

**Ozark-St. Francis  
National Forests  
Monitoring & Evaluation Report  
2005**



## CERTIFICATION

I have evaluated the monitoring results and recommendations in this report. I have directed the Action Plans developed to respond to these recommendations be implemented according to the time frames indicated, unless new information or changed resource conditions warrant otherwise. I have considered funding requirements in the budget necessary to implement these actions.

When all recommended changes to the Forest Plan have been implemented, the Plan will be sufficient unless ongoing monitoring and evaluation identify further need for change.

*Michael M. Sanders*

Forest Supervisor

November, 2006

Date

## EXECUTIVE SUMMARY

The Ozark-St. Francis National Forests published the Notice of Intent in the Federal Register on May 1, 2002, which officially started the Plan Revision process. The Draft Environmental Impact Statement and Proposed Revised Land and Resource Management Plan (PRLRMP) were mailed to the public in January 2005. A 90-day public comment period ran from February 25, 2005, through May 26, 2005; followed by a 30-day extension. This made the final date for commenting on the PRLRMP June 27, 2005. On September 23, 2005, Regional Forester Charles L. Myers approved the Record of Decision (ROD) for the Final Environmental Impact Statement (FEIS) to the Revised Land and Resource Management Plan. These documents are scheduled to be published in early FY 2006.

Activities from this FY 2005 Monitoring and Evaluation Report that require action:

- Summarize water monitoring for herbicides from 1991+ and emphasize Best Management Practices (BMPs) to avoid off-site movement of herbicide residue.
- Adjust suppression responses to fires in oak mortality areas.
- Continue to implement the Recreation Realignment Action Plan to bring the recreation program in line with the Forest's Niche Statement.
- Continue to emphasize Land and Resources Management Plan (LRMP) goals for timber offered, acres regenerated, and timber stand improvement work.

Items from the FY 2004 Monitoring and Evaluation Report that were completed in FY 2005:

- An Oak Mortality Implementation Plan has been proposed, and other actions are underway to reduce safety hazards and salvage merchantable material. Hazard tree reduction contracts awarded on over 100 miles of road in FY 2003. Some work was done via service contracts with the remaining being done with salvage sales along roads.

Items in prior Action Plans that have still not been completed:

- Development of Limits of Acceptable Change standards has ceased since there is no Wilderness Coordinator on the Forests.
- Cove Lake Road contract awarded in FY 2005.
- A fisheries assessment and management plan for the Forests has been started.
- Future management of proposed special interest areas (Amendment 5 SIAs' disposition), management indicator species, ecosystem restoration, and prescribed fire will be deferred until revision of the Forest Plan.
- The forests should work with user groups to identify potential areas for development of future ATV trails.

# OZARK-ST. FRANCIS NATIONAL FORESTS

## FOREST PLAN MONITORING AND EVALUATION PLAN

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# I. INTRODUCTION

This report documents Forest Plan monitoring and evaluation for Fiscal Year (FY) 2005 (October 1, 2004 - September 30, 2005). Annually, the Ozark-St. Francis National Forests review and evaluate programs and projects to determine if these activities met Forest Land Resource Management Plan (LRMP) direction. This review by Forest Staff and District Rangers determines if we achieve Forest Plan goals and objectives, if we properly implement management requirements, and if environmental effects occur as predicted in the Plan.

**Section II** presents monitoring and evaluation results identified in the Monitoring and Evaluation Schedule in Chapter 5 of the Forest Plan. This section is organized by program area and items to be monitored under each program. The information includes:

- **The item being monitored.**
- **Variance Allowed** - The threshold of change allowed for the project or program from the direction set in the Forest Plan that, if exceeded, would call for further action.
- **Findings** - Documentation of the monitoring results.
- **Recommendations** - The actions that the Forest Planning Staff recommends to the Forest Supervisor and Leadership Team after evaluation of the Findings. The Forest Leadership Team then either approves or changes the recommendations. Possible recommendations include: (1) none, (2) increase effort to achieve the objective or comply with management direction and Standards and Guidelines, (3) amend the Forest Plan to clarify or improve resource management, or (4) further study to determine the best action to take.

**Section II** also presents monitoring and evaluation results of Forest Plan Management Requirements. The information includes:

- The complete **Management Requirement** as it is shown in the Forest Plan.
- **Findings** - The documented results of the monitoring efforts from previous year.
- **Recommendation** - Recommended action to be taken by the Forest Supervisor to address results of evaluating the previous year's findings.

In addition, the Forest Plan lists a series of goals or targets for various resources. **Section II** lists these goals, the accomplishments, and the recommendation to either change these Plan projections or to meet them in the future.

**Section III** is an action plan for items that require action.

## II. DETAILED MONITORING AND EVALUATION RESULTS AND REPORT FINDINGS

### A. Ecosystem Condition, Health, and Sustainability

The subject of Ecosystem Condition, Health, and Sustainability covers a range of topics including terrestrial wildlife and plant habitats and populations, forest and non-forest land cover, ecosystem and watershed conditions, aquatic resources, and forest health issues related to forest insects, diseases, and disturbance factors. The sustainability of ecosystems and the components of ecosystems are addressed within this subject.

Some items that showed no changes from previous M&E Reports were eliminated. Many items, especially in sections A-1 and A-2 will need to be addressed during the Forest Plan Revision, particularly where accomplishments are out of proportion to the goals predicted in the Forest Plan.

#### 1. Wildlife and Fish

##### Mammals

- a) **Species:** White-tailed Deer (LRMP, Chapter 5) (MIS-Demand Species)  
**Variance allowed:** A white-tailed deer population of 10,000 or less, forest-wide.  
**Findings:** Harvest data on the WMAs on the Forests for 1975 – 2000 reflect a stable population. However, 2001-2005 seasons showed a decline in numbers. Because of changes in season length and bag limits over the years, it makes it difficult to develop a clear picture of the deer population. Incidental observations from field biologists with the Arkansas Game and Fish Commission (AG&FC) and the Forest Service would indicate a lower than normal population. The 2005 spotlight survey observations showed a continuing decline in the number of observations across the forest. Observations made through early 2006 would suggest that deer numbers appear to be rebounding slightly over much of the forest.  
**Recommendation:** None
  
- b) **Species:** Indiana and Gray Bats (LRMP, Chapter 5) (MIS-Species of Concern)  
**Variance allowed:** An Indiana Bat population of 400 or less; a Gray Bat population of 200,000 or less, forest-wide.  
**Findings:** Bat populations are above thresholds. Annual monitoring conducted by Michael J. Harvey with Tennessee Tech. University, indicates that the Gray Bat population is increasing. Populations for Indiana Bats appear to be decreasing slightly but numbers from one year to the next are not a good measure of population trends as bats utilize different hibernacula from one year to the next.  
**Recommendation:** None.

- c) **Species:** Gray Squirrel (LRMP, Chapter 5) (MIS-Demand Species)  
**Variance allowed:** A gray squirrel population of 200,000 or less, forest-wide.  
**Findings:** FY 2005 was an average mast crop year, and it is expected that FY 2006 will reflect this with squirrel numbers similar to previous years. The increasing age-class distribution of the Forest represents improved habitat conditions. Reports from the Arkansas Game and Fish Commission would suggest that this species continues to flourish throughout the state. However, it is not known how the areas of oak decline will affect squirrel populations.  
**Recommendation:** Develop a protocol to better estimate population numbers.
- d) **Species:** Black Bear (LRMP, Chapter 5) (MIS-Demand Species)  
**Variance allowed:** A bear population of 60 or less, forest-wide.  
**Findings:** The statewide bear population is above 2,000 and growing, which is well above threshold levels. The total bear harvest reported from Ozark-St. Francis National Forest counties was 182 bears in 2003 and increased to 223 bears in 2004. In 2005, that number decreased to 212 bears. Bear numbers would seem to be steady with increases or decreases associated with hard mast availability each year.  
**Recommendation:** None.

## **Birds**

- e) **Species:** Wild Turkey (LRMP, Chapter 5) (MIS-Demand Species)  
**Variance allowed:** A turkey population of 8,000 or less, forest-wide.  
**Findings:** Harvest records from 1975 to present show an increasing trend for the entire State as well as the Forest Service Wildlife Management Areas (WMAs). The State's Brood Survey for 2005 reflected a below average year and harvest numbers for 2005 reflect this. It is not known what effects oak decline will have on the population, but reduction in mature oaks would probably have a negative impact.  
**Recommendation:** None.
- f) **Species:** Pileated Woodpecker (LRMP, Chapter 5) (MIS-Ecological Indicator)  
**Variance allowed:** A population of 3,800 or less, forest-wide.  
**Findings:** Annual monitoring and breeding bird surveys show that Pileated Woodpeckers are common and increasing. This includes point counts, Christmas bird counts, migration counts, and biological evaluation field notes. Oak decline will temporarily improve habitat.  
**Recommendation:** None.
- g) **Species:** Rufous-Crowned Sparrow (LRMP, Chapter 5) (MIS-Species of Concern)  
**Variance allowed:** A decline in population over the past three years.  
**Findings:** This species is extremely rare and found only in a small area of Mount Magazine in very small numbers. Numbers have remained fairly constant since 1972. Bill Shepherd with Arkansas Natural Heritage Commission reported hearing and seeing fewer birds in 2005, which may be caused by the recent construction activities associated with the new state park on Mt. Magazine. Numbers of birds will vary from one year to the next and habitat use may change as a result of the new state park.  
**Recommendation:** None.

- h) **Species:** Yellow-Breasted Chat (LRMP, Chapter 5) (MIS-Ecological Indicator)  
**Variance allowed:** A decline in the population for three consecutive years.  
**Findings:** Annual monitoring and breeding bird surveys indicate a generally stable trend in populations. Habitat appears to be improving on some parts of the forest due to increased ecosystem restoration projects which include timber management activities as well as the use of prescribed burning.  
**Recommendation:** None.
- i) **Species:** Red-Shouldered Hawk (LRMP, Chapter 5) (MIS-Ecological Indicator)  
**Variance allowed:** A decline in the population for three consecutive years.  
**Findings:** Population numbers are relatively low but stable/slightly increasing on the forest.  
**Recommendation:** None.

### **Fish**

- j) **Species:** Smallmouth Bass (LRMP, Chapter 5) (MIS-Demand Species); Big-Eyed Shiner, Ozark Minnow, Creek Chub (LRMP, Chapter 5) (MIS-Ecological Indicator)  
**Variance allowed:** Sustained decline in water quality or population for three years.  
**Findings:** No water problems have been identified. Monitoring in 2003 was not sufficient to draw conclusions about the forest-wide status of populations and habitat conditions.  
**Recommendation:** Formulate a plan to begin assessing habitat conditions and population dynamics at geographic scales useful to land management planning.

### **Plants**

- k) **Species:** Ginseng, Alabama Snowreath, Ozark Chinquapin, Climbing Magnolia (LRMP, Chapter 5)  
**Variance allowed:** A 10% decline in population or suitable habitat.  
**Findings:** Illegal collection of ginseng continues and, based on field observations, there is an indication the population is decreasing. Permanent monitoring plots were established on the forest between 2001 and 2002. The overall threat to ginseng is still illegal harvest. Populations declined in the 2 to 3 pronged size category (largest, most valuable) with no 4 prong plants found. At the same time, some plots increased in numbers in the smallest, least valuable plants. Populations of Snowreath, Chinquapin, and Climbing Magnolias appear to be stable although chinquapin is declining in numbers of stems likely due to the blight.  
**Recommendation:** None.
- l) **Management Requirement:** Identify and protect threatened, endangered, and sensitive plants and animals and manage habitats.  
**Findings:** Formal consultation with the U.S. Fish and Wildlife Service (USFWS) on the effects of forest management on Indiana Bats was completed in 1998. The USFWS' opinion was that continued management under the current Forest Plan would not jeopardize the continued existence of the Indiana Bat. The Biological Opinion was amended on March 21, 2002, and management recommendations are being followed.  
**Recommendation:** None.

The following table summarizes additional wildlife and fish accomplishments.

<b>IDENTIFIER</b>	<b>ITEM</b>	<b>PLAN PROJECTION Acres/Year</b>	<b>ACCOMPLISHED IN 2005 Acres/Year</b>
m)	Prescribed Burning	600-1,000	2,681 (Wildlife Improvements)
n)	Wildlife Opening Maintenance	240	242
o)	Food Plot Maintenance	30	786
p)	Wildlife Opening Development	0-40	52
q)	Seeding and Planting	0-40	408
r)	Wildlife Stand Improvement	100-300	770
s)	Pond Construction	0-50	23
t)	Fish Cover Establishment	10	55
u)	Non-Structural Fish Habitat Improvement	120	479 (Lake Fertilization and Liming)

## 2. Range

The following table summarizes range accomplishments.

<b>IDENTIFIER</b>	<b>ITEM</b>	<b>PLAN PROJECTION Acres/Year</b>	<b>ACCOMPLISHED IN 2005 Acres/Year</b>
a)	Grazing Capacity	N/A	All allotments within capacity.
b)	Range Condition and Trend	N/A	No major changes
c)	Manage Range Program	N/A	Several allotments placed in inactive status
d)	Prescribed Burning for Forage Improvement	2,000 acres/year	650 acres
e)	Bush-hogging for Range Improvement	2,000 acres/year	947 acres
f)	Pasture Fertilization	1,000 acres/year	207 acres
g)	Seeding Pastures for Forage Improvement	1,000 acres/year	80 acres
h)	Fencing	7 miles/year	1.0 mile
i)	Pond Construction	10 ponds/year	4 ponds
j)	Corral Construction	2 corrals/year	0 corrals
k)	Conversion of Fescue Pasture to Native Species	N/A	100 acres

### 3. Soil, Water, and Air

- a) **Item:** All Ground Disturbing Activities That Have the Potential to Adversely Affect Soil Productivity (LRMP, Chapter 5)  
**Variance Allowed:** Minimum of 80% of an activity area will be left in a condition that does not decrease vegetative productivity following a soil-disturbing activity.  
**Findings:** A sample of six units by the soil scientist and district personnel showed that soil disturbance was within the standard.  
**Recommendation:** None.
- b) **Item:** All Ground Disturbing Activities That Have the Potential to Adversely Affect Water Quality and Riparian Areas (LRMP, Chapter 5)  
**Variance Allowed:** Deviation from water quality standards for designated uses or Best Management Practices (BMPs) not achieving desired condition.  
**Findings:** In road maintenance and construction, stream crossing, and timber sale projects, BMPs achieved their desired results, with some exceptions. Erosion control measures were not always properly applied to protect soil and water. Some road construction and maintenance projects did not adequately protect water quality due to inadequate implementation of BMPs.  
**Recommendation:** Continue emphasizing the use of BMPs in planning and implementing projects. Enforce erosion control clauses to reduce runoff during the construction phase of projects and during inactive periods of timber sale contracts. Project inspectors on roads and sale administrators on timber sales should use a checklist to assure protective measures are applied.
- c) **Item:** Water Quality Monitoring of at Least One Harvest Site Each Year (LRMP, Chapter 5)  
**Variance Allowed:** Significant impacts to the channel or biological indicators that exceed water quality standards.  
**Findings:** BMP implementation as reported by Timber Sales Inspectors and the Soil and Water Review Team indicated that BMPs were implemented. Therefore, there are no significant impacts to channel or biological indicators (outside the range of natural variability) expected.  
**Recommendation:** Forest Hydrologist will help districts identify streams that need protection during project planning.
- d) **Item:** Soil and Water Resource Improvements (LRMP, Chapter 5)  
**Variance Allowed:** A 30% project treatment area failure or deviation from water quality standards for designated uses.  
**Findings:** No major problems exist.  
**Recommendation:** None.

- e) **Item:** Herbicide Application Where There is a Risk of Off-Site Movement (LRMP, Chapter 5)  
**Variance Allowed:** Information showing persistent off-site movement.  
**Findings:** One site was sampled to detect off-site movement of herbicide residue Glyphosate. Three samples were collected at the site (for a total of three samples) below a silviculture project in which herbicide had been applied. Glyphosate traces were detected in three of the samples in FY 2005. The concentrations were 1, 1.5, and .5 ppb; well below the level of concern identified for this chemical. These results do not indicate persistent off-site movement.  
**Recommendation:** Summarize past results forest-wide to determine if sampling should continue or be modified. Districts need to apply BMPs and provide proper sampling protocol, as specified in the herbicide-monitoring plan.
- f) **Item:** Water Quality at Developed Swimming Areas (LRMP, Chapter 5)  
**Variance allowed:** When monitoring indicates that water quality does not meet established State and Federal Standards for *E. coli* and fecal coliform bacteria.  
**Findings:** There were two beach closures in FY 2005.  
**Recommendation:** None.
- g) **Item:** Water Quality, Quantity, and Timing in Selected Representative Drainage Basins (Baseline Monitoring) (LRMP, Chapter 5)  
**Variance Allowed:** Any downward trend or lack of upward trend to achieve goals and objectives.  
**Findings:** No downward trends have been detected.  
**Recommendation:** None.
- h) **Item:** Air Quality (LRMP, Chapter 5)  
**Variance Allowed:** Air quality standards not being met, and air quality values are being impaired.  
**Findings:** The Forest continued ozone monitoring at Deer. All measurements were within National Ambient Air Quality Standards. The Interagency Monitoring of Protected Visual Environments (IMPROVE) site at Deer continues to gather visibility data.  
**Recommendation:** None.

#### 4. Protection

- a) **Item:** Fire Management Planning and Analysis (LRMP, Chapter 5)  
**Variance Allowed:** Significant deviations from Fire Management Plan.  
**Findings:** The prescribed burning program continues to grow on the Forest and National level. Prescribed burn accomplishments are currently listed in several program areas: wildlife, range, timber stand improvement, and fuel treatment. Fire Management Plan (FMP) revised in FY 2003. Updated policy, National Fire Plan Initiative, and Healthy Forest Restoration Act goals were included in the FMP. Continue with an emphasis on fuels reduction and management in the wildland-urban interface.  
**Recommendation:** Maintain current FMP.

- b) **Item:** Fire Suppression (LRMP, Chapter 5)  
**Variance Allowed:** Significant deviations from Fire Management Action Plan objectives.  
**Findings:** There were 78 fires in CY 2005 burning 2,312 acres.  
**Recommendation:** Continue implementing the National Fire Management Analysis System (NFMAS) to provide adequate suppression resources across the forest. Adjust suppression responses to fires within existing oak mortality areas based on findings from the fuels assessment and the changed fuel profile within these areas.
  
- c) **Item:** Insect or Disease Symptoms and Damage (LRMP, Chapter 5)  
**Variance Allowed:** Determination that a pest population is likely to exceed endemic stages.  
**Findings:** Insect populations, particularly of the Red Oak Borer, far exceeded endemic levels and have resulted in light to severe oak mortality over a majority of the hardwood stands in the forest. A forest wide Oak Mortality Implementation Plan, tiered to the Ozark Highlands Oak Mortality Action Plan, is being implemented. Safety hazards are being reduced and actions are being taken using the best scientific knowledge to ensure oak sustainability.  
**Recommendation:** None.

## B. Sustainable Multiple Forest and Range Benefits

Sustainable Forest and Range Benefits are centered on the multiple forest products (commercial and noncommercial), services (such as recreation settings), and outputs (such as potable water) which provide a variety of benefits. This section addresses relationships of a growing society's needs for forest products and sustaining biological and social values within the capability of southern ecosystems.

### 1. Recreation, Heritage, and Wilderness

- a) **Item:** Developed and VIS Site Use (LRMP, Chapter 5)  
**Variance Allowed:** Annual use at a specific site less than 5% or more than 45% of theoretical capacity. A total use variance of 15% at 5-year intervals.  
**Findings:** The new information reporting systems are being incorporated into one system called Infrastructure 5.1.1.  
**Recommendation:** None.
  
- b) **Item:** Dispersed Area and Wilderness Use (LRMP, Chapter 5)  
**Variance Allowed:** When use by Recreation Opportunity Spectrum (ROS) class varies more than 15% at end of first 5-year Plan interval, and when trails, streams and special areas show excessive use or resource damage.  
**Findings:** Further development of the Limits of Acceptable Change (LAC) has ceased. This process is the responsibility of the Wilderness Coordinator, a position that does not exist on the Forest.  
**Recommendation:** None
  
- c) **Item:** Developed Site and Facility Condition (LRMP, Chapter 5)  
**Variance Allowed:** Deterioration or vandalism at greater than normal rate.  
**Findings:** Deterioration and vandalism occurred at about normal rates.  
**Recommendation:** The following contracts were awarded in 2005: Wedington Entry Station, Cove Lake Road, and Redding boat access. Added a handgun range to Sylamore facility through partnership with Arkansas Game & Fish Commission.

- d) **Item:** Dispersed Recreation Opportunity Classes (LRMP, Chapter 5)  
**Variance Allowed:** 15% ROS acreage change.  
**Findings:** Changes did not approach 15% in ROS classes forest-wide.  
**Recommendation:** None.
- e) **Item:** Off-Highway Vehicle Impacts (LRMP, Chapter 5)  
**Variance Allowed:** Documented user conflicts, photographic record of resource damage, and/or observation of public safety hazards.  
**Findings:** The Forest identified several areas of resource damage and developed rehabilitation plans. The Buckhorn NEPA decision was signed but is still in appeal period. Brock Creek Trail was completed-dedication scheduled for Spring 2006. Trail Strategy Team was established to deal with proposed National OHV Policy and other trail issues.  
**Recommendation:** Identify potential areas for development of future ATV trails. The Road Analysis Process (RAP) will inventory existing use areas, determine effects, work with user groups, and designate trails with no adverse impacts or where effects can be mitigated.
- f) **Item:** Visual Quality (LRMP, Chapter 5)  
**Variance Allowed:** Projects that fail to meet adopted Visual Quality Objectives (VQOs).  
**Findings:** Forests continued to comply with VQOs.  
**Recommendation:** Include new Scenery Management System (SMS) guidelines in the Forest Plan revision. Oak restoration projects may cause short negative effects to visual quality on the Forest.
- g) **Item:** Potential Wild and Scenic River Protection (LRMP, Chapter 5)  
**Variance Allowed:** Activity affecting free-flowing character or values.  
**Findings:** Pleasant Hill and Boston Mountain districts began an access study on the Mulberry River to determine the need for more boat access to this Wild and Scenic River.  
**Recommendation:** None.
- h) **Item:** Heritage Resource Compliance and Protection (LRMP, Chapter 5)  
**Variance Allowed:** Non-compliance with 36 CFR 800 and Forest Management Requirements.  
**Findings:** The fifth annual government-to-government conference, "To Bridge a Gap", was conducted. A conference was held in conjunction with the Native Americans and the Ouachita National Forest to promote this new process.  
**Recommendation:** None
- i) **Management Requirement:** Manage trail system to provide a variety of opportunities.  
**Findings:** RO special funding allowed Buckhorn Planning to continue. The NEPA decision was signed but is still in the appeal period; Syllamo Bike Trail Phase III completed and trail open; Brock Creek Trail completed with dedication scheduled for Spring 2006.  
**Recommendation:** None.

- j) **Management Requirement:** Maintain present developed site range and quality for public enjoyment in Management Area 3.  
**Findings:** Maintenance of developed sites continues at reduced service levels. Work with State Parks on the St. Francis-Mississippi River State Park continued. The recreation realignment workshop identified a number of developed recreation areas for further study to determine if keeping them open was financially sound or if closure or refocus of the use might be more appropriate.  
**Recommendation:** Continue to implement the study action items of the Recreation Realignment Action Plan.
- k) **Management Requirement:** Provide and maintain safe attractive facilities at administrative sites (Management Area 6).  
**Findings:** Boston Mountain District Office entrance remodeled and improved.  
**Recommendation:** None.
- l) **Plan Goal:** Trail Construction  
**Findings:** In FY 2005, the Forest constructed/reconstructed 42 miles of trail.  
**Recommendation:** Finished Brock Creek multiple-use trail in partnership with user groups. Continue Syllamo Bike Trail construction.
- m) **Plan Goal:** Scenic Byways  
**Findings:** The FY93 recommendation that all management planning for the Scenic Byways be completed in FY94 has still not been accomplished.  
**Recommendation:** Plan Revision draft direction to write management plans in first five years.
- n) **Plan Goal:** Developed Site Administration  
**Findings:** In FY 2005, the Forests continued the Recreation Fee Demonstration Project (RFDP) as a forest-wide program. Fourteen developed sites are included in the project. The resulting fees collected were \$610,940. Under the RFDP rules \$580,393 were returned to the Forest. Funds were spent refurbishing and improving the fee areas. FY 2005 saw the implementation of the Federal Lands and Recreation Enhancement Act, which replaced the Fee Demonstration Project.  
**Recommendation:** Continue to implement the Recreation Realignment Action Plan to bring the developed recreation program in line with the Niche Statement.
- o) **Plan Goal:** Heritage Resource Inventory of 15,000 acres completed as project needs.  
**Findings:** Archaeologists completed inventory on 60,929 acres, 23 projects with 223 sites and 30 sites eligible for Historical Register. Two sites were stabilized. Program goal should be to comply with NEPA and Sections 106 and 110 of NHPA with a balance between inventory, evaluation, protection, management, and interpretation rather than 15,000-acre inventory activity level annually.  
**Recommendation:** None.

## 2. Timber

- a) **Project:** Total Volume Offered (Volume Sold) (LRMP, Chapter 5)  
**Variance Allowed:** 15% at 5-year intervals.  
**Findings:** FY92 M&E Report recommended selling no more than an average of 9.6 million cubic feet (MMCF) annually for the remainder of the plan period. Volume sold in FY 2005, 8.413 million cubic falls short of this recommendation.  
The total volume sold through the first 19 years (FY 87 - FY 2005) is 157 MMCF. The total amount planned for the 19-year period is 182.4 MMCF or 86% of the planned amount for this period. The downfall is due to reduced volumes sold in FY90 – FY95 and FY99-FY 2001 as a result of administrative appeals, lawsuits, and reduced funding for subsequent years.  
Total volume offered is within the allowable 15% variance after 19 years.  
**Recommendation:** No change needed.
- b) **Item:** Silvicultural Exams and Prescriptions (LRMP, Chapter 5)  
**Variance Allowed:** 15% at 5-year intervals.  
**Findings:** After 19 years, the Forests have accomplished 65% of the planned acreage. Shortfall is due to inadequate funding and personnel allocations. Districts will continue to examine and prescribe the maximum acreage possible within approved funding levels.  
**Recommendation:** None.
- c) **Item:** Reforestation (LRMP, Chapter 5)  
**Variance Allowed:** 15% at 5-year intervals.  
**Findings:** After 19 years, 71,187 acres have been reforested compared to a projected 101,069 acres. This is 70% of amount planned. The 1,314 acres reforested in FY 2005 were below the plan projection of 5,350 acres. Shortfall was due to inadequate funding and personnel allocations.  
**Recommendation:** None.
- d) **Item:** Regeneration (LRMP, Chapter 5)  
**Variance Allowed:** 15% at 5-year intervals.  
**Findings:** During the 19 years of the Plan, the Forest sold 41,646 even-aged regeneration acres compared to a projected 80,367 acres (52% of the acreage planned). Use of uneven-aged harvest methods has been considerably lower than planned. Hardwood group selection cutting and pine selection cutting are at 17% of planned acres after 19 years.  
**Recommendation:** LRMP goals should be emphasized.
- e) **Item:** Timber Stand Improvement (LRMP, Chapter 5)  
**Variance Allowed:** 15% at 5-year intervals.  
**Findings:** TSI accomplishment in FY 2005 was 78% of annual Plan projections after 19 years.  
**Recommendation:** LRMP goals should be emphasized.
- f) **Item:** Maximum Size Limits (LRMP, Chapter 5)  
**Variance Allowed:** None. Maximum size limits of regeneration areas should not conflict with achieving Forest Plan objectives and desired future condition.  
**Findings:** No areas have exceeded limits stated in the Forest Plan, which are 50 acres for pine and 30 acres for hardwood regeneration areas.  
**Recommendation:** None.

### 3. Facilities

- a) **Project:** Road Reconstruction and Construction - Comparison of projected average annual construction/reconstruction vs. actual accomplishments in miles. (LRMP, Chapter 5)  
**Variance Allowed:** 15% at 5-year intervals.  
**Findings:** The amount of road construction and reconstruction was less than projected in the Plan primarily due to timber sale need changes.  
**Recommendation:** None.

## C. Organizational Effectiveness

This section addresses agency and cooperators related inputs and constraints: changes in laws, regulations, policy, and the agency's ability to respond to emerging issues and changing conditions to implement the Forest Plan.

The Ozark-St. Francis National Forests published the Notice of Intent (NOI) in the Federal Register on May 1, 2002, which officially started the Plan Revision process. The Draft Environmental Impact Statement and Proposed Revised Land and Resource Management Plan (PRLRMP) were mailed to the public in January 2005. A 90-day public comment period ran from February 25, 2005, through May 26, 2005; followed by a 30-day extension. This made the final date for commenting on the PRLRMP June 27, 2005. On September 23, 2005, Regional Forester Charles L. Myers approved the Record of Decision (ROD) for the Final Environmental Impact Statement (FEIS) to the Revised Land and Resource Management Plan. These documents are scheduled to be published in early FY 2006.

Monitoring and evaluation of various items indicate some are not meeting the outputs predicted in the existing Plan. The original intent was to update or change these items during Forest Plan Revision. The Forests will continue to identify critical changes and modify the existing plan through amendments, where necessary.

The Forests planned to develop a Vision 2005 organizational structure, but this has not been done.

**TABLE I**

**ACTUAL FOREST EXPENDITURES COMPARED TO BUDGET ALLOCATIONS**

<b>ACTIVITY</b>	<b>ALLOCATIONS FOR FY 2005<sup>1</sup></b>	<b>ACTUAL 2005 EXPENDITURES</b>
<b>Cost Pools<sup>2</sup></b>	4,029,927	3,733,889
<b>Ecosystems</b>		
Timber	4,886,660	4,736,029
Wildlife	550,189	472,929
Range	103,274	93,400
Soil/Water/Air	1,959,544	1,343,734
<b>Fire</b>	2,201,188	2,092,265
<b>Law Enforcement</b>	0	0
<b>Public Services/Planning</b>		
Recreation/Wilderness/Heritage/ Trails <sup>3</sup>	2,167,981	1,906,153
Planning/ Ecosystem Inventory/Monitoring <sup>4</sup>	1,330,222	1,374,059
<b>Technical Services</b>		
Engineering <sup>5</sup>	6,430,940	4,270,101
Lands	591,444	408,153
Minerals	313,814	305,099
<b>TOTAL</b>	<b>24,565,183</b>	<b>20,735,811</b>

1 The figures in this column were retrieved from Allocation Report obtained from Budget & Finance.

2 General Administration.

3 Recreation/Wilderness/Heritage/Trails includes recreation and trail construction funds.

4 The category for Ecosystem Inventory, Monitoring, and Planning for forest-wide inventory and monitoring was created in 1996. It includes expenditures of Soil, Water, Air, Wildlife, Range, Recreation, Administration, and Land Management Planning.

5 Includes recreation construction (CMFC and CMII).

**TABLE II****ACTUAL ACCOMPLISHMENTS vs. PLAN PROJECTIONS**

This table shows the 10-year Plan objective and actual accomplishments of that 10-year period (1987-1996). Next, it displays the accomplishments of the 8-year period from 1997-2004. Finally, it shows the accomplishments of FY 2005. FY **2005** is the **nineteenth** year of the current Plan.

ACTIVITIES	UNITS	LRMP Ob <sup>1</sup>	FY87-FY96	% PLAN	LRMP Ob <sup>2</sup>	FY97-FY04	% PLAN	FY05	% PLAN
<b>RECREATION</b>									
Use Administration	PAOT-D <sup>3</sup>	na <sup>4</sup>	12.6 MM	na	15.4 MM	11.2 MM	na	1.4 MM	na
Trail									
-Construction/ Reconstruction	Miles	122	141.5	116%	84	85	101%	42	151%
-Maintenance	miles	na	142.5	na	na	900	na	432	na
Cultural Resource									
-Inventory	acres	167,000	181,145	108%	167,000	227,585	136%	60,929	173%
-Evaluation	sites	na	112	na	na	354	na	167	na
Wilderness Administration	PAOT-D	1,860,800	1,339,000	72%	1,860,800	1,042,600	56%	120,500	63%
<b>WILDLIFE &amp; FISHERIES</b>									
Prescribed Burning	acres	11,100	18,713	169%	11,100	31,909	287%	2,681	312%
Wildlife Opening Maint.	acres	2,900	1,749	60%	2,900	3,313	114%	242	123%
Food Plot Maint.	acres	330	1,948	590%	330	5,212	1,579%	786	1,818%
Wildlife Opening Dev.	acres	360	959	266%	360	361	100%	52	115%
Food Plot Dev.	acres	84	1,127	1342%	84	178	212%	20	236%
Wildlife Stand Improvement	acres	1,500	330	22%	1,500	3,331	222%	770	273%
Seeding and Planting	acres	280	2,117	756%	280	3,442	1,229%	408	1,375%
Pond Construction	each	450	377	84%	450	197	44%	23	49%
Fish Cover Dev.	each	140	322	230%	140	224	160%	55	199%
Pond Fertilization	acres	1,670	858	51%	1,670	2,258	135%	479	164%

ACTIVITIES	UNITS	LRMP Ob <sup>1</sup>	FY87-FY96	% PLAN	LRMP Ob <sup>2</sup>	FY97-FY04	% PLAN	FY05	% PLAN
<b>RANGE</b>									
Prescribed Burning	acres	28,000	1,250	4%	28,000	1,096	4%	650	6%
Brush Hogging	acres	28,000	2,698	10%	28,000	6,788	24%	947	28%
Fertilization	acres	14,000	2,898	21%	14,000	6,155	44%	207	45%
Seeding	acres	14,000	167	1%	14,000	68	.4%	80	1%
Fencing	miles	100	7	7%	100	22.5	23%	1	24%
Pond Construction	each	140	18	13%	140	18	13%	4	16%
Corral Construction	each	30	1	3%	30	3	10%	0	10%
<b>SOIL AND WATER</b>									
Watershed Improvements	acres	348	419	120%	348	293	84%	21	90%
<b>TIMBER</b>									
Exam. & Prescription	acres	1,665,000	767,843	46%	1,665,000	291,397	18%	12,520	<1%
<b>FUEL TREATMENT</b>									
Prescribed Burning	acres	70,000	30,143	43%	70,000	237,997	340%	53,973	417%
<b>ROAD WORK</b>									
Reconstruction/Construction	miles	1,100	535	49%	1,100	275	25%	29	28%
<b>LANDS AND MINERALS</b>									
Mineral Leases <sup>5</sup>	leases	3,600	6,814	189%	3,600	229	6%	13	7%
Land LWCF Acquisition	acres	6,000	18,710	312%	6,000	5,763	96%	28	97%
Land Exchange	acres	11,100	3,016	27%	11,100	1,880	17%	457	21%
Boundary Location	miles	1,400	503	36%	1,400	58	4%	7	5%
Landline Maintenance	miles	2,800	1,853	66%	2,800	466	17%	7	17%
Right of Way Acquisition	#'s	na	210		na	49	na	5	na

<sup>1</sup> LRMP Obj = 10- year LRMP objectives.

<sup>2</sup> LRMP Obj = LRMP objectives for 6-year period from 1997-2002.

<sup>3</sup> PAOT-D = (People at One Time capacity) X (number of Days recreation site is open).

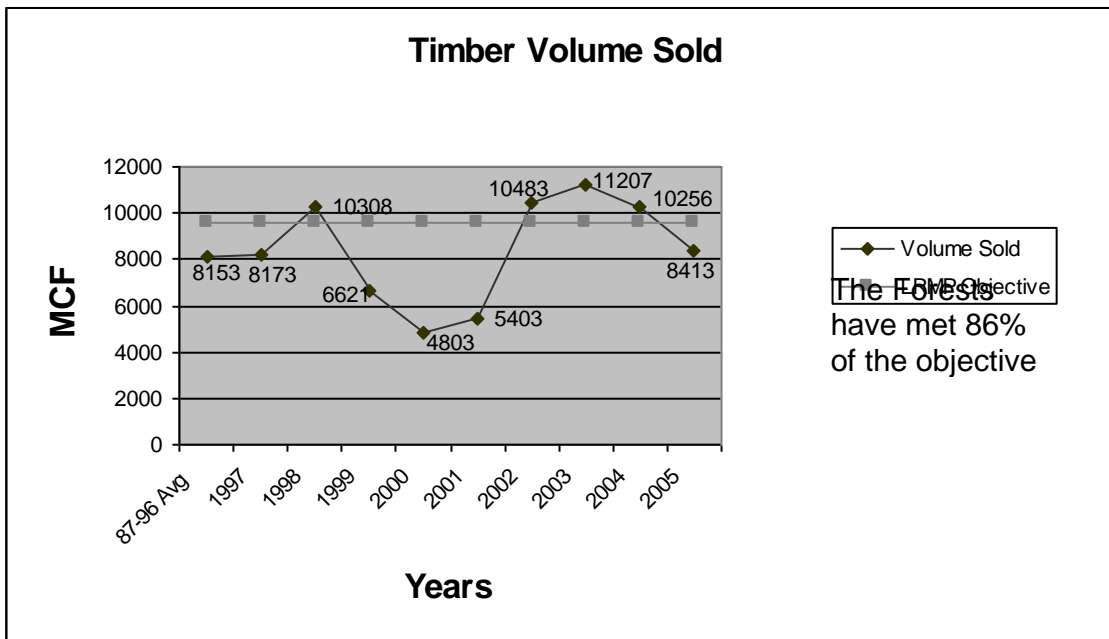
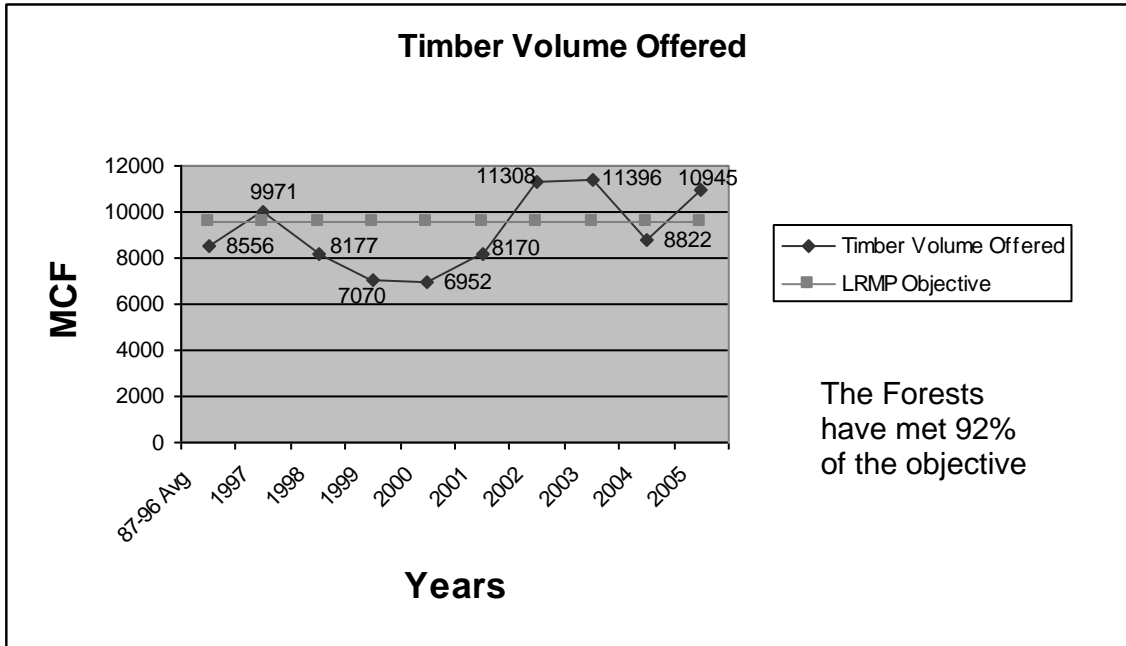
<sup>4</sup> na = not assigned.

<sup>5</sup> Energy and non-energy processed.

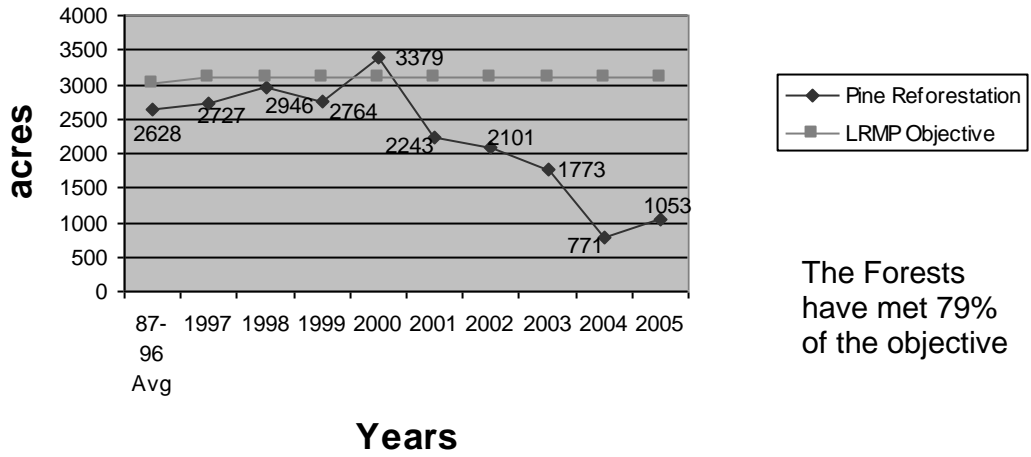
<sup>6</sup> Includes 20 acres donated and 75 acres drug forfeiture lands transferred to USFS in 1998, and 40 acres donated in 1999.

**TABLE II continued**

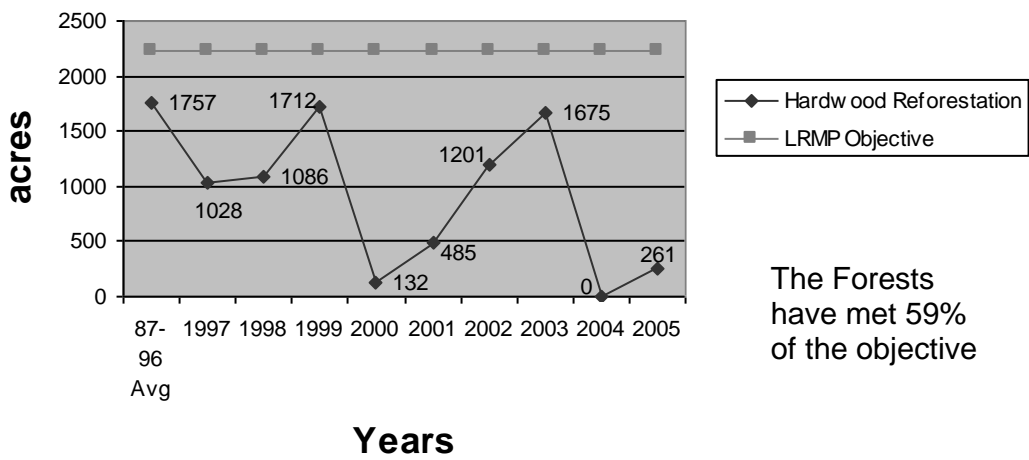
Comparison of **Timber's** actual accomplishments by each fiscal year to the total activities proposed in the Forest Plan. These graphs display the Forest's progress in reaching totals to date. Since **2005** is the **nineteenth** year of the Plan and the Plan objectives were based on a 10-year period, projections were extended proportionally. Hardwood and Pine Selection acres are gross stand acres.



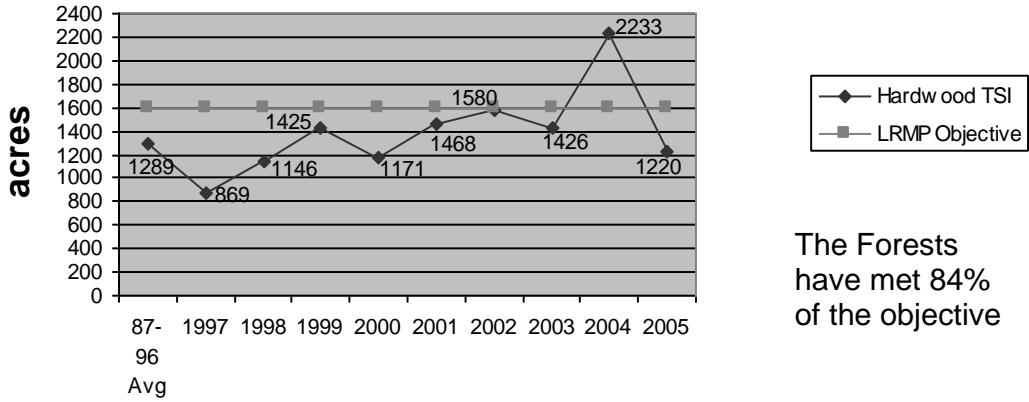
### Pine Reforestation



### Hardwood Reforestation



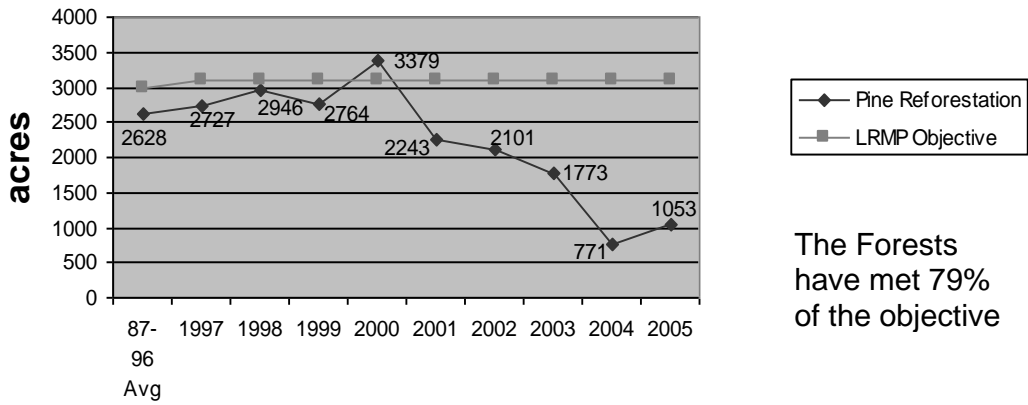
### Hardwood TSI



The Forests have met 84% of the objective

Years

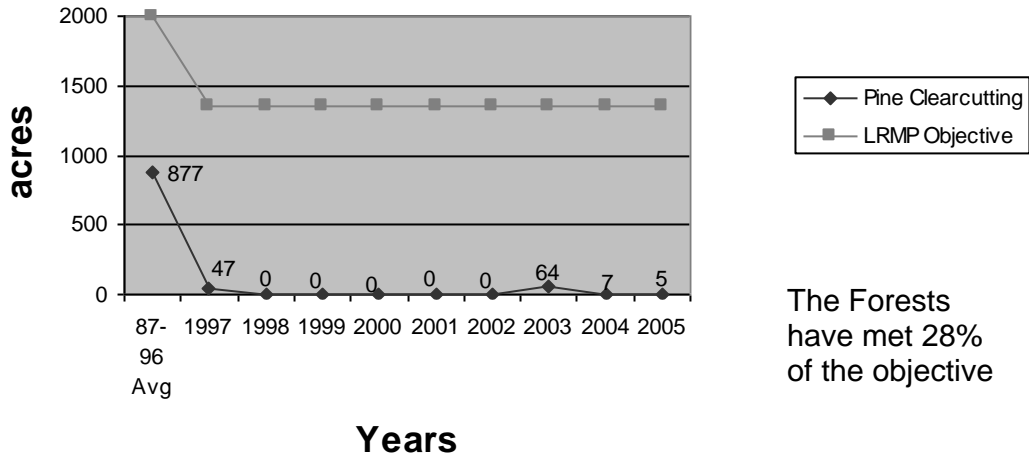
### Pine Reforestation



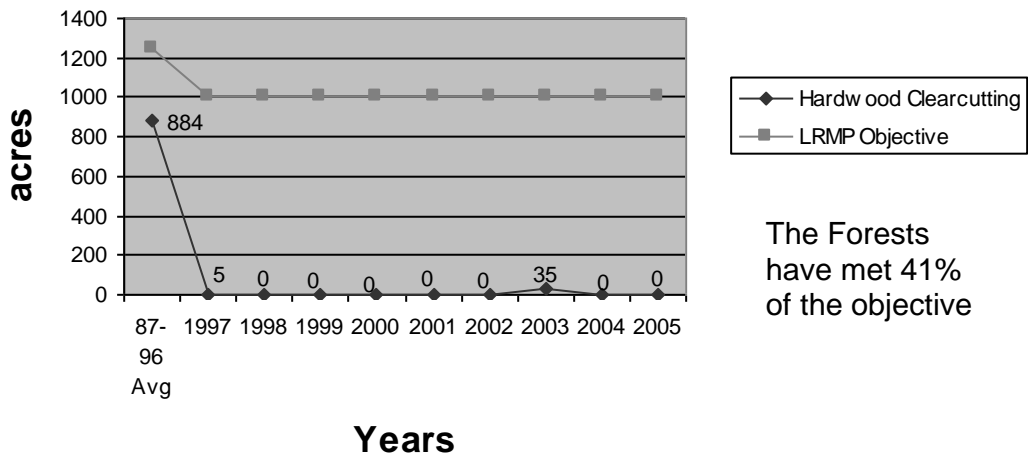
The Forests have met 79% of the objective

Years

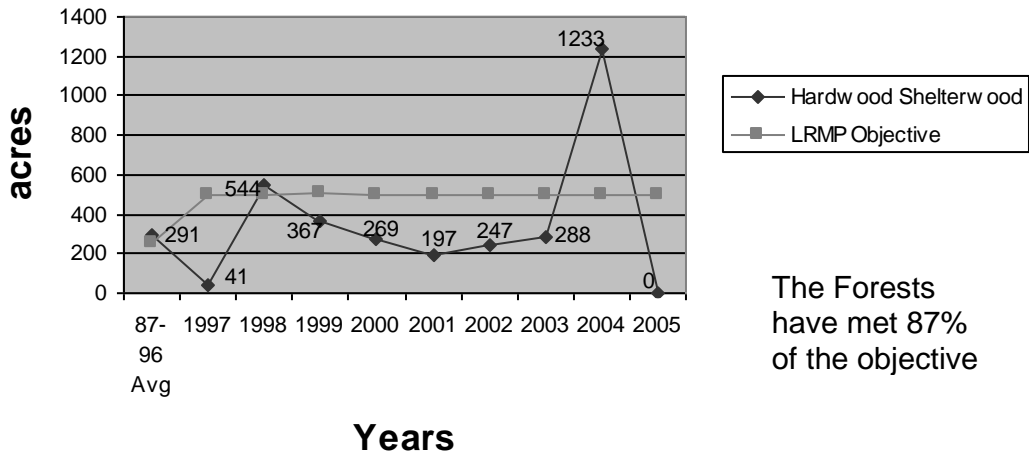
### Pine Clearcutting



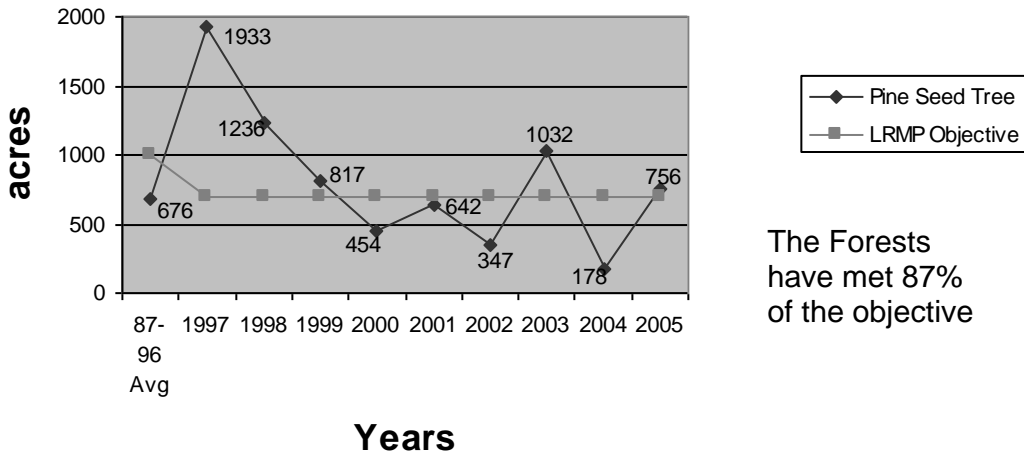
### Hardwood Clearcutting



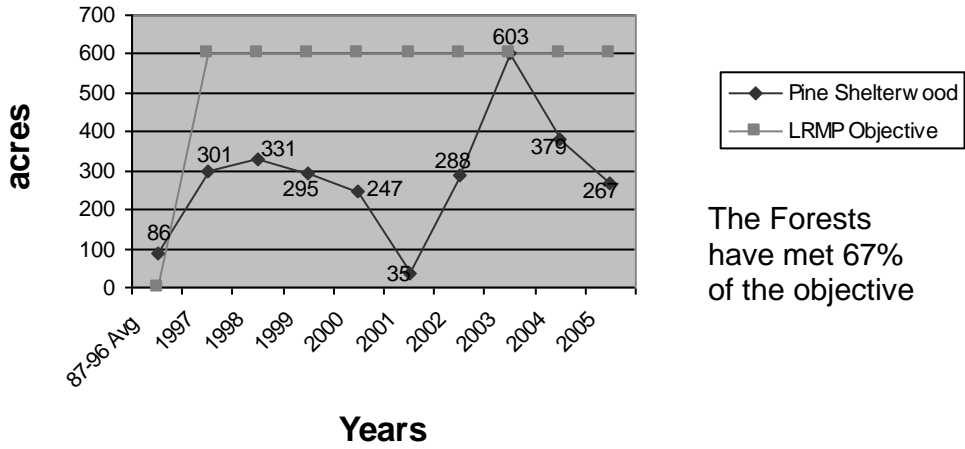
### Hardwood Shelterwood



### Pine Seed Tree

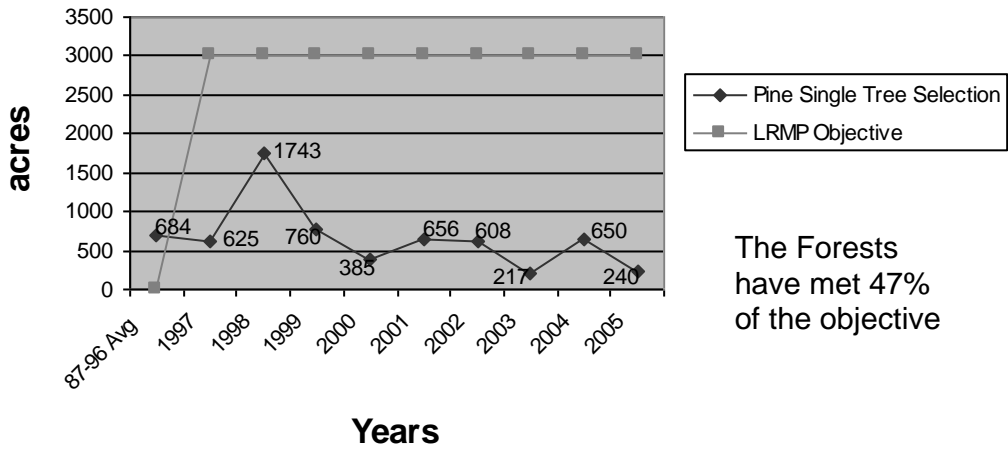


### Pine Shelterwood



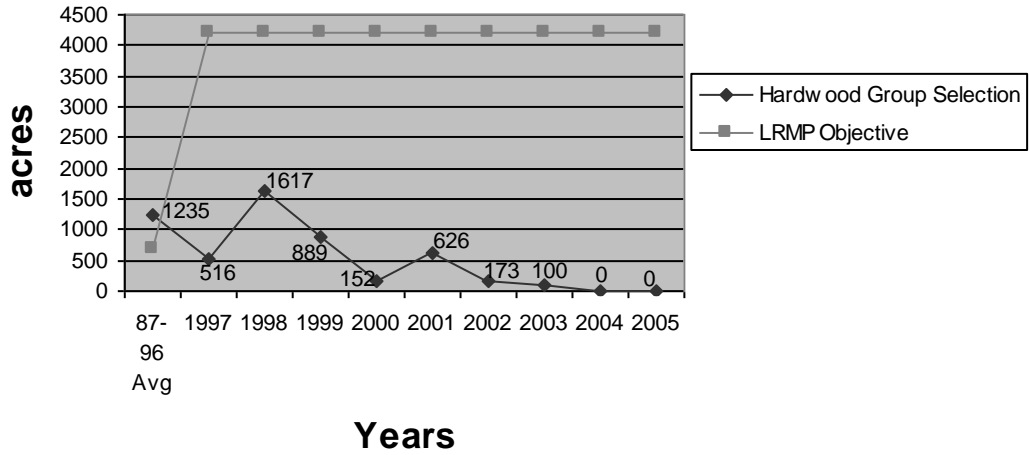
The Forests  
have met 67%  
of the objective

### Pine Single Tree Selection

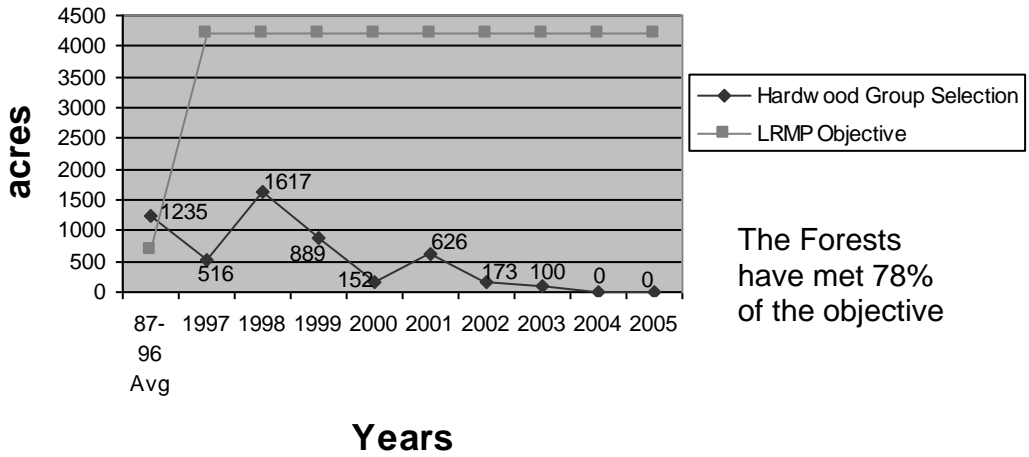


The Forests  
have met 47%  
of the objective

### Hardwood Group Selection



### Hardwood Group Selection



### III. 2005 MONITORING AND EVALUATION ACTION PLAN

This section flows out of the findings and recommendations made in the previous section. It lists the actions to be taken, including forest plan amendments or revision.

#### A. Actions Not Requiring Forest Plan Amendment or Revision

1. **Action:** Summarize herbicide monitoring results to determine corrective measures to be taken in BMP application or sampling techniques. (See Recommendation 3e, page 7)  
**Responsibility:** Watershed and Planning Staff Officer, Forest Hydrologist  
**Completion Date:** FY 2003
2. **Action:** Maintain current Fire Management Plan. (See Recommendation 4a, page 7)  
**Responsibility:** Fire Staff Officer  
**Completion Date:** Annually
3. **Action:** Adjust suppression responses to fire in oak mortality areas. (See Recommendation 4b, page 8)  
**Responsibility:** Fire Staff Officer  
**Completion Date:** Ongoing
4. **Action:** Implement the Recreation Realignment Action Plan to bring developed recreation program in line with the Niche State. (See Recommendation 1n, page 10)  
**Responsibility:** Public Services Staff Officer, District Rangers  
**Completion Date:** Ongoing
5. **Action:** Stress the importance of meeting targets for timber offered, regeneration, and timber stand improvement work. (See Recommendation 2a, 2d, and 2e, page 11)  
**Responsibility:** Forest Supervisor, Ecosystem Staff Officer, District Rangers  
**Completion Date:** Ongoing
6. **Action:** Revise existing Plan direction for land acquisition that includes various resource-based priorities such as riparian areas, wetlands, and wildlife habitat.  
**Responsibility:** Technical Services Staff Officer, Forest Planners  
**Completion Date:** Plan Revision

#### B. Actions Requiring Amendment or Revision to the Forest Plan

No new actions were identified in FY 2005.

## C. Amendments to be Completed

No outstanding amendments to be completed in FY 2005.

## D. Amendments Considered but Deferred until Completion of Forest Plan Revision

- Amendment Description:** MIS Amendment – This amendment proposes additional clarification regarding selection and monitoring of Management Indicator Species.  
**Responsibility:** Ecosystems Staff Officer and Watershed and Planning Staff Officer.  
**Proposed Date of Completion:** N/A  
**Status:** A review and analysis were completed in FY 2001. No changes in MIS species were recommended at this time. Further analysis will be done during Plan Revision.
- Amendment Description:** SIA Amendment – Amendment 5 to the Forest Plan committed the forests to evaluate additional Special Interest Areas.  
**Responsibility:** District Rangers and Forest Planners  
**Proposed Date of Completion:** FY 2003/2004  
**Status:** Criterion for SIA evaluation was completed for analysis of existing and proposed SIA area. Districts completed an inventory of those SIAs and analyzed them against the criterion resulting in recommendations to the Forest Supervisor. The Supervisor then made decisions regarding their standing as Special Interest Areas and notified the interested public of his decision. New areas and additions to existing areas will be incorporated during plan revision.

# APPENDIX A

## FOREST INTERDISCIPLINARY TEAM

Names and positions of the Forest Monitoring and Evaluation Interdisciplinary Team who contributed to this report are listed below.

Michael A. Crump	Forest Hydrologist
Jack Davis	Forest Silviculturist
A. J. Brigance	Timber Sale Forester
Roger Fryar	Assistant Fire Team Leader
Greg Hatfield	Ecosystems Staff Officer
David Journey	Heritage Program Manager
Kathy King	Writer/Editor
Ron Klouzek	Technical Services Staff Officer
Gary Knudsen	Public Services and Planning Staff Officer
Ralph Odegard	Forest Wildlife Biologist
Gregg Vickers	Forest Fire Planner
Len Weeks	Forest Soil Scientist
James K. Whalen	Forest Fisheries Biologist

# **APPENDIX B**

## **LIST AND DESCRIPTION OF PLAN AMENDMENTS**

1. Added language to the Forest Plan on southern pine beetle. (1987)
2. Clarifies the process and schedule for suitability studies for rivers eligible for consideration for inclusion in the National Rivers System. (1987)
3. Designated a corridor along the Ozark Highlands trail and changed the Visual Quality Objective. (1989)
4. Incorporated the methods and tools available for use in the Final EIS on vegetation management in the Ozark/Ouachita Mountains. (1990)
5. Resolves appeals to the Forest Plan, committing the Forest to different water monitoring, examination of Special Interest Areas, inventory of forest roads, modification of timber management techniques, etc. (1991)
6. Designated Dismal Hollow as a Research Natural Area. (1990)
7. Established corridors for six wild and scenic rivers. (1993)
8. Added the standards and guidelines, management direction, and goals and objectives from the wild and scenic river plans. (1996)
9. Classifies acquired lands from 1986 to 1998 into management areas. (1999)
10. Allows access to the new campgrounds in Sam's Throne SIA. (2001)
11. Allocates 300 acres of Management Area 8 to Management Area 3 on the St. Francis National Forest. (2001)
12. Changes the way biological evaluations are complete and approves changes to the language that was added through Amendment 4. (2002)
13. Amends Forest Plan direction to allow ecosystem restoration project on the Bayou Ranger District. (2004)

# APPENDIX C

## STATUS OF RECOMMENDATIONS AND ACTION PLAN FROM PREVIOUS MONITORING AND EVALUATING REPORTS

Many of the recommendations from previous Monitoring and Evaluation Reports are on-going activities. These are not repeated here.

Following are the status of Actions from previous Monitoring and Evaluation Reports:

### 1. Recreation, Heritage, and Wilderness

- a) **Action:** Determine if Buffalo District Limits of Acceptable Change (LAC) standards apply to the situation on Bayou and Sylamore Districts. Buffalo Ranger District needs to apply to their situation. (See Recommendation 1b, page 8.)

**Responsibility:** Bayou, Sylamore, and Buffalo District Rangers

**Completion Date:** No completion is anticipated pending either Plan Revision or filling of Wilderness Coordinator position.

**Status, FY 2000 M&E Report:** Nothing has been done.

- b) **Action:** Complete all management planning for Scenic Byways, Cove Lake facilities. (See Recommendation 1m, page 10.)

**Responsibility:** Technical Services Staff Officer, District Rangers, Recreation Staff Officer

**Completion Date:** FY 2000 and on-going

**Status, FY 2001 M&E Report:** Cove Lake Road contract awarded in 2005. Planning for Scenic Byways has not been completed.

- c) **Action:** Forest Supervisor will form ID Team to develop plan for Off-Highway Vehicle (OHV) use on the forest to identify potential areas for development of OHV trails and implement Forest policy for OHV use. (See Recommendation 1e and 1i, page 9.)

**Responsibility:** Forest Supervisor

**Completion Date:** Unknown.

**Status, FY 2000 M&E Report:** A team was formed and recommendations were submitted. Buckhorn Trail on Lee Creek and Brock Creek Trails on the Bayou Ranger District are in planning under construction. The St Francis Forest and the Wedington Unit were closed to OHV use. Forest Service is working with Arkansas Trails Coordinator to meet with user groups and develop an umbrella group to work with the agency on this issue. Buckhorn decision signed and under appeal. Brock Creek completed.

### 2. Forest Health

- a) **Action:** Determine the appropriate scale at which fire dependent ecosystems should be restored and develop Forest-wide management plan for restoring these communities. (See Recommendation 4a, page 7.)

**Responsibility:** Forest Planners and Fire Management Officer

**Completion Date:** On-going with Plan Revision.

**Status, FY 2001 M&E Report:** Fire planners did an initial assessment on prescribed burning needs and are continuing with an assessment of the condition class of the various communities across the forests.

### 3. Fire

a) **Action:** Continue to implement the National Fire Plan initiative/Healthy Forest Restoration Act. (See Recommendation 4a, page 7.)

**Responsibility:** Fire Management (Supervisor's Office and Districts), Engineering

**Completion Date:** On-going

**Status, FY 2001 M&E Report:** Fire Team is implementing projects through prescribed burning and some mechanical treatment of hazardous fuels in the wildland-urban interface.

- West Zone Tanker Base Phase I at Drake Field in Fayetteville was awarded in FY 2003 and completed in FY 2005.
- West Zone Tanker Base Phase II at Drake Field in Fayetteville was awarded in FY 2004 and the majority of the construction was completed in FY 2005.

# **APPENDIX D**

## **SUMMARY OF REVIEWS**

Forest Fire Management Staff conducted District Fire Readiness Reviews.

Timber Management conducted various audits across the Forests.

Forest Fire Management Staff conducted random after action reviews (AAR) of wildland fires and prescribed fires across the forests.

Range Management conducted range reviews on the Boston Mountain and Sylamore Ranger Districts and the St. Francis NF.

Wildlife Management conducted wildlife reviews on all ranger districts and the St. Francis NF.

Fisheries Management conducted fisheries reviews on all ranger districts and the St. Francis NF.

Forest and district recreation staff conducted review of recreation areas according to R.O. process to plan for the potential loss of SCEPS and increased cost pool charges to recreation.

KPMG audit was done on personal and real property audits; timber sales; personnel records; unit liquidated obligations; unliquidated obligations; collection officers; and purchase orders.

# APPENDIX E

## UPDATED RESEARCH NEEDS

### Research needs previously identified:

- Evaluate the role of prescribed burning in fire-dependent and fire-associated ecological communities.
- Basic information on reptiles and amphibians of Ozark National Forest including occurrence, habitat relationships, special needs and suspected limiting factors. (on-going)
- Habitat relationships of PETS Species on the Ozark and St. Francis National Forests.
- Evaluation of minimum early successional habitat needs to support viable populations of early succession obligate birds such as Prairie Warblers, Yellow-breasted Chats, and Blue-winged Warblers.
- Effects of silvicultural practices on flora and fauna in upland hardwoods with emphasis on PETS and Neotropical migratory birds. The study design for Neotropical birds should be similar to the Ouachita National Forest study but conducted in upland hardwood habitat.
- Importance of down and dead wood to wildlife in the Ozark and St. Francis National Forests.
- Evaluation of habitat needs for riparian dwelling wildlife of the Ozark and St. Francis National Forests.
- Basic information on how fires affect wildlife habitat in upland hardwood ecosystems.
- Basic inventory information on mollusks of the Ozark National Forest. This information is urgently needed since it has been discovered that the Zebra mussel is found in Lake Dardanelle. (on-going)
- Evaluation of habitat improvements for Neotropical Migrant and Native Birds. Improvements such as nest boxes, snag creation, and understory and midstory manipulation would be evaluated to see how effective they are in increasing bird populations.
- Evaluation of silvicultural activities on Cerulean Warbler habitat.
- Habitat use by endangered bats that inhabit Ozark National Forest caves. (on-going)
- Effects of ATVs on reproductive success of wildlife on the Ozark National Forest.
- Life history of the Longnose Darter (ecology and reproductive biology).
- Importance of seasonal streams to reproduction of fish in the Boston Mountains.
- Evaluation of stream habitat improvements on Smallmouth Bass in the Boston Mountains.
- Evaluate and monitor smoke impacts from prescribed burning activity.

- Inventory Forest fuels and assess impacts of oak mortality on fuel loading.
- Evaluate and monitor growing season burning effects.
- Evaluate and monitor the effects of prescribed burning in hardwood Forests on T & E species, specifically the Indiana Bat and the Red Bat.
- Inventory and evaluation of Heritage Resources (Archaeology) on all land disturbing projects.

### **Research Needs From Mid-Plan Review**

During the Mid-Plan Review in 1991, the Planning Team reviewed existing and planned research and developed additional research needs to be included in the Plan. Cooperative research with the University of Arkansas at Monticello, the Forest Experiment Stations, the Ouachita National Forest, and other partners on many projects is still underway. Future research topics recommended during the Mid-Plan Review were:

1. Large-scale, multi-resource studies to determine effects of different management practices on ecosystems.
2. Prescribed burning effects on soil productivity, characteristics, and nutrient cycling.
3. Public expectations of uneven-aged timber management.
4. Document resource demands, specific to the Ozark-St. Francis National Forests for water, recreation, wildlife, and minerals.
5. Riparian area fish and wildlife needs (habitat dependent species).
6. Old growth needs--
  - dependent species.
  - treatments for dependent species.
  - definition of Ozark-St. Francis National Forests old growth vegetation.
  - description of Pre-European settlement environment (Heritage is providing this for Little Piney Watershed and building GIS layer for Forest).
7. Habitat needs for neo-tropical migrants.
8. Habitat relationships of protected, endangered, threatened, and sensitive wildlife species.
9. Authenticated habitat capability models for management indicator and other selected species.
10. Watershed condition including stream stability determination for LRMP
11. Recreation marketing, customer surveys and analysis for dispersed recreation, developed recreation, wild and scenic rivers, scenic byways, and wilderness use.

## Recently Identified Research Needs

1. Because the severity of the red oak borer infestation is without precedent, there is a rare opportunity for research on the borer and associated insects as well as on oak regeneration. Some ideas on research needs are:
  - increase information on the distribution and extent of the existing infestation and develop models for determining spread.
  - increase knowledge on the epidemiology of the red oak borer and associated insects.
  - quantify the ecological effects of the infestation in the Ozark highlands.
  - quantify the economic impacts of red oak – speed of degradation, utilization of infested material, and visual quality (visitor concerns).
  - develop silvicultural prescriptions to rehabilitate the oak component in the overstory or to optimize the development of oak regeneration.
  - increase knowledge on the ecology of the oak ecosystem and why this red oak borer outbreak happened.
  - increase the knowledge of effects on game and non-game wildlife species from loss of hard mast. Includes migratory bird impacts.
  - determine optimum prescribed burning conditions and timing to enhance natural regeneration for red and white oaks.
  - explore the regeneration model developed in the southern Appalachians for adaptation to the Ozark Highlands.
  
2. Duration of past (1880-1920) and more recent (1920-1950) disturbance on stream basins and effect of current activities on stream recovery.

# APPENDIX F

## OZARK-ST. FRANCIS NATIONAL FORESTS NICHE STATEMENT

**Setting and Value:** The Ozark-St. Francis National Forests provide much of the undeveloped public lands for outdoor recreation in Arkansas and are the closest mountains to surrounding states. The Forests offer exceptional ecological and geological diversity in large blocks of land dispersed throughout the northern half of the state. The Ozark's rich folk culture and historic sites enrich the visitor experience. The scenic mountains and adjacent plateaus offer spectacular vistas, bluffs, waterfalls, and six wild and scenic rivers. Blanchard Springs Caverns is nationally recognized as a natural wonder, and Mt. Magazine is the highest point in the state. Crowley's Ridge and the Mississippi River delta provide a lowland experience replete with bayous and oxbow lakes.

**Experiences:** The rugged landscape and water features make sightseeing, trails, and day-use focuses for the mountain and plateau sections. The Mississippi River and lakes along the delta provide special opportunities for water-related day-use. The Forests extensively partner with the State and other organizations to provide or enhance recreation opportunities.

- The Forests' Ozark Mountains provide exceptional nature-related *sightseeing* easily accessible by roads and trails. Spectacular vistas, rock bluffs, waterfalls, seasonal foliage, and wild rivers attract visitors from a wide area. Six National Scenic Byways traverse the Forests offering scenic beauty and Ozark history. Blanchard Springs Caverns offers a unique living cave experience via general tours and wild cave programs. The Forests' sightseeing attractions also provide an opportunity for visitors to learn about the Forests and their natural and cultural resources.
- **Trails** provide access to the Forests' special features. Mountain bikers find a range of terrain challenges, and horse trails are available for day and overnight visitors. Canoeing, kayaking, and rafting are seasonally popular on the Forests' six nationally designated wild and scenic rivers. The 165-mile Ozark Highlands National Recreation Trail offers long-distance hiking and backpacking. Rock climbing at Sam's Throne exemplifies the extreme challenge sought by some visitors. The Forests also provide OHV opportunities in areas where it is environmentally sustainable.
- The Forests' rivers and small lakes are very popular for water-related *day use* activities. Developed sites for picnicking, family gatherings, and water play are important elements of the experience. Short distance trails to special natural areas add to the day-use value. Forest areas near Fayetteville, Ft. Smith, Little Rock, Tulsa, Springfield, and Memphis are especially valued as urban escapes.
- The "general forest" area is well suited for dispersed recreation such as hunting and fishing. Developed and primitive camping is provided to support trail users and water-based recreation activities.

**Primary Customers:** Nearby residents, urban population centers in Arkansas and adjoining states, and destination recreationists seeking unique natural areas and specialized recreation opportunities.