MONITORING AND EVALUATION REPORT

FISCAL YEAR 2007

(October 1, 2006 through September 30, 2007)

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

SOUTHERN REGION

DANIEL BOONE NATIONAL FOREST

KENTUCKY

September 2008

DANIEL BOONE NATIONAL FOREST

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FOREST SUPERVISOR'S CERTIFICATION

This report documents the results of monitoring activities that occurred during Fiscal Year 2007 on the Daniel Boone National Forest. Monitoring in some areas is long-term and evaluation of that data will occur later in time.

I have evaluated and endorse the monitoring and evaluation results presented in this report. I find that there are no recommended changes to the Land and Resource Management Plan at this time, and therefore consider it sufficient to continue to guide land and resource management of the Daniel Boone National Forest for the foreseeable future.

/s/ Jerome E. Perez — *October 21, 2008*

JEROME E. PEREZ
Forest Supervisor

Date

INTRODUCTION

This report covers the Fiscal Year 2007 (FY07) period from October 1, 2006 through September 30, 2007. This report is structured to address the nineteen (19) monitoring questions described in Appendix D of the Forest Plan.

Forest Plan

The Forest and Rangeland Renewable Resources Planning Act (RPA), as amended by the National Forest Management Act (NFMA), directs that each national forest develop a comprehensive forest management plan, and that these plans be reviewed and updated every 10 to 15 years, or earlier if conditions change significantly. In addition to the RPA and the NFMA, the National Environmental Policy Act (NEPA), Government Performance and Results Act of 1993 and the 2000 Revision of the USDA Forest Service Strategic Plan guided the revision process.

The first Forest Plan for the Daniel Boone National Forest was approved in September 1985. That plan was amended fourteen (14) times over the years as new information became available, and issues and conditions changed. Even so, an analysis of the current management situation identified a need to revise the Forest Plan to better reflect changing conditions, evolving public values, new scientific findings, new laws and regulations, and current agency policy. The following is a summary of the milestones and dates that occurred in revising the Forest Plan:

June 21, 1996 - Notice of intent (NOI) to prepare an environmental impact statement was published in the Federal Register.

April 2003 - The Draft Environmental Impact Statement (DEIS) was released.

November 6, 2003 - A Biological Assessment was prepared and formal consultation occurred between the Forest Service and the USDI Fish and Wildlife Service as required by the Endangered Species Act.

March 20, 2004 - A Biological Opinion was released by the USDI Fish and Wildlife Service.

April 16, 2004 - A Record of Decision (ROD) and accompanying Final Environmental Impact Statement (FEIS) and Forest Land and Resource Management Plan (Forest Plan) were released.

May 24, 2004 - Implementation of the Forest Plan begins.

July 2004 - Two appeals were filed; one appeal was filed on behalf of Kentucky Forest Industries Association, East Kentucky Chapter of the Society of American Foresters, Daniel Boone Forest Alliance, and the Southern Appalachian Multiple Use Council; and a second appeal was filed on behalf of Heartwood, Kentucky Heartwood, Cumberland Chapter of the Sierra Club, Wild South, and Wildlaw.

July 25, 2006 - An Appeal Decision from the Washington Office was rendered affirming the Regional Forester's April 16, 2004 decision.

Monitoring and Evaluation

Nineteen (19) monitoring questions were identified in Appendix D of the Forest Plan. Addressing these questions is accomplished by evaluating the results of annual monitoring activities. The Leadership Team for the Daniel Boone National Forest prioritizes monitoring activities based on recommendations from Forest resource specialists, and after consideration of available funding and personnel. There are 87 monitoring tasks (Forest Plan, Appendix D), but not all are monitored each year. Monitoring and evaluation is documented on task sheets that are used to address the nineteen monitoring questions in this report.

Monitoring is used to validate assumptions and effectiveness of Forest Plan Standards, and help in determining whether a change to the Forest Plan is needed.

FOREST PLAN MONITORING QUESTIONS

1. Are rare communities being protected, maintained, and restored?

New occurrences of rare communities were not reported, although three sites on the Redbird district were field-checked, all of which were found to be hydrologically deficient and without conservation species. There is insufficient data to determine trends at this point in time. Twelve streamhead sites were visited in FY07. All showed some deterioration, most likely related to drought conditions as they were drier than usual.

London and Stearns Ranger Districts - Deterioration of sites in the form of changed hydrology appears to be the result of changes in weather patterns interacting with watershed changes occurring 15 to 25, or more, years ago. Current management actions do not appear to account for hydrologic changes. The London site has reached bedrock at the lower end and is unlikely to continue down-cutting below rare plants. Head-cutting, however is continuing. Increased invasion by *Microstegium vimineum*, a non-native grass, appears to be related to illegal off-highway vehicle use on a fireline and spread from roadsides. It appears that this weed was carried from private land by off-highway vehicle use and/or water movement. Another observation indicates that *Lygodium palmatum*, a native, but sometime invasive fern is encroaching on wetlands and rare plants growing there.

London Ranger District - Three areas along Horse Lick Creek were planted with clumps of cane in 2006. Although some plants died, most survived the 2007 drought and some clumps exhibited new growth. An assessment in FY08 will be needed to determine drought effect. It will take 3 to 4 years to determine if cane is established in these areas.

Stearns Ranger District – A project, designed to trap sediment and reverse changes in hydrology of a streamhead wetland, was started. Two years following implementation, sediment was being trapped as planned and slowly filling in stream channels. The surrounding floodplain was moister indicating a raised water table. Downward and upstream cutting is taking place in the vicinity of rare plants and above the last sediment trap. *Microstegium* was noted in the watershed.

London Ranger District - Prescribed burns were conducted in 2006 to help control *Lygodium palmatum* and are scheduled again for spring 2009. The burns covered the area around the wetland and fire crept into the wetland in a few places, killing the tops of some fern clumps, and effectively removing some of the *Lygodium* stems. Rare plants in the wetland showed indication that some would flower. Flowering was excellent at this sight in FY07 as it was 2006 - the best seen in several years.

London Ranger District – One wetland site was found to be adversely affected by actions immediately downstream from activities occurring on private land. A state partner worked with the land owner to rectify the situation and improvement is expected.

Stearns Ranger District—Cane was planted over 6 acres including along stream banks as part of a stabilization and restoration project. Plants were still alive in late winter. The site will need to be checked in the summer of 2008 for survival.

2. Are landscape-level and stand-level composition and structure of major forest communities within desirable ranges?

No significant events occurred in FY07 that resulted in a change to the age-class distribution by forest type. Since a large number of southern pine beetle damaged stands still have not been inventoried, and since the Forest Plan was adjusted for SPB effects, the estimate presented in the FEIS for the Forest Plan (table 3-75, p.3-277) is still the best available estimate

for these attributes. Acreage of stands having a composition of at least 50% yellow pine is still significantly below Forest Plan objectives (objective 1.1.F. & 1K-goal-2).

Silviculture Treatments - A record of silvicultural treatments is kept in the FACTS database. Vegetation inventory data is contained in the FSVeg database, which links to the GIS stand layer. However, the data in FACTS does not yet have a link to any of the three FACTS-GIS layers. Therefore, there is no technical way to relate treatments to community type (groups of forest types).

From field observation, most if not all of the following treatments occurred either in the Mesic or Xeric Oak community types. Planting of shortleaf pine occurred in stands that were previously occupied by various mixtures of yellow pine and hardwood. A list of silvicultural activities that occurred in FY-07 is shown in Table 2-1.

Table 2-1 – Silviculture Accomplishments FY07, DBNF, M&E Report FY07, DBNF

ACTIVITY	ACRES TREATED
Shelterwood Seed Cut (2-aged system)	173
Improvement Cut	442
Commercial Thinning	186
Salvage Cut (intermediate treatment)	72
Sanitation Cut	108
Special Cut (Create Woodland)	156
Full Planting without Site Prep (fire area)	15
Full Planting concurrent with Site Prep	387
Site Prep for Natural Regeneration	61
Individual [seedling] release	51
Precommercial Thinning - Selected Trees	1,040
Control of Understory Vegetation	886
Seed Production Area Maintenance	26
TOTAL AREA TREATED	**3,603**

Silvicultural treatments within the Cumberland and Middle Kentucky River Management Areas focused on re-establishment of shortleaf pine in stands damaged by the southern pine beetle, which occurred early in the decade. Activities also began on the Cold Hill Silvicultural Research Project, which will quantify regeneration trends under various amounts of residual canopy cover.

Silvicultural treatments in the Licking River Management Area concentrated on thinning of overstocked hardwood stands (Forest Plan Goal 2.1); treatment of an ice storm damaged area (Forest Plan Goal 8.2); control of understory vegetation for stimulation of advanced oak regeneration (a pre-shelterwood treatment); and maintenance of seed production genetic improvement test areas (Forest Plan Goal 2.2).

Pre-commercial thinning treatments occurred in the Upper Kentucky River Management Area to stimulate growth and favor oak in hardwood sapling stands (Forest Plan Goals 2.1 & 8.3).

Prescribed Burning – Burning occurred on approximately 8,612 acres in FY07. These burns do not normally result in forest type changes.

Management Indicator Species (MIS) – Breeding bird survey data was collected and the data is being entered into corporate databases. Trend data analysis requires multiple years of data. Consequently, interpretation and evaluation has not begun. Vegetation data was collected at all breeding bird survey points. No pitch pine stands were artificially regenerated, nor were any new naturally regenerated stands identified on the DBNF during FY07. Inventories of former pitch pine stands have not occurred.

3a. Are high-elevation habitats being provided?

The Daniel Boone National Forest System lands contained 2748 acres above two-thousand feet in elevation at end of year in FY07. This includes 299 acres of un-inventoried acquisition. The major forest types were mesic oak-hickory (41%) and mixed mesophytic (33%). The majority of this habitat was immature poletimber and sawtimber (56%). Some stands are still classified as seedling-sapling (15%). However, no activities occurred that would result in a change to high-elevation habitat in FY07. An inventory of much of this land is planned for FY08.

3b. Are permanent grassy openings being maintained?

Field observations indicate that restorations to native grasses are occurring successfully.

Table 3b-1 – Grassy opening summary, M&E Report FY07, DBNF

ACTIVITY DESCRIPTION	ACRES TREATED
Native grassy openings restored/renovated (acres)	5
Permanent grassy openings maintained (acres)	2,492

3c. Are key successional stage habitats being provided?

This question will be addressed as part of a 5th-year review of the Forest Plan, which is planned to occur in FY10.

4. How well are key terrestrial habitat attributes being provided?

Mast Production – Since FY06, there was a three percent increase in upland oak stands that were available for mast-production[1]. Approximately 176,000 acres of such stands were available by the end of FY07. Additionally, other forest types, such as mixed mesophytic hardwood or pine types often have a significant component of oak, hickory, beech, and other nut producers. However, even with oak decline and beech bark disease mortality, the Forest is generally becoming older, and many pine stands have converted to hardwood, resulting in stable and plentiful mast production in normal years.

Snags – Stands older than age 100 generally are developing a component of snags available for wildlife. We reported about 104,000 acres (15%) of the Forest as being age 100 years and older in 2005. Existing data[2] indicates that this age class has increased to 136,759 acres (20%). The desired condition is about 30-40%[3].

Although much of the pine forest that was impacted by the southern pine beetle has not been inventoried and reclassified, Inventory data suggests that many of these stands retain a component of older hardwood in a multistoried (uneven-aged) condition. Pine snags are still available for cavity nesters. The initial density of pine snags has now decreased by about 70%, as many of these snags now have become downed wood and are in various stages of decay.

Hardwood snags are continuously being created and becoming more prevalent in those areas of the Forest that are being affected by the two-lined chestnut borer. Most of these snags are still standing.

[1] Based on upland oak forest types at least 80 years old

[2] FSveg database, as of 7/11/2008

[3] Estimate based on the proportion of forest managed under objective 1K-1A

Hardwood snags are abundant in areas impacted by the 2003 ice storm at the north end of the Forest. Many are still being created because of top damage and droughty conditions. Uprooted, downed hardwoods also occur in scattered pockets throughout portions of the Forest, due to random storm winds. Approximately 5,000 acres of older oaks have been affected by the two-lined chestnut borer leaving snags scattered across the landscape.

Forest Plan Standards, DB-WLF-1, 2, & 3, provides direction to retain and to create snags during vegetation management activities. Implementation is carried out during project design, layout, and administration of activities. In addition to the older-aged stands described above, snags are also present in younger-aged stands.

Riparian Areas - the Upland Oak community type is the most common in the DBNF riparian areas. Within this community, various species of oak and hickory make up at least seventy percent of the stand stocking. Most of this occurs in intermittent and narrow drainages. The second most common is the Mixed-mesophytic/ Floodplain community type where "yellow-poplar/ white oak/ red oak" and "hemlock/ hardwood" are the most common forest types. The median stand age in the riparian corridor is now about 90 years of age.

There has been little change in the riparian area composition in the last two years. From field observation, minor change has occurred within the riparian prescription area in the last five years due to isolated storm damage and scattered pine mortality. In some riparian stands, white pine was killed by the southern pine beetle. However, it is highly probable that extensive damage will occur to eastern hemlock trees from the hemlock wooly adelgid infestation that is expected to be expanding into Kentucky in 2008. See http://www.forestpests.org/ for more information about this pest.

The riparian areas of the Forest are within the 1E Riparian Corridor Prescription Area, classified as Unsuitable for Timber Production, although silvicultural activities may occur for other purposes. Twenty-eight acres of silvicultural work occurred in the Riparian Prescription area in FY07, mostly for treatment of invasive plants.

5. What is the status and trend in aquatic habitat conditions in relationship to aquatic communities?

Methods for sampling fish and macro-invertebrates were established in cooperation with US EPA, Forest Service research, and the Southern Regional Office. During a one week period in July, aquatic biota was collected at 12 random sites in the Upper Cumberland basin at the same time that information was collected for *Monitoring Question 5 – Task 18 and Monitoring Question 15 – Task 50*. The random sites were located on wadeable streams that drained more than five square miles. The data was collected, and compiled by crews from the Center for Aquatic Technology Transfer (CATT), a Forest Service research project that is based in Blacksburg, VA. Trend analysis requires multiple years of data. Consequently, interpretation and evaluation has not begun. An analysis of this data will be conducted in FY09 the results will be reported in future reports.

6. What are status and trends of forest health threats on the Forest?

Fine Particulate Concentrations – All fine particulate concentrations at monitors near the Forest continued to register values below the annual and 24-hour thresholds for the National Ambient Air Quality Standards (NAAQS). Ozone concentrations near the Forest were also below the 8-hour NAAQS.

Atmospheric deposition, or acid rain, is monitored by EPA and the Kentucky Division of Air Quality at four sites in eastern Kentucky. Data from FY07 is not yet available, so information from the 2006 monitoring report is repeated here. None of the sites are on the Forest, but the data collected represents a range of sites from north to south and is probably

representative of conditions occurring on the Forest. The data shows that sulfate and nitrate deposition increased slightly from 2005 to 2006. The pH of wet deposition (rain and snow) decreased slightly. Because small fluctuations do occur from year to year, trends over longer periods of time are more reliable.

The pH of rainwater 20 years ago was about 4.3 in eastern Kentucky; it is now about 4.6; where the smaller the number, the more acidic the water is. As an example, a pH of 4.0 could be represented by a soda, a pH of 5.0 would be unpolluted rainwater, and pH of 7.0 would represent pure water. These changes are directly related to emission reductions that have taken place as a result of air pollution control regulations including the 1990 Clean Air Act Amendments.

Air quality, as indicated by state-operated monitors near the Forest, continues to meet the NAAQS. None of the Forest lies within or adjacent to an air quality non-attainment area.

Fine Particulate Emissions – All prescribed fires conducted on the Daniel Boone National Forest in FY07 equaled approximately 355 tons of fine particulates, somewhat less than the 457 tons estimated in FY06, and is below levels predicted in the Final Environmental Impact Statement for the Forest Plan (1,459 to 2,458 tons). Prescribed burning was conducted in Clay, Laurel, McCreary, Menifee, Pulaski, and Wolfe Counties. The estimated emissions accounted for approximately 10% of total fine particulate emissions in the state's inventory for these counties (similar to what was reported in FY06). Smoke monitors were not deployed for any of the burns and therefore we cannot assess the effectiveness of smoke dispersion predictions. However, data from state-operated fine particulate monitors (within 50 kilometers of the Forest) show that there were no exceedences of annual fine particulate standards. The 24-hour standard of 15 ug/m^3 was exceeded by 0.1 for the 3 year average (2005 – 2007) at the Bell County monitoring site. Prescribed fire emissions have not been identified as a cause of the violation. And, EPA did not include Bell County in the August 2008 list of recommended non-attainment areas. Final non-attainment designations will occur in December of 2008.

The 2004 Monitoring Report included a discussion of air pollution effects monitoring that has been conducted on the Forest. This is the most current information available. Air quality monitoring results from state-operated monitors around the Forest indicate that prescribed burning on the Forest was in compliance with the NAAQS. However, the Bell County monitoring site is slightly above the 24-hour standard. Care should be taken to minimize impacts on Bell County from prescribed burning in the southern end of the Forest. It would still be beneficial to monitor smoke dispersion from a few burn units, to validate modeling results and assess the effectiveness of smoke management practices once a regional monitoring protocol is in place.

Native Insects and Disease- The two-lined chestnut borer (a component of oak decline) is causing damage and mortality in scattered pockets of oak throughout the national forest. Since NFS lands are within the natural range of this insect, no specific source of this native insect can be mapped.

Since 2003, southern pine beetle (SPB) activity has been minimal, in large part due to host (yellow pine) depletion in the eastern part of Kentucky, and due to the buildup of its predator, the Clerid beetle.

Although gross growth of the Forest still exceeds mortality, as the average age of stands on the DBNF increases, increased mortality is expected until average mortality rate levels off with average growth rate. Other than this slight annual increase, no significant change has occurred since FY 2004 in the frequency of native insects or disease on forest type and condition of the Forest.

Non-native Insects and Disease – Non-native insects of greatest concern include the Gypsy Moth (*Lymantria dispar*) and Hemlock Wooly Adelgid (*Adelges tsugae*) (HWA).

In FY07, seventy-one Gypsy Moth traps were placed on the DBNF. One moth was attracted to and caught in a trap on the Cumberland District. The purpose of this trapping is to destroy any moths that have been transported to an area.

Table 6-1 – Results of trapping for southern pine beetles, FY07 M&E report, DBNF

State	Location	# of traps	%SPB	SPB/ trap/day	Clerid beetles/trap/day	FY07 SPB Spots
KY	London R.D.	3	71%	4	1.6	0
KY	Stearns R.D.	2	0%	0	0	0

The Hemlock wooly adelgid (HWA) was found in Kentucky in FY07. This insect eventually kills its host (eastern hemlock tree) over several years of feeding on twigs resulting in repeated defoliation. HWA is expected to infest most, if not all hemlock stands in the state. The first found on the DBNF was on the Redbird District in Clay County. Another infestation was found on a group of hemlocks on the Cumberland District in Powell County. Plans for treatment will be made in FY08.

Other non-native insects that may eventually become a problem on the Forest include the emerald ash borer (*Agrilus planipennis*), and the Asian long-horned beetle (*Anoplophora glabripennis*).

Non-native diseases that are still causing tree dieback and/or mortality on the Forest include Chestnut blight fungus (*Cryphonectria parasitica*), dogwood anthracnose (*Discula destructiva*), beech bark disease, and Dutch elm disease (*Ophiostoma ulmi*). Butternut is being killed on the Forest by *Sirococcus clavigignenti-juglandacearum*, a fungus most likely introduced from outside of North America. It is now difficult to find a butternut tree on the Forest that is not infected.

Another non-native disease that might eventually become a problem on the Forest is Sudden Oak Death (*Phytophyora ramimorum*), which is currently causing extensive oak mortality in California. The disease can be transmitted through its alternative rhododendron host, which is often shipped around the country as nursery stock.

Monitoring for higher than normal levels of tree mortality and for signs of insect or disease activity will continue during field inventory. Where high levels of mortality occur, causes will be determined and plans will be made for control.

Non-Native Invasive Species (Plants) - Stiltgrass (Microstegium vimineum) was tracked in a few locations. This species is highly invasive in moist soils and readily moves as seed imbedded in soil. Footwear, tires, paws, hooves, and treads all can move the species around. It also spreads by flowing water. Three white-haired goldenrod sites have become infested with the species. Three white-fringeless orchid sites are known to be infested with the species. Of these, all three white-haired goldenrod sites and two of the white fringeless orchid sites were checked in FY FY07. The weed is present in small amounts similar to previous years at the goldenrod sites. The weed is in large, but reduced numbers from 2005 numbers at the two orchid sites. Removal of seed producing plants was undertaken near one goldenrod site. Removal of non-seedling plants occurred at three goldenrod sites.

Forest wide, numerous other non-native invasive species (NNIS) are known to be present: musk thistle (*Carduus nutans*), crown vetch (*Coronilla varia*), sericea lespedeza (Lespedeza cuneata), tree-of-heaven (*Ailanthus altissima*), princesstree (*Paulownia tomentosa*), Asiatic bittersweet (*Celastrus orbiculatus*), sweet clovers (*Melilotus alba*, *officinalis*), autumn olive (Elaeagnus umbellata), Chinese silver plume (*Miscanthus sinensis*), bush honeysuckle (*Lonicera maakii*), Japanese bamboo (*Polygonum cuspidatum*), air potato (*Dioscorea polystachya*), mimosa (*Albizia julibrissin*), kudzu (*Pueraria montana*), Japanese honeysuckle (*Lonicera japonica*), privet (*Ligustrum sinense*, *vulgare*), Oriental smartweed (*Polygonum caespitosum*), coltsfoot (*Tussilago farfara*), and multiflora rose (*Rosa multiflora*).

Of these, mimosa, privet and tree-of-heaven appear to be increasing at the south end of the Forest, based on observations of numbers and size of populations. No hard data was collected in FY07 on these species. Asiatic bittersweet, Chinese silver plume, bush honeysuckle and autumn olive appear to be on the increase at the north end of the Forest, based on observations of numbers and size of populations. Limited

hard data was collected in FY06 for some of these species.

Location data for Asiatic bittersweet, Chinese silver plume, autumn olive, crown vetch, multiflora rose, stiltgrass, and coltsfoot were taken in FY06 along Tunnel Ridge Road and portions of Skybridge Road and Rock Bridge Road. These will be used to track success at removal of these plants.

A volunteer weed pull day was held in the gorge in September, in cooperation with KY EPPC, KSNPC, KDFWR, and Natural Bridge State Resort Park. Weeds were dug and pulled along a portion of Tunnel Ridge Road.

A weed survey of Clifty Wilderness was begun in FY06. Data collected will be used to track the movement of weeds in and around the area and serve as the basis for developing eradication/control projects.

The goldenrod sites have been weeded yearly for 2-3 years. It appears that removing plants before they can set seed has prevented an increase in the number of plants at each site. Plants encountered now are presumed to have come from seed in the soil seed bank which is known to persist for up to 7 years for this species. The orchid sites were weeded in FY05 and the population of the grass has decreased some as a result. Weeding needs to continue, but will be a continual process without invention regarding the illegal use of a fireline by OHV traffic. This is bringing seed from adjacent private land.

In FY07, mimosa, tree-of-heaven and privet in were seen in numbers similar to those in previous years. Asiatic bittersweet was found a couple of times where it had not been seen before; these are presumed to be new infestations. Chinese silver plume is occurring along trails and roads as small 2-3 stemmed plants. These are new infestations, not more than 2-3 years old, so it is spreading along disturbed areas. Both bush honeysuckle and autumn olive are appearing along roadsides and trails as small 2-3 year old plants, indications of new infestations.

No data exist to determine trends at this point in time.

A test project began on the Forest with the Southern Research Station (Jim Miller) and Institute for Technology Development (Illinois, under contract with NASA) to develop high altitude photo detection for weeds threatening the southeast. A set of flight lines were flown and several ground truthing field trips have been made. The project which continued in FY07, may allow detection of changes over time.

One-hundred eighteen (118) acres were treated for non-native invasive plant species (FACTS activity code 2510) in FY07. Locations of such plants are recorded in the TESP-Invasive Plants database, which is monitored by the Forest Botanist. The effectiveness of FY07 treatments for non-native invasive plants will not be evaluated until next year. Visual inspection of past treatments indicates that treatments have been effective, and mortality of target species has occurred.

7. What are the status and trends of federally listed species and species with viability concerns on the Forest?

By virtue of the fact that a species is federally listed gives the Forest reason to be concerned for its viability. Most listed species are far ranging and thus it is difficult to draw a cause and effect relationship to our management actions. One species, the white haired golden rod, is endemic to the DBNF solely. Joint efforts are underway to de-list this species. The following summarizes the status and trend of species and critical habitat that are federally listed under the Endangered Species Act:

Cumberland elktoe (*Alasmidonta atropurpurea*) – Endangered – unknown

Cumberland sandwort (*Arenaria cumberlandensis*) – Endangered – unknown - This plant has not been found on the Forest since the first and last report in 1986. Searches for it have not been successful. In 2005, tissue cultured plants obtained in a working agreement from Center for Research in Endangered Wildlife, housed at the Cincinnati Zoo and Botanical Garden, were planted at one site to test whether these plants could be introduced back to natural habitat. Just over one half of the plants died, but those that

remain are strong growing and have flowered for two years. In July 2007, seedlings from these plants were found at the site.

Cumberland rosemary (*Conradina verticillata*) – Threatened – unknown - This plant has not been found on the Daniel Boone. It is known further south on Big South Fork National River and Recreation Area land. Several searches have been made for it. The habitat subtleties needed may not be present on the Forest.

Virginia big-eared bat (*Corynorhinus townsendii virginianus*) – Endangered – unknown

Fanshell (*Cyprogenia stegaria*) - Endangered - unknown

Cumberlandian combshell (*Epioblasma brevidens*) – endangered – unknown

Oyster mussel (*Epioblasma capsaeformis*) – Endangered – unknown

Northern riffleshell (*Epioblasma torulosa*) – Endangered – unknown

Tan riffleshell (*Epioblasma walkeri*) – Endangered – unknown

Duskytail darter (*Etheostoma percnurum*) – Endangered – unknown

Bald eagle (*Haliaeetus leucocephalus*) – no longer listed

Eggert's sunflower (*Helianthus eggertii*) – no longer listed

Pink mucket pearly mussel (*Lampsilis abrupta*) – Endangered - unknown

Gray bat (*Myotis grisescens*) – Endangered - increasing

Palezone shiner (*Notropis albizonatus*) – Endangered – unknown

Little-wing pearly mussel (*Pegias fibula*) – Endangered – unknown

Blackside dace (*Phoxinus cumberlandensis*) – Threatened – stable

American chaffseed (*schwalbea Americana*) – Endangered – unknown - This plant has not been relocated on the Forest since 1935. It is likely no longer present.

White-haired goldenrod (*Solidago albopilosa*) – Threatened – increasing - This plant is known primarily from the Daniel Boone National Forest. The Forest, working with Kentucky State Nature Preserves Commission (KSNPC), US Fish and Wildlife Service (USFWS) and user groups is engaging in a education effort to inform users about the species and its habitat. This along with a number of simple, low fences and signing has greatly reduced trampling of plants and allowed seedlings to reoccupy some disturbed area. At least three sites are infested with *Microstegium vimineum*, a highly competitive non-native grass. Work is underway to reduce or eliminate the grass's presence. The Forest is working with KSNPC and USFWS to determine if delisting of the plant might be warranted.

Virginia spiraea (*Spiraea virginiana*) – Threatened – unknown - During the summer of 2007, biologists from Kentucky State Nature Preserves Commission and the DBNF surveyed along Sinking Creek for Virginia spiraea. Several patches were found including some in flower. Plants present are in generally good condition.

Running buffalo clover (*Trifolium stoloniferum*) – Endangered – unknown - This was last known in the vicinity of the Forest in Jackson County. It has not been found in the last few years in spite of search efforts. It may no longer be present with the proclamation boundary.

Cumberland bean pearly mussel (*Villosa trabalis*) – Endangered - unknown

Indiana bat (*Myotis sodalist*) – Endangered – increasing

Critical Habitat – Critical habitat is located in Buck Creek, Marsh Creek, Rock Creek, and Sinking Creek.

Research at the University of Tennessee has been completed on the southeastern populations of bay starvine. The population on the Forest is genetically similar to all other populations in the southeast. No additional sites have been found. Twelve white fringeless orchid sites were checked for condition of habitat (see question 1) and plants. At most sites, plants were stressed, probably due to drought. At one London site, there were about 190 flowering stems, a large number for the site. Trend data analysis require multiple years of data. Consequently, interpretation and evaluation has not begun.

A research project based at the University of Cincinnati began on the Forest in FY05 to look at the population biology and life history of sweet pinesap. The project is still underway.

A research project based at Purdue University began on the Forest in FY06 to look at the genetics of butternut and possible means to combat the butternut canker. The project is still underway.

No additional sites of bay starvine or white fringeless orchid were reported during FY07. No additional populations of other sensitive plant species were reported in FY07.

8. What are the trends for demand species and their use?

The Daniel Boone National Forest provides habitat for several sport fisheries. The U.S. Fish and Wildlife Service (USFWS) and the Kentucky Department of Fish and Wildlife Resources (KDFWR) recognize this and are willing to invest the resources required to supplement fish populations. The tables below reflect this stocking supplement for FY07. The changes in numbers per individual species result from various management considerations. With current available data, accurate trends per species cannot be determined.

The rainbow and brown trout totals represent totals of individuals stocked by both USFWS and KDFWR (Table 8-1).

Table 8-1 – Trout stocking summary, FY07 M&E Report, DBNF

Common Name	Number stocked	Water Body Location
Brown trout	400	East Fork Indian Cr.
	500	Bark Camp
	15,775	Laurel River Lake
TOTAL	**16,675**	
Rainbow trout	2,000	Big Double
	2,000	Station Camp Creek
	1,000	Sturgeon Creek
	1,400	Craney
	500	Greasy Creek
	5,600	East Fork Indian
	800	Little Double / fishing derby
	5,000	Middle Fork Red River
	1,000	Swift Camp
	4,000	Tripplett
	6,400	War Fork
	800	War Fork / fishing derby
	3.600	Bark Camp
	4,900	Cane Creek
	17,600	Rock Creek
	4,000	Mill Creek Lake
	2,000	Laurel Creek
	102,000	Laurel River Lake
TOTAL	**164,600**	

Table 8-2 – Buckhorn Lake stocking, FY07 M&E Report, DBNF

Waterbody	Rainbow Trout	Muskellunge
Buckhorn Lake		450
Buckhorn Lake Tailwaters	3,200	

Note: National Forest System Lands are very limited at Lake Buckhorn.

Table 8-3 – Fish Stocking by waterbody, FY07 M&E Report, DBNF

Waterbody	Hybrid Striped Bass	White Bass	Black Nose Crappie	Sauger	Walleye (Native)	Walleye	Muskellunge
Cave Run Lake							2,798
Kentucky River				15,913			56,176
Kentucky River, South Fork							51
Laurel River Lake			28,289			300,615	
Licking River							23,440
Red River							135
Station Camp Ck							50
Sturgeon Creek							50
Cumberland River, Big South Fork		2,500,000					
Lake Cumberland	32,395					1,045,950	
Rockcastle River					11,100	2	
TOTAL	**32,3950**	**2,500,000**	**28,289**	**15,913**	**11,100**	**1,346,567**	**82,700**

Table 8.4 – Collection permits issued by product, FY07 M&E Report, DBNF

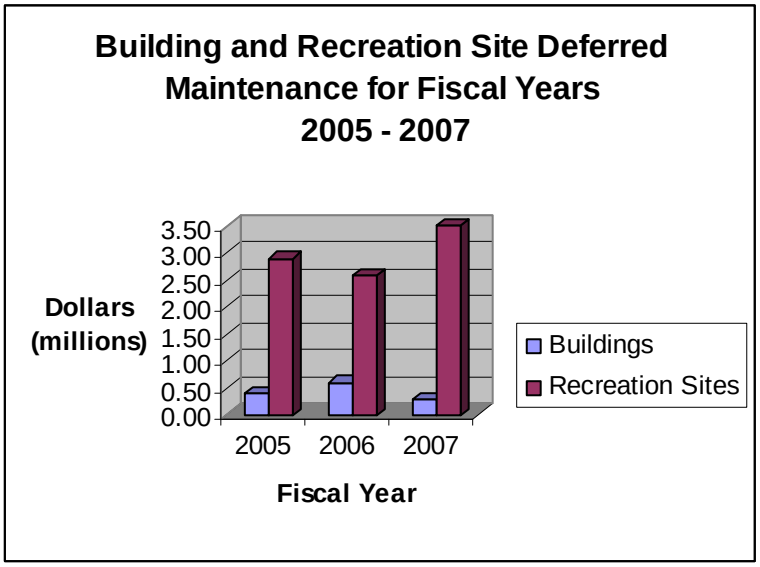
Product	Permits Issued
Free use- Research Collections	6
Free use- herbaceous Plants	0
Free use- sawdust	0
Free use- firewood/hazard tree	6
Mixed Roots	12
Bloodroot	12
Ginseng	39
Black Cohosh	7
Goldenseal	12
Moss	1
Grapevine	5
Posts	0
Firewood	114

Note. No meaningful trends can be based on current available data; however, from FY05, there has been an increase each year for three products: firewood, ginseng and goldenseal.

9. *Are high quality, nature-based recreation experiences being provided and what are the trends?*

Facilities Maintenance – Figure 9-1 reflects the total Forest deferred maintenance backlog for minor constructed features such as camping sites in recreation areas and all forest buildings. Administrative buildings are included in the chart because many of the offices are often visited during a recreation visit to the Forest. The data was generated from the Infrastructure Corporate Data Warehouse. Recreation sites and buildings are surveyed once every 5 years. Therefore, the data does not actually represent current maintenance needs for many of the facilities and is not an accurate tool for gauging the quality of the recreation experience.

Figure 9-1 – Building and Recreation Site Deferred Maintenance, FY07 M&E Report, DBNF



Field observations indicate the infrastructure in many recreation sites is continuing to decline. Most of the Forest facilities are 30 to 40 years in age and are reaching the end of their service capacity. Therefore, a decline in quality of facility is being observed across the Forest. However, the highly developed campgrounds at Cave Run Lake and Laurel River Lake appear to be in better condition than most of the non-revenue generating sites.

The Forest improved facilities at selected sites in FY07. Examples of improvements include replacement of the Rockcastle campground picnic shelter roof, replacement of the toilet at Clear Creek picnic area and installation of a vault toilet at the Martins Fork trailhead.

Survey - National Visitor Use Monitoring is completed once every five years. The survey was completed in FY07 and included approximately 2,800 interviews with Forest visitors. The results and evaluation are expected to be completed in FY08.

Visitor Comment cards were collected during the summer recreation season by Recreation Resource Management, Inc. (RRM). The comment cards monitored visitor satisfaction at the following concession-operated facilities: Clear Creek Shooting Range, Clear Creek Campground, Twin Knobs Campground, Koomer Ridge Campground, White Sulphur Campground and Zilpo Campground. Seventy-four comment cards were received during the time period of April 16, 2007 through September 12, 2007. Ratings of poor, fair, good and excellent were allowed for thirteen different variables affecting visitor satisfaction including the quality of service, cleanliness of facilities and value of services received.

The majority of comments provided a fair to excellent rating for all of the sites except White Sulphur Campground. The value of goods and

services received at this site was ranked as poor by 4 of the 10 commenting visitors. Area information was also ranked as poor by 3 of the 10 commenting visitors. Approximately 40% of the comments received for this site indicate the site was not well maintained at the time of their visit. Three visitors suggested the addition of water services at this site would improve the quality of the recreation experience.

Satisfaction with the reservation service was rated as fair to excellent by 20 commenting visitors. The knowledge of the reservations operator was rated as poor by 2 visitors.

Boat ramps near Lake Cumberland have a reduced level of accessibility due to the lake level being reduced by the Corps of Engineers for repairs of the dam. However, several of the ramps have been extended to allow for continued access. The lower lake levels have also reduced the waterways accessible to rafters and boaters serviced by Sheltowee Trace Outfitters. London Dock Marina was not operational for most of the recreation season due to the lower lake levels.

Site visits by Forest staff indicate a higher incidence of trash, insufficient mowing, and lack of public information at smaller, isolated sites than has been observed in previous years.

Forest staff received public complaints regarding the condition of boat ramp facilities at Cave Run and Laurel Lake. Primary concerns expressed pertained to litter, broken security lights and damaged roadways. The Forest began road repairs at Claylick Boat Ramp and Scotts Creek boat ramp during the summer months. These areas will be further evaluated during the winter months to determine if additional repairs are needed for the 2008 recreation season.

Recreation Facilities Condition - The condition of recreation facilities across the Forest is declining due to the age of the facilities. Many facilities will likely require rehabilitation or replacement within the next 10 years. However, the current condition of the facilities appears to be sufficient in most areas so as to not impact the quality of the recreation experience.

Table 9-1: Available Recreation Funding, FY07 M&E Report, DBNF

Fiscal Year	Funding Available for Management of Recreation Opportunities (million)	Average Annual Inflation Rate
2005	$3.5	3.39%
2006	$2.6	3.24%
2007	$3.7	2.85%

Note: Source of funding data is FY07 Workplan reports and 5/24/07 report from 2007 R8 Metrics Data Library. The source of inflation data is inflationdata.com.

Table 9-2 – Estimated cost of providing quality recreation experiences, FY07 M&E Report, DBNF

Facility	Estimated Cost of Managing Recreation Opportunity to Agency Standards for Providing a Quality Recreation Experience
Recreation Sites	$1.3 million
Dispersed Recreation Sites	Unknown
Trails	$2.3 million
Wilderness	Unknown
Wild and Scenic Rivers	Unknown
Interpretation	Unknown
Cost to Reduce Maintenance Backlog	
FY07	$3.4 million

Appropriated funding levels remained fairly constant between FY05 and FY06. Estimated annual costs exceed the appropriated funding level by more than one million dollars. Therefore, funds are insufficient to manage recreation opportunities according to the agency standards that define the services needed to provide a quality recreation experience.

Visitor use data and comments indicate trails and developed recreation sites are of primary interest to most of our user groups. Therefore, funds are prioritized for recreation sites and trails. Many of the needs of managing dispersed opportunities such as wilderness are not addressed. The amount of funding needed to provide quality interpretive and dispersed opportunities has not been fully analyzed due to the limited amount of funding available. However, it is recognized that the level of interpretative services and recreation services provided in wilderness areas or other dispersed sites is insufficient to provide a quality experience.

Inflation rates indicate an annual loss in buying power of about three percent since 2005. The quality of recreation experience will continue to decline if appropriated funding levels remain level without an equivalent increase to address inflationary costs. In addition, overhead costs continue to increase, thereby reducing the level of funding available for site maintenance.

Recreation Sites - A formal review of recreation sites was not completed in FY07. However, staff observations made during site visits and inspections of special use permits indicate that critical standards were met for most developed facilities. Facilities within the Sawyer campground are significantly deteriorated and unsafe. Therefore, this facility remained closed for the FY07 recreation season and will be considered for decommissioning in 2008. Site visits of Claylick campground also revealed significant deterioration.

Trails - A formal review of all trails was not completed in FY07. However, condition surveys were completed on approximately 8 miles of trails across the national forest. The results of the survey indicate critical standards are being met on the trails surveyed. However, maintenance needs, such as replacing waterbars and hardening of wet areas were identified. In most cases, these needs can be addressed through annual maintenance. In addition, district staff and public comments indicate there may be specific portions of the Forest trail system where significant degradation of the trail system is evident. Two areas on the Forest have been identified as having extensive degradation to the trail system.

Trails in the vicinity of Cave Run Lake have received extensive damage to the tread due to increasing levels of horse use; a use the trails were not originally designed to accommodate. Damaged tread makes the trail extremely difficult to ride, and in some cases impassable for a bike rider. Field observations indicate sedimentation may also be occurring as a result of damaged trail tread and off trail use.

The Limits of Acceptable Change process identified frequent use of horses in the Red River Gorge Geological Area. Forest Plan direction is to only allow horses on designated trails. At present, there are no designated trails for horse use.

Forest personnel indicate segments of the Redbird Crest Trail are in need of significant repair to bring the trail to an acceptable standard. Portions of the trail are eroded, gullied and may be impassable to less experienced riders.

Forest-wide, approximately 77 miles of the designated trail system were maintained or improved during FY07. An accessible trail was constructed near the Barren Fork Mining camp. The paved trail features a number of interpretive panels narrating the history of the mining camp era.

Dispersed Recreation - A formal review of general forest area dispersed recreation sites was not funded in FY07. However, staff observations during field work and monitoring of selected general forest area sites indicate that critical standards are not being met in high use areas of the Forest, such as Red River Gorge. Human waste, trash and graffiti are common in this area.

Most dispersed camping appears to occur around lakes, streams and the Red River Gorge. Other areas of the Forest have limited dispersed camping use, with most of the use occurring during the fall hunting season. It is believed that critical standards are being met and a quality dispersed camping experience is being provided in the less heavily used areas of the Forest.

Forest personnel have observed sedimentation, road and trail rutting, and expansion and development of non-system trails in numerous places across the Forest. These impacts appear to be attributable to illegal cross-country OHV traffic. Illegal OHV trails have also been identified in the Clifty Wilderness area.

Accessibility - A transition plan for improving accessibility of developed sites was completed in 2004 and is being implemented as funding permits. Examples of accomplishments for FY07 include: ongoing construction of accessible camping sites at the Boat Gunnel group use area; completion of an accessible amphitheater and toilet at Natural Arch Scenic Area; installation of an accessible toilet at Martin's Fork parking area and construction of an accessible walking trail. Additionally, the Forest hosted a training session to educate Forest recreation site managers and other agency personnel about accessibility requirements and methods for improving accessibility of recreation sites.

10. What are the status and trends of recreation use impacts on the environment?

The agency's Law Enforcement Investigating Management Attainment Reporting System (LEIMARS) data indicates the number of total violations reported decreased for the third consecutive year. Reported violations have dropped to 4,061 from 5,191 violations in 2005. Many factors affect the number of violations reported. Law enforcement staffing levels and areas of concentration for law enforcement officers vary from year to year, for example. Therefore, it is not known whether the decrease in violations reflects a change in recreational impacts or other factors.

Field personnel have not reported any significantly noticeable changes in impacts. Monitoring to specifically gauge recreation impacts was not funded forest-wide this fiscal year. The remaining questions in this report will disclose if it was determined through other monitoring methods that recreation is contributing to environmental impacts.

11. What is the status and trend of wilderness character?

Wilderness Trends - Data for this Monitoring Question was collected during the mid-1990's but has not been collected since. The original results showed that due to the natural buffering capacity of the streams and soil there does not appear to be any impacts from acid deposition. The only exception might be on more exposed, higher elevation sites with lower buffering capacity. More monitoring is needed on these sites.

Wilderness Values - Field observations indicate significant evidence of use in the Clifty Wilderness Area. Observations include numerous user developed trails campsites and fire rings, as well as damage to vegetation, heritage resources and apparent sanitation issues. A survey of recreation use of the Clifty Wilderness Area was initiated in FY05 and completed in FY07. Data will be analyzed and used to establish a baseline for trends analysis in the FY08 annual report. It is likely that wilderness values are impaired, but may be restored with rehabilitation or managed use of impacted areas.

The Limits of Acceptable Change (LAC) analysis for the Red River Gorge Geologic Area, which includes the Clifty Wilderness Area, is scheduled for completion in FY08. This analysis will disclose the amount of impacts currently occurring, establish a baseline for future trends analysis and determine the limits of acceptable change that are essential for maintaining wilderness values. Information regarding this process may be available for the FY08 annual report.

Recreation use of Beaver Creek Wilderness Area primarily occurs during the fall and spring hunting seasons. It is unknown at this point if wilderness values are affected in Beaver Creek Wilderness. A survey of recreation use and recreation impacts in Beaver Creek Wilderness is planned for completion prior to 2014. Data is not currently available for developing a trends analysis.

Visitor contacts were made during the hunting seasons to educate users about recreation land use ethics and wilderness values. In addition, a wilderness education plan was developed for 2008 to help land managers and visitors better understand the use of and unique values of the Beaver Creek Wilderness.

12. What are the status and trend of Wild and Scenic River conditions?

Forest level monitoring to assess trends of Wild and Scenic River conditions was not funded or completed in FY07.

13. Are the scenery and recreation settings changing and why?

Project level NEPA analysis documents may have considered maintenance of scenic integrity objectives during the project planning phases. However, Forest level monitoring to analyze whether scenery and recreation settings are changing was not funded or completed in FY07.

14. Are heritage sites being protected?

National Register (NR) of Historic Places – Nineteen sites had their NR eligibility assessed. Twelve new sites were recorded and evaluated for NR eligibility. The eligibility of seven previously identified sites was also assessed. Most of the sites were identified and evaluated as part of Section 106 surveys that are tied to specific projects. No section 110 surveys were undertaken. There is little funding or personnel time available to undertake non-project related inventory.

Heritage Protection – Two hundred and seven (270) sites were monitored and condition assessments completed. Sites in climbing and recreation areas are subject to damage. This situation will not change as long as people are using the Forest. Fencing and signage at sites where impacts have been noted helps reduce the occurrence of additional impacts. Regular monitoring at the most sensitive locations provides the opportunity to monitor the effectiveness of the fences and signage.

15. Are watersheds maintained, and where necessary restored, to provide resilient and stable conditions to support the quality and quantity of water necessary to protect ecological functions and support intended beneficial uses?

Stream Stability - In FY07 monitoring continued across the Forest. During a one week period in July 2007, stream substrate was sampled at 12 random sites in the Upper Cumberland basin at the same time that information was collected for *Monitoring Question 5 – Tasks 17 and 18*. The random sites were located on wadeable streams that drained more than 5 square miles. The data was collected, and compiled by crews from the Center for Aquatic Technology Transfer (CATT), a Forest Service research project that is based in Blacksburg, VA. T he data from these sites will be used as representative sites that project watersheds can be compared to.

Stream Temperature - Temperature probes were installed at several locations (Table 15-1). Comparison analysis cannot be performed until more data has been collected.

Table 15-1 – Temperature probe locations (installed FY2005), M&E Report FY07, DBNF

USGS Quadrangle	Latitude	Longitude
Slade	N37.86.232	W083.66.985
Slade	N37.86.258	W083.66.959
Slade	N37.86.220	W083.66.914
Slade	N37.87.156	W083.65.842
Slade	N37.87.351	W083.65.729
Slade	N37.87.131	W083.65.643
McKee	N37.43.951	W083.92.560
McKee	N37.43.943	W083.92.498
McKee	N37.44.055	W 083.92.490
McKee	N37.44.689	W083.94.317
McKee	N37.44.743	W083.94.764
McKee	N37.48.399	W083.92.746
McKee	N37.45.835	W083.92.446

Watershed Condition – During FY07 water samples were taken at several sites in the Rock Creek watershed in the Upper Cumberland basin. All the sites were associated with the restoration of an old coal mining area. Private coal was mined at this location in the 1940's through the 1970's. Results of the water quality monitoring showed the impacts to Rock Creek from acid mine drainage are improving due to restoration efforts.

Sediment and water samples were also taken from 2 ponds on the Cumberland District. These ponds were part of a 1960 - 1980 oil well drilling operation. The results show that the sediments are still contaminated with petroleum products.

Monitoring needs to continue in Rock Creek and the Forest Service should continue its coordination with state agencies. Reclamation of the oil well ponds needs to be completed during FY 2008.

State Best Management Practices (BMP) - Specific information related to State BMPs and Forest Standards were monitored at the Cold Hill project in FY07. This included an informal review by the Soil Scientist, Hydrologist, and the Sales Forester. All standards and BMPs were being met. In addition, each Timber Sale Administrator keeps inspection reports and the Forest Timber Sale Contracting Officer does at least one random inspection per District each year.

Soil Quality and Productivity - Soil duff measurements were taken before and after prescribed burning on several units in FY07. In general, the results showed that soil quality and productivity was not adversely impacted by prescribed burning.

16. What are the conditions and trends of riparian area, wetland and floodplain functions and values?

Management strategy consistency with riparian guidance - Several documents were reviewed during FY07 (e.g., Ice Damage EA and Redbird Group 1 EA) and all of the documents were in compliance the 1-E Riparian Corridor Prescription Area standards. The marking on the Redbird Group 1 EA was also evaluated on the ground and several improvements were suggested.

17. How do actual outputs and services compare with projected?

On average, the budget allocation to the Forest was 68% of the Forest Plan estimate.

Table 17.1. – Budget Allocations, thousand dollars, base year 2000, using a 3% discount rate, M&E Report FY07, DBNF

Program Area	Forest Plan Estimate 2000 dollars	FY07	% of Estimate
Planning	1,149	428	37%
Recreation	3,655	1,338	37%
Wildlife	627	568	90%
Range	0	0	0%
Timber	1,044	1,365	130%
Soil/Water/Air	418	173	41%
Minerals	313	297	95%
Lands	418	267	64%
Engineering	1,149	1,288	112%
Fire	2,245	1,829	81%
Forest Health	418	16	4%
TOTAL	11,436	7,773	68%

Figure 17-1 – Budget Allocations, thousand dollars, base year 2000, using a 3% discount rate, M&E Report FY07, DBNF

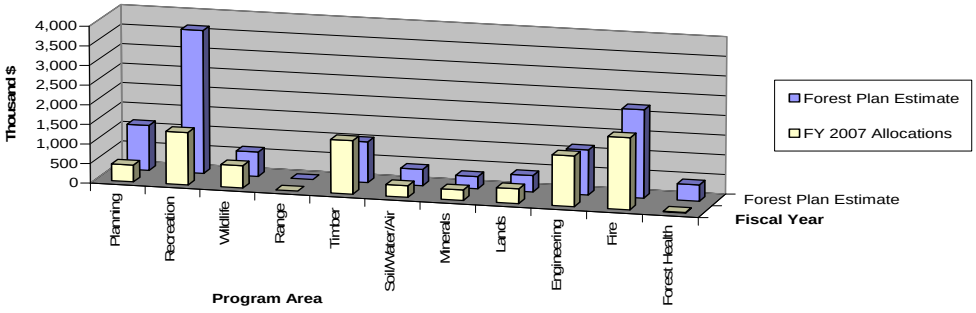


Table 17.2. – Accomplishments Compared to Forest Plan Estimates (Forest Plan Table C – 2.b.), M&E Report FY07, DBNF

Activity	Source	Unit of measure	Forest Plan 10-Year Objective	Forest Plan Annual Objective	FY07
VEGETATION MANAGEMENT					
Total Timber Sales (sold)	Spectrum est.	MMCF	22.9	2.29	0.87
Regeneration Harvest Area[2]	1.K.1.A., 3.H.1.A.	Acres	18,750	1,553	173
Reforestation-Yellow Pine (all)	1.K.2.E.	Acres	8,200	822	402
Wooded Grassland Established-Pine	1.K.2.B.	Acres	100	10	0
Wooded Grassland Established-Hdwd.	1.K.2.E.	Acres	660	66	0
Woodland Established-Pine	1.K.2.C.	Acres	100	10	0
Woodland Established-Hardwood	1.K.2.F.	Acres	6,140	614	156
Thinning-Forest (60BA)[3]	1.K.1.D.	Acres	5%	900	186
Thinning Overstocked Forest		Acres	10,000	0 to 1000	2,890
Pitch Pine Restoration	1.1.D.	Acres	3,000	300	0
Upland White Pine Plantations-Conversion		Acres	n/a		0
Total Prescribed Burn Acres	EIS, Table 3-15	Acres	379,000	19,000 to 23,000	8,473
Maintain Openings (1600 ac./3years)	1K.1.B	Acres	1,600	533	1,835
WATER SOURCES					
Uplands/ridges within 5 miles of significant Indiana bat hibernacula	1.2.B.	structures	1 per 1/2 mi.	n/a	5
Special Communities					
Open Canopy Developed (uneven-aged)	1.E.2.C.	Acres	1075[1%]	107	0
Fixed Shrub Openings	1.E.2.B	Acres	1075[1%]	107	0
Canebrakes Developed	1.E.2.D.	Acres	1075[1%]	107	6
Canebrakes Maintenance		Acres			13
WATERSHEDS					
Watershed Improvement	1.E.3.A.,3.B.	Acres	760	120	75
RECREATION					
Non Motorized Trails Established		Miles	20	2	0.67
Trails Maintained (BMPs)[4]	12.1.B	Miles	685	137	77
Inventory user-developed trails	12.1.C	%	100%	20%	0
Address user-developed trails	12.1.C	%	100%	20%	0
OHV trails (constructed)	EIS, Table 3-4	Miles	60	6	0
ROADS (SYSTEM)					
Construct (Redbird District)	Estimate	Miles	20	2	2.0

Activity	Source	Unit of measure	Forest Plan 10-Year Objective	Forest Plan Annual Objective	FY07
Repair or decommission	12.0.A.	Miles	150	15	11.8
INTEGRATED INVENTORY					
Forest Inventory	1G.2A & ch.5,#2	Acres	663,682	66,400	15,000
Assess Rare Communities	1.G.2.A.	Acres	~1200	120	122
Assess Designated O.G. Areas	EIS, Table 3-29	Acres	15,331	1,533	0
Assess Possible O.G. Areas	Preliminary Inv.	Acres	18,033	1,800	689
Heritage Inventory	6.3.A	Acres	50,000	5,000	3,965
Heritage Site Evaluation	6.4.A.	Sites	100	10	19
LAND ACQUISITION					
Acquisition (10 yr. historic mean)	13.2.A.	Acres	29,000	2,900	364

[1] Based on Constrained EIS Budget, 1st Period.

[2] Includes 1K harvest (cliff/bat/rip/0-10 bug removed) and grouse areas (3H = 8744 ac., with cliff/bat/riparian removed).

[3] 5% of area thinned to 60BA [cliff/bat/rip/0-10 bug removed].

[4] Maintain trails to BMPs, 20% per year.

18. Are silvicultural requirements of the Forest Plan being met?

Reforestation - With the exception of a small amount of timber salvaged from roadsides and administrative sites, trees that were harvested from the Forest prior to the revision of the Forest Plan were cut from lands where timber production was the primary objective. Trees cut following the revision of the Forest Plan were cut from lands where timber production is a "secondary" objective. The Forest Plan provides for reasonable assurance that lands can be adequately restocked within 5 years after final regeneration harvest.

The Forest Activity Tracking System (FACTS), Reforestation Needs Report shows 38,810 acres of reforestation needs at the end of FY07. All but 53 acres of this reforestation need is due to insect or disease activity. Fifty-three acres were added in FY07 because of final harvests. There are no pending reforestation needs created from final harvests that occurred prior to FY07.

Forest Plan Consistency - The Forest Planner reviews all scoping notices prior to going to the public, all NEPA documents prepared for Forest Supervisor approval, and other NEPA documents upon request. For documents containing silvicultural practices, all that were finalized for public inspection were consistent with direction contained in the Forest Plan.

Harvest Method - The Forest Planner reviews all scoping notices prior to going to the public, all NEPA documents prepared for Forest Supervisor approval, and other NEPA documents upon request. Forest Staff Officers and resource specialists review the same NEPA documents within their area of responsibility and expertise.

For documents containing harvest methods, all documents that were finalized for public inspection were consistent with direction contained in the Forest Plan and were appropriate for meeting resource management objectives.

19. Are Forest Plan objectives and standards being applied and accomplishing their intended purpose?

Implement Objectives and Standards - The Forest Planner reviews all scoping notices prior to going to the public, all NEPA documents prepared for Forest Supervisor approval, and other NEPA documents upon request. Forest Staff Officers and resource specialists review the same NEPA documents within their area of responsibility and expertise. Prior to being finalized, NEPA documents consistently include Forest Plan standards as part of the design criteria. Where appropriate, BMP criteria are included as a requirement of project implementation.

Vegetation Desired Conditions - An Integrated Resource Management Strategy (IRMS) is being implemented to assess resource management needs consistent with Forest Plan Goals and Objectives. Project development and planning incorporates purpose and needs from the Forest Plan that manages vegetation to provide specific habitat needs. The Forest Planner routinely reviews project documents for consistency with Forest Plan direction. All project decisions issued were consistent with Forest Plan direction.

Nearby and external applicants - Applications to develop powerline corridors, coal resource, and interstate highway corridors continue. The demand for energy is up, leading to increased prices for oil, gas, and coal; and an increase in requests to develop outstanding and reserved rights, and federal resources.

Research - See Appendix B.

APPENDICES

Appendix A: Forest Plan Amendments

Table A.1. – Forest Plan Amendments

Amendment No.	Date	Responsible Official	Amendment Description
1	8/26/2008	Jerome E. Perez	Establish a 9,867-acre Ruffed Grouse Emphasis Prescription Area 3.H.1. on the Redbird Ranger District

Appendix B: Recent Research Activities

Patricia De Sá sampled for Sudden Oak Death on the Forest twice during this period.

Dr. Andrew Simmons, Carleton University, Ontario, Canada, collected pine and hemlock cores and seeds of several weedy species in an attempt to correlate environmental conditions via tree rings to evolution of weedy species.

Gregory Watkins-Colwell, Yale University, collected reptile specimens for the collection at Yale to promote broad regional studies of differences.

Ryan Keplar, Oregon State University, investigated the fungal flora of insects on the Forest as part of a larger regional project.

Brian Jorg, Cincinnati Zoo and Botanical Garden, collected vegetative parts of various Trillium species to test the efficacy of establishing tissue cultured stock for eliminating collection pressure on wild populations.

Matthew Valente, University of Tennessee, sampled the Forest population of Bay Star Vine as part of a large regional genetic study of the species.

Leith Nye, Missouri Botanical Garden, sampled goldenseal populations on the Forest as part of a large regional project looking at genetics of the species.

Matthew Klooster, University of Cincinnati, looked at pollination biology of sweet pinesap on the Forest as part of a larger regional project.

Harold Keller, and students, Central Missouri State University, looked at slime mold flora of trees vs. grape vines on the Forest as part of a larger regional project.

Matt White, Indiana University of Pennsylvannia, completed the second year of an initial five year study of the effects of canopy alteration on Cerulean Warblers use and nesting success of Forested areas with various degrees of canopy modification.

Luke Dodd, University of Kentucky- Lexington, has been monitoring bat use of area with various degree of canopy disturbance; first year of post-treatment data collection. (Study co-located with cerulean warbler study.)

Mary Arthur, University of Kentucky-Lexington, continues to collected data as part of a long-term (over-ten years) study of Forest change following multiple prescribed burns on a landscape scale. Data collection in 2006 followed implementation of prescribed burns.

Matt Dickinson, Northern Research Station, conducted study of smoke production and distribution during prescribed burning during growing season burns.

Dan Cox, University of Kentucky, conducted study of bat movement and response during growing season prescribed burns. (Co-located with smoke production study)

Appendix C: NFS land by District and by County

Table C.1. – National Forest System Land Status as of September 30, 2007, Daniel Boone National Forest (acres)

COUNTY	Cumberland	London	Stearns	Redbird	TOTAL
Bath	19,386				19,386
Clay				77,947	77,947
Estill	2,265	3,333			5,598
Harlan				803	803
Jackson		59,603			59,603
Knox				74	74
Laurel		64,257			64,257
Lee	5,822	2,765			8,587
Leslie				52,142	52,142
McCreary			142,671		142,671
Menifee	46,857				46,857
Morgan	13,090				13,090
Owsley		3,848		12,723	16,571
Perry				2,151	2,151
Powell	15,974				15,974
Pulaski		23,455	14,840		38,295
Rockcastle		16,765			16,765
Rowan	62,650				62,650
Wayne			1,174		1,174
Whitley		34,018	12,500		46,518
Wolfe	16,650				16,650
TOTAL	**182,694**	**208,044**	**171,185**	**145,840**	**707,763**
%	**26%**	**29%**	**24%**	**21%**	

Prorated based on GIS percentages.

Appendix D: Estimated Payments to States and Counties

Table D.1. – Payment to States and Counties, Daniel Boone National Forest
(unadjusted dollars)(dollars are rounded to whole dollars)

County	FY07
Bath	$18,819
Clay	$76,792
Estill	$4,759
Harlan	$865
Jackson	$57,432
Knox	$108
Laurel	$60,352
Lee	$8,004
Leslie	$52,673
Letcher	$541
McCreary	$141,795
Menifee	$45,210
Morgan	$12,979
Owsely	$16,224
Perry	$2,163
Powell	$14,385
Pulaski	$33,096
Rockcastle	$13,195
Rowan	$62,407
Wayne	$649
Whitley	$43,587
Wolfe	$16,115
TOTAL	**$682,150**

Appendix E: Forest Plan Implementation using an IRMS

A strategy was developed in May 2006. Additional information and a copy of the Integrated Resource Management Strategy (IRMS) can be found on the Daniel Boone National Forest web site at *http://www.fs.fed.us/r8/boone/planning/IRMS/index_irms.shtml*.

Thirty-three landscape areas were identified and a rotation schedule developed that evaluates each area every 11 to 12 years. It is not the intent of the IRMS that all projects are a result of a landscape analysis. Routine activities and unforeseen circumstances can lead to proposing activities at any time.

Analysis of a landscape area occurs over a two year period. Year 1 focus is on inventory, while Year 2 focus is on need for change leading to identifying projects. In any year, four areas are in various stages of analysis, two inventorying resources, and two addressing resource conditions.

Resource Inventory: Crooked Creek #12 on the London Ranger District, and
Jellico #28 on the Stearns Ranger District

Resource Condition Assessment: Beaver Creek #6 on the Cumberland Ranger District, and
South Redbird River on the Redbird Ranger District

Open-house meetings and field trips were held. Resource specialists provided maps and information about the existing condition of these landscapes. Interaction between the public and resource specialists resulted in sharing of ideas, local knowledge and scientific knowledge of local resources.

Appendix F: Management Reviews

NEPA Functional Assistance Trip – April 30 – May 3, 2007

Attendees from the Regional Office included Chris Liggett, Roberta Willis, and David Purser. The Forest was commended on their efforts to implement an Integrated Resource Management Strategy (IRMS) and for their use of a Silvicultural Assessment under the Healthy Forest Restoration Act (HFRA). This review focused on 1) staffing and organization, 2) process and documents, 3) project management and quality control, and 4) training.

Appendix G: List of Report Preparers

Table G.1. – M&E Report Preparers, Daniel Boone National Forest

Resource Specialist Name	Expertise
Baker, Gene	Engineer
Braun, Richard	Biologist
Davis, Patti	Geologist
Finke, Paul	Planner
Gandy, Mitch	Fire and Fuels
Jenkins, Paul Chris	Archaeologist
Kluempke, Mike	Forester
Martin, Pam	Fisheries Biologist
Stone, Amos	Forester/Silviculturist
Taylor, David	Botanist
Walker, Jon	Hydrologist
Williamson, Myra	Recreation Forester