

## Chapter 2

### FORESTWIDE DIRECTION

The Plan is organized around the Forest's biological, physical, and social resources. Forestwide direction provided in this chapter applies consistently across National Forest System land and provides management emphasis for the entire Forest.

Goal statements broadly describe the Desired Future Condition the Plan seeks to achieve. While Goal statements furnish direction, they are timeless and may not necessarily be achieved during the 10 to 15-year life of the Plan. Direction expressed in Goal statements was based on input from the public and Forest Service employees as well as state and local cooperators. State and federal statutes and other public policy also guided the process. Measurable actions taken to attain Goals are called Objectives.

While Goals and Objectives define management direction, Standards govern actions taken to meet Objectives. Standards often preclude or impose limitations on management activities or resource uses, generally for environmental protection or public safety. Standards are mandatory. Deviation from a Standard requires a Forest Plan amendment.

The Forest Monitoring Plan is designed to measure progress toward achieving Objectives and ensure compliance with Standards.

Forestwide Goals, Objectives, and Standards apply to the entire Forest unless superseded by specific Prescription Area direction. Projects will be evaluated to determine their adherence to Plan direction. Plan adherence is documented in project-level records. Chapter 5 of the Plan explains the framework used to develop monitoring methodologies and techniques.

Statutes, regulations, and Forest Service directives may be cited but are not normally repeated in the Plan. Some resource areas, such as heritage resources or Threatened and Endangered species, receive very specific direction from law, regulation, policy, Forest Service directives, and other sources, such as recovery plans. If a particular resource does not appear to be fully addressed in this Plan, further direction will most likely be found in the above sources. References to many of these may be found in Appendix B.

Decisions on new projects that implement the Plan will be based on site-specific analyses, and will be in compliance with the National Environmental Policy Act (NEPA) when applicable. Environmental analyses conducted under NEPA will be documented in accordance with the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR parts 1500-1508) and the Environmental Policy and Procedures Handbook (FSH 1909.15). Referenced policies, rules, and regulations may change without change to this Plan.

## FORESTWIDE DESIRED FUTURE CONDITIONS

This section summarizes the desired condition of the Forest after 10 to 15 years of Plan implementation and then after 50 years. More detailed statements of Desired Future Conditions can be found in Chapter 3, where the specific, more specialized Prescription Areas are addressed.

### THE FOREST IN THE SHORT-TERM

At the end of the first decade, changes in the overall character of the landscape will be small. The Forest will appear much as it did in 2003. However, the widespread loss of southern yellow pines in the late 1990s will have become more apparent. About 100,000 acres were affected to at least some degree by the southern pine beetle and most large trees have fallen or exhibit severely diminished structural strength.

The majority of these stands are succeeding to hardwoods, with a dense understory of saplings and little herbaceous or grassy cover underneath. Across the moisture gradient, from mesic to dry slope positions, shade-tolerant species that became established in the stands during the previous 80 years of fire exclusion are now poised to capture the canopy positions. With the lack of pine seed sources, the stands will be dominated by a group of mixed mesophytic species or oaks under some conditions. Ecologically functional southern yellow pine communities are greatly diminished across the landscape. Exceptions include areas that escaped the beetle epidemic and have been prescribed burned multiple times, have been planted in shortleaf pine, or are at such edaphic extremes that pines are the best competitors.

The processes and structure necessary to maintain the biological diversity of the DBNF are increasingly supported across the whole landscape. An old-growth network has been established across the Forest. Both the Designated Old-Growth and Habitat Diversity Emphasis Prescription Areas have helped ensure a land base for communities such as upland yellow pine and oak woodlands and grasslands, which require human manipulation for their existence.

Most management-caused changes to the landscape are the result of efforts to restore upland communities. Yellow pine seedlings are planted yearly to supplement natural regeneration. Prescribed burning is used increasingly, especially to promote oak and pine communities. Fire is used in conjunction with thinning to accelerate attainment of Desired Future Conditions. Overstocked pine, hardwood, or mixed stands, and stands with an understory of shade-tolerant invasive tree species will be focused upon for management. Thinning, burning, and planting helps restore upland communities. Timber harvest is used as a tool to achieve Desired Future Conditions. Oak advanced regeneration is promoted in these stands. Communities and rare species found in the pre-1700 fire regime are reappearing in these areas.

Oil and gas wells are developed on the Forest and underground mining of federally owned coal takes place. Development of federal minerals brings little change to the overall Forest landscape, however. No surface mining of coal occurs on the Forest. Mineral development conforms to the Forest's Goals, Objectives, and Standards, which are geared toward ecosystem management and species viability. Certain Prescription Areas, such as the Rare Communities and the Riparian Corridor, protect areas of priority or concern. Stipulations and recommendations included in mineral development projects take into account the potential impact on a wide range of other resources,

giving guidance as to when, where, and how such activities are appropriate. Areas around federally owned coal are examined to determine their suitability to withstand the surface impacts sometimes associated with underground coal mining. Even with these protections, there are still opportunities for oil and gas development in most areas of the Forest.

While the Forest landscape is beginning to move toward the diverse activities outlined in the Multiple Use Sustained Yield Act of 1960, ecosystem management remains a Forest priority. The road system provides adequate access for public and administrative use with minimal damage to resources. Most roads have native surfacing and are rough and irregular. Public access on some roads is restricted either seasonally or permanently. New road construction is minimal, but road maintenance continues for public access and resource protection.

The character and qualities of the Forest that draw most visitors continue to improve. The DBNF is aware of, and striving to fill, its niche in the provision of outdoor recreational opportunities. A broad spectrum of recreational opportunities, ranging from primitive to developed, is available. Visitors of all abilities find a diversity of well-maintained facilities and high quality, visually appealing forest settings.

The unique characteristics of specially designated areas such as Wilderness, Wild and Scenic Rivers, Red River Gorge Geological Area and Natural Arch Scenic area are protected. Wilderness visitors encounter old-aged, late-successional forests with primitive conditions with little evidence of human contact. Backpackers in Wilderness areas encounter primitive conditions and minimal evidence of human influence.

Opportunities for camping, motorized and non-motorized trail use, hunting, rock climbing, fishing, boating, and other recreational activities in undeveloped areas are provided in a manner that protects the ecosystem and heritage resources. All-terrain vehicle users access established networks of interconnected trails. Developed recreation areas provide safe, family-oriented outdoor recreational experiences in natural settings. Amenities in these developed recreation facilities accommodate the expectations of users. Accessibility is a part of the recreation facility setting.

The Forest is actively engaged in providing information and environmental education to the public through brochures, electronic media, interpretive signs, and educational programs both on- and off-Forest. Interpretive information about recreational opportunities, the natural setting, and environment is readily accessible. Increased outreach to various public groups enables the Forest to better understand its constituents' needs and interests.

## **THE FOREST IN THE LONG-TERM**

A variety of life is maintained on the Forest. Populations of native species, once rare or declining, are stable or increasing. Non-native invasive species outbreaks are infrequent and controlled. A strengthened ecosystem enables the Forest to better withstand and recover from catastrophic disturbance.

Gypsy moth, a non-native invasive species, holds the potential to cause the next catastrophic change in vegetation composition. Large, old hardwood trees, mostly oak, are the most susceptible to gypsy moth attack. Activities that thinned forest vegetation, such as cutting selected trees and prescribed burning, provide for advanced regeneration of desired species, such as oaks. Thinning and advanced regeneration are likely to play a role in maintaining oak as a component of the forest.

The Hemlock woolly adelgid, another invasive species, is a threat to hemlock trees. A noticeable decline in hemlock trees may occur over a long period, unless introduction of biological predators or other control methods prove effective.

The individual values and ecological functions of flood plains, groundwater, lakes, riparian areas, springs, streams, and wetlands are protected and enhanced. Changes in management have maintained or improved soil productivity and air quality.

Fire-mediated habitat has been restored throughout the Forest. Ongoing prescribed fire programs for habitat manipulation and fuel reduction have also reduced the risk of wildland fire.

The DBNF is moving towards an older forest condition with a diverse representation of habitats. Old-growth forest, yellow pine stands, grasslands, and dispersed water sources for wildlife are more prevalent. Areas on the Forest designated as old-growth are taking on the characteristics of old-growth forest ecosystems, i.e., old trees with their related structural attributes.

Geological features such as arches, caves, and rockshelters are protected from abuse. Heritage resources, such as prehistoric material remains within rockshelters, are categorized and protected.

A sustainable mix of desired uses, valued characteristics, and services provides long-term benefit to local communities and the broader public. Renewable products such as timber and medicinal plants are harvested on a sustainable basis. In addition, federal mineral resources are developed to help meet the nation's resource needs. The rights of private mineral owners are accommodated as Forest resources are protected. Habitat is available to sustain recreational wildlife pursuits such as viewing, photographing, hunting, and fishing.

An adequate infrastructure (e.g., road and trail network, buildings, and other facilities) supports the Forest's Desired Future Conditions. The Forest is progressing toward an ownership pattern (surface and subsurface) that facilitates management.

The Forest Service engages the public and other agencies and organizations in cooperative, collaborative efforts that build the public's trust and support. Interpretive and educational services are provided to a wide spectrum of the public, including Forest visitors, school children, interest groups, and civic organizations. The news media are supplied with information that can be developed into stories explaining the value of Forest resources and the importance of attaining Forest Goals.

## FORESTWIDE GOALS AND OBJECTIVES

### Plant and Animal Communities and Unique Resources

**GOAL 1** Maintain a variety of life and recover native and desirable non-native populations that are rare and declining.<sup>2</sup>

**GOAL 1.1** Protect and/or enhance current and potential habitat for Proposed, Endangered, Threatened (PET) species, or Sensitive (S) species and Conservation species. Evaluate habitats to determine those capable of supporting re-introduction of PETS species.

**Objective 1.1.A.** During project analysis and implementation, protect, maintain, or enhance habitat for bat species. Management activities should:

- a) Protect or enhance habitat for PETS and Conservation bat species, including significant hibernation and maternity caves/rockshelters.
- b) Maintain and protect roost trees used by PETS bat species as well as foraging/swarming habitat around significant hibernation, staging, and maternity sites.
- c) Protect, maintain, and enhance Indiana bat roosting, foraging, and maternity habitat.
- d) Maintain and enhance roosting and foraging habitat for Indiana bats during projects designed to manage over-story vegetation.

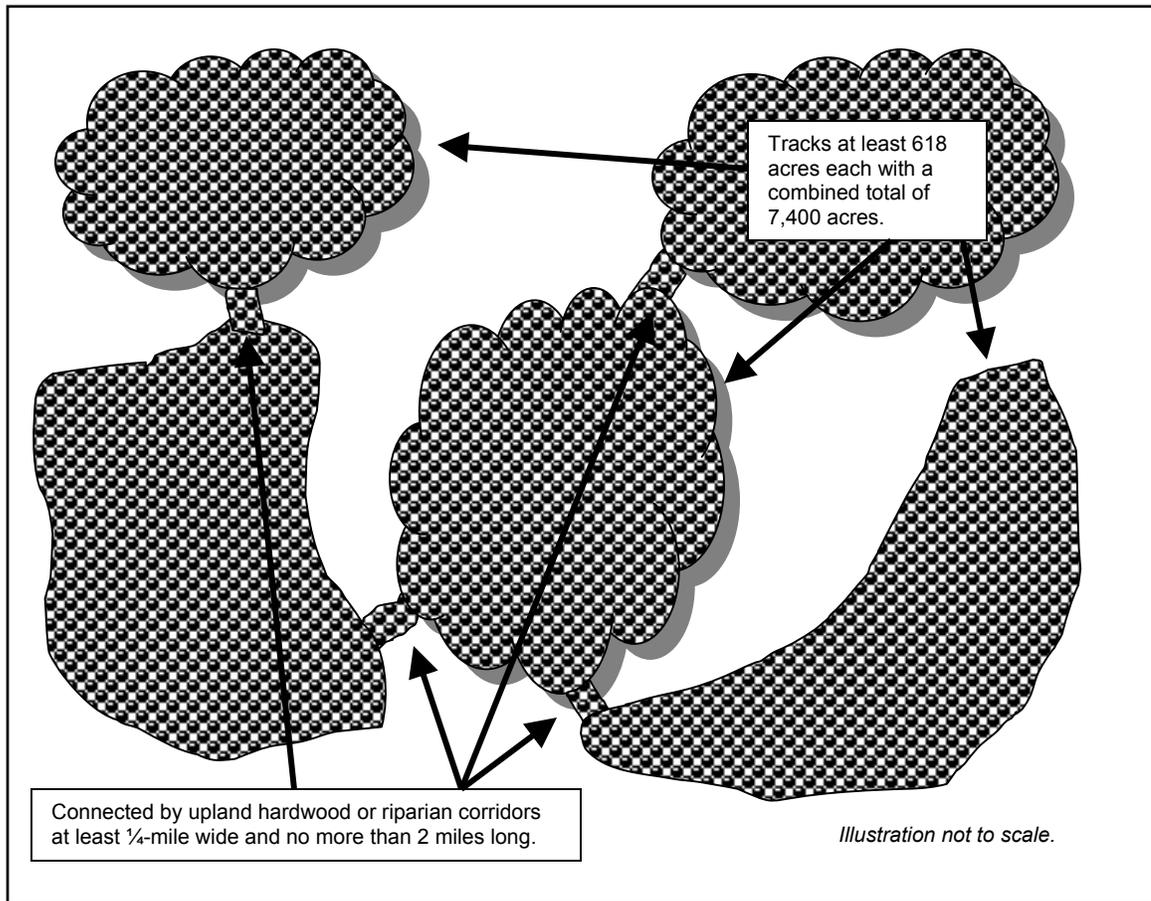
**Objective 1.1.B.** Protect or enhance habitat for species identified by Partners in Flight (PIF) as well as others that need special attention. Management activities should:

- a) Provide artificial cavities and nest boxes for species that may be limited by cavity availability.
- b) Create and maintain at least one approximately 7,400-acre area of cerulean warbler habitat<sup>3</sup> in the Licking River Management Area, Upper Kentucky River Management Area, and the Jellico Mountains of the Cumberland River Management Area. Each 7,400-acre area can be composed of tracts at least 618 acres in size connected by corridors of either upland hardwood forest or riparian areas. Upland hardwood forest corridors should be no more than two miles long, and at least ¼-mile wide (see Figure 2 - 1 for example of possible pattern).

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<sup>2</sup> Aquatic PET species are also addressed in the Riparian Corridor prescription (1.E).

<sup>3</sup> Predominantly mature (age≥70), open (60 BA and up) contiguous upland hardwood or riparian forest (canopy with moderate to dense shrub/midstory layers, large grapevines are required in the mix; Buehler and Nicholson 1997), with some trees >20 in.; can be upland or bottomland/riparian. Contiguous is defined as having no more than 5 percent of the area in grassy openings, regenerating forest with less than 40 BA canopy, or roads greater than 50 ft. in width; tracts may be composed of blocks of minimum 618 acres in size connected by upland hardwood corridors approximately 0.25 mile wide or riparian corridors at least 100 ft. wide, neither of which is more than 2 miles long.



**Figure 2 - 1. Possible pattern for cerulean warbler habitat.**

**Objective 1.1.C.** Protect PETS and Conservation species from indiscriminate collection for personal, scientific, medicinal, or commercial use.

**Objective 1.1.D.** Restore and maintain 3,000 acres of pitch pine and pitch pine-oak forest types on appropriate landtype phases.

**Objective 1.1.E.** Maintain existing white pine/hemlock habitat associations in riparian and cove positions.

**Objective 1.1.F.** On appropriate landtype phases, restore and maintain 18-24 percent of forest acreage in forest types having a significant (>30%) component of yellow pine.

**GOAL 1.2 Create and maintain water sources with a mixture of temporary/seasonal and permanent shallow water pools throughout the Forest.**

**Objective 1.2.A.** Establish water sources adjacent to mature forest and/or woods road corridors.

**Objective 1.2.B.** Establish upland water sources (e.g., seasonal or permanent waterholes), within five miles of significant Indiana bat hibernacula, at a frequency of one every half-mile in upland areas and along ridgetops.

**Objective 1.2.C.** Toxic standing water sources (e.g. brine pits and oil catch basins) are filled, covered, or otherwise modified in an environmentally appropriate manner to prevent wildlife from using them.

**GOAL 1.3 Ensure continued persistence of high elevation (>2000 feet) forest communities.**

**Objective 1.3.A.** Acquire and maintain at least two 1,000-acre blocks of vegetation (predominantly forest) of at least 1,900 feet elevation, and where possible 2,500 feet or higher along Pine Mountain.

**Objective 1.3.B.** Develop a prescription for high elevation areas as lands are acquired.

**GOAL 1.4 Develop a network of old-growth areas of various sizes to support the distribution, linkages, and representation of old-growth forest community types on the Forest.<sup>4</sup>**

**Objective 1.4.A.** Within each management area, avoid regeneration of stands that are in 10-year age-classes containing less than one percent of all forest land.

**Objective 1.4.B.** Maintain at least eight percent of each old-growth type (USDA Forest Service 1997) in patches at least 300 acres in size. Acreage can be contributed by any or all Prescription Areas that are recognized as *future* old-growth and by the 1.I-Designated Old-Growth Prescription Area.

**Objective 1.4.C.** Continue the assessment of old-growth criteria in stands identified (USDA Forest Service 1997) as *possible* old-growth.

**GOAL 1.5 Provide for grassland habitat.**

**Objective 1.5.A.** Provide for 2,200 acres of grassland habitat in various Prescription Areas. Promote native warm season grasses and associated forbs in upland grassy openings.

**Objective 1.5.B.** Encourage the development of native grasses and forbs in non-upland grassy openings.

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<sup>4</sup> These areas can be found in 1.I. Designated Old-Growth or other Prescription Areas recognized as *future* old-growth. Managers also have the option to include individual stands that are managed as old-growth, regardless of the Prescription Area in which they are found.

**GOAL 1.6 Maintain relatively undisturbed microclimates and hydrologic systems of caves and karst ecosystems along with their flora and fauna. Allow speleothems, speleogens, and other unique cave formations to continue to develop under relatively natural conditions.**

**Objective 1.6.A.** Manage the Forest to ensure that water flowing into cave systems contain relatively normal, fluctuating background levels of sediment, organic matter, and dissolved minerals.

**Objective 1.6.B.** Provide for the discovery, survey, monitoring, and protection of cave and karst resources.

**Objective 1.6.C.** Complete the review of all nominated significant caves and designate significant caves as defined in 36 CFR 290.

**Objective 1.6.D.** Complete management plans for significant caves as defined in 36 CFR 290.

**GOAL 1.7 Provide adequate habitat to support populations of Management Indicator Species.**

**Objective 1.7.A.** Provide adequate habitat to support populations of the following Management Indicator Species:

<b>SPECIES</b>	<b>CATEGORY</b>	<b>TARGET HABITAT OR RELATED OBJECTIVES</b>
<b>Acadian flycatcher</b>	Species of Special Interest <sup>5</sup> ; Ecological Indicator—Major Forest Community	Riparian corridor forest, >80 years old; -1.1.B, 1.1.E, 1.E.2.A, 1.E.2.E
<b>Black-throated green warbler</b>	Species of Special Interest; Ecological Indicator—Major Forest Community	Dense cove forest >80 years old; 1.E.2.A, 1.K.1.J
<b>Cerulean warbler</b>	Species of Special Interest; Representative of Habitat Association	Upland hardwood or mixed hardwood-yellow pine, >60 BA but 70-90 BA average, >41 years old; DB-1.1.B, 1.K.1C, 1.K.2.L
<b>Summer tanager</b>	Species of Special Interest; Ecological Indicator—Major Forest Community	Upland hardwood or mixed hardwood-yellow pine, 30-60 BA, >50 years old; 1.K.2.J, 1.K.2.K
<b>Chipping sparrow</b>	Species of Special Interest; Ecological Indicator—Major Forest Community	Upland hardwood or mixed hardwood-yellow pine, <30 BA with grassy layer, >50 years old, 1.K.2.A, 1.K.2.B, 1.K.2.C, 1.K.2.D, 1.K.2.E, 1.K.2.H, 1.K.2.I
<b>Northern cardinal</b>	Species of Special Interest; Ecological Indicator—Major Forest Community	Upland hardwood or mixed hardwood-yellow pine, <30 BA with shrub layer, >50 years old; 1.K.2.H, 1.K.2.I
<b>Field sparrow</b>	Species of Special Interest; Representative of Habitat Association	Grasslands, including old fields, prairie remnants, wooded grassland; DB-1.5.1, DB-1.5.2, 1.K.1.B, 1.K.2.A, 1.K.2.B, 1.K.2.C
<b>Eastern towhee, Yellow-breasted chat</b>	Species of Special Interest; Representative of Habitat Association	Any forest type, recently cut over, 0-10 years old; 1.K.1.A
<b>Ovenbird</b>	Species of Special Interest; Representative of Habitat Association	Older (not necessarily old-growth) forest, 70-90 BA average for southern yellow pine-oak communities, up to 130 BA for mesic communities; 1.K.1.D, 1.K.1.L, 1.K.2.G
<b>Pine warbler</b>	Species of Special Interest; Ecological Indicator -- Major Forest Community	Yellow pine communities, 70-90 BA, >41 years old; DB-1.1.F, 1.I.1.D, 1.K.2.A, 1.K.2.G
<b>Prairie warbler</b>	Species of Special Interest; Representative of Habitat Association	Yellow pine communities, 0-10 years old, such as those recovering from southern pine beetle infestations through natural or artificial regeneration; DB-1.1.F, 1.K.1.A, 1.K.2.A, 1.K.2.G
<b>Northern bobwhite quail</b>	Species of Special Interest; Ecological Indicator -- Major Forest Community; Demand Species	Woodland and wooded grassland, predominantly mature yellow pine or mixed yellow pine hardwood, 25-50 BA, with a predominantly warm season grasses and forbs herbaceous layer with scattered patches of brush. Also open grassland; DB-1.1.F, 1.K.2.A, 1.K.2.B, 1.K.2.C, 1.K.2.D, 1.K.2.E
<b>White-tailed Deer</b>	Demand Species	Various; DB-1.5.1, DB-1.5.2, 1.K.1.A, 1.K.1.B, 1.K.1.L, 1.K.1.M, 1.K.2.J, 1.K.2.K, 1.K.2.L
<b>Pitch pine</b>	Species of Special Interest	Pitch pine regeneration, artificial or natural; DB-1.1.D, DB-1.1.F, 1.K.2.A, 1.K.2.G

**Aquatic macro-invertebrate assemblage** – Indices based on aquatic macro-invertebrate assemblages fulfill all the criteria/definitions of MIS and are more effective than any individual or small group in reflecting the health of an aquatic system. Such indices reflect community structure and function as well as the physical and chemical parameters of an aquatic system. Because these indices are not individual or groups of species, they will not be referred to as management indicator species. However, they will be used in lieu of MIS.

<sup>5</sup> See 36 CFR 219.19 (a)(1) for discussion of these categories.

**GOAL 2** Improve the ability of the Forest's ecosystems to withstand and recover from disturbance (Forest Health), especially catastrophic disturbance, either naturally occurring or introduced. Reduce the compounding impacts of catastrophic events.

**GOAL 2.1** Increase the amount of forested land where stand growth equals or exceeds loss; improve stand structure and function such that stands are more resistant to catastrophic loss (Prevention).

**Objective 2.1.A.** Within each stand, the relationship of basal area, number of trees, and average tree diameter is below the 80 percent stocking level, as shown in Figure 2 - 2.

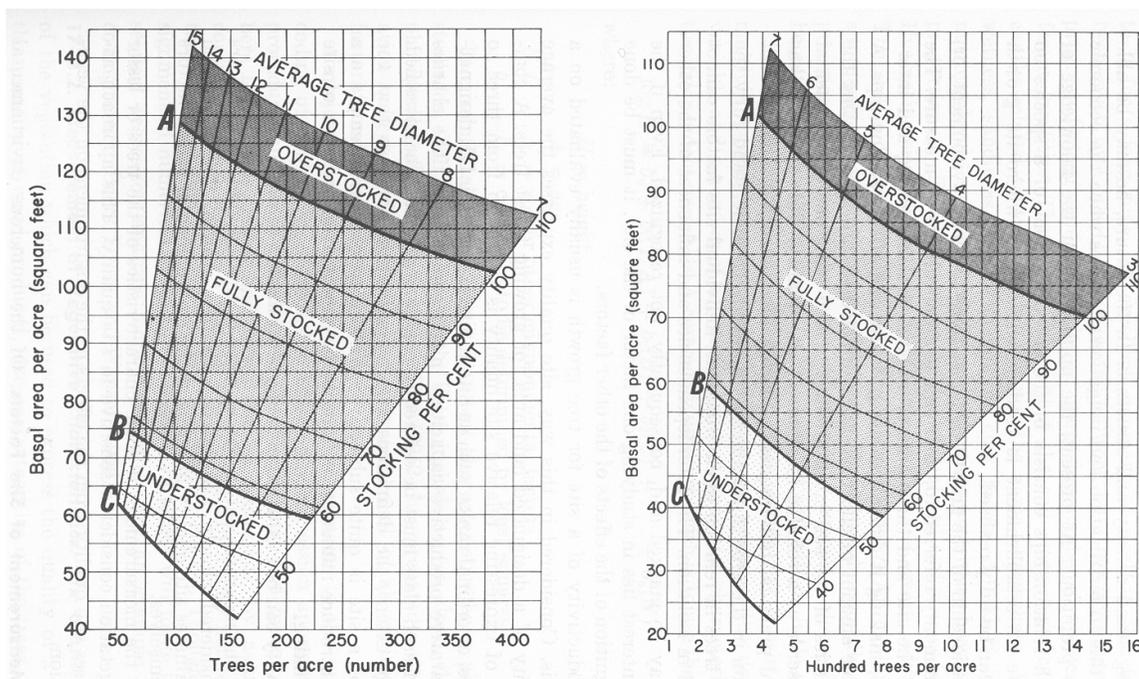


Figure 2 - 2. Stocking charts for upland hardwood (oak) stands (Gingrich 1964)

**Objective 2.1.B.** Regeneration occurs in the understory of old-age stands, which consists of the desired type (species), condition, and quantity capable of dominating an area following wildland fire, insect and disease epidemics, and other disturbances that can alter the landscape.

**Objective 2.1.C.** Incorporate into the Fire Management Plan the opportunity to use lightning-ignited wildland fires to meet management Objectives.

**GOAL 2.2 Establish and maintain seed production areas.**

**Objective 2.2.A.** Establish 10 seed production areas on each district to support collection of seed from various species (i.e., shortleaf pine, pitch pine, red and white oaks) that may be needed to meet reforestation objectives. Each area would be approximately 5 to 20 acres in size.

**Objective 2.2.B.** Select, identify, and retain trees that exhibit desirable phenotypic (observable) characteristics, within seed production areas.

**Objective 2.2.C.** Thin seed production areas to remove trees exhibiting undesirable character or trait, and to stimulate seed production.

**Objective 2.2.D.** Fertilize seed production areas to stimulate root and crown development as well as seed production.

**Objective 2.2.E.** Prune trees in seed production areas to eliminate undesired branches and to improve access.

**Objective 2.2.F.** Understory vegetation within seed production areas is grasses or low, sparse shrubs.

**Objective 2.2.G.** Access to seed production areas and within these areas provide for efficient and safe gathering of seed using mechanical equipment such as lift-buckets.

**GOAL 2.3 Reduce outbreak populations of invasive species, or eradicate isolated infestations of invasive species from becoming established.**

**Objective 2.3.A.** Eradicate isolated infestations of gypsy moth, and use the slow-the-spread strategy to monitor and manage gypsy moth populations ahead of the transition area.

**Objective 2.3.B.** Manage isolated occurrences of invasive species to avoid outbreak conditions.

**Objective 2.3.C.** Reduce the risk of damage from native and non-native invasive species through integrated pest management strategies.

**GOAL 2.4 Re-introduce fire use across the landscape to increase biodiversity and improve resilience and stability of ecosystems.**

**Objective 2.4.A.** Move acres from Fire Regime Condition Classes 3 and 2 into Classes 2 and 1.

**Objective 2.4.B.** Reduce/eliminate white pine and other fire-intolerant species from upland, fire-mediated areas.

**Objective 2.4.C.** Annually increase the number of acres to be prescribed burned, based on the following schedule:

<b>Year</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Objective</b>	15,000	19,000	23,000	27,000	31,000	35,000	39,000	43,000	47,000	50,000
<b>Range</b>	7,500	9,500	11,500	13,500	15,500	17,500	19,500	21,500	23,500	25,000
	22,500	28,500	34,500	40,500	46,500	50,000	50,000	50,000	50,000	50,000

**GOAL 3     Manage and/or restore watersheds to ensure the quality and quantity of water necessary to protect ecological functions, aquatic species and habitats, and support state designated beneficial uses.**

**Objective 3.0.A.** Protect or enhance habitat for PETS species in seep, streamhead, or swamp habitat.

**Objective 3.0.B.** Incorporate information for karst groundwater basins, including GIS mapping, as information becomes available.

**Objective 3.0.C.** Concentrate restoration efforts in watersheds with impaired water bodies on Kentucky's Clean Water Act section 303(d) list or in watersheds that are a high priority for protection<sup>6</sup>.

**Objective 3.0.D.** Reduce the number of impaired water bodies on Kentucky's CWA 303(d) list.

**Objective 3.0.E.** Cooperate and coordinate with state and local agencies on Total Maximum Daily Loads (TMDLs) and watershed assessments.

**GOAL 3.1     Manage instream flows and water levels to protect stream processes, aquatic and riparian habitats and communities, and recreation and aesthetic values.**

**Objective 3.1.A.** Collaborate with other agencies to manage instream flows and water levels.

**GOAL 3.2     Within the area 25 feet on either side of scoured ephemeral stream channels, maintain the ability of the area to filter sediment from upslope disturbances, control sediment within the area, and maintain channel stability.**

**GOAL 4     Maintain or improve soil productivity and air quality.**

**Objective 4.0.A.** Maintain productive potential of the soil on at least 85 percent of each project area following land management activities.

**GOAL 4.1     Reduce air pollution impacts on the Daniel Boone National Forest and Class I areas in the region.**

**Objective. 4.1.A.** Work cooperatively with air management agencies and regional haze planning organizations to improve air quality.

**GOAL 4.2     Conduct the fire management program in a manner that minimizes the impacts of smoke on air quality standards and visibility goals.**

**Objective. 4.2.A.** Demonstrate conformity with the State Implementation Plan for any prescribed fire planned within EPA-designated "non-attainment" and "maintenance" areas.

**Objective. 4.2.B.** Best available smoke management practices will be used to minimize adverse effects of prescribed fire on public health safety and visibility.

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<sup>6</sup> USDA 2001, Walker 2001a

**Objective. 4.2.C.** Comply with Kentucky’s Smoke Management Program for prescribed fire, when the program is certified by the U.S. Environmental Protection Agency.

**GOAL 5      Protect geological features such as arches, caves, and rock shelters.**

**GOAL 6      Preserve heritage resources.**

**GOAL 6.1    Manage heritage resource properties for the benefit of present and future generations.**

**Objective 6.1.A.** Maintain heritage resource site and inventory maps and index set. Consult with the State Historic Preservation Officer and Office of State Archaeology on a regular basis.

**Objective 6.1.B.** Initiate protection of significant heritage resource properties as soon as they are discovered.

**Objective 6.1.C.** Establish a program to reduce the backlog of sites to be evaluated for National Register of Historic Places eligibility.

**Objective 6.1.D.** Develop management plans for historic properties that have been determined worthy of preservation and protection.

**GOAL 6.2    Improve and maintain government-to-government relationships with federally recognized tribes whose ancestral homelands included lands managed by the Forest.**

**Objective 6.2.A.** Consult with federally recognized Indian tribes regarding proposed Forest Service policy or actions that may affect traditional tribal heritage values or practices and areas of tribal interest.

**Objective 6.2.B.** Protect Indian sacred or spiritual sites and accommodate access to these sites by Indian practitioners.

**GOAL 6.3    Continue the Forest’s inventory of heritage properties.**

**Objective 6.3.A.** Develop an annual survey program using the following order of priorities:

- a) Planned projects that may affect historic properties including, but not limited to, land exchanges, mineral development, silvicultural activities, recreation, and other construction projects
- b) Red River Gorge Geological Area (including Clifty Wilderness)
- c) Areas of intensive dispersed recreation use
- d) Beaver Creek Wilderness
- e) The Large Reservoirs Prescription Area
- f) Horse Lick Creek watershed
- g) Other areas.

**GOAL 6.4 Determine the eligibility of inventoried heritage properties for listing on the National Register of Historic Places (NRHP) and nominate qualifying properties.**

**Objective 6.4.A.** Create an annual program of site evaluation using the following order of priorities:

- a) Affected sites that cannot be protected in any other manner
- b) Sites that have the potential for addressing the role of human beings in past and present landscapes and natural resource issues
- c) Sites within areas of “high exchange potential” which have been recommended for further testing
- d) Sites located within the Red River Gorge Geological Area (including Clifty Wilderness) that have been recommended for further evaluation
- e) Sites located in the Beaver Creek Wilderness Area.

**GOAL 6.5 Protect all heritage properties as outlined in 36 CFR 800 and detailed in FSM 2361. Design and implement appropriate procedures to protect significant heritage resource properties. Ensure that permits and contracts contain adequate stipulations for protection of significant heritage resources.**

**Objective 6.5.A.** Avoid or minimize adverse effects on significant heritage resource properties.

**Objective 6.5.B.** Check the condition of significant heritage resource properties periodically; document results.

**Objective 6.5.C.** Mitigate anticipated adverse impacts through data recovery when an NRHP-listed or eligible property cannot be fully protected. For historic structures, document mitigation measures according to Historic American Buildings Survey/Historic American Engineering Record standards. Data recovery for archaeological sites will be consistent with a research plan developed in consultation with the State Historic Preservation Officer and interested recognized Indian tribes.

**Objective 6.5.D.** Protect all sites by maintaining the confidentiality of their locations except where they are used for interpretation and are appropriately protected.

**GOAL 6.6 Encourage use of heritage resource properties for research and academic purposes. Interpret and develop significant properties for the enjoyment of the public.**

**GOAL 6.7 Curate artifacts and records at an approved facility and make them available for study.**

## A Variety of Uses

**GOAL 7** Provide a sustainable mix of desired uses, valued characteristics, and services to improve the long-term benefit to local communities and the public.

**Objective 7.0.A.** Provide an opportunity for development of a lodge at Cave Run Lake.

**GOAL 7.1** At least once every five years, formally monitor public use and satisfaction with the recreation program and adjust target markets or facilities and programs as needed.

**GOAL 7.2** The Forest's Scenic Integrity Objectives will determine actions needed to maintain or improve the scenic integrity of an area where activity is proposed. Table C - 5 in Appendix C identifies the initial Scenic Integrity Objectives for each prescription based upon the existing inventory map located in the Forest Supervisor's Office. The map will be updated as site-specific analysis is conducted.

**GOAL 7.3** Provide additional rock climbing, equestrian, and OHV trail riding opportunities.

**GOAL 7.4** Incorporate management practices that reduce and/or alleviate negative human/wildlife interactions.

**Objective 7.4.A.** During routine maintenance/upgrading, evaluate containers (dumpster, trash receptacles, food storage boxes, etc.), for replacement or retrofitting with wildlife resistant equipment.

**GOAL 8** Provide renewable products on a sustainable basis when such provision is compatible with Desired Future Conditions.

**GOAL 8.1** Emphasize utilization based on market conditions.

**GOAL 8.2** Conduct salvage or sanitation harvests.

**GOAL 8.3** Select leave trees first to accomplish habitat objectives, then to improve the stand's survivability and potential timber value.

**GOAL 9** Provide mineral commodities for current and future generations commensurate with the need to sustain the long-term health and biological diversity of ecosystems.

**GOAL 9.1** Facilitate federal mineral development in a timely manner while protecting other resources.

**GOAL 10** Conserve Forest resources while accommodating the rights of private mineral owners.

**GOAL 10.1** Facilitate the exploration, development, and production of mineral and energy resources of DBNF lands with valid rights.

**GOAL 10.2** Ensure that lands disturbed by mineral and energy activities, both past and present, are reclaimed using the best scientific knowledge and principles and returned to other productive uses. Such uses should be consistent with the ecological capability of the area and conform to land management goals

**GOAL 11** Provide habitat to sustain wildlife populations suitable for recreational pursuits such as viewing, photographing, hunting, and fishing.

### **Efficient, Effective Infrastructure**

**GOAL 12** Provide a road and trail network, buildings and other facilities that support the Forest's Desired Future Conditions.

**Objective 12.0.A.** Reconstruct, relocate, close and stabilize, or obliterate roads and trails that do not meet their management Objective.

**GOAL 12.1** Minimize road or trail sediment that reaches streams.

**Objective 12.1.A.** Conduct unit analysis (such as watershed or landscape) Forestwide on a 10-year cycle with the order of analysis based in part upon the presence of PETS species or areas susceptible to slope failures caused by roads and trails traversing unstable soils or geology. The analysis should address the following needs:

- a) All stream fords should be hardened crossings. This includes, as a minimum, bedrock stream or concrete plank crossings, both with hardened approaches.
- b) Reduce the number of road/stream crossings and the amount of road occurring within 100 feet of streams whenever possible.
- c) Identify road needs and adjust the number, maintenance level, location, and design as necessary. Reduce road densities on slopes greater than 40 percent where alternatives are available.
- d) Relocate roads out of areas such as riparian areas, near rare communities, archeological sites, etc., whenever possible.
- e) Reclassify and adjust the existing road system so that expected budgets will be adequate to maintain the system. Identify unneeded roads when reclassifying the existing road system.
- f) Identify unclassified roads and then eliminate or classify, ensuring that some entity is responsible for their maintenance.

**Objective 12.1.B.** Bring 20 percent of existing system trails into compliance with erosion control standards (Best Management Practices) each year; consider relocating, reconstructing, or closing trails that cannot be maintained to standard. Give priority to those affecting riparian/aquatic areas.

**Objective 12.1.C.** Annually, inventory 20 percent of user-developed trails in conjunction with annual integrated inventories. Close and/or rehabilitate trails causing resource damage. Give priority to those within riparian/aquatic areas. If appropriate, trails may be added to the Forest's trail system.

**GOAL 12.2 Provide motorized and non-motorized trails to address recreational demand.**

**Objective 12.2.A.** When provided for, off-highway vehicle trail riding opportunities should be 15 miles or more in length.

**GOAL 12.3 Coordinate the maintenance of roads maintained by other agencies to better support Forest ecosystem sustainability.**

**Objective 12.3.A.** Convert qualifying DBNF system roads to Public Forest Service Roads as funding permits.

**GOAL 13 Obtain a National Forest ownership pattern (surface and subsurface) that facilitates management efficiency and supports the Forest's Desired Future Conditions.**

**GOAL 13.1 Ensure that legal public access is secured for National Forest System lands for present and future resource management needs.**

**Objective.13.1.A.** During the 10-year inventory cycle, identify inaccessible Forest lands and acquire unrestricted perpetual easements or fee simple title in land, as appropriate, to access such lands.

**Objective 13.1.B.** Acquire rights-of-way for all existing and proposed development roads and trails when access cannot be accommodated on National Forest System land.

**GOAL 13.2 Consolidate Forest land ownership to facilitate management efficiency, reduce fragmentation, enhance public benefits and meet resource management needs through acquisition which may include the following methods: purchase, donations, exchange, right-of-way acquisitions, transfers, interchanges, sales, and boundary adjustments.**

**Objective 13.2.A.** Reduce the ratio of boundary (miles) to land area (acres) -- from the current ratio of approximately 1:175 to a desired 1:200 -- through purchase, donation, exchange, right-of-way acquisition, transfer, interchange, and boundary adjustment.

**Objective 13.2.B.** Acquire mineral rights through purchase, exchange, or donation in the following areas: designated wilderness, designated wild rivers, geological areas, research natural areas, rare communities, and other areas as prioritized in the Guidelines for Land Ownership Adjustment. Until such rights are acquired, the exercise of reserved and outstanding mineral rights to explore and develop mineral resources will be respected.

**Objective 13.2.C.** Prepare and maintain a land ownership adjustment map based on Goals and Objectives for a given area. The Forest Supervisor may approve changes to the map, as long as Forest Plan Objectives are met. This map will be available in the Regional Office, the Forest Supervisor's Office, and District Offices. This map will include a graphic representation of the desired future ownership of the Forest.

**Objective 13.2.D.** Convey National Forest System lands better suited for non-federal ownership through exchange, transfers, interchanges, sales, and boundary adjustments. When considering tracts or partial interest in land for federal land conveyances by exchange or other transfer, utilize the following criteria (not listed in order of priority):

- a) Lands inside or adjacent to communities or intensively developed private land, and chiefly valuable for non-National Forest System purposes.
- b) Parcels that will serve a greater public need in state, county, city, or other federal agency ownership.
- c) Inaccessible parcels isolated from other National Forest System lands. Parcels intermingled with private lands.
- d) Parcels within major blocks of private land, the use of which is substantially for non-National Forest System purpose.
- e) Parcels having boundaries, or portions of boundaries, with inefficient configurations, e.g., projecting necks or long, narrow strips of land, that support more logical and efficient management.

**GOAL 13.3 Provide the land manager, public users, and neighbors with legally defensible administrative records and readily visible property boundary lines. Locate and maintain such lines on the ground, and accurately depict the location on administrative maps and in geographic information system databases.**

**Objective 13.3.A.** Bring boundary line demarcation and maintenance to standard.

**Objective 13.3.B.** Establish and follow a maintenance schedule that provides visible Forest boundaries for users and neighbors.

**GOAL 13.4 Special use authorizations will go through the 36 CFR 251 screening process before making a decision to authorize the special use.**

**GOAL 13.5 Protect and defend federal interests in, and title to, land.**

**Objective 13.5.A.** Provide legal land surveys and related services to locate, mark, post, and maintain land corners, property corners, and property lines between forest land and other ownerships for the protection and management of federal lands and resources.

**Objective 13.5.B.** Resolve a majority of existing land claims, title deficiencies, and trespasses; give priority to cases of unauthorized occupancy on Forest land.

## Communication, Interpretation, and Education

**GOAL 14** Engage the public and other agencies in cooperative, collaborative efforts that build trust and support in helping to meet Desired Future Conditions.

**GOAL 14.1** Build trust and credibility for the Forest's programs and mission by forging connections between people and their natural and cultural heritage.

**GOAL 15** Provide interpretive and educational services to a wide spectrum of the public, including visitors, school children, interest groups, and civic organizations.

**GOAL 15.1** Enhance public awareness of, and appreciation for, the Forest's natural and heritage resources and their management, to foster their wise use and conservation.

**Objective 15.1.A.** Develop an inventory of interpretive opportunities and facilities within two years.

**Objective 15.1.B.** Develop a strategy for interpretation and education within two years.

**GOAL 15.2** Develop and provide a wide range of interpretive media to enhance visitor experiences.

**GOAL 15.3** Provide Forest audiences with the foundation of knowledge and information needed to become informed participants in public lands resource management.

**GOAL 15.4** Encourage cooperation and partnerships with individuals, non-profit organizations, other agencies, special interest groups, clubs, tribal nations, and others to achieve the Forest's interpretive and educational mission.

## Rural Community Assistance

**GOAL 16** Improve delivery of assistance to rural communities.

**GOAL 16.1** Provide or facilitate technical and financial assistance to rural communities that are dependent on Forest-generated commerce and natural resources.

**GOAL 16.2** Help rural communities develop and implement natural resource solutions to economic, environmental, and social problems.

## FORESTWIDE STANDARDS

Standards generally preclude or impose limitations on resource management activities and uses; they are within the authority and ability of the Forest Service to enforce. Their purpose is to aid in the achievement of Goals and Objectives and to provide for necessary levels of environmental protection or public safety. Standards are measurable and capable of being monitored. Adherence to standards is mandatory. A project that deviates from a relevant Standard may not be authorized unless the Forest Plan is amended to modify, remove, or waive application of the Standard.

In addition to Forest Plan Standards, the DBNF is required to follow all relevant laws and regulations. Forest Service manuals and handbooks also provide direction.

Standards for several resources are covered under other categories or under specific prescription areas. For example, water related standards can be found in each of the following categories and in the Riparian Corridor and Source Water Prescription Areas.

## LAND

**DB-LAND-1.** Management activities, other than those required responding to emergency or other urgent resource protection needs, will not occur in new acquisitions until an appropriate Prescription Area(s) is assigned.

**DB-LAND-2.** Evaluate special-use proposals/applications to determine if they are in the public interest. Proposals/applications must:

- a) Be consistent with Prescription Area Objectives, Standards, and Desired Future Conditions
- b) Be consistent with other federal, state, and local statutes and regulations
- c) Not be permitted on DBNF land if they can be reasonably accommodated on private land, even if those locations are more expensive for the applicant.

**DB-LAND-3.** Prior to issuing new or re-issuing existing well/spring permits or diversions of water from streams or lakes, determine the in-stream flow or lake levels necessary to protect stream processes, aquatic and riparian habitats and communities, and recreation and aesthetic values.

## MINERALS

**DB-MIN-1.** All proposed surface-disturbing activities must have an approved operating plan, reclamation plan, and appropriate state and federal permits before the activity begins.

**DB-MIN-2.** Within 200 feet of any cave openings associated with karst systems: the surface is not to be disturbed during any federal mineral exploration or development activity; development of federally owned oil and gas is subject to the No-Surface-Occupancy stipulation.

**DB-MIN-3.** No drilling or mining is allowed into known cave voids (systems) where federal leasing is authorized.

**DB-MIN-4.** New federal mineral leases must contain a controlled-surface-use stipulation for the scoured ephemeral stream zone.

## ROADS/ENGINEERING

**DB-ENG-1.** Subject to valid existing rights, no new roads, or trails will be built or maintained in protected zones around cave openings, associated sinkholes, or cave collapse areas, except for designated recreational caves.

**DB-ENG-2.** Do not use open-top culverts, e.g., wooden box or pole culverts.

**DB-ENG-3.** Locate fords only where bottom and biological conditions will support the designed use. Maintain stream channel contour and grade when modifying a crossing.

**DB-ENG-4.** Restrict motorized vehicle use in the scoured ephemeral stream zone to designated sites.

**DB-ENG-5.** When culverts are removed, restore stream banks and channels to a natural size and shape. Stabilize disturbed areas.

## RECREATION

**DB-REC-1.** Recreational activities inside caves will not be promoted except for designated recreational caves. Public information concerning location and access to non-recreational caves will be limited.

**DB-REC-2.** Except for administrative purposes, motorized vehicles will be allowed only on designated trails.

**DB-REC-3.** The Secretary of Interior's Standards for Archeology and Historic Preservation will be the governing principles for archaeological and historic preservation activities and methods on the DBNF.

**DB-REC-4.** Authorizations for new recreation residence lots will not be issued unless they are issued as an in lieu lot within an existing tract.

**DB-REC-5.** Recreation residence use will be reviewed prior to expiration of the existing authorization and will only be renewed if such use is in compliance with the existing permit.

**DB-REC-6.** Development of any new areas for bouldering or any improvement of existing bouldering area that may substantially increase its use for bouldering must receive Forest Service approval prior to development. Activities that constitute development include, but are not limited to:

- a) Permanent installation of safety devices such as bolts, straps, cam devices, or chocks
- b) Construction of access trails
- c) Clearing of vegetation

**DB-REC-7.** Allow no new designated OHV, horse, or bicycle trails within the scoured ephemeral stream zone except at designated crossings or where the trail location requires some encroachment, for example, to accommodate steep terrain.

## WILDLIFE

**DB-WLF-1.** No snags equal to or greater than six inches in diameter at breast height (dbh) and equal to or greater than 10 feet in height are to be intentionally felled within timber harvest, regeneration, and thinning projects, unless identified as an immediate threat to human safety. This standard does not apply to salvage or sanitation projects.

**DB-WLF-2.** Retain or create at least three snags per acre equal to or greater than 9 inches dbh within all timber harvest, regeneration, sanitation, salvage, or thinning project units when available.

**DB-WLF-3.** Retain enough live trees to provide partial shading of about one-third of all snags equal to or greater than 12 inches dbh and equal to or greater than 10 feet in height that are suitable for roosting by Indiana bats.

**DB-WLF-4.** In the two-aged shelterwood method, retain a minimum of 10 to 15 square feet of basal area per acre (average in stand) of live potential roost trees (Indiana bat).

**DB-WLF-5.** In harvest units equal to or greater than 10 acres that prescribe the two-age or even-age systems, leave some clumps or strips averaging at least 50 square feet of basal area (of trees equal to or greater than 9 inch dbh) per acre, or the density of the original stand if less. "Leave areas" such as the Cliffline Community and Riparian Corridor Prescription Areas can provide this habitat based on site-specific conditions.

**DB-WLF-6.** In regeneration or thinning project areas, retain all shagbark, shellbark, and red hickories that are (equal to or greater than 6 inch dbh), unless the removal of these trees is specifically designed to improve habitat for PETS or Conservation species.

**DB-WLF-7.** During implementation of vegetation management, retain any immediate roost trees (Indiana bat) that are equal to or greater than 6 inches dbh. These trees must be designated prior to project implementation. This standard does not apply to salvage or sanitation projects.

**DB-WLF-8.** Tree cutting may not be conducted within 2.5 miles of any Indiana bat maternity colony from May 1 through August 15. (See Table 2 - 1)

**DB-WLF-9.** For non-vegetation management projects, currently suitable Indiana bat roost trees may be felled only from October 15 through March 31, if they are more than five miles from a significant bat caves (Indiana bat). If tree removal occurs at other times, the trees must be evaluated for current Indiana bat use, according to U.S. Fish and Wildlife Service protocol. (See Table 2 - 1)

**Table 2 - 1. Summary of dates for restricted activities around Indiana bat habitat.**

Activity	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	
No tree cutting activities within 2½ miles of Indiana bat maternity colony. (DB-WLF-8)									1 <sup>st</sup>	← →		15 <sup>th</sup>	
Currently Suitable Roost Trees more than 5 miles from a significant hibernaculum may not be removed. (DB-WLF-9)									1 <sup>st</sup>	← →			
Currently Suitable Roost Trees within 5 miles of a significant hibernaculum may not be removed. (DB-WLF-10)													
Tree cutting activities within 5 miles of known significant Indiana bat hibernaculum will not be allowed. (DB-WLF-12)	1 <sup>st</sup>	← →		1 <sup>st</sup>									
Prescribed burning is not to occur in known Indiana bat roosting areas. (DB-FIRE-8)									1 <sup>st</sup>	← →		31 <sup>st</sup>	

**DB-WLF-10.** For non-vegetation management projects, removal of currently suitable roost trees (Indiana bat) within five miles of a significant bat cave (Indiana bat) may occur only from November 16 through March 15. If removal occurs at other times, the trees must be evaluated for current Indiana bat use, according to U.S. Fish and Wildlife Service protocol. (See Table 2 - 1)

**DB-WLF-11.** Timber harvest will not occur on the DBNF within one mile of a known significant bat cave, or PETS bat staging cave (with the exception of the wooded grassland/shrubland habitat association), if this activity would result in more than 120 acres of forest less than 10 years of age on all ownerships (public and private).

**DB-WLF-12.** Within five miles of a significant Indiana bat hibernaculum, tree cutting is not to be conducted from September 1 through December 1. (See Table 2 - 1)

**DB-WLF-13.** Where caves exist outside Cliffline Community Prescription Area a minimum zone of 200 feet is to be maintained around openings to caves and mines suitable for supporting cave-associated species, as well as any associated sinkholes and cave collapse areas, except for designated recreational caves. Prohibited activities within this protective area include use of motorized wheeled or tracked equipment (except on existing roads and trails), mechanical site preparation, recreation site construction, tractor-constructed fire lines for prescribed fire, herbicide application, and construction of new roads, skid trails, or log landings. Vegetation in this buffer zone may be managed only to improve habitat for PETS or Conservation species.

**DB-WLF-14.** Activities that create a toxic water source (e.g. brine pits and oil catch basins) must be filled, covered, or otherwise modified in an environmentally appropriate manner to prevent contact with wildlife.

**DB-WLF-15.** Create, or retain where available, at least one snag 12 inches dbh or greater per acre in any area in which overstory trees are cut as part of habitat creation or maintenance, sanitation or salvage.

**VEGETATION**

**DB-VEG-1.** Hazard trees (dead or alive) considered to be an immediate threat to human safety may be removed anytime. This supercedes all other standards.

**DB-VEG-2.** Chopping, shearing, or soil scarification is not to be prescribed on sustained slopes greater than 35 percent or on slopes greater than 20 percent with highly erodible or failure-prone soils. Mowing (e.g., shredder, Hydro Axe,) may occur on any slope where the equipment can be operated safely.

**DB-VEG-3.** Logging or site preparation equipment, rubber-tired or tracked, is not to be used on plastic soils when the water table is within 12 inches of the surface or when soil moisture exceeds the plastic limit. Soil moisture exceeds the plastic limit if the soil can be rolled to pencil size (approximately ¼ -inch diameter and 6 inches long) without breaking or crumbling.

**DB-VEG-4.** Equipment used for site preparation must be operated so that furrows and soil indentations are aligned on the contour (with grades less than 5 percent).

**DB-VEG-5.** Determine location and designate landings and skid roads prior to beginning of operations in each unit.

**DB-VEG-6.** Do not permit use of stream channels for skid roads or trails.

**DB-VEG-7.** No class B, C, or D chemical (See Table 2 - 2) is to be used on any project, except with Regional Forester approval. Herbicides listed in the table below may be used only for the treatment methods shown.

**Table 2 - 2. Classification of chemical/method combinations.**

TREATMENT METHOD	CLASS A	CLASS B	CLASS C	CLASS D
<b>Manual ground:</b>				
Cut surface	DIC, GLY, IMZ, PIC, TRA	None	None	None
Basal stem	DES, KER, LIM, TRE	None	None	None
Soil spot	HEX	TEB	None	None
Foliar spray	FOS, GLY, HEX, IMZ, KER, LIM, PIC, SMM, TRA, TRE	None	TEB	None
<b>Mechanical ground:</b>				
	DES, DIC, FOS, GLY, HEX, IMZ, PIC, SMM, TRA, TRE	TEB	None	None

KEY:

DIC = Dicamba  
 DES = Diesel  
 FOS = Fosamine  
 GLY = Glyphosate

HEX = Hexazinone  
 IMZ = Imazapyr  
 KER = Kerosene  
 LIM = Limonene

PIC = Picloram  
 SMM = Sulfometuron Methyl  
 TEB = Tebuthiuron  
 TRA = Triclopyr Amine  
 TRE = Triclopyr Ester

**DB-VEG-8.** Herbicides will be applied at the lowest rate effective in meeting project objectives and according to guidelines for protecting human<sup>7</sup> and wildlife health<sup>8</sup>. Application rate and work time must not exceed levels that pose an unacceptable level of risk to human or wildlife health. The USDA Forest Service, Southern Region standard for acceptable level of risk requires a Margin of Safety (MOS) > 100 or, Hazard quotient (HQ) < 1.0.

**DB-VEG-9.** Monitor weather and suspend project if temperature, humidity, or wind becomes unfavorable according to the criteria below:

<b>Ground:</b>	<b>Temperatures Higher Than (°F)</b>	<b>Humidity Less Than (%)</b>	<b>Wind (at Target) Greater Than (MPH)</b>
Hand (cut surface)	n/a	n/a	n/a
Hand (other)	98	20	15
Mechanical (liquid)	95	30	10
Mechanical (granular)	n/a	n/a	10

**DB-VEG-10.** Use only nozzles that produce large droplets (mean droplet size of 50 microns or greater) or streams of herbicide. Nozzles that produce fine droplets may be used only for hand treatment, where distance from nozzle to target does not exceed eight feet.

**DB-VEG-11.** Areas treated with herbicides are to be clearly posted with notice signs to warn visitors of the treatment.

**DB-VEG-12.** No herbicide is to be applied aurally.

**DB-VEG-13.** No soil-active herbicide will be applied within 30 feet of the dripline of non-target vegetation specifically designated for retention (e.g., den trees, hardwood inclusions, adjacent stands) within or next to treated area.

**DB-VEG-14.** Do not apply triclopyr within 60 feet of known occupied gray, Virginia big-eared, or Indiana bat hibernacula or known maternity tree.

**DB-VEG-15.** Do not apply 2,4-D or 2,4-DP.

**DB-VEG-16.** No broadcast treatment using herbicide is to be made within 60 feet of any known PETS plant species.

**DB-VEG-17.** No soil-active herbicide is to be applied within 60 feet of any known PETS plant species.

**DB-VEG-18.** Application equipment, empty herbicide containers, clothing worn during treatment, and skin are not to be cleaned in open water or wells. Mixing and cleaning water must come from a public water supply and be transported in separate, labeled containers.

**DB-VEG-19.** No herbicide shall be applied within 30 horizontal feet of lakes, wetlands, perennial or intermittent springs (seeps) and streams. However, herbicides approved for aquatic use may be used when such treatment is required to control invasive plants.

<sup>7</sup> NRC 1983

<sup>8</sup> EPA 1986

- DB-VEG-20.** Necessary buffer zone areas must be designated before making herbicide treatments so applicators can easily recognize and avoid the buffer area.
- DB-VEG-21.** Herbicide mixing, loading, or cleaning areas in the field are not to be located within 200 feet of private land, open water or wells, or other sensitive areas.
- DB-VEG-22.** The maximum size of a temporary opening created by even-aged or two-aged regeneration 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 windstorm. Areas managed as woodland, wooded grassland/shrubland, or non-forested areas (e.g., rights-of-way and grassy openings) are not subject to these Standards and are not included in calculations of opening size, even when within or adjacent to created openings.
- DB-VEG-23.** Temporary openings created by even-aged or two-aged regeneration 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. An even-aged or two-aged regeneration area will no longer be considered an opening when the certified re-established stand has reached an age of five years.
- DB-VEG-24.** Regeneration cuts on lands suitable for timber production must be done only where adequate stocking of desirable species (based on management objectives) 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 as described in Table 2 - 3. This Standard applies to both artificial and natural means of stand regeneration and applies to all silvicultural systems.

**Table 2 - 3. Minimum Seedling Restocking Standards for the DBNF.**

Management Type	Minimum Trees per Acre
Yellow Pine or Y. Pine-hardwood	300
Hardwood, White Pine, and others	150

**DB-VEG-25.** Within a *possible* old-growth stand, do not initiate management that could alter the stand's potential status as old-growth until the stand has been inventoried for old-growth criteria<sup>9</sup> and its status determined.

**DB-VEG-26.** No more than 10 percent of a harvest area should be in landings, skid roads, or exposed soil.

<sup>9</sup>*Possible* old-growth is an area, within any Prescription Area, that has a high probability of being old-growth based on its community type and stand age (USDA Forest Service 1997). Identification of a stand as *possible* old-growth or old-growth implies no land management decision. This standard is intended to address *possible* old-growth stands outside the I.I. Designated Old-Growth Prescription Area, which was designed to promote, enhance, and maintain old-growth communities and attributes. See Glossary and FEIS for further clarification.

**DB-VEG-27.** Resource management activities that may affect soil and/or water quality must follow applicable Kentucky Rules and Regulations for Water Quality Control and Kentucky's Best Management Practices for Forestry<sup>10</sup> (BMPs) as a minimum to achieve soil and water quality objectives. When Forest Plan standards exceed Kentucky BMPs or water quality standards, Forest Plan standards shall take precedence.

**DB-VEG-28.** Within the scoured ephemeral stream zone, a minimum of 15 square feet of basal area will be left following silvicultural activities.

**DB-VEG-29.** The removal of coarse woody debris from within the scoured ephemeral stream zone will be allowed only if it poses a risk to public safety or water quality, degrades habitat for aquatic or riparian-associated species, or when it poses a threat to private property or Forest Service infrastructures.

**DB-VEG-30.** No herbicide may be broadcast within 100 feet of private land or 300 feet of a private residence, unless the landowner agrees to closer treatment.

**DB-VEG-31.** Commercial moss collection is prohibited.

**DB-VEG-32.** Collection of non-timber forest products is not allowed, except for scientific purposes, in the following Prescription Areas: RNAs (existing and proposed), Rare Communities, Designated Old-Growth, Developed Recreation, Natural Arch Scenic Area, Red River National Wild River Segment, or the Proposed Marsh Creek Wild River Segment. (Also see vegetation standards in Prescription Areas 2.A and 2.B.)

## PRESCRIBED AND WILDLAND FIRE

**DB-FIRE-1.** Slash burns are to be prescribed so they do not consume all litter and duff and alter structure and color of mineral soil on more than 20 percent of the burn area.

**DB-FIRE-2.** Do not conduct a prescribed burn in an area where more than half of the soils are severely erodible with an average of less than one-half inch of litter and duff.

**DB-FIRE-3.** Conduct all DBNF management activities (including activities that require permits) in a manner that does not result in a contribution to a violation of National Ambient Air Quality Standards or a violation of applicable provisions in the State Implementation Plan.

**DB-FIRE-4.** Prior to construction, survey the locations of prescribed fire control lines for heritage resources.

**DB-FIRE-5.** Survey wildland fire control lines for heritage resources as soon as possible after their construction.

**DB-FIRE-6.** Stabilize all wildland fire control lines as soon as possible following their use.

**DB-FIRE-7.** Conduct no prescribed burns in areas treated with herbicides until at least 30 days after an herbicide treatment.

**DB-FIRE-8.** Prescribed burning is not to occur within known Indiana bat roosting areas from May 1 through July 31 (See Table 2 - 1).

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<sup>10</sup> Stringer and Perkins 1997



**Visitors to Red River Gorge receive guidance from a Forest Service employee.**