channel during the wet seasons of the year but not the entire year.
Interpretation	Communication activities, messages, and programs designed to improve individuals understanding of natural and cultural resources.
Landscape	An area composed of interacting ecosystems that are repeated because of geology, land form, soils, climate, biota, and human influences throughout the area.
Landscape Character	Particular attributes, qualities, and traits of landscape that give it an image and make it identifiable or unique.
Legume	A pod, such as that of a pea or bean, that splits into two valves (parts) with the seeds attached to one edge of the valves. Generally referred to as a plant of the pea family.
Litter	The uppermost layer of organic debris on the ground under a vegetative cover type, composed of freshly fallen or slightly decomposed vegetable material from foliage with small amounts of bark fragments, twigs, flowers, fruits, etc.

Logging	The occupation of felling trees, cutting them into logs, and transporting the logs to sawmills or to a place of sale.
Maintenance level (roads)	<p>The level of service provided by a specific road and the maintenance required for that road, consistent with road management objectives and maintenance criteria.</p> <p><u>Level 5</u> – Roads that provide a high degree of user comfort and convenience. Normally they are two-lane, paved facilities or aggregate surfaces with dust abatement.</p> <p><u>Level 4</u> – Roads that provide a moderate degree of user comfort and convenience at moderate speeds. Most are two-lane and aggregate surfaced. Some may be single lane, and some may have dust abatement.</p> <p><u>Level 3</u> – Roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Typically low speed, single lane with turnouts, and native or aggregate surfacing.</p> <p><u>Level 2</u> – Roads open for use by high-clearance vehicles. Passenger car traffic is discouraged. Traffic is minor administrative, permitted or dispersed recreation. Non-traffic generated maintenance is minimal.</p> <p><u>Level 1</u> – These roads are closed to motorized use for a period of one or more years. They may be suitable and used for non-motorized uses with custodial maintenance.</p>
Management Indicator Species (MIS)	An animal or plant selected for use as a planning tool in accordance with 1982 NFMA regulations (36 CFR 219.19). These species are used to help set objectives, analyze effects of alternatives, and monitor plan implementation. They are chosen because their population changes are believed to indicate the effects of management on selected biological components.
Mature Closed Forest	Forests with canopy trees averaging greater than 60 years old with less than 80 percent of the understory or forest floor receiving direct sunlight.
Mature Open Forest	Forests with canopy trees averaging greater than 60 years old with 60 to 80 percent of the understory or forest floor receiving direct sunlight.
Mature Woodland	Very open forests with canopy trees averaging greater than 60 years old with 10 to 60 percent of the understory or forest floor receiving direct sunlight. Understories are dominated by grasses and forbs.
Mature Forest with canopy gaps	Forests with canopy trees averaging greater than 60 years old with a very heterogeneous canopy. Canopy gaps from 0.25 to 2.0 acres occupy approximately five to 40 percent of the stand area. Patches of regenerating forest typically occupy gaps. This structure type is distinguished from Mature Open Forest by site type. Mature open forests are more typical of drier sites, while this type is more commonly found on mesic sites. It is thought to represent typical structure of old growth, especially on mesic sites.
mcf	See thousand cubic feet.
Memorandum Of Understanding (MOU)	A formal agreement between any two organizations or agencies, wherein the two parties agree to specific actions or items that are mutually beneficial to both, and are in the best interest of the organizations, their members, employees or patrons, as well as the general public in the case of federal agencies.
Mesic site type	Moist site conditions with relatively productive soil types. See Section 3.2 and Appendix E of the FEIS for a full description of this site type.

Mid-aged Forests	Forest characterized by mid-sized trees, typically with complete canopy closure and undergoing significant reduction in stem densities due to competitive exclusion. Age of canopy trees will generally average between 30 and 60 years, and diameters generally averaging between five and 11 inches. Scattered larger and older trees may be present (less than 60 percent canopy cover).
Monitoring and Evaluation (also M&E)	The process of determining, on a sample basis, how well the objectives of Forest Plan management practices have been met and what effects those practices had on the land and environment.
Motorized Recreation	Recreation that takes place on or in a vehicle or device powered by a motor, engine, or other non-living power source. This includes but is not limited to ATV's, motorbikes, aircraft, motor boats, motorized buggies and four wheel drive vehicles.
Multiple use	The management of all the various resources of the National Forest System so that they are used in a manner that will best meets the needs of the American people. Making the most judicious use of the land for these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in the use to conform to changing needs and conditions.
National Environmental Policy Act (NEPA) of 1969	An act to declare a national policy that will encourage productive and enjoyable harmony between humankind and the environment. It was created to promote efforts that will prevent or eliminate damage to the environment, biosphere, and stimulate the health and welfare of humanity. In addition, the act was crafted to enrich the understanding of the ecological systems and natural resources important to the nation and establish a Council of Environmental Quality.
National Forest Management Act (NFMA) of 1976	Act passed as an amendment to the Forest and Rangeland Renewable Resources Planning Act, requiring the preparation of regional guides and forest plans and the preparation of regulations to guide them.
National Register of Historic Places	The National Register of Historic Places is the Nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966.
Native species	Species normally indigenous to an area; not introduced by humans.
Neotropical Songbirds	Birds that breed in the United States during summer and winter in Mexico, Central America, South America, and the Caribbean Basin.
Non-facility-based Environmental Education	Method of interpretation in which targeted educational messages are delivered in sites unassociated with the highly developed educational facilities. Interpretive signs, trails, and printed materials are examples of these methods.
Non-game species	Any species of wildlife or fish that is not ordinarily managed or otherwise controlled by hunting, fishing, or trapping regulations. The designation may vary by state.
Objectives	Concise statements of measurable, desired results intended to promote achievement of goals.
Off-Highway Vehicle (OHV)	Any vehicle capable of being operated off established roads; e.g., motorbikes, and small and large four-wheel drive vehicles.

Old growth	Ecosystems distinguished by old trees and related structural attributes. Old growth encompasses the latter stages of stand development. These latter stages typically differ from earlier successional stages in a variety of ways that may include tree size; accumulations of large, dead woody materials; number of canopy layers; species composition; and ecosystem function.
Open land	Land permanently maintained in a non-forested condition but not developed.
Optimum	The point at which the condition, degree, or amount of something is the most favorable. Biologically it is the most favorable condition for growth and reproduction.
Outposts	At LBL, these are small “camp stores” that provide basic necessities to visitors at the three highly-developed campgrounds.
Overstory	Trees forming the upper or uppermost canopy level in a forest of more than one story. Relative to even-aged stands, the mature trees which overtop the younger trees.
Partnership	Voluntary, mutually beneficial, and desired arrangement between the Forest Service and another or others to accomplish mutually agreed-upon objectives consistent with the agency’s mission and serving the public’s interest.
Perennial stream	A stream that carries water during 90 percent or more of a year.
Pest management	Actions taken to remove, eliminate or prevent infestation by undesirable (pest) species of plants or animals in a specific area.
Population	All of the members of a species living in the same place at the same time.
Prescribed fire	The practice of using controlled fires to reduce or eliminate the unincorporated organic matter of the forest floor, or low, undesirable vegetation (often referred to as controlled burning).
Project	A work schedule prescribed for a project area to accomplish management prescriptions. An organized effort to achieve an objective identified by location, activities, outputs, effects, time period, and responsibilities for execution.
Public roads	Roads across national forest land which were in place as public ways when these lands were acquired. These roads may be a part of the forest, state, or county system, and may be maintained by any of these agencies.
Rare Communities	Communities of plants and animals that are relatively rare on the landscape, but contribute disproportionately to sustaining the diversity of native species; usually small in patch size with discrete boundaries. Rare communities covered by the direction in this plan are limited to those listed and defined in Part 1 of this Plan.
Rare species	Any native or once-native species of plant or wild animal which exists in small numbers and has been determined to warrant special management consideration and monitoring.
Recreation Opportunity Spectrum (ROS)	Range of opportunities expressed in terms of three principal components: the activity, the setting and the experience. The combinations of these are arranged along a continuum called the Recreation Opportunity Spectrum (ROS) and divided into six classes: Primitive; Semi-Primitive non-motorized (SPNM); Semi-primitive motorized (SPM); Roded Natural; Roded; Urban.
Reforestation	The natural or artificial restocking of an area with trees.

Regenerating Forest	Forests dominated by trees less than 10 years old, generally at densities exceeding 100 developing tree seedlings per acre, and overstories of older trees providing <60 percent canopy closure.
Regeneration	The process by which young trees replace older trees, removed by harvest or disaster.
Region 8	The states that make up the Southern Region of the USDA Forest Service.
Regional Forester	The official responsible for management of NFS lands within a USDA Forest Service region.
Riparian	Pertaining to the bank of a river, lake, or other body of water.
Riparian areas	Areas with three-dimensional ecotones of interaction that include terrestrial and aquatic ecosystems that extend down into the groundwater, up above the canopy, outward across the floodplain, up the near-slopes that drain to the water, laterally into the terrestrial ecosystem, and along the watercourse at a variable width.
Riparian Corridor	An administrative zone applied to both sides of a stream or along side a pond, lake, wetland, seep, or spring. It is a fixed width by stream type that may fall within or beyond the true riparian area.
Road	A motor vehicle path more than 50 inches wide, unless classified and managed as a trail. It may be classed as a system or non-system road.
Rotation	The period of time to establish, grow, and harvest a crop of trees to a specified condition of maturity.
Sapling	Live trees one to five inches dbh.
Scenery	General appearance of a place, general appearance of a landscape, or features of a landscape.
Scenery Management System (SMS)	A system for the inventory and analysis of the aesthetic values of NFS lands.
Scenic Attractiveness	The scenic importance of a landscape based on human perceptions of the intrinsic beauty of landform, waterform, and vegetation pattern.
Scenic Integrity	A measure of the degree to which a landscape is visually perceived to be “complete”. The highest scenic integrity ratings are given to those landscapes which have little or no deviation from the character valued for its aesthetic appeal. Scenic integrity is used to describe an existing situation, standard for management, or desired condition.

Scenic Integrity Objective (SIO)	<p>A desired level of excellence based on physical and sociological characteristics of an area. Refers to the degree of alterations to the valued attributes of the characteristics of an area. Objectives include:</p> <p><u>Very High</u> (VH) – Generally provides for only ecological changes in natural landscapes and complete intactness of landscape character in cultural landscapes.</p> <p><u>High</u> (H) – Human activities are not visually evident to the casual observer. Activities may only repeat attributes of the form, line, color, and texture found in the existing landscape character.</p> <p><u>Moderate</u> (M) – Landscapes appear slightly altered. Noticeable human-created deviations must remain visually subordinate to the landscape character being viewed.</p> <p><u>Low</u> (L) – Landscapes appear moderately altered. Human created deviations begin to dominate the valued landscape character being viewed but borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes, or architectural styles outside the landscape being viewed.</p>
Scoping	<p>The process by which a federal agency identifies important issues and determines the extent of analysis necessary for an informed decision on a proposed action. Scoping is required by NEPA and is an integral part of environmental analysis.</p>
Sediment	<p>Solid mineral and organic material that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice.</p>
Seep	<p>A wet area where a seasonal high water table intersects with the ground surface. Seeps that meet the definition of a wetland are included in the Riparian Corridor.</p>
Sensitive species	<p>Species that are listed statewide, regionally, or nationally as needing special management.</p>
Shade-tolerant	<p>A tree or other plant species having the capacity to grow without receiving direct sunlight.</p>
Shelterwood	<p>A regeneration method of regenerating an even-aged stand in which a new age class develops beneath the partially shaped microenvironment provided by the residual trees. The sequence of treatments can include three distinct types of cuttings: (1) an optional preparatory harvest to enhance conditions for seed production; (2) an establishment harvest to prepare the seed bed and to create a new age class; and 3) a removal harvest to release established regeneration from competition with the overwood.</p>
Shrub	<p>A woody perennial plant smaller than a tree, usually having permanent stems originating from or near the ground.</p>
Sidewalls	<p>The lower, widening upslopes of a gully, leading away from the gully head and downstream or downhill.</p>
Single-tree selection	<p>A selection system in which trees are individually removed and openings are created through successive cuttings.</p>

Slope	Degree of deviation of a surface from the horizontal, measured as a numerical ratio, percent, or in degrees. Expressed as a ratio, the first number is the horizontal distance (run) and the second is the vertical distance (rise), as two:one. A 2:1 slope is a 50 percent slope. Expressed in degrees, the slope is the angle from the horizontal plane, with a 90-degree slope being vertical (maximum) and 45 degree being a 1:1 slope.
Snag	A dead or partially dead (more than 50 percent) hardwood or pine tree which is used by many bird species for perching, feeding, or nesting.
Special-use permit	A permit issued to an individual, organization, or company for occupancy or use of NFS land for some special purpose.
Species	A class of individuals having common attributes and designated by a common name.
Species of viability concern	These include federally-listed, Regional Forester's Sensitive, Birds of Conservation Concern, and locally rare species and communities.
Spring	A water source located where water begins to flow from the ground due to the intersection of the water table with the ground surface. Generally flows throughout the year. Springs that are the source of perennial or intermittent streams are included in the riparian corridor.
Stand	An aggregation of trees occupying a specific area and sufficiently uniform in composition, age arrangement, and condition to be distinguishable from the adjoining forest. Also referred to as "Timber stand".
Stand density	A quantitative measure of stocking expressed either absolutely per unit of land in terms of number of trees, basal area, volume per unit area, or relative to some standard condition.
Standard	Requirement that precludes or imposes limitations on resource management practices and uses. Usually for resource protection, public safety, or addressing an issue.
Stocking	An indication of the number of trees in a stand as compared to the desirable number for best growth and management. Often expressed in percent.
Succession	An orderly process of biotic community development that involves changes in species, structure, and community processes over time; it is reasonably directional and, therefore, predictable.
Suitability	The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.
Sustainable	To keep in existence; maintain.
Thinning	An intermediate treatment or harvest designed to reduce stand density and remove some merchantable timber.

Thousand cubic feet	A measurement of unfinished cut wood equal to approximately 5,000 board feet. (Cubic feet is a unit of measure reflecting a piece of wood 12 inches long, 12 inches wide, and 12 inches thick.) This measurement is becoming more commonly used among commercial timber companies, and is being adopted by Forest Service units to make equivalent comparisons with commercial users in estimating timber harvests for proposed projects.
Threatened species	Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Designated as a threatened species in the <i>Federal Register</i> by the Secretary of the Interior.
Trailheads	The parking, signage, and other facilities available at the terminus of a trail.
Two-aged stand	A stand composed of two distinct age classes that are separated in age by more than 20 percent of rotation.
Understory	The lowermost strata of shrubs and herbaceous vegetation beneath the forest canopy.
Uneven-aged forest	A forest or stand composed of trees that are markedly different in age. Cutting methods used are single-tree and group selection.
Upland	Land at higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.
Vegetative filter strips	See Filter strip
Viable population	Refers to the viability or continued existence of plant and animal species such that their estimated numbers and reproductive individuals are well distributed in the planning area.
Visual Quality Zone (VQZ)	Areas of landscape denoted by specific distances from the observer. Used as a frame of reference in which to discuss landscape characteristics or activities.
Watershed	The entire area that contributes to a drainage or stream.
Watershed Condition Classes	<p><u>Class I</u> - Watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. The drainage network is generally stable. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are predominantly functional in terms of supporting beneficial uses.</p> <p><u>Class II</u> - Watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Portions of the watershed may exhibit an unstable drainage network. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are at risk in being able to support beneficial uses.</p> <p><u>Class III</u> - Watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. The majority of the drainage network may be unstable. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems do not support beneficial uses.</p>

Wetland	Geographic areas characteristically supporting hydrophytes, hydric (wet) soils, and some saturation or flooding during the growing season.
Wilderness	A Congressionally-designated area that is part of the National Wilderness Preservation System established through the Wilderness Act of 1964. An area where the earth and its community of life are untrammelled by humans, where people themselves are visitors who do not remain.
Wildfires	Uncontrolled fires occurring in forest land, brush, and grassland.
Wildlife	All nondomesticated mammals, birds, reptiles, and amphibians living in a natural environment, including game species and nongame species. Animals, or their progeny (i.e., feral animals - including horses, burros, and hogs), that once were domesticated, but escaped captivity, are not considered wildlife.
Wildlife openings/plantings	An administratively designated development that is constructed and maintained to improve wildlife habitat. Areas designated as managed wildlife openings may include cereal grain plantings, warm-season grass plantings, legume plantings, old-fields successional lands, or native herbaceous open lands.
Woodland	A plant community in which trees are often small, characteristically with a greater proportion of their total height being crown more so than clear bole, and having trees spaced far enough apart that the canopies of adjacent trees usually do not touch, and with the ground vegetation being mostly herbaceous, commonly grass.
Xeric site type	Representative of extremely dry soil conditions and relatively poor soils. See Section 3.2 and Appendix E of the FEIS for a full description of this site type.
Young Forest	Forests with a closed canopy and high density of developing saplings that have not yet reached five inches in diameter. These forests will generally be 10 to 30 years of age. Scattered large older trees may be present if less than 60 percent canopy cover.

II. Acronyms

<u>Acronym</u>	<u>Explanation</u>
AI	Appreciative Inquiry
ATV	All-Terrain Vehicle
CFR	Code of the Federal Regulations
dbh	Diameter at breast height
EBP	Elk & Bison Prairie
EE	Environmental Education
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
HQ	Hazard Quotient; in relation to pesticide and herbicide safety
INFRA	Trademark name for infrastructure management software
IPM	Integrated Pest Management
LBL	Land Between The Lakes National Recreation Area
LRMP	Land and Resources Management Plan
M&E	Monitoring and Evaluation
MIS	Management Indicator Species
mcf	Thousand cubic feet
mmbf	Million board feet
MOS	Margin of Safety
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NOI	Notice of Intent
NRMP	Natural Resources Management Plan
OHV	Off-Highway Vehicle
ROS	Recreation Opportunity Spectrum
SBR	South Bison Range
SMS	Scenery Management System
SNA	State Natural Area
SWCP	Soils and Water Conservation Practices
TVA	Tennessee Valley Authority
USDA	United States Department of Agriculture
USFWS	US Fish & Wildlife Service

III. Recreation Opportunity Spectrum and Development Levels

ROS

The Recreation Opportunity Spectrum (ROS) is a planning tool used to identify and evaluate the supply of recreation settings on national forests. There are six ROS classifications ranging from primitive to urban. Four ROS classes and one sub-class are currently inventoried on LBL and shown on the ROS map in the Appendix. These settings include Semi-Primitive Non-Motorized (SPNM), Semi-Primitive Motorized (SPM), Roaded Natural (RN), Rural (R) and Remote Roaded Natural (RRN), respectively.

Primitive (P) is the most remote, undeveloped recreation setting. These settings are generally located at least three miles from any open road; are at least 5,000 acres in size; and are usually limited to designated wildernesses. LBL has no areas that meet these criteria.

Semi-Primitive Non-Motorized (SPNM) areas are generally less remote than Primitive areas and can be as small as 2,500 acres in size and ½ mile to three miles from any roads open to motorized use. These settings accommodate dispersed, non-motorized recreation such as hiking, biking, hunting, and horseback riding. One area, within a current forest Core Area, meets this requirement. Other Core Areas supply similar experiences when research or administrative motorized use is not required.

Semi-Primitive Motorized (SPM) areas are at least 2,500 acres in size and at least ½ mile from better than primitive roads. These areas may be within ½ mile from primitive roads or trails that allow motorized use. Uses in this ROS class would be similar to SPNM but motorized vehicles may be allowed on some of the primitive roads. LBL contains one area that meets these requirements.

Remote Roaded Natural (RRN) is a sub classification of Roaded Natural. It is used to describe those areas which offer semi-primitive motorized experiences but do not meet the size requirements for the Semi-Primitive ROS classification. They are at least ½ mile from better than primitive roads and at least 1,000 acres in size. The majority of these areas fall within existing Core Areas spread over the landscape of LBL. They provide the most widespread opportunity for a semi-primitive experience.

Roaded Natural (RN) settings are located within ½ mile of open roads and usually provide slightly higher levels of development, but retain a natural appearance to the casual viewer. Given the high road density of LBL, this is the predominant ROS class on LBL.

Rural (R) settings represent the most developed sites and modified natural settings on LBL, such as campgrounds, day-use facilities, picnicking areas, administrative zones, and other areas of highly concentrated use. Areas where croplands are adjacent to main travel routes are also in this class due to the obvious human impact on the landscape.

Urban (U) settings are characterized by substantially urbanized environments through the background may be natural appearing. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site. LBL does not have any areas that fit into this classification.

Recreation Development Levels

Developed recreation sites provide different levels of user comfort and convenience. Development Levels range from 1 to 5, with Level 1 representing the most primitive, natural settings with minimal or no site amenities. Level 5 represents the highest level of development with fully accessible facilities. Further information on Development Level may be found in the FSM 2330.3. These classifications are described below with a list of LBL campgrounds classified at each level:

Development Level 5 – Highly developed sites provide experiences in a developed forest setting. Numerous facilities of mostly non-native materials and very refined design can be expected. Convenience facilities are prevalent, including showers, flush toilets, paved roads, entrance stations, area attendants, equestrian facilities, playgrounds, information boards, beaches, boat ramps, outposts, concessionaires, and recreation vehicle hookups. Paved, striped roads access facilities. These sites provide on-site organized environmental education opportunities such as programs and individual interaction with staff. The ROS experience best representing this level is Urban to Rural. Hillman Ferry, Piney, and Wranglers Campgrounds are operated at this development level. Trails in these campgrounds are closed to motorized and equestrian uses except for Wranglers Campground. Trails in Wranglers are open to horses and hiking.

Development Level 4 – Heavily developed sites provide experiences expected in a rural forest setting. Access is by double-lane gravel or paved roads. Some complex facilities with non-native and very refined design can be expected. Convenience facilities may be present including showers, flush toilets, vault toilets, paved roads, area attendants, information boards, beaches, boat ramps, electricity and potable water. Moderate to heavy site improvements occur. Some on-site environmental education opportunities occur. The ROS experience best representing this level is Rural. Energy Lake, Rushing Creek, and Cravens Bay Campgrounds and Fenton Lake Access are examples of this development level.

Development Level 3 – Moderately developed recreation areas providing experiences expected in a more rustic setting. Some privacy is expected. Gravel roads capable of accommodating conventional motorized vehicles as well as smaller trailers provide access. Facilities are developed for protection of the site as well as for user convenience. These may include vault toilets or chemical toilets, graveled site pads, picnic tables, grills or fire rings, fishing piers, information boards, boat ramps, and potable water. Only off-site or information signing provide environmental education opportunities. The ROS experience best representing this level is Roaded Modified or Roaded Natural. Birmingham Ferry, Smith Bay, Gatlin Point, Jones Creek, Nickell Branch, Taylor Bay,

Sugar Bay, Redd Hollow, Boswell Landing, Twin Lakes Lake Access Areas and Turkey Bay OHV area fall within this level. Moss Creek Day Use, Energy Dam Day Use, Cedar Pond Picnic Area, Colson Overlook Picnic Area, and South Trailhead are examples of day use facilities within this development level.

Development Level 2– Minimally developed recreation sites offer an opportunity for solitude, tranquility, and closeness to nature. These sites offer visitors a higher degree of self-reliance, challenge, and risk. There is normally a low concentration of users in this area. Vegetative alterations, such as mowing and hazard tree removal, are primarily for public safety. These sites are widely dispersed and blend with the natural vegetation. Minimal site modification is required for the limited facilities as well as for safety and resource protection. Such items as boat ramps, vault toilets, and information boards are present. The ROS experience best representing this level is Roaded Natural or Semi-Primitive Motorized. Demumbers Bay, Kuttawa Landing, Eddyville Ferry, Pisgah Point, Shaw Branch, Gray’s Landing, Neville Bay, Bacon Creek, Ginger Bay, Devil’s Elbow Lake Access Areas and Colson Hollow Group Camp fall within this development level. Honker Dam and Duncan Lake are other examples of this development level.

IV. Roads and Structures

Table IV-A Roads

MAINTENANCE LEVEL	MILES OF ROAD
Classified Roads	
5*	148
4	71
3	130
2	98
1	2
Inventoried but Unclassified Roads	
Unknown	287
Total	736

*Includes 119 miles of roads maintained by Kentucky and Tennessee Highway departments.

(Source: INFRA Database, Sept. 13, 2004)

Table IV-B Structures

ADMINISTRATIVE BUILDINGS	
Type	Number
Office/Maintenance	12
Intern Housing	6
Misc/Storage/Utility	32
Total	50
RECREATION BUILDINGS	
Type	Number
Developed Environmental Education	38
Developed Recreation	47
Barns	14
Outposts	3
SST/Toilet/Shower & Toilet	52
Wellhouses/Pumphouses	31
Misc/Storage	81
Total	266

(Source: INFRA database, Sept. 13, 2004)

V. Monitoring Summary Table

Task #	Goal #	Monitoring Question	Measure	Method of Collection	Duration/Frequency	Reporting Interval	Responsibility
1	1	Has the Forest Service made progress toward providing satisfactory recreational and environmental educational experiences to visitors while providing for resource stewardship?	Trends in segmented visitation in comparison to numbers of related resource stewardship projects completed	Summary of visitor satisfaction surveys or personal letters and notes received; visitation; and Focus area accomplishments	Annual	Annual	Area Planner
2	1	Have resource management projects been integrated?	Number of integrated projects being completed	Objective accomplishments, summary of integrated projects completed	Annual	Annual	Area Planner
3	2	Has the Forest Service made progress toward supporting vitality of gateway communities and maintaining/enhancing relationships with its neighbors and regional organizations?	Trends in visitation, levels of community participation	Summary of visitation results, community participation in meetings, programs provided, grants sponsored, cooperative gateway projects, elected official and business leader feedback, visitation. Number of MOUs, partnership agreements and challenge cost share agreements with local, regional and state agencies	Annual	Annual	Social Scientist

V. Monitoring Summary Table (Continued)

4	3	Has the Forest Service made progress toward successfully changing behaviors as a result of environmental education experiences to visitors?	Trends in onsite visitor behaviors and visitor comment surveys	Summary of visitor information surveys or personal letters and notes received, project accomplishments, annual monitoring results, programs and communication products completed	Varies	2 years	Customer Service Department
5	4	Has the Forest Service made progress in reducing erosion and improving watershed conditions and how was this accomplished?	Sediment transport, streambank stability, water quality parameters, properly functioning riparian areas, watershed condition class	Watershed Watch program, stream and riparian surveys, number of improved or relocated roads and trails summary of watershed improvement projects; sample projects during program reviews to determine and document where riparian values, and soil and water resource considerations were implemented through BMP's and design criteria	Progressive over 10 years	Annual	Environmental Stewardship Department
6	4	Has the Forest Service established baseline data for channel classification of its major intermittent and perennial streams?	Completion of stream classification and determination of channel function process	Stream inventory of substrate, Level II Rosgen channel type, average water flow (discharge) and streambank vegetation	Progressive over 10 years	Annual	Environmental Stewardship Department

V. Monitoring Summary Table (Continued)

7	5	How well are species of viability concern being maintained on LBL?	Trends in key habitats and/or populations of selected viability concern species	Habitat trends for key factor indicators used in the species viability analysis assessed through ongoing inventory of vegetation cover and structure types; population status for selected species inventoried and monitored as appropriate for species or species group; species selected based on priorities identified and modified throughout plan implementation using improving information about threats and risks, and in cooperative efforts with conservation partners	2 years	2 years	Forest Ecologist or Silviculturist and Forest Biologist
8	5	Are non-native invasives an increasing threat to LBL?	Trends in highest risk species	Periodic survey and assessment of highest risk species occurrences; project level survey information and accomplishments	3 years	3 years	Forest Biologist
9	5	How is management of LBL affecting recovery of threatened and endangered species?	Trends in Price's potato bean populations in relationship to T&E Recovery	Periodic assessment of status of known occurrences; new occurrence inventory	Seasonal	Annual	Forest Biologist
10	5	How is management of LBL affecting recovery of threatened and endangered species?	Trends in bald eagle populations in relationship to T&E Recovery	Periodic assessment of status of known occurrences; new occurrence inventory	Seasonal	Annual	Forest Biologist
11	5	How is management of LBL affecting demand for wildlife-related recreation?	Trends in Eastern Bluebird populations as a Non-game Demand species	Breeding Bird Survey/Point counts occurrence trends for the bird communities	Annual	3 Years	Forest Biologist

V. Monitoring Summary Table (Continued)

12	5	How is management of LBL affecting demand for wildlife-related recreation?	Trends in White-tailed deer populations as a Demand Game species	Summary of data received in deer surveys, harvest statistics; summary of comments related to recreational uses of White-tailed Deer	Annual	3 Years	Forest Biologist
13	5	How is management of LBL affecting demand for wildlife-related recreation?	Trends in Eastern Wild Turkey populations as a Demand Game species	Summary of data received in Breeding Bird Surveys/Point counts, harvest data, and poult summaries; summary of comments related to recreational uses of Eastern Wild Turkey	Annual	3 Years	Forest Biologist
14	5	How is management of LBL affecting demand for wildlife-related recreation?	Trends in Northern Bobwhite Quail populations as a Demand Game species	Breeding Bird Survey/Point counts occurrence trends for the bird communities; in the future, harvest data may be available	Annual	3 Years	Forest Biologist
15	5	How is management of LBL affecting special habitats and major biological communities?	Trends in Pileated woodpecker populations in relationship to Snags in Forested Situations	Breeding Bird Survey/Point counts occurrence trends for the bird communities compared to Snags in Forested Situations acreages and conditions	Annual	3 Years	Forest Ecologist or Silviculturist and Forest Biologist
16	5	How is management of LBL affecting special habitats and major biological communities?	Trends in Eastern Bluebird populations in relationship to Snags in Open Forested Situations	Breeding Bird Survey/Point counts occurrence trends for the bird communities compared to Snags in Forested Situation acreages and conditions	Annual	3 Years	Forest Ecologist or Silviculturist and Forest Biologist
17	5	How is management of LBL affecting special habitats and major biological communities?	Trends in Acadian Flycatcher populations in relationship to Mature Riparian Forests	Breeding Bird Survey/Point counts occurrence trends for the bird communities compared to Mature Riparian Forests acreages and conditions	Annual	3 Years	Forest Ecologist or Silviculturist and Forest Biologist

V. Monitoring Summary Table (Continued)

18	5	How is management of LBL affecting special habitats and major biological communities?	Trends in Northern Bobwhite Quail populations in relationship to Grasslands	Breeding Bird Survey/Point counts occurrence trends for the bird communities compared to Grassland acreages and conditions	Annual	3 Years	Forest Ecologist or Silviculturist and Forest Biologist
19	5	How is management of LBL affecting special habitats and major biological communities?	Trends in Prairie Warbler populations in relationship to Oak Woodlands	Breeding Bird Survey/Point counts occurrence trends for the bird communities compared to Oak Woodlands acreages and conditions	Annual	3 Years	Forest Ecologist or Silviculturist and Forest Biologist
20	5	How is management of LBL affecting special habitats and major biological communities?	Trends in Great-crested Flycatcher populations in relationship to Mature Open Oak Forest	Breeding Bird Survey/Point counts occurrence trends for the bird communities compared to Mature Open Oak Forest acreages and conditions	Annual	3 Years	Forest Ecologist or Silviculturist and Forest Biologist
21	5	How is management of LBL affecting special habitats and major biological communities?	Trends in Wood Thrush populations in relationship to Mesophytic and Riparian Forests with Canopy Gaps and Mature Forest Interior	Breeding Bird Survey/Point counts occurrence trends for the bird communities compared to Mesophytic and Riparian Forests with Canopy Gaps and Mature Forest Interior acreages and conditions	Annual	3 Years	Forest Ecologist or Silviculturist and Forest Biologist
22	5	How is management of LBL affecting special habitats and major biological communities?	Trends in Eastern meadowlark populations in relationship to Grassland	Breeding Bird Survey/Point counts occurrence trends for the bird communities compared to Grassland acreages and conditions	Annual	3 Years	Forest Ecologist or Silviculturist and Forest Biologist

V. Monitoring Summary Table (Continued)

23	5	How is management of LBL affecting special habitats and major biological communities?	Trends in Yellow-breasted Chat populations in relationship to All Forest Type Regeneration	Breeding Bird Survey/Point counts occurrence trends for the bird communities compared to All Forest Type Regeneration acreages and conditions	Annual	3 Years	Forest Ecologist or Silviculturist and Forest Biologist
24	5	How is management of LBL affecting special habitats and major biological communities?	Trends in composition of aquatic communities dependent on clear water and stable channels	Surveys similar to those done by the Center for Aquatic Technology Transfer (CATT)	Every 5th year	5 Years	Forest Biologist
25	5	How is management of LBL affecting special habitats and major biological communities?	Trends in bat population levels.	Collection and analysis of area bat survey data	Every 5th year	Annual	Forest Biologist
26	5	Is the forest less likely to be affected by insects, disease, and wildfire?	Trends in early, mid-, and late-successional forests by prescription group	Map and update changes through routine inventories; monitor acres by successional stage and trend; fuel monitoring following Regional protocol and condition classes	Continuous	Annual	Forest Ecologist or Silviculturist
27	5	Is the forest less likely to be affected by insects, disease, and wildfire?	Trends in species diversity, structural diversity, age class and stocking levels	Acres of hazardous fuels treated through wildland fire use, prescribed fire, and mechanical treatments	Every 3rd year	3 years	Forest Ecologist or Silviculturist
28	5	Is the forest less likely to be affected by insects, disease, and wildfire?	Trends in native insect and disease effects	Sample for specific insects or disease as evidence of infestations occurs following established protocols for the organisms of concern; track Forest Health Monitoring results to identify emerging concerns	As needed	Annual	Forest Ecologist or Silviculturist and Forest Health Field Unit

V. Monitoring Summary Table (Continued)

29	5	Has the Forest Service made progress towards identifying old growth stands on the ground?	Completed inventory of old growth stands	Collection and analysis of old growth characteristics data, locations, and patch size	Every 3rd year	3 Years	Forest Ecologist or Silviculturist
30	6	Has LBL produced measurable results from demonstration projects that have led to positive changes on other units?	Trends and annual summary of accomplishments and results	Annual summary of units supported, accomplishment reports, feedback, policies changed, results; tracking, by documenting the assistance provided, support to specific organizations and agencies	Annual	Annual	Demonstration Manager
31	6	How many demonstration products have been exported?	Trends and annual summary of accomplishments and results	Track annual accomplishments with standard tracking system	Annual	Annual	Demonstration Manager
32	7	Have dispersed recreational and environmental educational opportunities at LBL been enhanced?	Trends and annual summary of accomplishments and results	Objective accomplishments, percentage of visitation utilizing dispersed Rec/EE opportunities	Continuous	Annual	Customer Service Department
33	7	Have dispersed recreational and environmental educational opportunities at LBL been enhanced?	Backlog of facility and trail maintenance needs and trends	Analysis of INFRA Deferred Maintenance Report and reporting of percent change in backlog	Annual	Annual	Customer Service Department
34	7	Have dispersed recreational and environmental educational opportunities at LBL been enhanced?	Results and trends in user satisfaction ratings	Summary of visitor satisfaction surveys or personal letters and notes received; objective accomplishments, integrated projects completed	2 years	2 years	Social Scientist

V. Monitoring Summary Table (Continued)

35	7	Have dispersed recreational and environmental educational opportunities at LBL been enhanced?	Trends in financial resources needed and available to provide recreation opportunities	Analysis of incoming funds - traditional budgets and fee collections - and costs of operations, in view of needs; reports using standard tracking systems	Annual	Annual	Customer Service Department
36	8	Are the goals of the LBL Plan leading to accomplishments that support national objectives?	Trends and annual summary of accomplishments and results	Comparison of projects and recent accomplishments to the National Strategic Plan goals and objectives; public comments; standard tracking systems	As needed	Annual	Area Planner
37	8	Are Plan objectives and standards being applied, and are they accomplishing their intended purpose?	Determine whether standards, guidelines, and management requirements are being met and are effective in achieving expected results	Interdisciplinary review; sample projects to observe effectiveness of implemented standards	As needed	Annual	Area Planner
38	8	Area Plan objectives and standards being applied, and are they accomplishing their intended purpose?	Determine if planning information or physical conditions have changed and provisions remain scientifically valid	Interdisciplinary review of Area Plan for needed changes as new information becomes available and/or significant changes in conditions are observed	As needed	Annual	Area Planner
39	8	Are Plan objectives and standards being applied, and are they accomplishing their intended purpose?	Comparison of estimated and actual costs of plan implementation	Compare trends in operating budgets to the estimated costs of implementing the Area Plan	Annual	Annual	Area Planner

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VII. Maps

Map Name

LRMP Prescription Areas - North

LRMP Prescription Areas - South

Recreation Opportunity Spectrum