

Fiscal Year 2005 Monitoring and Evaluation Annual Report

for the

*Revised Land and Resource
Management Plan*

Francis Marion National Forest



U. S. Department of Agriculture
Forest Service
Southern Region

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U. S. Department of Agriculture
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Southern Region

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Acronyms

ASQ	Allowable Sale quantity
BCD	Biological Conservation Database
BMP	Best Management Practices
BVET	Basin-wide Visual Estimation
DBH	Diameter at breast height
EPA	Environmental Protection Agency
FS	Forest Service
FW	Forest-wide
FY	Fiscal Year
GIS	Geographic Information System
HMA	Habitat Management Area
IM	Inventory and Monitoring
MA	Management Area
MIS	Management Indicator Species
MMCF	Million cubic feet
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NVUM	National Visitor Use Monitoring
OHV	Off-highway vehicle
PETS	Proposed, endangered, threatened, and sensitive species
PPM	Parts per million
PSD	Prevention of Significant Deterioration
RPA	Resource Planning Act
SC	South Carolina Department of
DHEC	Health & Environmental Control
SCDNR	South Carolina Department of Natural Resources
SPB	Southern Pine Beetle
T&E	Threatened and endangered
USDA	United States Department of Agriculture

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

Forest Supervisor's Certification

With these completed changes, the *Revised Land and Resource Management Plan* (Forest Plan) is sufficient to guide management activities unless ongoing monitoring and evaluation identify further need for change.

Any amendments or revisions to the Forest Plan will be made using the appropriate National Environmental Policy Act procedures.

JEROME THOMAS
Forest Supervisor

Date:



The *Revised Land and Resource Management Plan* (Forest Plan) provides guidance on how the Francis Marion National Forest (FMNF) will be managed. Monitoring is used to assess how well goals and objectives are being met, if standards and guidelines are being properly implemented and whether environmental effects are occurring as predicted. Evaluation of monitoring results is used to determine if programs should be adjusted or if changes in Forest Plan direction are needed.

Summary of Key Findings:

Ecosystem Condition, Health and Sustainability

The Francis Marion continues to achieve 110 per cent of the Forest Plan objectives for longleaf pine forest type restoration through reforestation and prescribed burning activities. No acres were planted with longleaf pine in FY05.

Southern pine beetle populations were at very low levels during FY05.

Prescribed burning increased from 31,536 acres in FY04 to 35,243 acres in FY05. The increase came because of more opportunity in the growing season. The growing season burning in the longleaf type continues to improve and move toward meeting Objective 5 to restore the role of growing-season fires on 16,000 acres of longleaf forest types in the next 10 years. Of the total 49,250 acres in longleaf pine or mixtures of longleaf with loblolly pine about 61 per cent has been burned by prescription in the last 5 years, creating good conditions for the longleaf pine ecosystem. Approximately 60 per cent of Management Area 26, with the goal of restoring and maintaining the longleaf ecosystem, has been burned in the last 3 years.

No early successional habitat is being created through even-aged forest regeneration. Thinning stands to moderate basal areas followed by prescribed burning create openings in the forest canopy that somewhat mimics early successional habitat. However, as these stands grow and mature they can no longer be managed to provide this habitat.

The Red-cockaded Woodpecker (RCW) population on the Francis Marion decreased slightly in 2005 to 331 potential breeding groups (PBG), down from 345 PBG in 2004. Forest Service personnel conducted the monitoring. The 2003 Revised RCW Recovery Plan identifies the minimum population size for delisting the Francis Marion Primary Core population at 350 PBG. The current number of managed clusters is 413.

The Francis Marion RCW Population, a primary core recovery population and third largest in the southeast, is close to meeting population objectives for delisting as described in the revised RCW Recovery Plan (1993). Current management activities have been effective in providing for active

Executive Summary of Monitoring and Evaluation Results and Report Findings

cluster activity within the core prescribed burning area of the forest, but the population appears to be decreasing at the wildland urban interface (WUI). The population appears to be stable despite the decrease in 2005.

The Francis Marion National Forest is home to one of two populations for flatwoods salamander in South Carolina. Planning for a large-scale small diameter thinning within flatwoods salamander habitat in the Wando area of the forest was conducted in 2005. Flatwoods salamander requires ephemeral wetland herbaceous pond habitat surrounded by fire-maintained pine ecosystems. The Wando area is very dense and overgrown, occurring at the Wildland Urban Interface and is difficult to prescribe burn.

Implementation of the Wando/T'on project decision is needed within the Wando area of the forest to maintain and restore habitat for the flatwoods salamander and to prevent listing of the Carolina Gopher frog. This project will benefit many of our Threatened and Endangered (T&E) species including pondberry and American chaffseed.

American alligator, bald eagle, Bachman's sparrow, West Indian manatee and wood stork are all stable on the forest; Migrant loggerhead shrike is not known to occur here though habitat is stable; status of Rafinesque's big-eared bat, southeastern myotis, shortnose sturgeon, and Atlantic sturgeon are unknown since the species are difficult to detect.

Our knowledge of Proposed Endangered, Threatened and Sensitive (PETS) plant distributions including habitat associations and habitat threats continues to increase. Management and monitoring of PETS species on the forest is ongoing. Populations occurring at the wildland urban interface continue to be threatened by woody species encroachment associated with the lack of prescribed fire but efforts to manage these sites, at a manageable scale, are increasing. Monitoring for two federally endangered plants, American chaffseed and pondberry, was conducted in 2004 through partnership with the South Carolina Native Plant Society.

Forest and Aquatic communities including ephemeral wetlands, stream fish communities and habitat, aquatic macroinvertebrate community, anadromous and catadromous fishes and pond game fish have been monitored in the past. Large woody debris, an important component for habitat structure, was found lacking in sampled streams. No monitoring of aquatic communities occurred in 2005 because of a lack of funding.

Prescribed fire emissions on the Francis Marion National Forest continue to be the most important Forest Service activity impacting air quality, since it releases fine particles into the atmosphere. In FY05, the amount of fine particulate matter released into the atmosphere was greater than the FY04 levels.

We have not noticed any substantial water quality problems in implementing the Forest Plan standards, which include Best Management Practices (BMP). Measures in Forest Wide Standards such as FW-97, FW-99, FW-105, FW-106, FW-109, and FW-115 may augment BMP sufficiently to limit water quality effects to acceptable levels on the National Forest.

Sustainable Multiple Forest and Range Benefits

Timber harvest needs to increase significantly to meet objectives in the Forest Plan. In FY05, .2.6 million cubic feet (MMCF) were offered for sale. The allowable sale quantity is 33 MMCF per year during the 10-year period.

The main silvicultural practices employed in FY05 were commercial thinning harvest, release of seedlings and saplings using prescribed fire and pre-commercial thinning.

National Visitor Use Monitoring (NVUM) was done on the Francis Marion and the Sumter National Forests in 2002. This monitoring estimated visitor use for all activities including recreational facilities and trails. Sampling strategy does not allow separation of the use by forest. Visitor use on both forests for fiscal year 2002 was 1.1 million national forest visits. There were 1.5 million site visits and an average of 1.3 site visits per National Forest visit. There were approximately 52,864 wilderness site visits on both the Francis Marion and Sumter National Forests.

A part of this monitoring survey was a visitor satisfaction survey. Most visitors were satisfied with the scenery, condition of the natural environment, conditions of the recreation facilities, the feeling of safety, the helpfulness of the employees. All visitors were found to be less satisfied with the cleanliness of the restrooms, the availability of information on recreation and the interpretive displays, signs and exhibits.

No trend information is available at this time. In 2008 NVUM will be redone, approximately every 5 years. At this time there will begin to be enough information to develop trend information.

Currently the Francis Marion meets the Forest Plan objective of more than 160 miles of trails.

The Francis Marion is still short of achieving some of the probable activities anticipated in the Forest Plan (e.g., horse camp, and horse trail miles, new campground, canoe access points and new (off-highway vehicle (OHV) trail miles.)

Monitoring archaeological sites identified some natural threats. The most serious damage occurred on sites that are being eroded by maintaining and using the Atlantic Intracoastal Waterway. In addition to natural threats, other priority assets have been damaged by unauthorized activities such as the use of off-road vehicles other than on designated trail.

The full scope of archaeological site looting, vandalism, and other threats is not known because of the small sample of sites monitored. The use of metal detectors to dig for artifacts on historic sites is a growing concern.

An additional 726 acres were acquired on the Francis Marion National Forest during this fiscal year.

Organizational Effectiveness

The Francis Marion road system continued to receive heavy use by the public and commercial users. Emphasis continues on maintaining and reconstructing roads to meet the objective maintenance level, current design standards and best management practices, and reduce negative impacts to resources focusing on watershed health. Road projects to support timber activities continue to focus on surface and culvert replacement. No new miles of road were constructed in FY 2005.

The forest's newly construction road miles continue to be much lower than the target projected in the Forest Plan. Miles of road reconstruction fell behind the ten-year Forest Plan target because of a significant budget reduction. The forest also had to shift funds to complete maintenance projects caused by the summer of 2004 hurricane damage. The forest has not been able to close significant miles of roads to reach the percentage of closed roads in the Forest Plan.

The Francis Marion National Forest is about 252,840 acres in the lower coastal plains of South Carolina. The *Revised Land and Resource Management Plan* (Forest Plan), approved on December 18, 1995, directs management activities on the forest. National Forest lands are managed to provide goods and services for timber, outdoor recreation, water, wildlife, fish, and wilderness following multiple-use goals and objectives.

Monitoring and evaluation is an integral part of the Forest Plan designed to ensure the goals and objectives are being achieved, standards and guidelines are being followed and environmental effects occur as predicted. Forest Plan monitoring and evaluation determines if the forest is moving toward or achieving the desired conditions for resources as described in the Forest Plan.

Monitoring is conducted by field reviews of projects and by inventory and survey work carried out annually. Forest Service resource specialists, universities, state resource agencies and contract specialists accomplish this work.



Chapter 2 of this report includes the monitoring questions and tasks defined in Chapter 5 and Appendix B of the Forest Plan. Appendix B contains the detailed monitoring task sheets. In this report the monitoring questions are numbered consecutively with the corresponding task sheet in parentheses based on the page number in Appendix B.

Issue 1. Ecosystem Condition, Health and Sustainability

Sub-Issue 1.1 – Biological Diversity

1. Are the acres of longleaf forest type increasing at a rate to achieve objective (B-4)?

Information

This monitoring question is responsive to goals 1, 6, 7, 8 and objective 4. **Objective 4** is to increase the longleaf pine forest type to 44,700 acres within 10 years. The longleaf pine ecosystem is maintained, restored and enhanced.

- Acres of longleaf pine forest type.

Results

The Geographic Information System (GIS) database shows 49,351 acres of longleaf pine forest types on the Francis Marion. This is 110 per cent of the objective.

Chapter 1. Introduction

Chapter 2. Monitoring Results and Findings

Findings

No additional action is needed.

2. Are the acres of longleaf forest type in Management Area (MA) 26 increasing at a rate to achieve objective (B-5)?

Information

This monitoring question is responsive to goals 1, 6, 7, 8 and objective MA26-Objective-1. **MA26-Objective-1** is to have 40,000 acres of longleaf pine forest type within the next 10 years in MA 26. The longleaf pine ecosystem is maintained, restored, and enhanced.

- Acres of longleaf pine forest type in management area 26.

Results

The GIS database shows 39,854 acres of longleaf pine forest types in management area 26.

Findings

No additional action is needed.

3. Are sufficient longleaf pine management type acres being burned on a 2 to 4 year growing season burn cycle to achieve objectives (B-6)?

Information

This monitoring question is responsive to goals 1, 6, 7, 8 and objectives 1 and 5. **Objective 1** is to maintain a red-cockaded woodpecker population of 450 clusters. **Objective 5** is to restore the role of growing-season fires on 16,000 acres of longleaf forest types in the next 10 years and on 40,000 acres in the long term by burning on a 2 – 4 year cycle. The red-cockaded woodpecker population is maintained and the longleaf pine ecosystem is maintained, restored and enhanced.

- Annual acres and location of longleaf pine management type stands burned on a 2 to 4 cycle during the growing season (April – September).

- Per cent of the 160,000 RCW Habitat Management Area (HMA) which has been burned in the last 5 years
- Per cent of the longleaf pine forest types which has been burned in the last 5 years.
- Per cent of Management Area 26 that has been burned in the last 3 years.

Table 2-1. Monitoring Item and Results for FY 2004 and FY 2005

Monitoring Item	FY04	FY05	Desired Condition
Annual acres burned on 2 to 4 year cycle during the growing season	10,000 acres	12,100 acres	See Objective 5
Per cent of RCW HMA burned last 5 years	50%	50%	See Objective 1 Burning cycle of 2 – 5 years throughout the entire HMA (ROD – RCW FEIS and standard FW-83)
Per cent of longleaf pine forest types burned last 5 years	60%	61%	See Objective 1
Per cent MA 26 burned last 3 years	75%	60%	MA26-G-1 states “Restore expand and maintain the longleaf pine ecosystem and related fire-dependent communities.” Standard MA26-2 states burn pine stands on a 2-3 year cycle.

Results

Table 2-1 shows the monitoring results.

Findings

The forest burned more acres in FY 2005 than FY 2004. Approximately the same amount of dormant season acres were burned in FY 2005 as were burned in FY 2004. The increase came because of more opportunity in the growing season. The growing season burning in the longleaf type continues to improve and move towards meeting Objective 5. Burning in the last 5 years within the RCW HMA increased remained at 50 per cent. This trend needs to continue since we are still below requirements for a burning cycle of 2 to 5 years and the need to maintain the RCW population. The trend for burning longleaf pine forest types in that last 5 years increased by 1 percent to 61 per cent. Fire is critical to restoring and maintaining this fire-dependent community and thus the percent burned needs to increase in the future. As of FY 2005 the forest has burned approximately 60 per cent of MA 26 in the last 3 years. This is almost double the percentage estimate in FY 2003 but less than in FY 2004. The estimate for FY 2005 is based on information from district personnel.

Finally, due to burning being constrained at urban interfaces and personnel and budget constraints, Standard MA26-2 should be deleted. This change would require a forest plan amendment.

4. Are the acres of mixed pine/hardwood stands increasing at a rate to achieve the objective (B-8)?

Information

This monitoring question is responsive to goals 1, 6, 7, 8 and objective 11. **Objective 11** is to increase the acres managed as mixed pine/hardwood forest types to 14,800 acres in the next 90 years. The amount of mixed pine and hardwood stands has increased and mast-producing hardwoods are common.

- The acres are managed as mixed pine/hardwood forest types.

Results

The GIS database shows 38,807 acres of mixed pine/hardwood forest types, an increase of 888 acres over the figure reported for FY 2004. It is more than 2.6 times the objective.

Findings

No additional action is needed.

5. In management area 27, are the acres managed as mixed pine/hardwoods increasing at a rate to achieve the objective (B-9)?

Information

This monitoring question is responsive to goals MA-27-G-1, MA-27-G-3 and objective MA 27-O-1. **Objective MA 27-O-1** is to increase the 6,700 acres managed as mixed pine/hardwood forest types to 14,800 in the next 90 years. Mixed pine/hardwood stands are found throughout this area on a variety of sites. Mast-producing hardwoods are common in hardwood stands, mixed stands and scattered throughout pine stands.

- The acres managed as mixed pine/hardwood forest types in management area 27.

Results

The GIS database shows 5,109 acres of mixed pine-hardwood types in management area 27. This compares with 3,646 acres in the FY 1996 report. The context of the current mixed pine-hardwood acreage under objective 11 (forest-wide) above should be remembered when looking at the figures for management area 27.

Findings

No additional action is needed.

6. In management area 27, do loblolly pine stands by age 40 have 30 per cent of the dominant/co-dominant canopy classes in mast-producing hardwoods (B-10)?

Information

This monitoring question is responsive to goals MA-27-G-3 and MA 27-O-2. **Objective MA 27-O-2** is to have loblolly pine stands by age 40 have 30 percent of the dominant and/or co-dominant canopy classes in mast-producing hardwoods. Mast-producing hardwoods are common in hardwood stands, mixed stands and scattered throughout pine stands.

- 40-year old plus loblolly pine canopy class composition in MA 27.

Results

The results for FY 2005 are the same as those discussed in the FY 2004 monitoring report, page 10..

7. In management area 27, what conditions are needed in stand regeneration and development to achieve the objective (B-11)?

Information

This monitoring question is responsive to goals MA-27-G-3 and MA 27-O-2. **Objective MA 27-O-2** is to have loblolly pine stands by age 40 have 30 per cent of the dominant and/or co-dominant canopy classes in mast-producing hardwoods. Mixed pine/hardwood stands are found throughout this area on a variety of sites. Mast-producing hardwoods are common in hardwood stands, mixed stands and scattered throughout pine stands.

- Specific items will be established during study area in management area 27.

Results

The results for FY 2005 are the same as those discussed in the FY 2004 monitoring report, page 10.

8. Are pine stands being thinned as planned (B-17)?

Information

This monitoring question is responsive to goals 4, 6, 7, 8 and objective 9. **Objective 9** states, "Create conditions on 38,000 to 50,000 acres of pine stands which release over

crowded live crowns....” The forest continues to contribute to the long-term economic stability, manage a sustainable forest, provide for wildlife habitat needs and sustain biological diversity.

- Acres of pine stands thinned

Results

2,280 acres of thinning harvest were offered for sale in FY 2005.

Findings

No additional action is needed.

9. Are red-cockaded woodpecker (RCW) clusters maintaining 350 or greater potential breeding groups (B-24)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7, 8 and objectives 1, 4, 5 and 9. Provide a diversity of wildlife species. Provide quality habitat that supports viable populations of native wildlife species. The forest provides adequate habitat for various animals whose populations were previously threatened by dwindling populations.

- Number of active RCW clusters
- Number of groups nesting

Results

The RCW population on the Francis Marion decreased slightly in 2005 to 331 potential breeding groups (PBG), down from 345 PBG in 2004. Forest Service personnel conducted the monitoring. The 2003 Revised RCW Recovery Plan identifies the minimum population size for delisting the Francis Marion Primary Core population at 350 PBG. The current number of managed clusters is 413.

Restoration efforts in 2004 included installation of 40 artificial cavities, 56 inserts, and completion of 1,200 acres of mechanical mid-story control. The district prescribed burned 37,000 acres, including many high priority areas. Planning for two healthy forest initiative projects to reduce small diameter fuels on 14,000 acres including foraging habitat within the wildland urban interface was completed in 2005. Approximately 50 per cent of the RCW clusters

are threatened by encroachment from woody vegetation in the wildland urban interface.

Monitoring efforts were adjusted in FY 2005 to comply with protocol outlined in the *Red-cockaded Woodpecker Recovery Plan*, Second Edition. A discrete random sample of 33 per cent of the clusters was conducted, including:

- checking for cluster activity
- assessing the number of suitable cavities
- determining activity status of cavities
- nest checks every 7 to 11 days until nesting is documented
- morning follows in active clusters where no nest is found to determine group size
- surveying cluster for new trees.

Findings

The Francis Marion RCW population, a primary core recovery population and third largest in the southeast, is close to meeting population objectives for delisting as described in the revised RCW Recovery Plan (1993). Current management activities have been effective in providing for active cluster activity within the core prescribed burning area of the forest, but the population appears to be decreasing at the wildland-urban interface. The population appears to be stable despite the decrease in 2005.

10. Are populations of all existing PETS animal species being maintained or increased (B-25)?

Information

This monitoring question is responsive to goals 1, 5, 6, 7, 8 and objectives 1, 2, 4, 5, 9, 11, 12, 13, 14 and 15. The forest provides adequate habitat for various animals whose populations were previously threatened by dwindling populations.

- Numbers of PETS animals and related habitats

Results

The results for FY 2005 are the same as those discussed in the FY 2004 monitoring report table, pages 12-13 that

displays the status of PETS animals on the Francis Marion National Forest.

Planning for a large-scale small diameter thinning within flatwoods salamander habitat in the Wando area of the forest was conducted in 2005. Flatwoods salamander requires ephemeral wetland herbaceous pond habitat surrounded by fire-maintained pine ecosystems. The Wando area is very dense and overgrown, occurring at the WUI and is difficult to burn.

Monitoring for amphibians was conducted by Dr. Jullian Harrison and by graduate student Joyce Brown in 2005.

Findings

Implementation of the Wando-I'on project decision is needed within the Wando area to maintain and restore habitat for the flatwoods salamander and to prevent listing of the Carolina Gopher frog. This project will benefit many of our T&E species including T&E plants pondberry and American chaffseed.

11. Is the number of populations of existing PETS plants being maintained or increased (B-26)?

Information

This monitoring question is responsive to goals 1, 2, 5, 6, 7, 8 and objectives 13. Plant species with viability concerns are found to be more common than previously thought. The number of PETS plant populations is being maintained or increased.

- Location and number of existing PETS plant populations.

Results

The results for PETS plants discussed in the FY 2004 Monitoring Report have not changed for FY 2005. See pages 13-14.

Findings

Our knowledge of PETS plant distributions, including habitat associations and habitat threats, continues to increase. Management and monitoring of PETS species is ongoing. Populations occurring at the wildland-urban interface continue to be threatened by woody species

encroachment associated with the lack of prescribed fire but efforts to manage these sites, at a manageable scale, are increasing.

Recovery criteria for delisting pondberry the PETS list include the permanent protection of 25 self-sustaining populations throughout the range of the species (Recovery Plan for Pondberry, 1993). Based on monitoring conducted in 2004, 4 geographically distinct populations for pondberry appear to be viable, though no fruits were observed at either of these populations. Pondberry appears to be approaching recovery objectives for the species within South Carolina.

Recovery criteria for the reclassification of American chaffseed as stated in the American Chaffseed Recovery Plan (1995), includes the protection of 50 viable sites for the species based on biennial monitoring over a 10-year period. At the time the recovery plan was written, 72 extant sites were known with most (42 sites) known from South Carolina. Monitoring since 1999 suggests that we have 3 sites for American chaffseed that are viable (greater than 100 individuals), and that active management is still needed to achieve recovery objectives. Population enhancement at suitable sites where individuals occur at low numbers, should be investigated.

12. Are we maintaining viable populations of early successional native species and the habitat to support them (B-27)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7, 8 and objectives 12 and 13. **Objective 12** is to maintain 5,000 to 10,000 acres of early successional habitat in the short and long term. Provide a diversity of wildlife species. Provide quality habitat that supports viable populations of native wildlife species. Provide opportunities to enjoy a variety of recreational uses of wildlife.

- Acres in grass-forb habitat (Acres in 0-3 year class, permanent openings, wildlife openings, road rights-of-way, utility rights-of-way) in the short and long term.

Results

The results for FY 2005 are the same as those discussed in the FY 2004 Monitoring Report.

Findings

The forest needs to begin doing even-aged regeneration harvesting to meet Objective 12 and begin providing additional habitat for maintaining viable populations of early successional native species.

13. Are we maintaining viable populations of older forest native species and the habitat to support them (B-28)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7, 8 and objectives 1, 2, 9, 11, 14 and 16. Provide a diversity of wildlife species. Provide quality habitat that supports viable populations of native wildlife species. Provide opportunities to enjoy a variety of recreational uses of wildlife.

- Acres in late successional habitat (pine > 80 years, hardwood > 100 years, and mixed >100 years).

Results

GIS records show:

- 8,181 acres of pine types over age 80
- 9,296 acres of hardwood types over age 100
- 473 acres of mixed pine-hardwood types over age 100

Findings

No additional action is needed.

14. Are we maintaining viable populations of native bird species and the habitat to support them (B-29)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7, 8 and objectives 1, 2, 3, 4, 5, 8, 9, 11, 12, 13, 14, 15, and 16. Provide a diversity of wildlife species. Provide quality habitat which supports viable populations of native wildlife species. Provide opportunities to enjoy a non-consumptive uses of wildlife such as bird watching.

- Population trend to MIS bird species.

Results

The results for FY 2005 are the same as those discussed in the FY 2004 Monitoring Report.

Findings

Emphasis needs to be placed on efforts to bring the Regional database into operational use for estimating forest-wide trends.

15. Are we maintaining viable populations of turkey and the habitat to support them (B-30)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7, 8 and objectives 2, 3, 11, 13, and 16. Provide a diversity of wildlife species. Provide quality habitat that supports viable populations of native wildlife species. Provide opportunities to enjoy consumptive uses of wildlife such as hunting and fishing.

- Population index trend of Eastern wild turkey.

Results

The results for FY 2005 are the same as those discussed in the FY 2004 Monitoring Report, pages 15-16.

Findings

Continuation of an aggressive prescribed burning program, restoring mast producing hardwood stands, and increasing silvicultural activities that reduce basal areas in pine stands is needed to continue maintaining and developing quality nesting and brood rearing habitat for wild turkey.

16. Are we maintaining viable populations of quail and the habitat to support them (B-35)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7, 8 and objectives 4, 5, 9, 13 and 16. Provide a diversity of wildlife species. Provide quality habitat that supports viable populations of native wildlife species. Provide

opportunities to enjoy consumptive uses of wildlife such as hunting and fishing.

- Population index trend of northern bobwhite quail.

Results

The results for FY 2005 are the same as those discussed in the FY 2004 Monitoring Report, page 16.

Findings

Emphasis needs to be placed on efforts to make the Regional database operational for estimating forest-wide trends.

17. Are we maintaining viable populations of native amphibians and the habitat to support them (B-37)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7, 8 and objectives 2, 11, 13, and 14. Provide for a diversity of wildlife species. Provide quality habitat that supports viable populations of native wildlife species. Provide opportunities to enjoy non-consumptive uses of wildlife such as photography and viewing.

- Number of individuals sighted
- Acres of temporary pond habitat

Results

We have no new data on amphibians other than PETS as reported under monitoring question #11.

Findings

No additional action is needed.

18. Are we maintaining viable populations of native species and the habitat to support them (B-38)?

Information

This monitoring question is responsive to goals 1, 2, 8 and objectives 13 and 14. Throughout the forest landscape,

there is an ecologically sound distribution of plant communities and PETS plant habitats.

- Acreage of under-represented plant communities/ PETS habitats

Results

The results discussed in the FY 2004 Monitoring Report have not changed for FY 2005. See pages xx and xx of that report.

Findings

No additional action is needed.

19. What is the status and trends in stream fish communities in relationship to management activities and habitat conditions? What are current habitat conditions and trends (B-39 Amendment # 2)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7 and 8. Throughout the forest landscape, there is an ecologically-sound distribution of aquatic communities.

- Repeated quantitative sampling of fish communities, including diadromous species, in streams representative of 10 small watersheds across the forest. Measure habitat parameters using Basin-wide Visual Estimation (BVET) protocol where fish sampling is conducted.

Results

The results discussed in the FY 2004 Monitoring Report have not changed for FY 2005. See pages 17-20.

Findings

Twenty-six species have been captured in 17 streams across the Francis Marion National Forest. Repetitive sampling has occurred in those streams when water level conditions were favorable.

All of the fish captured are considered native to the watershed. The population status of native species is considered to be currently stable throughout all or a

significant portion of their range, with the exception of the American eel. The ironcolor shiner, a species considered vulnerable, was not captured during the sampling period. This species was captured in five of the seventeen streams in 1993 surveys.

Insectivores dominate the fish community in sampled streams across the forest, which indicates that the invertebrate food source is stable. Over the sampling period, there was no significant change in trophic composition that would indicate any physical or chemical deterioration of sampled streams.

Most species captured in the sampled streams are classified as intermediate in their tolerance to human influences, adept at exploiting particular types of disturbances. There were no intolerant species captured, however, there was no increase in tolerant species. The ironcolor shiner, an intolerant species, was not present in the sampled streams.

Large woody debris, an important component for habitat structure, is lacking in the sampled streams.

No monitoring of aquatic communities occurred in FY 2005 because of a lack of funding.

20. What is the status and trends in aquatic invertebrate (aquatic insects, mollusks, crayfish) populations in relationship to management activities and habitat conditions (B-40 Amendment #2)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7, 8. Throughout the Forest landscape, there is an ecologically sound distribution of aquatic communities.

- Population trends will be measured by methods appropriate to the aquatic group using defined protocols.

Results

The results discussed in the FY 2004 Monitoring Report have not changed for FY 2005. See pages 20-21.

Findings

Inventories of benthic macroinvertebrate, crayfish and mollusk communities need to be accomplished.

No monitoring of aquatic communities occurred in FY 2005 because of a lack of funding.

21. What is the status and trend for pond game fish in relationship to management activities and habitat conditions (B-42 Amendment #2)?

Information

This monitoring question is responsive to goals 1, 3, 4, 7 and 8. Throughout the forest landscape, there is an ecologically-sound distribution of aquatic communities.

- Sampling of game fish and water quality in established freshwater fishponds annually across the forest.

Results

The results discussed in the FY 2004 Monitoring Report have not changed for FY 2005. See page 22.

Findings

There were no fish population or water quality monitoring conducted in 2004.

There was no fish population or water quality monitoring conducted in 2005.

Sub-Issue 1.2 - Forest and Range Health

22. How are insect and disease populations affecting goal/objectives attainment (B-3)?

Information

This monitoring question is responsive to goals 1, 2, 3, 4, 6, 7 and 8. Decrease the susceptibility of forest stands to insects and disease by changing or avoiding ecosystem conditions that favor future insects and disease epidemics.

- Location and population trends of southern pine beetle, fusiform rust and annosum root rot.

Results

Southern pine beetle populations were at very low levels during 2005.

Findings

No additional action is needed.

23. Are National Ambient Air Quality standards for suspended particulate matter and ozone being violated on the Francis Marion National Forest (B-18)?

Information

This monitoring question is responsive to goal 8. Maintain air quality.

- Compliance with NAAQS air particulate and ozone concentrations in the atmosphere [36 CFR 219.27(a)(12)].

Results

Prescribed fire emissions on the Francis Marion National Forest continue to be the most important Forest Service activity impacting air quality, since it releases fine particles into the atmosphere. In FY 2005, the amount of fine particulate matter released into the atmosphere was greater than the FY 2004 levels (Table 2-2). The three fine particulate monitoring sites (It appears the monitor in Berkeley County has ceased operation.) closest to the forest had increases in both the 24-hour and annual average fine particle concentration between 2003 through 2005, but the National Ambient Air Quality Standard (NAAQS) was not exceeded. Fine particulate matter data is also collected at Cape Romain National Wildlife Refuge (data source: <http://vista.cira.colostate.edu/views/>), but the results cannot be used for NAAQS determination. The 2002 through 2004 annual average fine particulate matter concentration at Cape Romain is 8.3 micrograms per cubic meter.

Table 2-2. FMNF Emissions of Fine Particulates (tons per year)		
FY03	FY04	FY05
1,142	867	972

Table 2-3. Monitoring Results for Particulate Matter 2.5 Microns (PM10) and Smaller*

Location	Site ID	2003 24-hour 98 th percentile (ug/m ³)	2003 Annual Average (ug/m ³)	2004 24-hour 98 th percentile (ug/m ³)	2004 Annual Average (ug/m ³)	2005 24-hour 98 th percentile (ug/m ³)	2005 Annual Average (ug/m ³)	3-year Average	3-year Average
Berkeley County– Monks Corner	450150005	21	10.2	27	13.7	No Data	No Data	22.7	11.33
Charleston County	450190048	22	10.8	27	12.3	33	13.3	25.3	11.57
Charleston County	450190049	22	10.7	29	12.0	33	12.3	25.3	11.20
Georgetown County	450430009	27	12.3	28	12.5	33	13.7	27.33	12.43

* The National Ambient Air Quality Standard is violated if the average of 3-years of annual means is 15 ug/m³ or greater (multiple community oriented monitors can be averaged together), or the 3-year average of the 24-hour concentration for the 98th percentile (using the maximum population oriented monitor in an area) is the 65 ug/m³ or greater. Source: <http://www.epa.gov/air/data/geosel.html>

The combustion of fossil fuels and prescribed fires from Forest Service activities also release nitrogen oxides, which can contribute to increases in ground-level ozone. The two ozone monitors within or near the forest had no days when the ozone concentrations in 2005 were considered unhealthy for sensitive people. Both of the sites continue to be below the NAAQS for ozone (Table 2-4) in 2005.

Table 2-4. Summary of Ozone Monitoring Data in Relation to Proposed National Ambient Air Quality Standard .*

Monitor County	Year	Fourth highest 8- hour average	3-Year Average
Berkeley	1999	0.083	0.080
	2000	0.080	0.082
	2001	0.071	0.078
	2002	0.074	0.075
	2003	0.070	0.072
	2004	0.073	0.072
	2005	0.069	0.071
Charleston	1999	0.080	0.078
	2000	0.076	0.076
	2001	0.068	0.075
	2002	0.075	0.073
	2003	0.074	0.072
	2004	0.071	0.073
	2005	0.077	0.074

* The ozone standard would be violated at a site is the 3-year average of the fourth highest 8-hour average ozone concentration is 0.085 ppm or higher.

Findings

Fine particles in the atmosphere can reduce visibility, and they also can increase the risk of heart attacks or respiratory problems for people. Ground-level ozone can also have an adverse impact to people's health. The monitoring result for both of these pollutants indicates the air quality on the National Forests does not exceed the NAAQS. It should be noted that sulfates are the primary type of fine particulate matter measured in rural areas of the eastern United States. Currently, the Environmental Protection Agency is reviewing the fine particulate NAAQS and if they lower the daily NAAQS to 30 ug/m³ then no portions of the Francis Marion National Forest are expected to exceed the NAAQS. However, if the annual NAAQS is lowered to 12 ug/m³ then portions of the forest would be within an air classified as non-attainment for fine particulates according to the Clean Air Act.

Sub-Issue 1.3 - Watershed Condition

24. Are forest streams in compliance with state water quality standards (B-21)?

Information

This monitoring question is responsive to goals 1, 3 and 8. The forest's streams, lakes, wetlands and riparian areas are healthy, functioning ecosystems that produce sustained flows of high quality water.

- Average annual water quality measured at a monitoring station on Turkey, Wambaw and Awendaw Creeks.

Results

In 2003, a monitoring report by Plewa and Hansen summarized the existing information on the Francis Marion National Forest concerning water quality. The report findings and results were based on only a few data points but are still applicable for this level of analysis. Most of the streams in the coastal plain have eroded into deep marine deposits of the past geologic epochs. The stream gradients are generally low, and channels generally have substantial adjacent floodplains and wetlands, which detain surface waters for extended periods. The bottomland hardwoods that dominate riparian areas and most stream banks tend to stabilize channels.

Existing conditions of concern include the fishery consumption advisories for excessive mercury in certain species and fecal coliform in waters used for shellfish harvesting. Elemental mercury is converted to the toxic methyl mercury form due to the high sulfur, low pH, anoxic conditions in wetlands. Certain organisms accumulate the mercury in the food chain, with carnivorous fish such as bowfin and large mouth bass as the most common indicators of this accumulation. Essentially all the coastal black water streams are impacted, although only the major ones have been monitored. Sediment dominates channel substrates, but this is common in areas dominated by marine deposits.

Indicators of brackish water from the 2003 report in Wambaw Creek were not sampled or discussed in detail. Since then, it has come to our attention that tidal saltwater concentrations (salinity >0.48 parts per thousand as defined by SC DHEC Water Classifications and Standards) are sometimes present. Elevated salt concentrations are an apparent result of water storage and low flow releases associated with upstream dams, which allow tidal entry of salt water from the Atlantic Ocean into the Santee River and upstream into Wambaw Creek. The frequency and significance of the tidal influence has not been determined for Wambaw Creek and other lower Santee tributaries. A report by The Nature Conservancy has mapped the change in coastal vegetation below Highway 17 due to the frequency and extent of tidal saltwater influence. However, as funding permits, sampling may be conducted to better characterize the salinity occurrence and impacts.

Findings

No additional action is needed.

25. Is the forest in compliance with State Best Management Practices (BMP) (B-45 new)?

Information

This monitoring question is responsive to goals 1, 3, and 8. The forest's streams, lakes, wetlands and riparian areas are healthy, functioning ecosystems that produce sustained flows of high quality water.

- Compliance with State BMP.

Results

In the field assessments of several timber sales and at least 5 units with streams or wetlands on the Francis Marion NF during 2005, BMP are fully implemented and effective at protecting water quality, soil productivity and associated resources. We did not detect any water quality or soil productivity problems in implementing the forest plan standards within the timber sale areas evaluated, which include BMP. Measures in Forest Wide Standards such as FW-97, FW-99, FW-105, FW-106, FW-109, and FW-115 may argue BMP sufficiently to limit water quality effects to acceptable levels on the National Forest. The forest standards decrease the intensity of impacts allowed and increase stream protection widths or protection measures. In addition, proposals at the landscape level may include many types of treatments to address fuel reduction and habitat improvements. Past projects have typically dealt with dispersed treatments across the landscape.

The SC Forestry Commission has shown from past monitoring of BMP implementation in forestry operations within the coastal plain that BMP are effective when properly implemented at maintaining water quality and soil productivity. In 2005, sale forester and administrator checked BMP properly as to being implemented. Inspections and documentation were part of each sale record. No reports associated with timber implementation were received suggesting any problems with implementation or effectiveness of BMP or forest standards.

Prescribed burning was evaluated on several sites. BMP were implemented and there was some concern about localized areas within landscape treatments that burned too intensely, the frequency of burning and its potential effects on site productivity. Some of the prescribed burning issues are being addressed with agreements with the College of Charleston, Southern Research Station (Wetlands Center) and the forest. These efforts are being updated each year and continue to expand to address pertinent issues relative to prescribed burning on the landscape.

Bridge replacement and enlargement projects were reviewed at State Highways 41 (Turkey Creek) and 45 (Wambaw Creek). We found several issues with excessive sediment and silt fences being inadequate. We discussed this with the SC DOT managers and field representatives on several occasions, and some improvements were noted.

This is definitely an activity that needs regular evaluation checks to ensure that the BMP and Standards are being met.

Off-highway Vehicle (OHV) trails were evaluated, and we found localized rutting and some unauthorized off-trail uses. The district has been using some wet weather closures that help to reduce the rutting that occurs when the trail is too wet. Added maintenance has been used, and localized areas hardened with geomats. Because of the amount of use, the trails must be maintained regularly. The district has increased communications with OHV users in efforts to keep users on the trail and to prevent off-trail uses. Off-trail uses have the potential to impact sensitive soils, wetlands, archeological sites, habitats and species.

Findings

No additional action is needed. The forest and district are actively involved with addressing the issues at hand and complying with BMP and Forest Standards.

Issue 2. Sustainable Multiple Forest and Range Benefits

Sub-Issue 2.1 - Recreational Opportunities

26. Are the acres of land greater than ½ mile from an open road increasing at a rate to achieve the objective (B-2)?

Information

This monitoring question is responsive to goals 1, 3, 7, 8 and objective 3. **Objective 3** is to increase the acres of land ½ mile from an open road or greater to 24,000 acres in this 10-year planning cycle. Roads are closed in some areas to enhance roadless area characteristics and to provide more semi-primitive recreational experiences. In addition, the forest provides shelter and forage for a variety of neo-tropical migratory birds which can be enhanced by reducing open road density.

- Acres ½ mile from an open road and number of 250-acre blocks ½ mile from an open road.

Results

The results for FY 2005 are the same as those discussed in the FY 2004 Monitoring Report, page 25.

No information was collected for FY 2005.

Findings

In FY 2000 it was found at the current rate of acreage increase the objective of 24,000 miles can be met by the end of the ten-year planning cycle.

The next update of this information will occur in FY 2006.

27. Are the activities creating or maintaining the desired Recreation Opportunity Spectrum (ROS) classes (B-12)?

Information

This monitoring question is responsive to goals 3, 4, 6, 8 and objective 6. **Objective 6** is to manage the following acreage to achieve the Recreation Opportunity Spectrum class conditions: rural (81,826), roaded natural (126,219), semi-primitive motorized (21,147), semi-primitive non-motorized (13,549). Visitors enjoy a diversity of recreational opportunities.

- The condition of each ROS class

Results

No targeted information was collected in FY 2005. However, ongoing ROS classification review is done throughout the year in conjunction with regular site visits. No inconsistencies were found in FY 2005.

In FY 2000 specific ROS monitoring showed that management activities have created or are maintaining the desired ROS classifications. Several recreation areas were monitored including areas within the semi-primitive ROS classifications.

Findings

The next update of this information will occur in FY 2006.

28. What is the current use of recreational facilities and trails (B-13)?

Information

This monitoring question is responsive to goals 3, 4 and 8. The forest is a popular place with a wide range of recreational visitors.

- Recreational visitor use of facilities/sites and trails.

Results

The results for FY 2005 are the same as those discussed in the FY 2004 Monitoring Report on page 26.

Findings

The next update of this information will occur in FY 2008. The National Visitor Use Monitoring (NVUM) will be re-surveyed in FY 2008.

29. Are the distribution, design, location, capacity and condition of the recreational facilities and trails meeting the needs of the users (B-14)?

Information

This monitoring question is responsive to goals 3, 4, 8 and objectives 7 and 8. **Objective 7** is to increase the developed recreational facilities capacity to 2,200 people-at-one time (PAOT) within the next 10 years. **Objective 8** is to increase the trail system to 160 miles within the next 10 years. There are more opportunities for developed recreational activities.

- Users satisfaction with facilities and trails

Results

The results for FY 2005 are the same as those discussed in the FY 2004 Monitoring Report. See pages 26-32.

Other than the NVUM, in 2005, an equestrian market study was initiated for the entire Francis Marion and Sumter National Forests. Results of this study are expected in FY 2006.

We continue to improve our recreational information delivery by an ongoing effort to improve the website, specifically the recreation section.

Findings

All visitors were less satisfied with the same things, with the cleanliness of the restrooms, the availability of information on recreation and the interpretive displays, signs and exhibits. Interim monitoring of satisfaction

through surveys or other methods could also be employed as funds become available.

No trend information is available at this time. In 2008, NVUM will be done again. At that time there will begin to be enough information to develop trend information.

30. Are the number of PAOT and miles of trails increasing at a rate to achieve objective (B-15)?

Information

This monitoring question is responsive to goals 3, 4, 6, 8 and objectives 7 and 8. **Objective 7** is to increase the developed recreational facilities capacity to 2,200 people-at-one time (PAOT) within the next 10 years. **Objective 8** is to increase the trail system to 160 miles within the next 10 years. There are more opportunities to enjoy developed recreational opportunities. There are more miles and variety of trails.

- Number of PAOT of developed sites
- Number of miles of trails.

Results

The results for FY 2005 are the same as those discussed in the FY 2004 Monitoring Report, page 32.

Findings

No additional action is needed.

31. Are activities creating or maintaining the desired Visual Quality Objective (VQO) (B-16)?

Information

This monitoring question is responsive to goals 2, 3, 4, 6, 8 and objective 10. **Objective 10** is to manage the following acreage to achieve the Visual Quality Objectives (VQO): modification (186,788), partial retention (38,648), retention (4,179), preservation (13,812). The landscapes around most travel routes continue to be managed to reduce the visual impacts of activities that might be seen by a passer-by. Generally, visual quality is improved.

- The condition of each VQO class

Results

No specific visual monitoring information was collected in FY 2005. However, ongoing visual review is done throughout the year in conjunction with regular field visits. No inconsistencies were found in FY 2005.

In FY 2000 specific visual monitoring showed that management activities have created or are maintaining the desired VQO. Several projects were monitored.

Findings

The next update of this information will occur in FY 2006. No additional actions are required.

Sub-Issue 2.2 - Land Adjustments

32. Are lands being acquired that consolidate ownership, contain unique areas, enhance recreational opportunities, maintain public access and increase management efficiency (B-20)?

Information

This monitoring question is responsive to goal 5. Acquiring private lands bordered by National Forest System lands continues to consolidate ownership. Land acquisitions include an array of unique plant and animal habitats, riparian areas, geological features, cultural resources and unique recreational opportunities.

- Annual land adjustments.

Results

An additional 726 acres were acquired on the Francis Marion National Forest during this fiscal year.

Findings

No additional action is needed.

Sub-Issue 2.3 - Heritage Resources

33. Are heritage sites protected (B-44 new)?

Information

This monitoring question is responsive to goal 2. Manage, protect and perpetuate natural and cultural values associated with these irreplaceable resources.

- Sample field condition assessment of sites eligible or listed on National Register.

The forest objective is to document and compare existing heritage resource conditions to the desired objectives through monitoring. Heritage resources include places such as archaeological and historical sites, and traditional cultural properties. Heritage resources also include things such as artifact collections, historic maps and records, and special or sacred objects. Heritage resources are vulnerable, nonrenewable resources and our goal is to preserve, protect, and interpret them for the public.

Results

Given the large number of heritage resources on the forest, the Forest Service uses a sampling strategy to select priority heritage assets for monitoring. Monitoring archaeological sites and historic buildings determines if current administrative and field procedures are sufficient to protect significant cultural resources from damage or destruction by either human or natural forces. The results of this effort are presented in the Table 2-5.

Table 2-5. Archaeological sites	
Total number of assets monitored	9
ARPA investigations	0
Assets eroding by water	1
Assets damaged by forest users	1
Assets damaged by forest management	0
Assets undisturbed	7

Monitoring identified natural threats to archaeological sites. The most serious damage occurred on sites that are being eroded by maintaining and using the Atlantic Intracoastal Waterway. In addition to natural threats other priority assets have been damaged by unauthorized activities such as using off-road vehicles other than on designated trail.

The full scope of archaeological site looting, vandalism and other threats is not known because of the small sample of sites monitored. Using metal detectors to dig for artifacts on historic sites is a growing concern.

There are two historic buildings, two fire lookout towers, and an historic picnic shelter needing repair, restoration or documentation.

Findings

The forest continues to identify and monitor archaeological sites and historic buildings at risk. Heritage resource specialists are working with law enforcement, other Forest Service employees, and the public to document and deter unauthorized forest activities that damage historic properties.

The forest needs to increase monitoring to determine the effects of unauthorized activities and uses on archaeological sites including use of off road vehicles, horse trails and woods roads. The effects of management activities such as tilling wildlife fields and constructing firelines need to be evaluated as well.

Finally, the forest needs to develop Heritage Preservation Plans for at risk priority assets and implement a regularly scheduled monitoring program. The forest needs to assess its collections, including artifacts, photographs, and historical records, and develop a curatorial plan.

Issue 3. Organizational Effectiveness

34. Are probable activities, costs and outputs occurring as estimated in the Forest Plan (B-22)?

Information

Specific items have been tracked and are summarized in the following table. The Forest Plan established a range of acceptable results of within 20 per cent of estimated projections.

- See Tables 2-6 and 2-7

Results

Table 2-6. Probable activities effectiveness

Activity	Unit of Measure	FY05	10 year Plan Estimate
Road Construction	Miles	0.0	15
Road Reconstruction		1.7	63
Timber Roads		8.6	N/A
Roads Decommissioned		0.0	N/A
Opened Roads		433.4	446
Closed Roads		131.0	172
Maintained Wildlife Openings		Acres	720
Covert Loblolly to Longleaf	0		7,700
Establish Regeneration	0		16,150
Fertilization	0		600
Intermediate Stand Treatments	2,000		22,500
Regeneration Harvest	0		3,600
Thinning Harvest	2,280		44,000
Volume offered for Sale	MMCF		2.6
Winter Season Prescribed Burning	Acres/ Year	23,381	26,000
Growing Season Prescribed Burning		11,862	4,000
Annual Payments to Counties	M\$	929	68
* Annual Budget	MM\$	10.8	N/A

* The budget allocation includes both the Francis Marion and Sumter National Forests and cannot be tracked separately. Annual Budget expenditures are adjusted for inflation and do not include any dollars allocated for grants and other specific programs.

Table 2-7. Probable Activities			
Activity	Unit of Measure	FY05	10 year Plan Estimate
Construct			
Boat Ramps	# of Sites	0	2
Horse Camps		0	1
Campgrounds		0	1
Canoe Access		0	5
OHV Trails	Miles	0	20
Bicycle Trails		0	10
Canoe Trails		0	10
Hiking Trails		0	10
Horse Trails		0	20
Recreation Capacity			
Boat Ramps	PAOT	230	500
Horse Camps		0	50
Campgrounds		250	400
Canoe Access		0	130
Other		790	1,165
Trail Miles			
OHV	Miles	40	60
Bicycle		63	10
Canoe		35.8	22.5
Hiking		57.3	30
Horse		33	38
Total			166.1

Findings

The Francis Marion road system continued to receive heavy use by the public and commercial users. Emphasis continues on maintaining and reconstructing roads to meet the objective maintenance level, meet current design standards and best management practices, and reduce negative impacts to resources with the focus on watershed health. Road projects to support timber activities continue to focus on surface and culvert replacement. No new miles of road were constructed in FY 2005.

The forest's new construction road miles continue to be much lower than the target projected in the Forest Plan. Miles of road reconstruction fell behind the ten-year Forest Plan target because of significant budget reductions. The forest also had to shift funds to complete maintenance projects caused by hurricane damage in the summer of 2004. The forest has not closed significant miles needed to reach the percentage of closed roads in the Forest Plan.

The Francis Marion has continued to conduct road condition surveys to determine the condition of the road system and the amount of deferred maintenance. The FY 2005 survey placed deferred maintenance at \$12,170,083 on the 564.4 miles of forest roads. The deferred maintenance figure has seen a small reduction as more data are collected on both opened and closed roads. The forest worked on the "Road Analysis Report" for the new I'on and Wando acquisitions in FY 2005. The road within these two large land acquisitions will be added to the system in FY 2006. This will add more than 10 miles to the forest road system. Road decommissioning was not done in FY 2005 because of a lack of funds and a turnover in district personnel. The forest will be shifting some road miles into a lower maintenance level in future years due to reduced maintenance budgets.

Factors such as uncertain weather, budget and staffing constraints, increasing urbanization and smoke sensitivities will have an effect on the ability to sustain or significantly increase the acres burned. Stewardships and other types of partnerships are being used and need to continue to be used to maintain critical ecosystem components and control hazardous fuels.

PAOT is not a good measure of the success of the recreation program on the Francis Marion. We should drop the use of PAOT and use other measures related to the NVUM analysis discussed under monitoring question #32.

35. Are projects being managed according to requirements and making progress toward achievement of Desired Future Changes (DFC) for vegetation (B-46 new)?

Information

This monitoring question is responsive to goals 1, 2, 3, 6, 7 and 8.

- Do an Integrated Resource Review (IRR).

Results

No Integrated Resource Reviews were completed this year.

Findings

No further action is needed.

Chapter 3. FY 2006 and FY 2007 Action Plan and Status

Actions Not Requiring Forest Plan Amendment or Revision

a) Action: Inventory and then develop a monitoring program for aquatic macroinvertebrate communities across the Francis Marion National Forest, including aquatic insects, crayfish and mollusk.

Responsibility: Districts and SO.

Date: FY 2006 and FY 2007

Status: Crayfish and mussels were collected in conjunction with the fish community monitoring in FY 2003.

b) Action: Emphasis needs to be placed on efforts to bring the Regional database into operational use for estimating forest-wide trends related to compiling and analyze bird point or harvest data for MIS species including Northern Bobwhite, Eastern Wild Turkey, Painted bunting, and American swallow-tailed kite, Prairie Warbler, Northern Parula.

Responsibility: SO staff

Date: FY 2006 and FY 2007

Status: In the process of compiling and analyzing this information.

c) Action: The forest needs to begin doing even-aged regeneration harvesting in order to meet Objective 12 and begin providing additional habitat for maintaining viable populations of early successional native species.

Responsibility: District staff

Date: FY 2006 and FY 2007

Status: Presently no acres have been accomplished.

d) Action: Increase the active management (i.e. prescribed burning, thinning) in the Wando area of the Forest in order to recover the flatwoods salamander and to prevent listing of the Carolina Gopher frog.

Responsibility: District staff

Date: FY 2006 and FY 2007

Status: Planning for a large scale small diameter thinning within flatwoods salamander habitat in the Wando area of the Forest was conducted in 2005. Prescribed fire was conducted in habitat for flatwoods salamander in FY 2004

a) Action: Prepare a Forest Plan amendment, as necessary, to modify the boundary of MA-26 or eliminate standard MA-26-2 regarding the frequency of prescribed burning, which is constrained at urban interfaces within this management area.

Responsibility: SO planning and resource staffs

Date: FY 2006

b) Action: Prepare a Forest Plan amendment, as necessary, to modify FW-83 or Appendix A regarding items which are inconsistent with the new Recovery Plan for RCW.

Responsibility: SO planning and resource Staffs

Date: FY 2006

c) Action: Prepare a Forest Plan amendment, as necessary, to modify FW-84 regarding the ground-application of herbicide within 60 feet of any threatened, endangered, proposed or sensitive plant.

Responsibility: SO planning and resource staffs

Date: FY 2006



Actions That Require Forest Plan Amendment or Revision

The following individuals contributed to this report:

Jim Bates	Forest Archaeologist
Bill Hansen	Hydrologist
Ed Hedgecock	Forest Engineer
John Cleeves	Forest Planner
Dennis Law	Soil Scientist
Robert Morgan	Archaeologist
Gary Peters	Wildlife Program Manager
Robin Mackie	Ecologist/Botanist
Oscar Stewart	Resource Staff Officer
Tony White	Planning, Engineering, Recreation, and Heritage Resources Staff Officer
Gail White	Public Affairs Specialist
Joe Robles	Recreation Specialist
Robbin Cooper	Landscape Architect
Jay Purnell	Forest Silviculturist
Charlie Kerr	Fire/Aviation Management Officer
Eric Schmeckpeper	GIS
Bill Jackson	Air Specialist
Jeanne Riley	Fisheries Program Manager

Appendix A. List of Preparers



Amendment 1, October 2002—This amendment provides direction for the preparation of site-specific Biological Evaluations (BE) including inventory requirements for Proposed, Endangered, Threatened and Sensitive (PETS) species. The amendment makes the process of conducting BE more efficient and consistent throughout the Southern Region of the Forest Service.

Amendment 2, May 2003—This amendment revises the Management Indicator Species (MIS) List to increase efficiency and effectiveness of the Forest’s monitoring program and of project effects analysis.

Amendment 3, December 2004 – This amendment adds a standard to the Forest Plan that is needed to incorporate newly acquired lands into the Forest Plan and to begin managing these lands by site-specific projects.

The following research needs have been identified for aquatic species.



Appendix B. Amendments to Forest Plan

Appendix C.

Summary of Research Needs

- What is the distribution of American eel across the Forest? What habitat does the eel utilize? What is the population status?
- What species of crayfish occur on the Forest and what is the distribution of crayfish across the Forest? What is the population status?
- What species of mollusks occur on the Forest and what is the distribution of mollusks across the Forest? What is the population status?
- What ecological factors are affecting the health of the federally-endangered pondberry at Honey Hill? How can this population best be managed?
- What ecological factors are affecting the health of the federally threatened flatwoods salamander on the forest? How can this population best be managed?

Francis Marion National Forest Fiscal Year 2005 Monitoring And Evaluation Annual Report

Comment Form

If you have any comments on this report, please fill out this form, fold and staple with USDA Forest Service address outside, add postage and drop in the mail. Please include your name and address at the bottom of this form.

I have the following comments on the fiscal year 2005 Monitoring and Evaluation Annual Report:

Name: _____
Address: _____

Mail this form to: USDA Forest Service
4931 Broad River Road
Columbia, SC 29212
Attn: John Cleeves