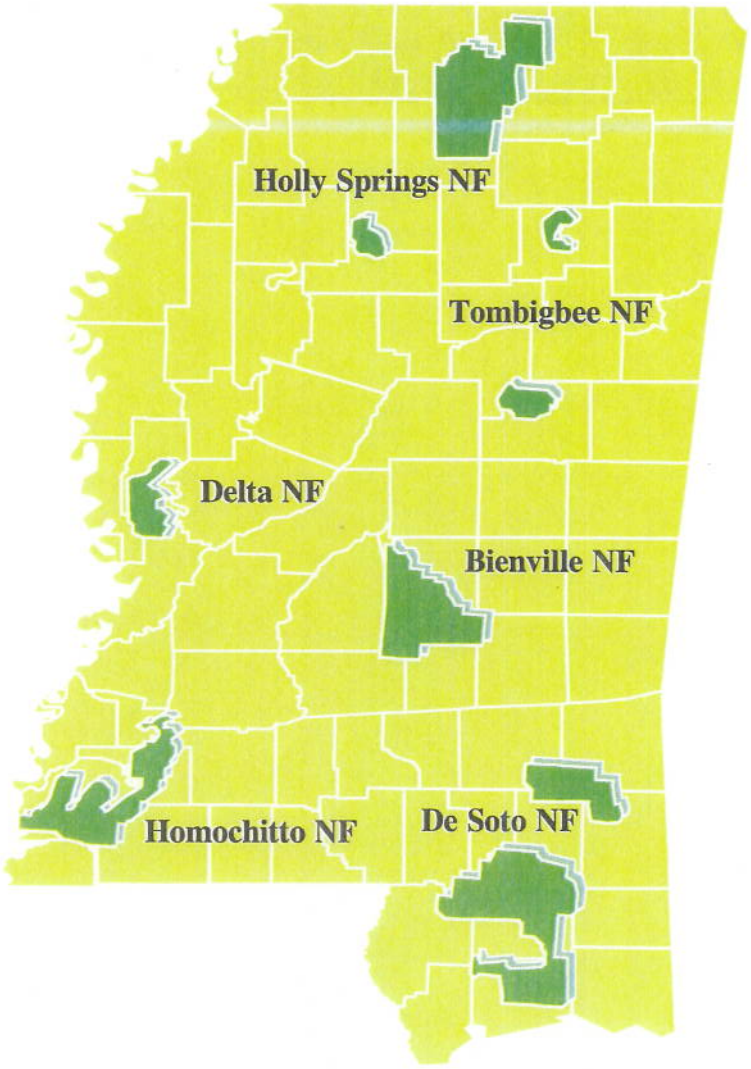
U. S. Department of Agriculture
Forest Service
Southern Region

Fiscal Year 2008-2009 Monitoring Questions

National Forests in Mississippi



March 2010

Monitoring and Evaluation Questions and Answers
FY 2008 and 2009

The National Forests in Mississippi is currently revising its Forest Land and Resource Management Plan (Forest Plan). Monitoring is an ongoing management activity and will continue when the revised Forest Plan is implemented.

During the forest plan revision process, monitoring documented for FY 2009 is being presented in an abbreviated question and answer format.

John Boswell — 12 March 10

For **Margrett L. Boley** — **Date**
Forest Supervisor
National Forests in Mississippi

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What is the current age class composition of the Forest?

Prior monitoring reports provided information on a trend of declining regeneration resulting in a change in the zero to ten year age class from 11 percent in fiscal year 2000 to 4 percent in 2007. This trend continued with the percentage dropping to 3 percent in fiscal year 2009.

Generally, as areas are selected for regeneration, balancing age classes is one of the objectives. Age classes 61 to 90 years old have a higher proportion of acres than other age classes. The three age classes between 61 and 90 years have 48 percent of the forested acres.

With lower regeneration rates, the forest is attaining more acreage in older age classes. Six percent of the forest is now greater than 100 years old.

Table 1 displays the percent of forested acres for the National Forests in Mississippi (NFs in MS) by ten year age classes based on inventory in the vegetation database (FSVeg).

Table 1. National Forests in Mississippi Age Class Acreage Distribution as of 10/19/2009

Age Class	Percent of Forested Acres
0 - 10	3
11 - 20	10
21 - 30	10
31 - 40	8
41 - 50	5
51 - 60	6
61 - 70	12
71 - 80	23
81 - 90	13
91 - 100	5
101 - 110	3
111 - 120	2
121 - 130	1
131 +	1

What is the current forest type classification breakdown compared to the status at plan implementation?

FY 2009 forest type data from FSVeg database queries were analyzed to determine acreage by broad forest cover types (working groups) within lands classified as suitable for timber. The acreages are compared to similar figures compiled when the Forest Plan

was written and in FY 2007 to determine magnitude and direction of change in forest cover types.

The distribution in 2009 has slight changes from 2007 data in the last monitoring report. There was a decrease in loblolly and shortleaf by one percent each. There was one percent increase each in slash pine and pine hardwood. (Note: the data table has 11% pine hardwood, the chart displays 10%.) There is an increase in acreage of pine-hardwood and longleaf, and a decrease in the yellow and slash pine forest types since the Forest Plan was adopted in 1985. Hardwood forest types have remained about the same. The percentage of land in each forest type in FY 2009, FY 2007 and in 1985 when the Plan was written, are displayed in the following pie charts. (As an explanatory note yellow pine in the 1985 included shortleaf and loblolly.)

Forest Types

National Forests in Mississippi

Figure 1:

1985

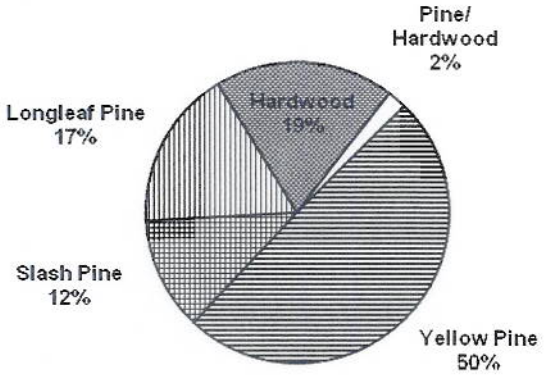


Figure 2:

2007

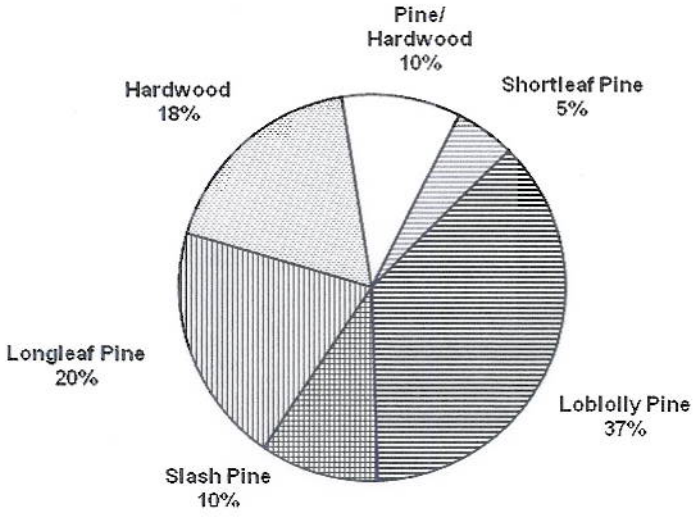
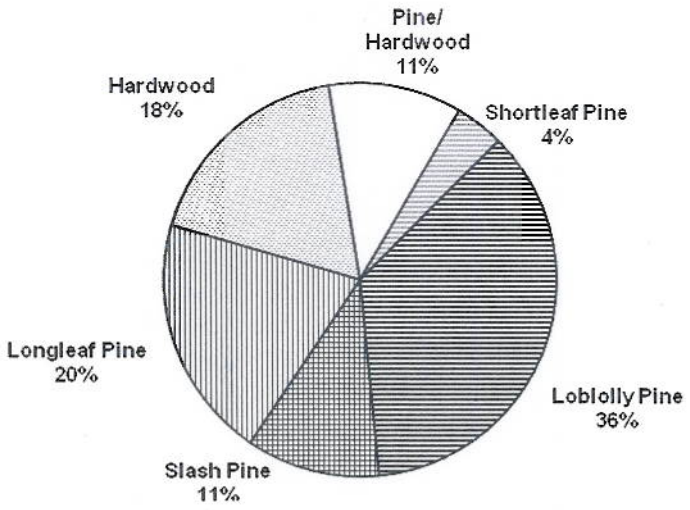


Figure 3:

2009



What are the accomplishments for fiscal years (FY) 2008-2009 for Forest Health?

Forest health is improved in some way by all vegetation management activities accomplished. However, the activities that lower the risk for southern pine beetle (SPB) caused mortality, the most prevalent and devastating tree health issue for the National Forests in Mississippi, are those that reduce density and favor trees less susceptible to SPB attack. These include thinning treatments. In 2008-2009, 7,755 and 7,433 acres were contracted for commercial thinning in each year respectively. Plantation first thinning for SPB hazard reduction was 1,331 and 3,567 of these acres. In addition, 457 and 1,446 acres were precommercially thinned.

For context, the estimated annual need for thinning is 46,000 acres, with 16,000 of that first thinning based on modeling analysis done for Forest plan revision.

How has Forest Plan Amendment 13 modified Forest Plan implementation strategies?

Amendment 13 to the NFs in MS Land and Resource Management Plan (Forest Plan) was adopted in February 1995. Amendment 13 modified the forest-wide standards and guidelines applicable to all acreage suitable for timber management (Prescriptions for Analysis Areas Suitable for timber production, Suitable 1). Specifically, it provided for use of un-even age management strategies. In addition, Amendment 13 incorporated the Chief's policy statements regarding ecosystem management. The amendment included policy memos dated June 4 and June 25, 1992 as well as working guidelines for ecosystem management. Unlike previous amendments, Amendment 13 did not include

an itemized list of text changes on specific pages of the Forest Plan. However, Amendment 13 provided general strategy direction for implementation of the Forest Plan and management of the natural resources on the Forest. Amendment 13 is responsive to current Forest Service direction and places emphasis on using an ecological approach in resource management decisions.

Since the adoption of Amendment 13 the National Forests in Mississippi vegetation management program has reduced clearcutting and placed greater emphasis on thinning. In addition to this reduction in clearcutting, the use of this harvest method has been focused on longleaf and prairie restoration. There has been an increased emphasis in managing stands for mixtures of pine and hardwood. Other vegetation management practices have been increased as well. Examples include nonnative invasive species control, reductions of understory. These practices have occurred at levels not originally projected to occur in the current Forest Plan prior to Amendment 13.

What is the current status of the preliminary list of possible old growth?

The preliminary list of possible old growth developed as information for forest plan revision was provided to the public August 10, 2005. The stands identified through this analysis for inclusion on this list were coded in the FSVeg database. This data has been updated since that time as project level inventory and decisions have been made. The 2005 and current status of this list is summarized in the following tables.

Table 2. NFs in MS Preliminary Inventory of Possible Old-Growth Acreage Summarized by District and Selection Criteria (July 8 2005).

Districts	Bien-ville	De Soto	Homo-chitto	Chicka-sawhay	Delta	Holly Springs	Tom-bigbee	NFs in MS
Selection Criteria								
Wilderness (3)		6466						6466
Research Natural Areas (4)	189	1820	230	539	670	186	803	4437
Other Administratively Designated Unregulated Areas (5)	568	5585	84	451	3122	235	72	10117
Red-cockaded Woodpecker Clusters (6)	8505	3236	4230	2007				17978
Late Seral (7)	10770	14578	7300	7239	2946	5138	3004	50975
R8 Old Growth Minumum Age (8)	698	2031	580	14	13581	6393	958	24255
Rare Community Types (9)	937	1175	807	134	759	759	552	4364
Totals	21667	34891	13231	10384	20319	12711	5389	118592

Table 3. NFs in MS Preliminary Inventory of Possible Old-Growth Acreage Summarized by District and Selection Criteria (January 07, 2010).

Districts	Bien-ville	De Soto	Homo-chitto	Chicka-sawhay	Delta	Holly Springs	Tom-bigbee	NFs in MS
Selection Criteria								
Wilderness (3)		6489						6489
Research Natural Areas (4)	226	720	228	539	670	186	803	3372
Other Administratively Designated Unregulated Areas (5)	310	6983	70	451	3325	235	811	12185
Red-cockaded Woodpecker Clusters (6)	8505	4144	4055	2013				18717
Late Seral (7)	10770	15398	7488	7239	2946	4944	2967	51752
R8 Old Growth Minumum Age (8)	558	2184	473	14	13437	5725	958	23349
Rare Community Types (9)	937	986	875	24		728	136	3686
Totals	21306	33904	13189	13189	20378	11818	5675	119550

Over approximately four years, this list has increased through data edits and changes through project decisions by 958 acres. The largest changes since the 2007 monitoring report have occurred with the De Soto District's identification of Red-cockaded Woodpecker cluster recruitment stands for reconfigured Habitat Management Areas. This resulted in an additional 1,040 acres considered potential old growth.

What were the harvest accomplishment trends for the last 9 years in terms of volume and acres?

Recent harvest accomplishment trends are summarized in Table 4 below.

Table 4. National Forests in Mississippi timber harvest volumes and acres 2001 – 2009.

Fiscal Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Volume - MMBF	30	33	42	89	77	308	62	68	72
Volume - MMCF	5	6	8	18	15	62	12	14	15
Intermediate Acres (x 1,000)	4	3	2	7	6	112	6	8	7
Regeneration Acres (x 1,000)	5	3	1	3	2	2	0.3	1	1

What progress was made in controlling non-native invasive species (NNIS) in 2008 and 2009?

Noxious weeds are an ever-increasing problem on National Forest lands in Mississippi, threatening natural diversity, habitat for fish, wildlife and native plants, soil stability and ecosystem processes. Effective treatment and control is compounded by the intermingled pattern of federal, state, county, and private land ownership common throughout the state. The accelerated spread of noxious weeds has led to increased public awareness of the environmental problems associated with weeds.

Each year, the National Forests in Mississippi works toward the goal of controlling these species through active management (Table 1). The Forest noxious weed strategy outlines five emphasis areas which include: (1) Cooperation, (2) Education and Prevention, (3) Inventory, (4) Control, and (5) Monitoring. Kudzu and cogongrass are the priority species of concern although other pest plants of interest include water hyacinth, alligator weed, tropical soda apple, privet, honeysuckles, and Johnson grass.

Table 5. Acres treated for non-native invasive species on NFinMS lands.

District	2008	2009
Bienville	0	93
De Soto	221	405
Homochitto	30.9	0
Chickasawhay	2,137	62.5
Delta	14	10
Holly Springs	461	1,078
Tombigbee	13	313
Total	**2,876.9**	**1,961.5**

Cogongrass is aggressively spreading on roadsides within the De Soto, Chickasawhay, Bienville, and Tombigbee Ranger Districts and has recently been discovered on the Homochitto Ranger District. The Forest is a member of the Mississippi Cogongrass Task Force, assisting partner agencies in training and educational events. The Task Force has taken the lead role in developing a regional coordination strategy that includes all invasive species. Treatment is planned and accomplished annually. Districts have also partnered with landowners, MS Department of Transportation, our armed forces, and others who contribute labor to spray cogongrass infestations.

The Chickasawhay Ranger District has partnered with the Laurel Garden Club, Member of The Garden Club of America in an initiative called Partners for Plants. The national organization has a goal of noxious weed eradication on Federal lands and is every interested in the conservation of native wildflowers on Federal lands. The local chapter sponsored a field day to survey for and map cogongrass infestations. Twenty-one volunteers from as far away as Houston, Texas came to participate in this event. Infestations located by this group will be included in a stewardship contract where goods and services (cogongrass eradication treatments) will be paid for as work is completed by the purchaser. Funding for this work comes from receipts generated by the timber sale

contract. Stewardship contracting is an authority authorized by the Healthy Forest Restoration Act of 2003. It provides a way to fund ecosystem restoration projects without an increase in Forest Service appropriations. At the same time it provides jobs within the local area.

The De Soto Ranger District signed a multi-year contract with the goal for treatment of 600 acres of cogongrass infestations in or near roads, trails, and stands across the District from 2007 to 2009. The District exceeded that projection and along with partnerships, the number of acres treated has nearly doubled. The three year total for cogongrass treated by District personnel, contractors, and partners is over 1,100 acres. In 2009, contractors treated 250 acres of cogongrass. District employee work yielded an additional 150 acres treated, and contributions by partners reached 100 acres treated. In addition to acres treated, over 4,000 acres were surveyed for cogongrass and other invasive species. Previously treated areas were monitored and retreated as needed.

The District completed a 20 mile survey of Black Creek, Mississippi's only wild and scenic river. Forest Service personnel identified 37 locations of cogongrass and other invasive species along the frequently traveled canoe and kayak route. Plans are currently being made to properly treat these infestations.

The National Forests in Mississippi is a major partner in the Mississippi Cooperative Weed Management Area along with USDA NRCS, Mississippi Department of Transportation, Federal Highway Administration, MS Forestry Commission, and others. Partnerships with the Army National Guard, Mississippi Department of Transportation, Utility Companies, and Nature Conservancy yielded hundreds of miles of surveys and subsequent treatments of cogongrass in the Forest's utility corridors and adjacent thoroughfares.

Kudzu is invasive on the Holly Springs and Tombigbee Ranger Districts impacting an estimated 20,000 and 7,000 acres respectively. It also occupies sites on the Bienville, De Soto, and Homochitto Ranger Districts, but to a much lesser extent. The Forest Service has completed NEPA analysis to control the spread of, and reduce the infestation of, kudzu on the Holly Springs, Tombigbee, and Bienville Ranger Districts. The majority of the infested areas are within 150 to 200 feet of roads. The program emphasizes a systematic approach to treatment of current and future infestations of kudzu on all three districts, with the goal of eventual elimination of the kudzu. Statewide, the impact of kudzu infestations is estimated at 54 million dollars per annum of lost timber related revenues.

The control of Kudzu in Northern MS had been considered too complex to address due to expansive coverage, rate of growth and mixed land ownership. The Holly Springs National Forest has formed a Kudzu Coalition (The Coalition), which consists of state, local, and federal agencies along with conservation groups and academia, to address these challenges. To provide a baseline, partners conducted a preliminary survey of the 82 counties in Mississippi during July-August 2004 and found approximately 546,000 acres of private-owned forest land infested with kudzu. Kudzu was found in 72 of the 82 counties. Seventeen counties have kudzu infestation of more than 10,000 acres.

The coalition created a MOU between nineteen (19) federal, state, and local agencies and private partners to better leverage funds and share expertise in the treatment of kudzu. The Coalition has applied for several state and federal grants. These funds will allow us to educate the public about kudzu and control methods to combat this invasive weed. As

a result, we anticipate that private landowners, utility companies, conservation organizations and federal, state, and local officials will collaborate with us to control kudzu across the landscape.

In 2009, National Forests in Mississippi received $1.6 million in American Reinvestment and Recovery ACT (ARRA) funding for a kudzu control project encompassing Holly Springs and Tombigbee Ranger Districts. The National Forests in Mississippi plans to treat approximately 2700 acres of kudzu over a span of 4 years. Each acre will be treated 3 consecutive years to ensure that the kudzu has been controlled. Areas where cooperation with adjacent landowners is present will be given priority since kudzu respects no property boundary and spreads across multiple land ownerships.

The National Forests in Mississippi decided to use a 2 phase approach to expedite spending in order to increase jobs and stimulate the economy as soon as possible. Holly Springs Ranger District utilized a pre-existing contract to spray 600 acres using this funding in 2009. Tombigbee Ranger District utilized a purchase order to control approximately 125 acres of kudzu in 2009.

Starting in FY10, one all encompassing contract will be used to accomplish all kudzu control for both Districts which will require the contractor to buy and apply the herbicide across each district. For 2010 and 2011, this contract will be used to treat the aforementioned acreages for two more years while also spraying an additional 2000 acres for 2010 through 2012 (acres are subject to change when final bid is realized). The all encompassing 3 year contract was submitted to EROC September 25, 2009. All remaining funding will be obligated at that time.

What prescribed burning accomplishments were completed for 2008 and 2009 compared to 2007?

The following table illustrates accomplishments by Ranger District.

Table 5. FY 2007 Prescribed Burning Accomplishments (Acres) – NFs in MS

District	2007	2008	2009
Bienville	32,243	20,818	36,426
Chickasawhay	33,178	20,703	33,190
De Soto	86,447	92,929	110,346
Delta	9	34	99
Holly Springs	18,447	14,481	21,036
Homochitto	37,903	31,009	32,066
Tombigbee	22,528	17,681	18,002
Total	230,755	197,655	251,165

In relation to timber management activities, how does the forest maintain long-term soil productivity?

The National Forest Management Act requires the Forest Service to manage the resources in a manner that does not significantly impair soil productivity. Implementation of proven soil protective measures such as State Best Management Practices (BMP) and Forest Standards & Guidelines are the primary tool used to meet this requirement. A few of these measures include: limiting activities when soils are wet, carefully locating and limiting the number of roads and skid trails, limiting disturbance to the litter layer, installing water diversions on skids trails and haul roads that limit concentrated flow of water, and re-vegetating via seeding and fertilization. Experience has shown that these measures, when properly implemented, are effective at minimizing soil and water effects.

Soil protective measures as well as other contractual items are monitored routinely by the Sale Administrators. Additionally, formal timber sale reviews are conducted by interdisciplinary team from the Supervisor's Office to spot check timber operational compliance with standards and guides. Forest Plan standards and guidelines were in compliance. As a result of this monitoring, there is no indication of problems with timber management activities that would necessitate changes in forest policy or approach.

In response to validating soil quality standards and guides, Forest Service Research in collaboration with Forest Service Staff is conducting a nationwide study to determine the long-term soil productivity effects of timber management activities. One of these study areas is located on Chickasawhay Ranger District. Results from the first decade indicate that compaction does not have a negative effect on pine growth; however, activities which effect short-term nutrient recycling (i.e., removal of tree branches and foliage) in combination with inherently low fertile soils (i.e., low soil phosphorus availability) have shown negative impacts on soil productivity. These 10-year trends may not necessarily correlate with 60-year trends. Determining what happens to growth over the next decade to 50 years is the purpose of this long term soil monitoring project and should better ascertain trends related to long term soil productivity.

Are water quality standards and guidelines being met during forest management activities?

Water-quality was monitored in 2008 and 2009 throughout the National Forests (NFs) in Mississippi.

- The Bienville NF monitored water quality at about 45 designated sites.
- The De Soto NF monitored water quality at about 35 designated sites (19 on the Chickasawhay Ranger District and 16 on De Soto RD), including Black Creek, the State's only designated National scenic river.
- The Holly Springs NF monitored water quality at about 55 designated sites.
- The Homochitto NF monitored water quality at about 21 designated sites.

- The Tombigbee NF monitored water quality at about 40 designated sites.
- During a Delta NF Timber Sale Review (2008) and De Soto NF Timber Sale Review (2009), streamside management zones or buffers were used to protect wetland habitats from excessive sedimentation and problematic changes in water quality and quantity. Buffers were also used to help abate non-point source pollution, such as excessive chemicals, organic debris, chemicals, nutrients, and increase water temperature.

After program reviews and based on current and several earlier BMP monitoring reports, it appears that logging operations on national forest lands have consistently received the highest BMP ratings in the state for protecting water quality.

Water and watershed monitoring were done to validate the Forest meeting state water-quality standards in accordance with the **State of Mississippi Water Quality for Intrastate, Interstate, and Coastal Water.** This monitoring evolved from data acquisition, analysis, and evaluation of data from districts and joint partnering ventures. As a result, in 2008 and 2009, the Forest complied with the Clean Water Act and State-designated beneficial uses of water, such as for fish habitats and harvesting, recreation, or water supplies.

- Water resources were monitored to determine whether filterstrips or streamside management zones/buffers were effective for various forest management activities, such as timber harvesting and site preparations. In 2008 – 2009, this was validated during integrated resource program reviews across the Forest, where members of interdisciplinary review teams, focused on streamcourse protection and erosion prevention and control. These reviews concluded that implementation was in compliance with timber sale contracts. When problems arose, mitigation was effected immediately.

- The Forest Service collaborated and shared data with the Mississippi Department of Environmental Quality to establish Total Maximum Daily Loads (TMDLs) for point- and non-point sources of pollutants in basins containing national forest land. As a result, the Forest Service supplemented water-quality data which supplemented the State-issued TMDLs and implementation plans for basins throughout the State. For example, in 2008 TMDLs for selected large rivers in and near the Delta National Forest and Holly Springs National Forest were prepared for total nitrogen and total phosphorus. Water body segments of the Yazoo River (Delta NF) and the Tallahatchie River and Yalobusha River (Holly Springs NF) were noted on Mississippi's 1996 Section 303(d) List of Impaired Waterbodies.

- Sensitive areas were excluded from timber harvesting on the Delta NF for ground-water resource protection and the protection of aquatic habitats, threatened, endangered, and sensitive aquatic species communities.

- The Bienville, De Soto, Holly Springs, Homochitto, and Tombigbee NFs conducted water-quality monitoring for public health, recreation, aquatic and wildlife habitats during 2008 and 2009. For example, in 2008 the Forest's "De Soto National Forest Water Quality Monitoring Plan", done in partnership with the University of Southern Mississippi was implemented to systematically conduct monthly water quality monitoring at 16 sites on the quality of water within the De Soto National Forest proclamation boundary for the purpose of monitoring water resources within the area. Hydrographs depict water discharge values of protected waterbodies, including Black Creek, Chaney Creek, Red Creek, Airey Lake, Ashe Lake, and others.

  Water-quality parameters measured included the following: pH, turbidity, temperature, dissolved oxygen, conductivity, salinity, total dissolved solids, and oxidation reduction potential. (In June 2009, conductivity was added as monitoring parameter.) Monthly water quality data at these sites were analyzed and evaluated by the Forest hydrologist and included in all quarterly summary data and analyses reports (FY 2008 – 2009), along with continuance raw data.

Further, at six of the 16 monitoring sites of the De Soto, fisheries habitat (biological) monitoring was done simultaneously with chemical, water quality monitoring. Both integrated fisheries and chemical data sampling data were collected monthly by the University of Southern Mississippi. As part of this water quality plan, fish community sampling were done to monitor aquatic communities and the presence of potential management indicator species. To date, fish have been sampled at six sites: Granny Creek, Black Creek at Big Creek Landing, Potato Creek, Black Creek at Moody's Landing, Black Creek at Cypress Creek Landing and Big Biloxi Recreational Area. Fish community sampling was performed by seining or electro-shocking all available habitat types within each site (e.g. run, riffle, vegetated areas, etc.). Fish data was captured and archived in the University of Southern Mississippi Ichthyologic Collection (http://ichthyology.usm.edu/usm/).

After watershed program reviews and based on current and several earlier BMP monitoring reports, it appears that logging operations on national forest lands have consistently received the highest BMP ratings in the state for protecting water quality.

What progress has been made in gopher tortoise management in FY 2008 and 2009?

Five year population surveys were conducted on priority soil sites on the De Soto National Forest in 2007 and 2008. Surveys included burrow counts and habitat evaluations. The final report was completed in 2009. The report concluded that overall gopher tortoise populations appear to be declining on priority soils on the De Soto (north) District. However, evidence suggests that there is a greater recruitment rate than before. Data indicates that priority soils of the Chickasawhay and De Soto (south) districts' populations are stable. Populations in these areas remain low except on the very "best" sites. Habitat quality remains degraded and additional habitat management and restoration is needed.

In FY 07, the Chickasawhay Ranger District began implementation of the Ecosystem Restoration for Gopher Tortoise and Red-cockaded Woodpecker Habitat Improvement Environmental Assessment (EA). Under this EA, 616 acres of overstory pine thinning, 147 acres of midstory reduction, and 19 acres of noxious weed control on or near priority soils was accomplished in 2008. An additional 55 acres of noxious weed control was accomplished through other projects that same year. In 2009, gopher tortoise habitat improvement acres more than tripled. Five hundred and thirty-two acres of overstory pine thinning and 1,960 acres of midstory control were accomplished on or near priority soils. Approximately 44 acres of cogongrass control was also accomplished through other projects.

In FY 08, the De Soto Ranger District began implementation of the Gopher Tortoise Habitat Improvement with Herbicide EA. The purpose of this EA was to restore and improve gopher tortoise habitat for the recovery of the federally threatened gopher tortoise. This EA includes the treatment with herbicide of all gopher tortoise potential habitat on the District and includes several herbicides and methods. In FY 08, approximately 1,798 acres were foliar sprayed with herbicide on gopher tortoise priority soils to control undesirable woody species in the understory and midstory. In FY 09, 517 acres were sprayed. Several more areas are planned to be treated with herbicide in the future and this EA will continue to be implemented until new information warrants a revision.

Generally, all prescribed burns improve gopher tortoise habitat. Although the focus is on applying growing season fire to restore habitat, it is not always possible due to funding, smoke management regulations, and environmental factors such as weather conditions. Dormant season fire can be a beneficial tool to maintain habitat or reduce fuel content to allow for a growing season fire at a later date. Table 6 illustrates six years of burning history on the De Soto National Forest. Although it indicates that burning was low in FY06, this is a direct result of impacts from Hurricane Katrina and following short-term drought conditions. As a general strategy, the Districts plan to first conduct dormant season burns to reduce the fuel load before growing season burns are conducted.

Table 6. Recent Prescribed Burning Accomplishments, De Soto NF

Prescribed Burning Treatment Accomplishment Report for Desoto NF						
	2004	**2005**	**2006**	**2007**	**2008**	**2009**
Desoto						
-Dormant	63,700	70,457	13,044	74,017	76,562	81,270
-Growing	28,377	22,651	1,520	12,430	10,944	30,753
Total	92,077	93,108	14,564	86,447	87,506	112,023
Chickasawhay						
-Dormant	20,232	18,107	14,496	8,785	13,595	25,667
-Growing	17,002	18,204	0	24,393	7,108	3,513
Total	37,234	36,311	14,496	33,178	20,703	29,180

What progress toward reaching red-cockaded woodpecker population goals was made in 2008 and 2009?

Currently there are 274 total active clusters. (The previous monitoring questions report listed 229 total active clusters.) Although still far short of current population objectives of 1,595 active clusters, populations have increased during the past 20 years (Figure 4). Red-cockaded woodpecker (RCW) translocations have helped increase populations. Translocations have also enhanced genetic integrity on districts with smaller populations (Chickasawhay and De Soto Ranger Districts). RCW populations have been augmented in recent years by translocating birds from larger populations.

Although total acres of mature yellow pine forest has declined since 1981, the condition of the remaining pine forest habitat is much improved due to an aggressive prescribed fire program, application of midstory control, and installation of artificial cavities (Figure 5). Off-site pine continues to be restored to longleaf pine in areas where longleaf pine historically occurred. As these young longleaf stands are released from competition and grow into mature stands, increased acreage in this forest type will enhance habitat conditions for RCW.

Aggressive application of prescribed fire has been critical to maintaining open habitat conditions on the four districts where RCW occur. Installation of inserts and maintenance of both inserts and natural cavities have substantially enabled increases in both the number of individuals in family groups (increased group size), and in numbers of groups (population expansion) on the Chickasawhay, De Soto and Homochitto Ranger Districts. Maintenance of cavities on all units is critical to RCW occupation and population expansion.

On both the De Soto and Chickasawhay Ranger Districts, translocation has been crucial to sustained population growth. On the Chickasawhay, augmentation has been critical to the survival of the species on this unit. In 1992, only three single males remained on the

district. With the augmentation of females to these males, and continued augmentation of both singles and pairs, this population now contains 25 active groups.

The Revised Recovery Plan for the RCW (2003) lists three key management actions as essential to success in recovery of this species: 1) development of large old pines to serve as cavity trees, 2) restoration and maintenance of appropriate habitat structure, and 3) protection of existing cavity trees. The forest should continue to improve and maintain favorable habitat conditions for this endangered species. Multiple techniques are available and effective, and strategies must be tailored to individual populations and habitat conditions. It is the implementation of these strategies, carefully designed to meet the conditions of each of four very different populations and habitat, which will continue to enhance RCW recovery on the National Forests in Mississippi.

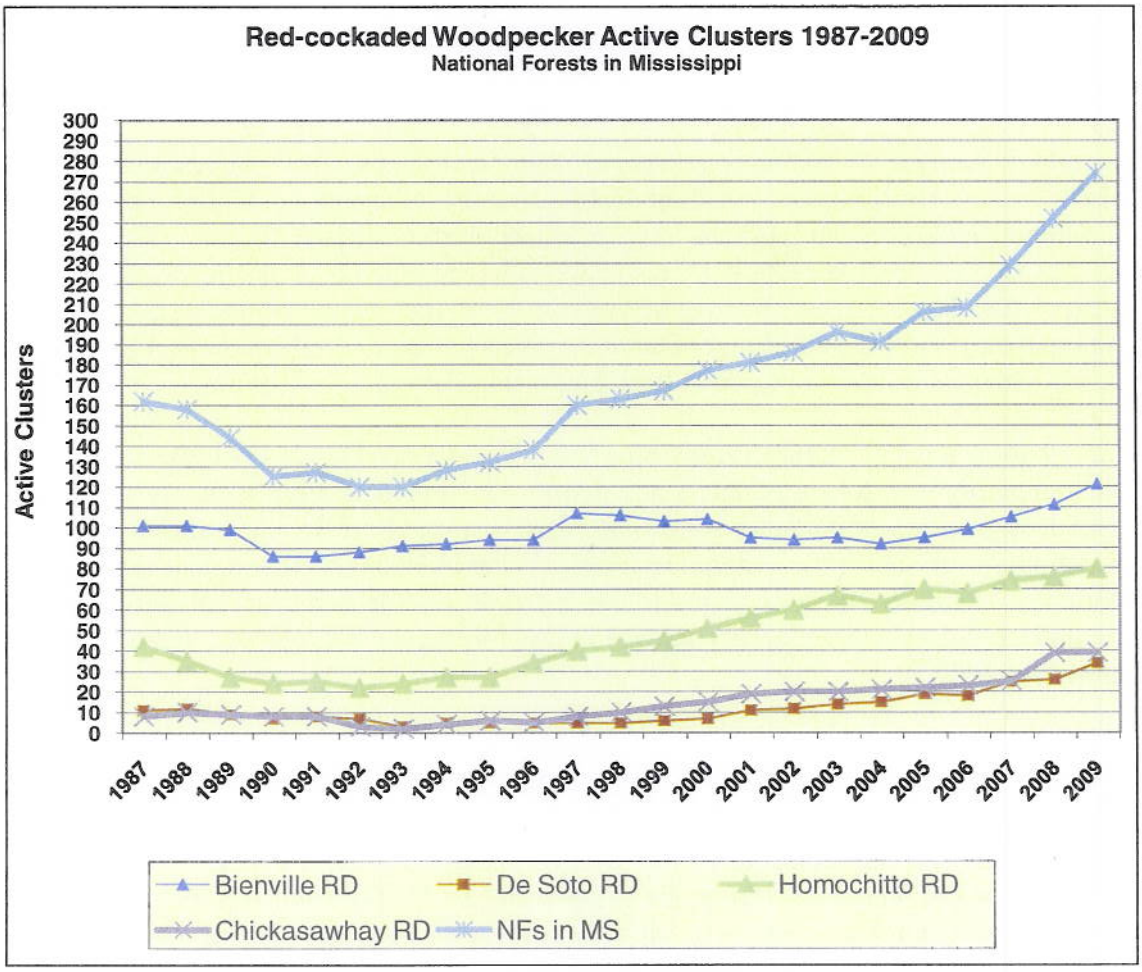


Figure 4. History of active clusters

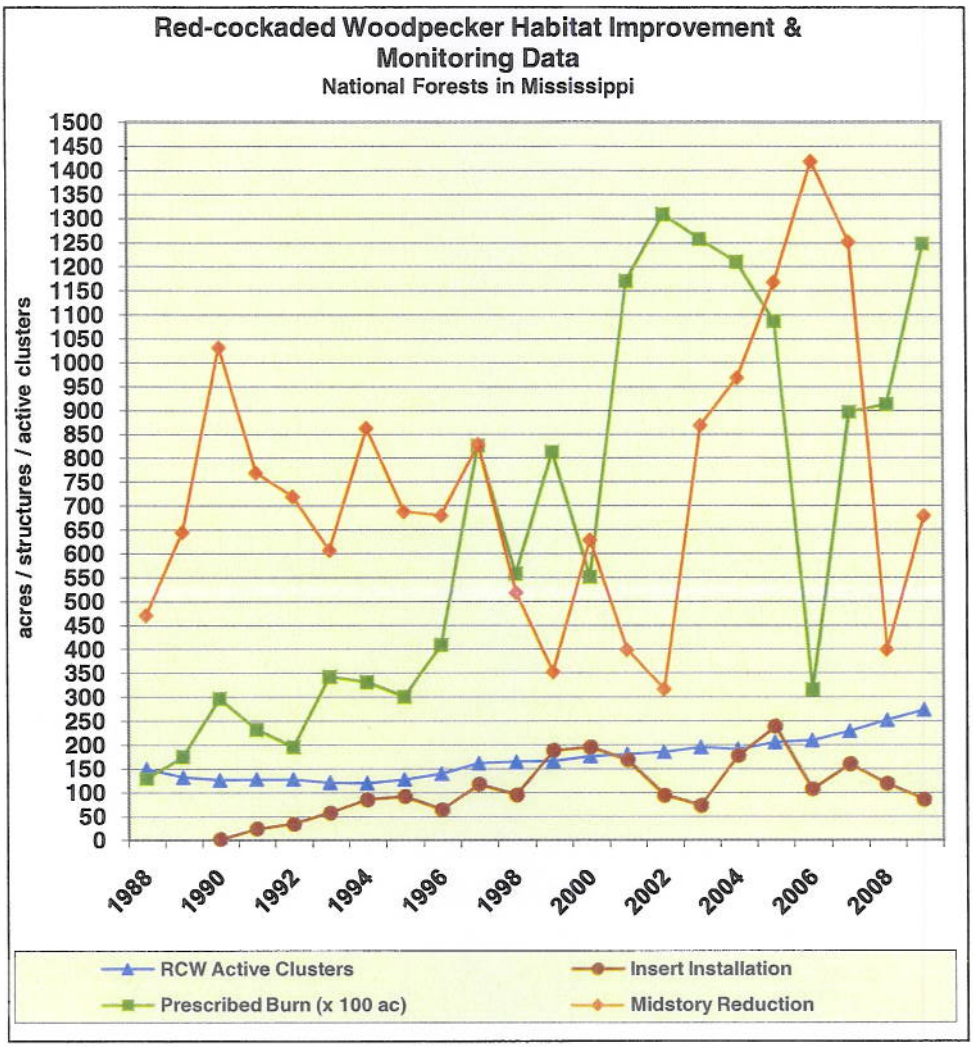


Figure 5. RCW habitat improvement

What accomplishments in Heritage Resource Program management have been completed for FY 2008 and 2009?

In previous years, a higher number of sites has been monitored for several reasons. The primary reason was continued inspection of damage resulting from Hurricane Katrina. While this hurricane was a devastating event in many ways, it is fortunate that little damage resulted to cultural resource sites on the National Forest. In 2008, 179 sites were monitored. As previously stated this was a result of hurricane follow up work. In 2009, a total of 66 sites were monitored. Periodically, sites are monitored to check for looting or other types of site deterioration.

It is of interest that over the years the Forest Service has not adversely impacted any of its known archaeological sites by activities carried out by the agency. Marking sites and

avoiding them appears to be working well. As stated earlier Katrina had little adverse effect on archaeological sites. This is not to say that some sites have not suffered some damage. Three sites have received damage and the damage will be corrected.

Looting of sites is a rare occurrence on the National Forests in Mississippi. However, it is taken seriously. One site on the De Soto was damaged by looting. This site is not classified as a significant site. However, a damage assessment was completed when evidence of the looting was discovered. The damage assessment found that 49 areas of digging had disturbed a total area of 401 square meters. It is possible that some artifacts have been dug up and removed. However as previously stated this particular site was located and evaluated by Forest Service archaeologists and found to be not significant. A report was prepared by the District Archaeologist and is on file with Law Enforcement personnel. The picture below shows some of the evidence of looting that was discovered.

Monitoring indicated that two sites, one on the Holly Springs and one on the Tombigbee had been damaged by erosion. The Chewalla Lake mound on the Holly Springs District is a prehistoric mound covered by a layer of recent fill dirt. Erosion at this site is not significant as the site will eventually be restored to its original form and the eroding fill dirt will be removed. The mound will then be protected and monitored for erosion. However, Owl Creek Mound A on the Tombigbee National Forest has suffered some erosion damage as a result of wheeled vehicles being driven up and down the sides of the mound contrary to laws and regulations protecting such areas. The picture below shows some evidence of the wheeled vehicle caused erosion.

New regulations concerning the use of OHV's will help in protecting sites such as this one against damage from vehicles across the Forest. At Owl Creek, which is located in a major recreation area, a protective wooden fence will be constructed to deter future damage from vehicles.

What important activities occurred in FY 2008 and 2009 to improve the transportation system and public safety?

Two road bridges were replaced in FY08. In FY09 plans were developed to replace 18 road bridges using American Recovery & Reinvestment Act of 2009 (ARRA) funding, with construction scheduled to begin in FY10. Customary practice on the Forest prior to 1991 was to build bridges using precast concrete deck sections on wood piles, with wooden crib wall abutments. However, the high heat and humidity in Mississippi provides an excellent environment for fungus growth, which attacks and weakens the wooden substructure components of those type bridges. Beginning in 1991 concrete piles and riprap armored "spill-through" abutments became the standard, eliminating all wooden bridge components and providing much longer bridge service lives. In addition, concrete piles are safer and eliminate the uncertainty associated with the inspection of timber piles, which in turn reduces the number of bridges posted due to the inability to accurately determine the exact load capacity of a deteriorated pile. Presently 39 of the Forest's 85 road bridges still have wood piles, but that number will be reduced to 21 upon completion of the planned work.

How is Stewardship contracting program implementation enhancing habitat improvement for threatened and endangered species?

NFs in MS began utilizing stewardship authorities in FY 2005 with the approval of the Bienville RCW/Prairie Proposal. Since this original proposal, additional proposals have been developed and approved with focused efforts on habitat enhancement primarily for red-cockaded woodpecker (RCW) and gopher tortoise (GT).

Utilization and implementation of stewardship authorities in approved proposals such as Chickasawhay Ecosystem Restoration Project (approved October, 2005), Mason Creek Project (approved September, 2008), and the Bienville Red-Cockaded Woodpecker Expansion Project (approved September, 2009) will enhance habitat for threatened and endangered species on about 27,000 acres through commercial thinning and about 13,800 acres through mid-story removal when fully implemented.

In addition, projects such as non-native invasive species (NNIS) control, fuels reduction and prairie restoration will also be accomplished. Other benefits include the use of retained receipts to fund helicopter contracts for T & E prescribed burning in these project areas and seeding of other stewardship proposals as they develop.

What Stewardship contracting program accomplishments occurred from 2005 – 2009?

The following tables 7 & 8 display the stewardship program accomplishments for FY's 2005 - 2009.

Table 7. Stewardship Proposals Approved

District	Proposal Name	Emphasis	Project Acres	Date Approved
Bienville	RCW/Prairie	RCW	414	03/28/2005
Chickasawhay	Ecosystem Restoration	RCW/GT/NNIS	100,000	10/24/2005
Chickasawhay	Mason Creek	RCW/GT/NNIS	27,000	09/23/2008
Bienville	RCW Habitat Expansion	RCW	24,381	09/28/2009
Total			151,795	

Table 8. Stewardship Contracts Awarded

District	Contract Name & Type	Emphasis*	Contract Acres	Date Awarded
Bienville	Bienville Prairies (IRTC)	Prairie Restoration	70	09/17/2007
Chickasawhay	Chick ER # 1 (IRTC)	RCW/GT/NNIS	1067	09/26/2007
Chickasawhay	Chick ER # 2 (IRTC)	RCW/GT/NNIS	782	07/11/2008
Bienville	Stewardship Thin (IRTC)	RCW/Wildlife	391	04/25/2008
Chickasawhay	Chick ER # 3 (IRTC)	RCW/GT/NNIS	2492	09/04/2009
Total			4,802	

Implementation of approved projects and approval of new proposals is expected to continue over the next several years under stewardship authorities. New proposals will be focused on one or more of the following land management goals contained in the law:

1. Road and trail maintenance or obliteration to restore or maintain water quality
2. Soil productivity, habitat for wildlife and fisheries, or other resource values
3. Use of prescribed fires to improve the composition, structure, condition and health of stands or improve wildlife habitat
4. Removing vegetation or other activities to promote healthy forests, reduce fire hazards, or achieve other land management objectives
5. Watershed restoration and maintenance
6. Restoration and maintenance of wildlife and fish habitat
7. Control of noxious weeds and exotic weeds, and re-establishment of native plant species.