Fiscal Year 2005 Monitoring and Evaluation Annual Report

for the

Revised Land and Resource Management Plan

Sumter National Forest

U. S. Department of Agriculture
Forest Service
Southern Region

Fiscal Year 2005 Monitoring and Evaluation Annual Report

for the

Revised Land and Resource Management Plan

Sumter National Forest

Jerome Thomas
Forest Supervisor
4931 Broad River Road
Columbia, South Carolina 29212

September 2006

U. S. Department of Agriculture
Forest Service
Southern Region

Contents

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 DHEC	South Carolina Department of Healh & Environmental Control
SCDNR	South Carolina Department of Natural Resources
SPB	Southern Pine Beetle
T&E	Threatened and endangered
USDA	United States Department of Agriculture

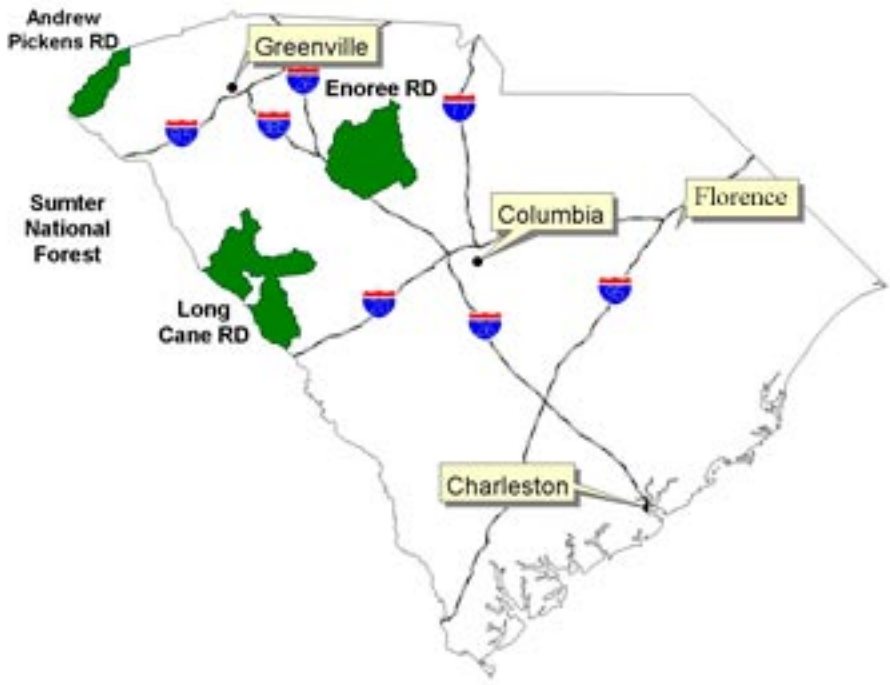
Forest Supervisor's Certification

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.

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

Tony L. White (for)
JEROME THOMAS
Forest Supervisor

October 6, 2006



Executive Summary of Monitoring and Evaluation Results and Report Findings

The *Land and Resource Management Plan* (Forest Plan) provides guidance on how the Sumter National Forest (SNF) 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. The following monitoring results are based on the Forest Plan signed in January of 2004.

Summary of Key Results and Findings:

Ecosystem Condition, Health and Sustainability

Biological Diversity

Collection of baseline data for rare communities is ongoing. Cove communities at Station Cove and Brasstown on the Andrew Pickens Ranger District (AP) are degrading due to overuse of trails. The Forest Service has entered into a partnership with South Carolina Native Plant Society (SCNPS) to reroute portions of the trail and increase signage and visitor education.

The non-native invasive plant Chinese privet poses a threat to rare communities, especially those occurring within riparian corridors. Existing environmental decisions allow treatments of invasive plants across the forest. Approximately 9 acres of invasive plants (Chinese privet and Autumn olive) were treated in the Tamassee Botanical Area in FY 2005. Chinese privet is also a problem along Turkey/Stevens Creek on the Long Cane District. Partnerships are being developed to control species in this area as well. Approximately 103 acres were treated across the forest in 2005 for kudzu, Chinese privet, Chinese wisteria and Autumn olive.

Approximately 410 acres of table mountain pine on the Andrew Pickens (AP) Ranger District received a prescription burn to help maintain this rare community, and about 510 acres of open woodlands also received a prescription burn.

An additional 207 acres of woodland habitat will be created in the Cedar Creek project area in the next few years on the Andrew Pickens as will 447 acres in the Indian Creek/Lower Enoree project area located on the Enoree Ranger District. Project activities are also aimed at increasing oak types on the piedmont districts (Enoree and Long Cane Ranger Districts) in the 9.G.2 Management Prescription (Restoration of Upland Oak-Hickory and Mixed pine-Oak-Hickory Forests) by precommercial and commercial thinning (357 acres).

The Village Creek timber sale (AP) was completed and removed off-site loblolly pine in favor of native vegetative communities. Two other loblolly removal project decisions were made in FY

2005, Chauga and Cedar Creek (both on the AP). The acreage of loblolly pine identified on the Andrew Pickens District is 6,832 acres. Woodlands habitat is being planned on the Long Cane Ranger District with a project decision in early FY 2007.

Field reviews are also being done to determine areas where shortleaf pine can be restored on the piedmont districts. The current GIS database shows approximately 3,176 acres of shortleaf across the Forest. The SC Native Plant Society, Erskine College and Carolina Wild Native Plant Nursery have entered into a cooperative effort to propagate native river oats and several native shrubs.

A decision was made on the Long Cane Ranger District to restore 150 acres in canebrakes and rare basic mesic plant communities

The forest has an abundance of mid-late successional stage acreage, and late successional stage acreage in comparison with desired conditions for management prescriptions suitable for timber production. In contrast, management prescriptions are far below the desired condition for early successional stage forest.

Forest and aquatic communities were monitored in 2005. This included stream fish communities, aquatic macroinvertebrate communities and pond game fish. Habitat conditions were not inventoried in 2005 due to decreased funding. The population status of native species is considered to be currently stable throughout all or significant portions of their range, with the exception of brook trout and American eel populations within South Carolina.

Surveys were conducted for the federally-endangered Carolina heelsplitter on Turkey Creek and its tributaries on the Long Cane Ranger District. Occurrences for one live heelsplitter individual and several sensitive mussel species were documented.

Surveys for the Georgia aster (listed as sensitive by the Forest Service) were conducted on the Long Cane Ranger District. More than 1,700 plants from 45 new locations were found. They were all located along roadside or powerline rights-of-way. A decision to restore 17 acres of habitat for Georgia aster was also completed.

Habitat improvement (using prescription fire) for the federally endangered smooth coneflower was completed on 510 acres on the Andrew Pickens. Habitat improvement planning for sun-facing coneflower (listed as sensitive by the Forest Service) was also begun.

One population of the sensitive plant, leadplant was monitoried on the Long Cane Ranger District. Although 120 plants were seen from three colonies, less than one percent had flowered.

Forest Health

Approximately 17,456 acres of prescribed burning were completed in 2005. The forest health goal for the Sumter National Forest is to burn 23,600 acres annually. Though meeting burning objectives is increasingly more difficult to accomplish because of urbanization, smoke and other issues, the forest is making significant progress toward meeting this annual burning objective. This trend is expected to continue.
Approximately 12 per cent of the Forest is currently in condition class 1. These are defined as lands where the departure from the natural regime, including vegetative characteristics, fuel composition, fire frequency, and other associated disturbances is low.

Prescribed fire emissions on the Sumter 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, fine particulate matter released into the atmosphere was 629 tons/year, down slightly from FY 2004 of 633 tons/year. The three fine particulate monitoring sites closest to the Sumter National Forests had increases in both the 24-hour and annual average fine particle concentration in 2005, but the National Ambient Air Quality Standard (NAAQS) was not exceeded.

Approximately 2,788 acres of commercial thinning were offered in FY 2005. The Sumter is making good progress toward achieving objective 17.01 that states "Improve forest health on 10,000 to 50,000 acres of pine forests by reducing stand density."

The forest has prepared environmental assessments to both thin and regenerate stands at risk of insect and disease damage and mortality. Early successional age classes will also be created with some of these decisions. Management prescriptions include 10B and 9.G.2. Most treatment prescriptions include both release and site-preparation to favor or enhance existing desirable hardwood species such as oak and hickories where possible. Prescribed burning is used to help maintain and enhance habitat conditions once desired conditions are achieved.

A review of the 2005 "Plantation Evaluation and Performance" (PEP) report shows that all plantations except one met the stocking guide. The single stand below the minimum number is within 2.5 per cent of the guide. Most stands are now regenerated by natural regeneration (seed tree vs. planted seedlings). These stands typically have tree regeneration far in excess of minimum numbers needed for adequate stocking.

Recreation

A high percentage of user-created horse trails were mapped across all Districts on the Sumter in 2005. The data have not been analyzed yet. An equestrian recreational use study was contracted in FY 2005 and results will be reported in the FY 2006 Monitoring Report.

Heritage Resources

Current archeological monitoring targets more visible sites with a known history of vandalism or other damage. Vandals and artifact collectors continue to use metal detectors to search historic sites and remove artifacts. An investigation by Forest Service law enforcement officers lead to the apprehension of four individuals illegally digging on a prehistoric site. Several sites are being damaged by water erosion along the shoreline of Strom Thurmond Lake on the Long Cane Ranger District. Unauthorized use of woods roads, OHV use, horseback riding and bike trails are causing erosion and disturbance on sites.

Organizational Effectiveness

The Sumter National Forest offered 3.7 million cubic feet (MMCF) of forest products for sale in FY 2005 with 0.4 MMCF offered in Management Prescription 10B – High Quality Forest Products. This compares to an allowable sale quantity of 13.9 MMCF/year during the 10-year period.

Roads were reconstructed to meet the intended traffic volumes safely and to lessen the impacts to the forest. Using the Forest Service road construction, maintenance, and reconstruction standards, current Best Management Practices, and technical assistance from other resource experts, road were designed to mitigate negative impacts to resources while focusing on watershed health. Timber harvesting road projects were mainly for resurfacing and culvert replacement. No new roads were constructed in FY 2005.

The forest continued to conduct road condition surveys in FY 2005 to access the backlog of deferred maintenance. The current updated survey identified $22,962,711 dollars of maintenance needed on the 1,059 miles of road on the Sumter National Forest. Timber road mileages increased slightly with more harvest activity while road reconstruction decreased with a significant road program budget reduction.

An additional 4,834 acres were acquired on the Sumter National Forest during this fiscal year.

An Integrated Resource Reviews (IRR) was completed on the Andrew Pickens Ranger District and a report was prepared.

Chapter 1. Introduction

The Sumter National Forest is 364,704 acres in the central piedmont and western mountains of South Carolina. It is composed of three districts: Andrew Pickens (AP), Enoree (EN), and Long Cane (LC). The *Revised Land and Resource Management Plan* (Forest Plan) approved on January 15, 2004, guides management activities on the Sumter. These 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 and is designed to ensure the goals and objectives are being achieved, standards and guidelines are being followed, and environmental effects are occurring as predicted. Monitoring and evaluation determine if the forest is moving toward or achieving the desired conditions for resources.

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

Chapter 2. Monitoring Results and Findings

Sub-Issue 1.1 – Biological Diversity

MQ 1: Are rare ecological communities being protected, maintained, and restored?

Information

This monitoring question is responsive to goal 12, objectives 12.01 and 12.02 and standards FW-30, FW-31 and FW-32. Objective 12.01 is to restore 500 to 2,500 acres of table mountain pine forest over the 10-year planning period. Objective 12.02 is to restore 1 to 5 percent of the riparian corridor on slopes less than 8 per cent into the canebrake community over the 10-year planning period in the piedmont. The monitoring elements are defined as follows:

1. Baseline acreage, condition, and distribution of rare communities on the forest.

2. Rare communities restored. Specifically table mountain pine dominated communities and canebrakes.

Results

1. Collection of baseline information on the condition of rare communities is ongoing. Rich cove communities at Station Cove and Brasstown on the

Andrew Pickens are degrading, due to overuse of some of the trails and due to off-trail visitor use. A partnership between the South Carolina Native Plant Society and the Forest Service was developed to reroute portions of the trail and to increase signage and visitor education.

2. Rich cove communities at Tamassee Creek on the Andrew Pickens are threatened by the non-native invasive species Chinese privet and Autumn olive. The non-native invasive Chinese privet threatens rich cove communities along the Turkey/Stevens Corridor on the Long Cane. Non-native invasive species were treated along 9 acres, in the Tamassee Creek Botanical Area in FY 2005. A partnership was developed with the Student Conservation Association (SCA) to control Chinese privet and Microstegium in the corridor in FY 2006.

   There is no change in information from that reported in the 2004 Monitoring Report.

   Approximately 410 acres of table mountain pine at West Toxaway on the Andrew Pickens were prescribed burned/maintained in FY 2005.

   About 510 acres of open woodlands were prescribed burned on the Andrew Pickens Ranger District. Also, a decision to restore open woodlands was completed for the Cedar Creek project area.
   A decision was completed on the Long Cane District to restore 150 acres of canebrakes and rare basic mesic plant communities. Native river oats seed and several native shrubs were collected and are being propagated through cooperation with the South Carolina Native Plant Society, Erskine College and Carolina Wild Native Plant Nursery.

Findings

The non-native invasive plant Chinese privet poses a large threat to rare communities, particularly those occurring within the riparian corridors on the piedmont (including canebrakes). Efforts to restore canebrakes should focus on frequent prescribed burning and the treating of Chinese privet using integrated pest management methods.

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

Information

This monitoring question is responsive to goal 8, objectives 8.01, 8.02, 8.03, 8.04, 8.05 and 8.06.

Objective 8.01 is to restore 2,000 – 6,000 acres of native communities on sites occupied by loblolly pine on the Andrew Pickens District over the 10-year planning period.

Objective 8.02 is to provide 8,000 – 11,000 acres of woodlands in the piedmont and 4,000 – 5,000 acres of woodlands on the mountains on dry-xeric sites in woodland, savanna, open grassland, or shrubland conditions with fire associated rare communities preferred over the 10-year planning period.

Objective 8.03 is to create conditions to restore dry-mesic oak, oak-pine, and pine-oak forest communities on 20,000 acres currently in loblolly pine in the piedmont over the 10-year planning period.

Objective 8.04 is to increase shortleaf pine and shortleaf pine/oak communities on 2,000 to 10,000 acres in the piedmont. This will be done on sites with low risk of littleleaf disease.

Objective 8.05 is to increase structural diversity by creating canopy gaps in 1 to 5 percent of closed canopy mid and late-successional mesic deciduous forest (including mixed mesophytic and mesic oak forests). Gaps are defined as small openings smaller than 2 acres in size and are designated to release mast producing species, particularly hard mast (oak, hickory, walnuts, etc.) and soft mast bearing trees (cherry, black gum, persimmon, etc.) over the 10-year planning period.

Objective 8.06 is to restore more diverse native communities on 1,000 to 2,000 acres currently occupied by white pine stands. Prioritize xeric to intermediate sites over the 10-year planning period.

The monitoring elements are defined as follows:

1. Restore native communities on sites occupied by loblolly pine on the Andrew Pickens District.

2. Provide for dry-xeric sites in the piedmont and mountains with rare communities preferred.

3. Create conditions to restore dry-mesic oak, oak-pine, and pine-oak communities on the piedmont.

4. Increase shortleaf pine and shortleaf pine/oak communities on the piedmont.

5. Restore sites currently occupied by white pine stands to diverse native communities.

6. Increase structural diversity by creating gaps in 1 to 5 per cent of closed canopy mid- and late-successional mesic deciduous forest.

7. Trends in Management Indicator Species (MIS) population indices in relationship to major forest community/conditions. Frequency of occurrence trends in hooded warbler, scarlet tanager, pine warbler, Acadian flycatcher and brown-headed nuthatch.

Results

1. The acreage of loblolly pine on the Andrew Pickens, 6,832 acres, remains unchanged in the Geographic Information System (GIS) database. The Village Creek timber sale was harvested in FY 2005. This sale was comprised of loblolly pine removal harvests. The forest type for these stands should be changing this year. A decision for the Chauga loblolly project was completed in 2005. t likewise is made up of loblolly pine removal harvest, as is a portion of the Cedar Creek project, for which a decision was also completed in 2005.

2. Existing areas (See Objective 8.02):

District	Acres	Area
Andrew Pickens	360	Garland Tract
Long Cane	54	Post Oak Savanna

In FY 2005, decisions were made for 2 projects that will establish woodland or savanna conditions. These projects were:

Cedar Creek project, Andrew Pickens RD	207 acres
Lower Enoree/Indian Creek project, Enoree RD	447 acres

An Environmental Assessment was also in process for the RENEW project on Long Cane. The area proposed for woodland conditions in this project is 964 acres.

Queries on the GIS database gave the following results. (See Objective 8.03.)

	ACRES	
	Loblolly and Virginia Pine	Oak Types
All piedmont	205,240	55,640
Mgt Rx 9G2	32,100	9,518

Activities in FY 2005 to increase oak types on the piedmont:	
182 acres	Commercial thinning, Management Prescription - 9G2
175 acres	Precommercial thinning

3. The GIS database currently shows 3,176 acres of shortleaf pine, no change from the acreage last year or the baseline acreage on 7/27/03. (See Objective 8.04.)

4. GIS database currently shows 7,415 acres of white pine types on the Andrew Pickens. No change from baseline acreage. (See Objective 8.06.)

5. No projects were implemented in 2005 to create gaps or alter major forest community or conditions (See Objective 8.05).

6. Data to estimate MIS trends remains in transition because the new Regional database is still under construction.

Findings

Objective 8.02 is unlikely to be fully achieved during the planning period at current funding and staffing levels, and with the flow of woodland/grassland/savanna/shrubland projects being planned.

The Sumter has been evaluating soils for areas suitable for shortleaf pine on all recent projects (See Objective 8.04.). This includes not only establishment, but also the long-term likelihood that it will remain free of littleleaf disease. We are finding very few areas of size to allow conversion to shortleaf pine. Shortleaf pine needs good soil depth (approx 8”+ topsoil) with well-drained to moderately well-drained soils. Past erosion has generally left such soils in very few places. The areas found thus far tend to be very small,

isolated parts of certain ridges or flats. They are usually too small for significant operational conversion. This objective is unlikely to be fully achieved during the planning period.

Gap creation and forest stand composition changes need to be integrated into silvicultural and other projects.

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

MQ 3: Are key successional stage habitats being provided?

Information

This monitoring question is responsive to goals 8 and 13, desired conditions for management prescriptions 7E2, 8A1, 8B2, 9A3, 9G2, and 10B, and standard FW-33. The monitoring elements are defined as follows:

1. Trends in early, mid and late successional habitat by prescription group are shows in Table 2-1. Data are unchanged from the 2004 Monitoring Report.

2. The number of acres, conditions and distribution of existing old growth.

3. Trends in MIS population indices in relationship to major forest community/conditions to help indicate the effects of management on successional habitats. Frequency of occurrence trends in prairie warbler, Swainson's warbler, field sparrow and American woodcock.

Results

1. Trends in early, mid and late successional habitat by management prescription are presented in Table 2-1.

2. The old growth monitoring item only needs to be reported every five years.

3. Data to estimate MIS trends remains in transition because the new Regional database is still under construction.

Findings

Refer to Table 2-1. The same pattern holds across all management prescriptions: an abundance of mid-late successional stage acreage, and late successional stage acreage in comparison with desired conditions. In contrast, all management prescriptions are far below

the desired condition for early successional stage forest. Many projects are in progress to address this need. However, budgets and personnel are also a limiting factor in achieving the desired conditions. National Environmental Policy Act (NEPA) process compliance and costs are also a factor.

Table 2-1 Status of early, mid and late successional habitat by Management Prescription

Mgt Rx	Total Forested Acres	Successional Stage	Acres			Percentage	
			AP	EN	LC	Desired	Actual
7E2	60,664	Early	119	338	511	4-10	2%
		Mid to late	9,608	18,758	20,509	50+	81%
		Late	6,323	9,930	11,330	10+	45%
8A1	38,040	Early	440			4-10	1%
		Mid to late	31,042			50+	82%
		Late	25,349			10+	67%
8B2	7,887	Early		79	97	10-17	2%
9A3	11,000	Early		0		4-10	0%
		Mid to late		10,187		50+	93%
		Late		3,745		10+	34%
9G2	42,991	Early		758	389	4-10	3%
		Mid to late		20,427	14,319	50+	81%
		Late		8,649	8,861	10+	41%
10B	136,500	Early		2,005	2,321	10-17	3%
		Mid to late		59,866	47,391	20+	79%
		Late		35,812	28,420	10+	47%

Old growth monitoring was not funded in FY 2005.

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

MQ 4: How well are key terrestrial habitat attributes being provided?

Information

This monitoring question is responsive to goals 3, 4, 8, 9, objective 9.01 and standard FW-18. Objective 9.01 is to construct or restore wetlands on 600 acres in the riparian corridor on the piedmont over the 10-year planning period.

The monitoring elements are defined as follows:

1. Acres, conditions, and distribution of wetland habitats and ephemeral wetlands.

2. Trends in MIS population indices in relationship to major forest community/conditions. Frequency of occurrence trends in Pileated woodpecker.

3. Trends in hard mast production capability.

Results

1. No projects were implemented in 2005 to create wetland habitats, improve or restore mast producing hardwood stands, or alter major forest community or conditions.

2. Data to estimate trends remains in transition because the new Regional database is still under construction.

3. No data were collected related to trends in hard mast production capability.

Findings

Wetland habitat development and hardwood restoration activities need to be incorporated into silvicultural and other projects on the forest.

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

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

Information

This monitoring question is responsive to goals 3 and 4 and objectives 4.01 and 11-OBJ-2. Objective 4.01 is to create and maintain dense understory of native vegetation on 1 to 5 per cent of the total riparian corridor acreage during the 10-year planning period. Objective 11-OBJ-2 is to restore and enhance stream habitat and aquatic communities in 50 miles of streams. This includes woody debris, stream bank stabilization, brook trout restoration, and in-stream habitat improvement.

The monitoring elements are defined as follows:

1. Trends in the composition and abundance of macroinvertebrate communities

2. Trends in the composition and abundance of stream fish communities

3. Trends in aquatic habitat conditions. Perennial and intermittent streams are managed in a manner that provides a source for large woody debris input to channels.

4. Improve, rehabilitate, or restore aquatic habitat

Results

1. Existing population conditions for macroinvertebrate communities are unknown. Crayfish and mussels were collected in conjunction with the fish community monitoring in 2003 and reported in the 2004 Monitoring and Evaluation report on pages 13 and 14.

2. Stream fish inventory and monitoring sampling in Sumter National Forest streams were conducted in 2001-2005 (Tables 2-2, 2-3 and 2-4). Only data from the last 4 years is displayed in this report however. Repetitive sampling in streams varied from year to year due to drought conditions (2002), above average rainfall (2003) and below average rainfall (2004). Funding restrictions decreased the number of streams sampled in 2005. Dry stream channels were encountered in piedmont streams with drought and below average rainfall. A total of 28 streams have been inventoried in the piedmont (Enoree and Long Cane Ranger Districts). Monitoring samples have been conducted in 14 of those streams.

   A total of 15 streams have been sampled in the mountain region (Andrew Pickens Ranger District). Monitoring samples have been conducted in five of those streams. Several streams have been sampled to determine the distribution of trout.

Table 2-2. List of fish surveys sites on the Enoree Ranger District.

Stream	Site #	Watershed	Quad	# Species Captured			
				2002	2003	2004	2005
McCluney Branch	1	Broad River	Leeds	6	5		
	2						
UT* Clarks Creek	1		Leeds				
	2			8	2	7	8
	3			7	6	6	7
Fosters Branch	1	Enoree River	Newberry East		3		
Means Branch	1		Whitmire South/ Newberry East		7		
Mulberry Branch	1		Newberry NW			5	
Ned Wesson Branch	1		Newberry NW			8	
Pattersons Creek	1		Newberry NW	7	6	6	6
	2						
	3			5	6	4	5
Quarters Branch	1		Newberry East		8		
Sispring Branch	2		Philsons Crossroads	7	3		
	3			5	4		
South Fork Duncan Creek	1		Newberry NW			9	
UT* Duncan Creek	1		Philson Crossroads			6	
UT* South Fork Duncan Creek	1		Newberry NW			7	
Sparks Creek	1	Tyger River	Union West/ Sedalia				
	2			5	5		
	3			5	3		
UT* Tyger River	1		Union West/ Sedalia	2	6	6	5
	2			4	5	5	6
	3						

* Unnamed Tributary

Table 2-3. List of fish surveys sites on the Long Cane Ranger District

Stream	Site #	Watershed	Quad	# Species Captured			
				2002	2003	2004	2005
Big Curltail Creek	1	Long Cane Creek	Abbeville East				
	2			11		22	17
	3			18	15	21	17
Bold Branch	1		Calhoun Creek	7	5		
	2			9	8		
	3						
Candy Branch	1		Verdery				
	2			4	3	5	4
	3			3	3	4	1
Little Curtail Creek	1		Abbeville East		14		
McGill Branch	1		Verdery			11	
Mountain Creek	1		Verdery			9	
Byrd Creek	1	Stevens Creek	Winterseat				
	2			4	4		
Camp Branch	1		Red Hill	14	10	16	
	2			10	14	13	
Lick Fork	1		Colliers	12	16		
	2			11	4		
	3						
Miller Branch	1		Colliers				
Pike Branch	1		Limestone				
Rock Creek	1		Colliers/Red Hill				
	2			13			12
	3			6		11	9
Wilson Branch	1		Limestone		10	8	
	2				2		
	3				5		
UT Rock Creek	1		Colliers/ Red Hill		11		

* Unnamed Tributary

Table 2-4. List of fish surveys sites on the Andrew Pickens Ranger District.

Stream	Site #	Watershed	Quad	# Species Captured			
				2002	2003	2004	2005
Chauga River	1	Chauga River	Whetstone				
	2			10		10	
Pigpen Branch	1	Chattooga River	Tamassee	3	3		
	2			2	3		
Tamassee Creek	1	Chattooga River	Tamassee	9	9		
	2				5		
Crane Creek	1	Cheohee Creek	Tamassee	1		1	
	2					1	1
Jacks Creek	1	Chattooga River	Cashiers		1		
Townes Creek	1	Cheohee Creek	Tamassee		7		
Yellow Branch		Coneross Creek	Walhalla		4		
Bee Cove Creek		Whitewater River	Cashiers		1		
Howard Creek		Whitewater River	Cashiers		1		
Limber Pole Creek		Whitewater River	Tamassee		1		
Moody Creek		Cheohee Creek	Tamassee		1		
Wilson Creek		Cheohee Creek	Tamassee		0		
East Fork Chattooga River	1	Chattooga River	Cashiers/ Tamassee		12		
	2				4		
	3				3		
King Creek	1	Chattooga River	Tamassee			5	5
	2			1	1	1	1
Fall Creek		Chattooga River	Rainy Mountain			4	

Over the sampling period, 22 species have been captured in Enoree Ranger District streams and 38 species in Long Cane Ranger District streams (Tables 2-5 and 2-6). The two districts reside in different major watersheds as is reflected by the number and type of fish species that occur in the streams. The Enoree Ranger District is located in the Santee Cooper watershed and the Long Cane Ranger District is located in the Savannah River watershed. The number of species captured by watershed in 2002-2005 is displayed in Tables 2-7 and 2-8.

A total of 26 species have been captured in cool and cold water habitats on the Andrew Pickens Ranger District (Table 2-9).

Table 2-5. Species captured by backpack electro-fishing in Enoree Ranger District streams. (A total of 14 different streams were sampled from 2001-2005.)

Species		2002	2003	2004	2005
	# Watersheds	3	3	3	3
	# Streams	6	9	8	3
Catostomidae					
Erimyzon oblongus oblongus	Creek chubsucker	x	x	x	
Moxostoma rupiscartes	Striped jumprock				
Centrarchidae					
Lepomis auritus	Redbreast sunfish	x	x	x	x
Lepomis cyanellus	Green sunfish	x			x
Lepomis gibbosus	Pumpkinseed	x			
Lepomis gulosus	Warmouth		x		
Lepomis macrochirus	Bluegill	x	x	x	
Micropterus salmoides	Largemouth bass		x		
Cyprinidae					
Clinostomus funduloides	Rosyside dace	x	x	x	x
Cyprinella nivea	Whitefin shiner		x		
Hybopsis hypsinotus	Highback chub	x	x		x
Nocomis leptocephalus	Bluehead chub	x	x	x	x
Notropis hudsonius	Spottail shiner	x	x		
Notropis lutipinnis	Yellowfin shiner	x	x	x	x
Notropis scepticus	Sandbar shiner		x		
Semotilus atromaculatus	Creek chub	x	x	x	x
Esocidae					
Esox americanus.	Redfin pickerel	x	x		x
Esox niger	Chain pickerel	x			
Ictaluridae					
Ameiurus natalis	Yellow bullhead	x	x	x	x
Ameiurus platycephalus	Flat bullhead		x		
Percidae					
Etheostoma olmstedi	Tessellated darter	x	x	x	x
Poeciliidae					
Gambusia holbrooki.	Eastern mosquitofish	x	x	x	x

Table 2-6. Species captured by backpack electro-fishing in Long Cane Ranger District streams.					
Species		**2002**	**2003**	**2004**	**2005**
	# Watersheds	2	2	2	2
	# Streams	7	9	6	3
Anguillidae					
Anguilla rostrata	American eel		x		
Aphredoderidae					
Aphredoderus sayanus	Pirate perch	x	x	x	x
Catostomidae					
Erimyzon oblongus	Creek chubsucker	x	x	x	x
Hypentelium nigricans	Northern hogsucker	x	x	x	x
Moxostoma rupiscartes	Striped jumprock	x	x		x
Centrarchidae					
Lepomis auritus	Redbreast sunfish	x	x	x	x
Lepomis cyanellus	Green sunfish	x	x	x	x
Lepomis gibbosus	Pumpkinseed				
Lepomis gulosus	Warmouth	x	x	x	x
Lepomis macrochirus	Bluegill	x	x	x	x
Lepomis marginatus	Dollar sunfish			x	
Lepomis microlophus	Redear sunfish	x	x	x	x
Micropterus coosae	Redeye bass	x	x	x	
Micropterus punctulatus	Spotted bass		x	x	x
Micropterus salmoides	Largemouth bass	x	x	x	x
Pomoxis nigromaculatus	Black crappie			x	x
Cyprinidae					
Clinostomus funduloides	Rosyside dace				
Hybognathus regius	Eastern silvery minnow				
Hybopsis rubrifrons	Rosyface chub	x	x	x	
Nocomis leptocephalus	Bluehead chub	x	x	x	x
Notemigonus crysoleucas	Golden shiner	x	x		
Notropis cummingsae	Dusky shiner	x		x	
Notropis hudsonius	Spottail shiner	x	x	x	x
Notropis lutipinnis	Yellowfin shiner	x	x	x	x
Notropis scepticus	Sandbar shiner		x		
Semotilus atromaculatus	Creek chub	x	x	x	x
Clupeidae					
Dorosoma cepedianum	Gizzard shad		x	x	
Ictaluridae					
Ameiurus natalis	Yellow bullhead	x	x	x	x
Ameiurus nebulosus	Brown bullhead				
Ameiurus platycephalus	Flat bullhead	x	x	x	x
Ictalurus punctatus	Channel catfish		x		
Noturus insignis	Margined madtom	x	x	x	x
Noturus leptacanthus	Speckled madtom		x		
Percidae					
Etheostoma hopkinsi	Christmas darter	x	x	x	
Etheostoma olmstedi	Tessellated darter	x	x		x
Perca flavescens	Yellow perch	x		x	
Percina nigrofasciata	Blackbanded darter	x	x	x	x
Poeciliidae					
Gambusia holbrooki	Eastern mosquitofish	x	x	x	x

Table 2-7. Number of species captured per watershed on the Enoree Ranger District.

Watershed	# Species Captured			
	2002	2003	2004	2005
Broad River	10	7	8	9
Enoree River	9	11	10	6
Tyger River	7	8	8	7

Table 2-8. Number of species captured per watershed on the Long Cane Ranger District.

Watershed	# Species Captured			
	2002	2003	2004	2005
Long Cane Creek	20	18	27	21
Stevens Creek	23	24	18	13

Table 2-9. Species captured by backpack electrofishing in Andrew Pickens Ranger District streams. (A total of 15 different streams were sampled from 2001-2005.)

Species		2002	2003	2004	2005
Catostomidae					
Catostomus commersoni	White sucker		x		
Hypentelium nigricans	Northern hogsucker	x	x	x	
Moxostoma rupiscartes	Striped jumprock	x	x	x	x
Centrarchidae					
Lepomis auritus	Redbreast sunfish	x	x		
Lepomis cyanellus	Green sunfish			x	
Lepomis gulosus	Warmouth			x	
Lepomis macrochirus	Bluegill	x	x		
Micropterus coosae	Redeye bass				
Cottidae					
Cottus bairdi	Mottled sculpin		x	x	x
Cyprinidae					
Campostoma anomalum	Central stoneroller		x		
Clinostomus funduloides	Rosyside dace		x		
Hybopsis rubrifrons	Rosyface chub	x	x		
Luxilus coccogenis	Warpaint shiner		x		
Nocomis leptocephalus	Bluehead chub	x	x	x	
Notropis lutipinnis	Yellowfin shiner	x	x	x	
Rhinichthys cataractae	Longnose dace		x	x	x
Rhinichthys atratulus	Blacknose Dace		x	x	
Semotilus atromaculatus	Creek chub	x	x	x	
Ictaluridae					
Ameriurus brunneus	Snail bullhead			x	
Ameiurus platycephalus	Flat bullhead	x			
Percidae					
Etheostoma inscriptum	Turquoise darter	x	x		
Perca flavescens	Yellow perch	x			
Percina nigrofasciata	Blackbanded darter	x		x	
Salmonidae					
Oncorhynchus mykiss	Rainbow trout	x	x	x	x
Salmo trutta	Brown trout	x	x	x	x
Salvelinus fontinalis	Brook trout	x	x	x	x

Of the 22 species captured in Enoree Ranger District streams, two are considered non-indigenous or introduced species to the watershed (Warren, et al. 2000). The green sunfish was captured in two streams and the yellowfin shiner was captured in 12 streams. In Long Cane Ranger District streams, there are three species considered non-indigenous and one species of uncertain status. The green sunfish was captured in 12 streams, the bluehead chub in 11 streams and the yellow perch in two streams. The channel

catfish is categorized as “native or introduced status uncertain” and was captured in one stream below an impoundment that is stocked. The remaining species captured are native to the watersheds and the population status of these species is considered to be currently stable throughout all or a significant portion of their range. One American eel was captured in a Long Cane Ranger District stream in 2003. Dams have hampered upstream migration of this species, and the US Fish and Wildlife Service is presently seeking scientific information and public comment on a petition to list the American eel under the Endangered Species Act.

Of the 26 species captured in Andrew Pickens Ranger District streams, five are considered non-indigenous or introduced species to the watershed (Warren, et al. 2000). These include the green sunfish, yellowfin shiner, yellow perch, rainbow trout and brown trout. Brown and rainbow trout have invaded brook trout habitat and replaced this species in much of its historical range. The SC Heritage Program designated the brook trout as S2 species. The remaining species captured are native to the watersheds and the population status of these species is considered to be currently stable throughout all or a significant portion of its range.

The trophic composition of the fish assemblage remained relatively unchanged throughout the sampling period. Insectivores dominate the fish community on both piedmont districts, which indicates that the invertebrate food source is stable. Three predators were present in Enoree streams and five in Long Cane streams, one of which is non-indigenous. Three omnivore species were present in the Enoree streams and five in the Long Cane streams. Omnivore species increase as the physical and chemical habitat deteriorates.

Insectivores also dominate the community in Andrew Pickens streams. One predator and three omnivore species were present in the samples.

Most species captured in these streams are classified as intermediate in their tolerance to human influences, adept at exploiting particular types of disturbances. Three species captured in Enoree samples and two species in Long Cane samples are considered intolerant, or very sensitive, to human

influences. Intolerant species are among the first to be decimated after disturbances and the last to recolonize after normal conditions have returned. All of these species, except the whitefin shiner (Enoree), were present during most of the 2001-2005 sampling years. Tolerant species increase in the population with environmental degradation. In the streams sampled, there was no increase in tolerant species.

Most species captured in Andrew Pickens streams were also classified as intermediate in their tolerance to human influences. There were no intolerant classified species captured, and two tolerant classified species were present.

3. Habitat inventories were not conducted in 2005.

4. Refer to monitoring question #8.

Findings

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

Twenty-eight streams have been inventoried across the piedmont, and repeated samples have been conducted in 14 of those streams. Fifteen streams have been inventoried across the mountains, and repeated samples have been conducted in five of those streams.

Twenty-one species have been captured in Enoree Ranger District streams, and 38 species have been captured in Long Cane Ranger District streams. Twenty-six species have been captured across the Andrew Pickens Ranger District.

Approximately 10 per cent of fish captured in Enoree Ranger District streams are considered non-indigenous or introduced species; 13 per cent in Long Cane Ranger District streams; and 19 per cent in Andrew Pickens District streams. The population status of native species is considered to be currently stable throughout all or significant portions of their range, with the exception of brook trout populations within South Carolina and the American eel.

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 few intolerant species captured; however there was no increase in tolerant species.

MQ 7: What are the status and trends of federally listed species and populations or habitats for species with viability concerns on the Sumter?

Information

This monitoring question is responsive to goals 4, 10, 12, objectives 10.01 and 10.02, and standards 9F-1 through 9F-8 and FW-25 thru FW-28. Objective 10.01 is to maintain or restore at least 8 self-sustaining populations for smooth coneflower and if possible, 4 populations for small whorled pogonia on the Andrew Pickens, including the habitat to support them. Objective 10.02 is to maintain or restore at least 8 self-sustaining populations for Georgia aster and 1 population for Florida gooseberry on the piedmont districts, and the habitat to support them.

The monitoring element is defined as follows:

1. Trends in recovery of threatened and endangered species, and status and distribution of some viability concern species that are not specifically identified under other elements. Species targeted under this element will be determined through periodic review of each species status and conservation priority. Priorities will likely vary through the life of the Forest Plan as new information is available.

Results

1. In FY2005, Alderman Environmental Services conducted surveys for the federally endangered Carolina Heelsplitter on Turkey Creek and its tributaries. Occurrences for one live heelsplitter individual, and several mussel species listed as sensitive were located.

   Surveys for Georgia aster were conducted on the Long Cane Ranger District, and more than 1,700 plants from 45 new locations, all along roadside or powerline rights-of-ways, were found.

   The one population for sensitive leadplant (*Amorpha schwerini*) on the Long Cane district was monitored. Although 120 plants were seen from 3 colonies, less than 1 per cent of the population had flowered.

A recent project decision will restore approximately 17 acres of habitat for Georgia aster.

Habitat improvement (prescribed burning) for the federally endangered smooth coneflower was conducted over 510 acres on the Andrew Pickens Ranger district. Habitat improvement planning for sun-facing coneflower (*Rudbeckia helipsidis*) began on the Andrew Pickens Ranger district.

See Table 2-10 for a summary of the PETS species on the Sumter National Forest and their status:

Table 2-10. PETS species on the Sumter National Forest and their status

SPECIES	RANKING	STATUS
Bald Eagle	Federally Threatened	Two nests; one discovered on the Enoree in 2002; one nest on the Long Cane abandoned since 1999
Wood Stork	Federally Endangered	No known roost sites on the Forest; wetlands used for late summer foraging
Carolina Heelsplitter	Federally Endangered	Critical habitat on the Forest includes stream reaches within 2 watersheds on the Long Cane Ranger district
Smooth Coneflower	Federally Endangered	8 populations and 1353 plants in 2004; 4 "self-sustaining", the remaining 4 increasing
Small Whorled Pogonia	Federally Threatened	Species has declined on the Forest from a high of 53 plants in 1995 to 7 plants in 2004 despite protection efforts
Florida Gooseberry	Federally Threatened	Six colonies occur within one site on the Long Cane Ranger district
Persistent Trillium	Federally Endangered	Not known from the Forest
Relict Trillium	Federally Endangered	Not known from the Forest
Southern Appalachian Salamander	Sensitive	Hybridizes with *Plethodon jordanii* and *Plethodon glutinosus*. Common on the Andrew Pickens.
Webster's Salamander	Sensitive	Census in 2002-2003 documented 252 individuals on the Long Cane district, with a capture rate of 8.5 salamanders/hour
Bachman's Sparrow	Sensitive	Few species records; species is rare on the piedmont due to lack of habitat
Migrant Loggerhead Shrike	Sensitive	No species records; agricultural habitat preferred by the species is lacking on National Forest land
Chauga Crayfish	Sensitive	Located by Eversole, in 23 % of streams sampled for crayfish within Chattooga and Chauga river basins
Carolina Darter	Sensitive	Not known from the Forest but range includes the Broad River on the Enoree
Robust Redhorse	Sensitive	Stocked in the Broad River in 2004; Known historically from the Savannah River below Augusta
Diana Fritillary	Sensitive	2 locations documented on the Andrew Pickens within open, fire-maintained woodlands; thought to be common
Rafinesque's Big-Eared Bat	Sensitive	Study with Southern Research Station located one male roosting on the Andrew Pickens in 2003; large roost site in abandoned mine occurs adjacent to the Forest
Eastern Small-Footed Myotis	Sensitive	Two records from the Andrew Pickens
Brook Floater	Sensitive	Large population in the Chattooga River; intensive population sampling scheduled for 2005
Rayed Pink Fatmucket	Sensitive	Not currently known from the Forest but ranges within the Saluda watershed on the Long Cane

Table 2-10. PETS species on the Sumter National Forest and their status (continued)		
Indigo Bush	Sensitive	Two populations known from the Forest, one on the Enoree and one on the Long Cane
Fort Mountain Sedge	Sensitive	Four sites known on the Andrew Pickens
Radford's Sedge	Sensitive	Common on the Andrew Pickens
A Liverwort)	Sensitive	Conserved in waterfall spray communities on the Forest
Spreading Pogonia	Sensitive	Common on the Andrew Pickens but not well documented
Whorled Horsebalm	Sensitive	Common on the Andrew Pickens
Mountain Witch Alder	Sensitive	3 sites known from the Forest
Shoal's Spider Lily	Sensitive	3 sites known historically from the piedmont districts on the Forest; none relocated in 2004
Butternut	Sensitive	9 sites known from the Forest
Fraser's Loosestrife	Sensitive	Several locations (35 based on 1995 monitoring) known from roadsides and powerline rights-of-ways within the administrative boundary of the Andrew Pickens Ranger district; 1724 plants identified at that time; threatened by roadside maintenance activities
Sweet Pinesap	Sensitive	Known from 8 sites on the Forest, thought to be much more common on the Andrew Pickens
A Liverwort	Sensitive	Conserved in waterfall spray communities on the Andrew Pickens
A Liverwort	Sensitive	Conserved in waterfall spray communities on the Andrew Pickens
Carolina Plagiomnium	Sensitive	Conserved in waterfall spray communities on the Andrew Pickens
Oglethorpe Oak	Sensitive	Several sites on the district confirmed; the majority comprised of only sprouts; species appears to be infected with fungus similar to chestnut blight
A Liverwort	Sensitive	Conserved in waterfall spray communities on the Andrew Pickens
Hartwig's Locust	Sensitive	Known from one site on the Andrew Pickens
Sun-Facing Coneflower	Sensitive	This plant is locally common along roadsides near Lake Cherokee
Southern Oconee Bells	Sensitive	Common near Lake Jocassee where it is known from 3 sites on the Forest
Georgia Aster	Federal Candidate; Sensitive	57 occurrences known on the piedmont districts; several locations threatened by roadside maintenance activities
Ashleaf Goldenbanner	Sensitive	No sites documented on the Andrew Pickens Ranger district but species thought to be common
Lanceleaf Trillium	Sensitive	One site known on the Long Cane Ranger district
Nodding Trillium	Sensitive	Four sites documented on the Forest, including two on the Andrew Pickens, one on the Long Cane, and one on the Enoree
Jeweled Trillium	Sensitive	Six sites known on the Andrew Pickens including one at Station Cove
Piedmont Strawberry	Sensitive	34 sites documented on the Andrew Pickens where

Most federally endangered species occurring on the Sumter, including bald eagle, wood stork, Carolina Heelsplitter, and Florida gooseberry, appears to be stable based on population and habitat monitoring data. Neither relict trillium nor persistent trilliums are known from the Sumter, but habitat does occur there and populations are known in proximity to the National Forest boundary.

Recovery objectives for Carolina heelsplitter on river systems occurring on the Sumter National Forest are to establish one population in the Savannah River system to down list, and one population in the Savannah River system to delist (Recovery Plan for Carolina Heelsplitter, 1997). The Sumter National Forest manages land that includes two watersheds within the Savannah River subbasin, which are known to support Carolina heelsplitter. The National Forest occupies 9 per cent of the Upper Stevens Creek watershed and 15 per cent of the Turkey Creek watershed. Monitoring for the species is typically conducted annually and based on presence/absence of individuals (adults, juveniles). The species is detected at low numbers within these watersheds, though habitat is conserved and managed under direction in the *Revised Land and Resource Management Plan* included as Management Area 1.

Recovery objectives for smooth coneflower include delisting when self-sustaining populations are protected in at least two counties in South Carolina (Smooth Coneflower Recovery Plan, 1995). The Sumter National Forest manages for the recovery of smooth coneflower in Oconee County, where several populations are known to occur. Smooth coneflower is increasing in Oconee County and close to achieving recovery objectives. However, continuous active management such as prescribed fire, midstory control, or thinning is needed to perpetuate self-sustaining populations there.

Recovery objectives for small whorled pogonia (Small Whorled Pogonia Recovery Plan, 1992) includes the protection of a minimum of 61 sites, including a total of 20 sites having 80 stems or more throughout the range of the species. The sites on the Andrew Pickens are not close to meeting recovery objectives for the species.

Findings

Efforts to conserve threatened, endangered, and sensitive species on the Sumter National Forest are ongoing. The Sumter National Forest plays a particularly important role in the recovery of the mussel Carolina heelsplitter, occurring on the Long Cane district, the smooth coneflower

occurring on the Andrew Pickens, and the candidate for federal listing occurring on the Enoree district, Georgia aster. Habitat for each of these species is being managed optimally, to promote recovery and/or the prevention of federal listing. Investigation of mechanisms affecting decline of small whorled pogonia is ongoing.

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

Information

This monitoring question is responsive to goals 8, 22, 23 and objective 23.01. Objective 23.01 is to maintain or improve 150 acres of ponds/lake habitat for recreational fisheries.

The monitoring elements are defined as follows:

1. Trends in harvest data for bobwhite quail, deer, turkey, bear; WMA permit sales, turkey tags and bear permits issued.

2. Trends in MIS population indices in relationship to major forest community/conditions. Frequency of occurrence trends in bobwhite quail, eastern wild turkey and black bear

3. Maintain or improve ponds/lake habitat for recreational fisheries.

Results

1. No results were reported for FY 2005.

2. Data to estimate MIS trends remains in transition because the new Regional database is still under construction.

3. There are 11 recreational fishing ponds on the Sumter National Forest consisting of a total of 89 acres. Largemouth bass and bream are the primary fish in the ponds. A few of the ponds have been stocked with grass carp for aquatic plant control and catfish.

   Adding wood debris, fertilizer and lime on 20 acres in 2005 on the Enoree and Long Cane Ranger Districts enhanced pond habitat. An additional 62 acres were enhanced on the Strom Thurmond Reservoir on the Long Cane Ranger District.

Findings

Continued effort to establish and maintain woodland and savanna habitats is needed. Emphasis should be placed on developing and maintaining escape cover for bear and mast producing hardwood restoration activities need to be incorporated into silvicultural and other projects on the Andrew Pickens Ranger District.

Sub-Issue 1.2

MQ 6: What is the status and trends of forest health threats on the Sumter?

Information

This monitoring question is responsive to goals 7, 15, 16, 20, objectives 15.01, 17.01 20.01, and standards 9F-8 and FW-27. Objective 15.01 is to control non-native invasive plants on, at a minimum, 1,000 acres by the end of the 10-year planning period, emphasizing management prescriptions where biodiversity or restoration is a primary objective. Objective 17.01 is to improve forest health on 10,000 – 50,000 acres of pine forests by reducing stand density. Objective 20.01 is to maintain condition class 1 by restoring historic fire return intervals and reducing the risk of losing ecosystem components to wildlife on approximately 250,000 acres over the 10-year planning period.

The monitoring elements are defined as follows:

1. Condition and trends of forest fuels and acres of hazardous fuels treated through wildland fire use, prescribed fire and mechanical treatment.

2. Maintain condition class 1 by restoring historic fire return intervals and reducing the risk of losing ecosystem components to wildfire.

3. Compliance with NAAQS air particulate emissions from NF lands [36 CFR 219.27(a)(12)]

4. Improve forest health in pine stands by reducing stand density.

5. Treatments to eliminate or control invasive non-native species. Emphasize treatments of PETS or specific areas. Baseline acres infested with non-native plants by species.

Results

1. In 2005, 17,456 acres received a prescription burn. This is down slightly from the 2004 total of 19,194 acres.

2. Estimates for the amount of condition class 1 lands have been made using existing stand data (CISC) for the forest. The estimate indicates that approximately 12 per cent of the forest is currently in condition class 1. Using the FSM 5140, SUPP. R8-5100-2005-1 monitoring plots and protocol will provide good information for trends of ecosystem components.

3. Prescribed fire emissions on the Sumter National Forest continue to be the most important Forest Service activity impacting air quality, since it releases fine particles into the atmosphere. The amount of fine particulate matter released into the atmosphere in 2005 was similar to FY 2004 levels. The three fine particulate monitoring sites closest to the Sumter National Forest had increases in both the 24-hour and annual average fine particle concentration but the National Ambient Air Quality Standard (NAAQS) was not exceeded. The four ozone monitoring sites met NAAQS levels for ozone. See Table 2-13.

4. In FY 2005, 2,788 acres of commercial thinning were offered for sale.

5. The Sumter National Forest treated 103 acres in 2005 for non-native invasive species, including kudzu, Chinese privet, Chinese wisteria and autumn olive.

   An inventory of acres infested with non-native invasive plants is ongoing. In a summary of FIA (forest inventory and analysis) plot data for the State of South Carolina, Oswalt found that 72 per cent of the plots sampled in the piedmont and mountains combined contained at least one non-native species. Japanese honeysuckle was the most common non-native invasive species (32 per cent) and Chinese privet the second most common (11 per cent).

   Results of the one-time Chinese privet treatment effort in 2004 on the Long Cane Ranger district showed 74 per cent mortality was achieved. Cover of the Chinese privet averaged 34.2 per cent, 29.2 per cent, and 21.7 per cent in 3 height classes, and was reduced one year after treatment to 0 per cent, 5 per cent, and 10 per cent cover, respectively.

Table 2-11. Emissions of Fine Particulates (tons per year) on the Sumter National Forest by Fiscal Year

FY02	FY03	FY04	FY05
711	333	633	629

Table 2-12. Monitoring Results for Particulate Matter 2.5 Microns ($PM_{2.5}$) and Smaller in Size for the Years 2003 through 2005*

Location	Site ID	2003		2004		2005		3-year Average 24-hour 98th percentile (ug/m^3)	3-year Average Annual Average (ug/m^3)
		24-hour 98th percentile (ug/m^3)	Annual Average (ug/m^3)	24-hour 98th percentile (ug/m^3)	Annual Average (ug/m^3)	24-hour 98th percentile (ug/m^3)	Annual Average (ug/m^3)		
Edgefield County	450370001	30	12.2	36	13.1	35	13.6	33.7	13.0
Greenwood County	450470003	31	12.6	30	13.4	32	14.1	31.0	13.4
Oconee County	450730001	29	9.8	23	10.4	33	11.5	28.3	10.6

* The National Ambient Air Quality Standard is violated if the average of 3-years of annual means is 15 ug/m^3 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/m^3 or greater. Source: http://www.epa.gov/air/data/geosel.html

Table 2-13. Summary of Ozone Monitoring Data for the National Ambient Air Quality Standard *

Monitor Location	Year	Fourth highest 8-hour average	3 Year Average
Abbeville County	2005	0.082	0.078
Edgefield County	2005	0.071	0.070
Oconee County	2005	0.075	0.076
Union County	2005	0.078	0.076

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

Findings

Control of non-native invasive plant populations on the district is ongoing. More emphasis should be placed on the collection of baseline inventory data to determine trends and abundance of species of particular concern and those for which control or eradication on the forest is practical.

The Sumter is making progress toward achieving objective 17.01 (improving forest health by reducing stand densities).

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 it lowers the daily NAAQS to 30 ug/m3 or the annual standard to 12 ug/m3 then portions of the Sumter NF in two counties could be designated as non-attainment for fine particulates according to the Clean Air Act.

Sub-Issue 1.3 – Watershed Condition and Riparian

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

Information

This monitoring question is responsive to goals 1, 2, 3, 5 objectives 1.01, 2.01 and 5.01. Objective 1.01 is to improve soil and water conditions on 1,500 acres through stabilization or rehabilitation of actively eroding areas such as gullies, barren areas abandoned roads or trails, and unstable stream banks over the 10-year planning period. Objective 2.01 is in-stream flows needed to protect steam processes, aquatic and riparian habitats and communities, and recreation and aesthetic values will be determined on 50 streams. Objective 5.01 is to improve soil productivity on 8,000 acres of disturbed, low productivity, eroded soils with loblolly and shortleaf pine on the piedmont during the 10-year planning period.

The monitoring elements are defined as follows:

1. Are State Best Management Practices (BMP) and Forest Standards being implemented to protect and maintain soil and water resources?

2. Improve soil and water conditions through stabilization or rehabilitation of actively eroding areas such as gullies, barren areas, abandoned roads or trails, and unstable stream banks.

3. Improve soil productivity on disturbed, low productivity, eroded soils with loblolly and shortleaf pine in the piedmont.

4. The in-stream flows needed to protect stream processes, aquatic and riparian habitats and communities, and recreation and aesthetic values will be determined.

Results

1. Timber harvest activities monitor the implementation and effectiveness of erosion control and water quality protection measures by conducting regular field inspections of the activities and a final review of all measures upon sale closure. The inspection forms are included with the other sale documentation collected. During the year, field visits were made to the piedmont units to discuss riparian prescription implementation including BMP. The Sumter has maintained a strong adherence to and intends to fully implement BMP to limit water quality and other effects on the land. This intent is also formalized in the Forest Plan in forest-wide standards FW-1, FW-2 and others that include specific measures that are intended to protect water quality and address associated soil and water conservation issues. An agreement with the SC Forestry Commission (SCFC) has been formalized to conduct BMP checks and determine consistency when requested. In addition, interaction and cooperation to address non-point source pollution and BMP are part of the Memorandum of Understanding between the SC Forestry Commission, SC Department of Health and Environmental Control and the Forest Service. The SCFC has also provided group training of forest and technical staff on BMP in the past. We intend to continue to pursue both the field and office interaction between the state BMP foresters and Forest Service personnel on the Sumter NF. This agency interaction should become stronger under the Forest Plan.

2. A total of 23 acres were treated to improve soil and water conditions. This included 10 acres of stabilization for erosion control, 8 acres of site reshaping and restoration, 1 acre in treating off trail uses or abandoned trails and 4 acres of native grass enhancement for seed production. Native grasses are used for erosion control on treated gullies, trails and other exposed areas. This level of implementation is substantially below the plan level indicated in Objective 1.01 of 1,500 acres over a decade. There are areas still needing treatments. Off-trail horse and OHV trail uses are expanding and causing erosion and other impacts that will need to be addressed.

3. A total of 100 acres were fertilized using soil and water funding (NFVW) and 803 acres with sale area improvement (CWKV) funding. All areas were reviewed and/or sampled in the field before treatment to be sure that they met the criteria for needing fertilization. The annual treatment amount of soil productivity improvements is higher than normal to reach the planned level of 8,000 acres over a decade. We believe that the average annual treatment may be exceeded at times due to the current trend to treat larger areas within watersheds or analysis areas. At this rate of implementation, it is likely that the objective in the Forest Plan would need revision in a few years.

4. There were no accomplishments in 2005 toward developing a protocol process to work on reaching objective 2.01. No funding was allocated to this task or to get started on the protocol for determining in-stream flows.

Findings

BMP compliance checks on areas with ground disturbance or streamside management with the SC Forestry Commission have been delayed because of other work priorities, budget cuts and limited resources. When the checks are made, assistance from the forest soil and water specialists and districts personnel will be involved when possible to help evaluate the BMP used to limit the effects during the implementation of ground disturbing practices. Special attention should be placed on ground disturbing practices that occur over substantial areas of the landscape or concentrate within drainage areas such as biomass treatments, thinning, RENEW (site conversion), and prescribed burning.

In 2005, there was some continuing inventory and documentation of off trail horse, OHV and other ground disturbing uses. Areas needing treatment because of impacts to soil productivity and water quality were identified. There is an ongoing backlog of work needs caused by continuing problems with user created trails. Since these uses tend to increase in extent and severity if not regularly treated, we will continue to work toward closing, stabilizing and/or treating illegal trails within a year of their being found.

There is opportunity to reduce stream and water quality impacts on the National Forest from private lands through authorizations under the Wyden Amendment.

Attention to water rights and in-stream flow methodologies and determination is needed to be consistent with Forest Plan direction in

the future. At present, developing a protocol to fit the forest needs was put on hold because of other priorities.

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

Information

This monitoring question is responsive to goals 3, 4, 8, 9, objectives 4.01, 11-OBJ-1, standards 11-1 thru 11-25. Objective 4.01 is to create and maintain dense understory of native vegetation on 1 to 5 per cent of the total riparian corridor during the 10-year planning period. Objective 11-OBJ-1 is to improve structural diversity and composition within the riparian corridor on 2,000 acres on the piedmont as canebrake habitat restoration.

The monitoring elements are described as follows:

1) Are management strategies in riparian areas adhering to Forest Plan riparian guidelines? Are conditions in riparian areas or corridors providing for soil conservation, associated habitats and necessary shade and cover for aquatic habitats?
2) Create and maintain a dense understory within riparian corridors that lack such conditions. Improve structural diversity and composition within the riparian corridor on the piedmont.
3) Acres of Riparian area inventoried for condition (i.e. terrestrial habitat, vegetative composition, woody debris recruitment, invasives).

Results

1) Assessment of riparian condition is typically made during project planning. Occasionally the riparian condition is evaluated and actions initiated to address riparian health and function. Some of these analyses address the presence of unwanted exotic species or a desire to restore certain types of native species, such as canebrakes. Projects are designed to maintain riparian/stream vegetation and to avoid activities that contribute to stream bank failure.

2) No projects were implemented in 2004 to create dense understory within riparian corridors, improve or restore structural

This monitoring question is responsive to goals 1, 3, 4, 5, 22, 23, desired condition for management prescription 11, standards FW-2, FW-10, FW-11, FW-14, FW-70, FW-76, and FW-77.

The monitoring elements are defined as follows:

1. Recreation activities contribution to the degradation of riparian areas or adversely affecting water quality.

2. Impacts associated with OHV activities.

3. Are motorized and non-motorized trails being maintained?

Results

1. – 3. No new results to report since 2004. Refer to the 2004 Sumter Monitoring Report, page 37.

Findings

A monitoring strategy for all recreation sites and trails has been developed.

MQ 13: Are the scenery and recreational settings changing and why?

Information

This monitoring question is responsive to goals 13, 28, 30 and objective 23.02. Objective 23.02 states in the piedmont, increase acreage that is at least ½ mile from an open road to 35,000 acres, emphasizing land blocks that are at least 2,500 contiguous acres in size.

The monitoring elements are defined as follows:

1. Acres of National Forest land that meet or exceed established scenic quality objectives (SIO) and recreation opportunity spectrum (ROS) objectives.

Results

1. No new results to report since 2004. Refer to the 2004 Sumter Monitoring Report, page 37.

Findings

No new findings to report since 2004. Refer to the 2004 Sumter Monitoring Report, see page 37.

Sub-Issue 2.2 – Roadless Areas/Wilderness/Wild and Scenic Rivers

MQ 11: What are the status and trend of wilderness character?

Information

This monitoring question is responsive to goals 26 and 27.

The monitoring element is defined as follows:

1. Is visitor use within limits that do not impair the wilderness characteristics?

Results

1. No new results to report since 2004. Refer to the 2004 Sumter Monitoring Report, page 38.

Findings

No new findings to report since 2004. Refer to the 2004 Sumter Monitoring Report, see page 38.

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

Information

This monitoring question is responsive to goals 1, 28, 29 as well as compliance with the Wild and Scenic Rivers Act, Clean Water Act and South Carolina Water Quality Standards.

The monitoring elements are defined as follows:

1. Are free-flowing conditions and outstandingly remarkable values being protected for eligible and designated rivers?

2. Are water quality standards being met for eligible and designated rivers?

Results

1. No new results to report since 2004. Refer to the 2004 Sumter Monitoring Report, see page 38.

2. The Forest Plan and past monitoring have identified issues of elevated fecal coliform beyond standard levels in the lower portions of the Chattooga River, below Stekoa Creek. Since most of the eligible rivers have little monitoring information available However, since the eligible rivers are primarily forested, with low road and development densities, there is no significant reason to believe that they are outside the normal expectations for wildland water quality standards.

Findings

Information available to assess the Wild and Scenic Rivers is probably adequate relative to general water quality issues and questions. However, little information exists for eligible rivers, so water quality benchmarks or references are not available to help evaluate questions concerning existing conditions or to address change with time. Indirect measures such as land use and in-stream evaluations could be used to evaluate changes in land uses or activities within the watersheds that might signal changes and added monitoring of conditions. Other surrogates such as aquatic macroinvertebrates might also be used to address change or conditions.

In general, forest management activities are not major pollution sources that impact water quality, but may contribute as a secondary source of pollutants. Where existing problems are already above threshold levels or those listed as impaired streams, added evaluation may be needed. However, the eligible rivers were selected in part because activities have not caused irreparable change and water quality conditions are generally considered of high quality due to the prevalence of forest conditions. The forest and districts will continue to estimate and evaluate proposals for their impact to water quality including assessing impacts to the existing and eligible Wild and Scenic Rivers.

Sub-Issue 2.3 – Heritage Resources

MQ 14: Are heritage sites protected?

Information

This monitoring question is responsive to goal 31. The forest manages areas with special paleontological, cultural, or heritage characteristics to maintain or restore those characteristics.

The monitoring element is defined as follows:

1. Effectiveness of heritage protection measures.

Results

1. The results of site monitoring are presented below.

Table 2-14. Archaeological Sites	
Total number of sites monitored	37
ARPA investigations	3
Other vandalism	4
Sites eroding by water	0
Sites damaged by forest users	1
Sites damaged by fire	1
Sites undisturbed	29

Vandals and artifact collectors continue to use metal detectors to search historic sites and remove artifacts. Holes from metal detector use were found at the Martin Home Site 38ED146 and at Pennington's Fort 38NE99. Prehistoric soapstone quarry sites 38OC48 and 38OC205 on the Andrew Pickens Ranger District were vandalized this year. Areas surrounding the soapstone boulders were dug up and several soapstone bowl performs were probably removed. The Badwell Cemetery (38MC360) and Woods Cemetery (38CS124) were vandalized. Grave markers were moved and trash left at the Woods Cemetery. Metal funeral home markers were pulled up on relocated graves at the Badwell cemetery and some marble markers have recent breaks. GPS navigation marker was found prominently displayed at the cemetery. Quartz grave markers at cemetery site 38CS280 were cracked by heat exposure during a controlled burn.

An investigation by Forest Service law enforcement officers on the Long Cane District lead to the apprehension of four individuals illegally digging on a prehistoric site. A Forest Service archeologist prepared an archeological damage assessment report. The disturbed area was found to be approximately 93 square yards. The Archeological value and cost of restoration and repair for this violation was calculated at almost $70,000. Nearby prehistoric site 38MC440 was also dug into during the same time period.

Several sites are being damaged by water erosion along the shoreline of the Strom Thurmond Lake on the Long Cane Ranger District. Unauthorized use of woods roads,

OHV, horseback riding and bike trails are causing erosion and disturbance on sites. Site 38MC997, the CCC Camp F-11 dump, is being disturbed by a foot trail to a canoe access point on Stevens Creek. Plowing of wildlife fields is damaging some sites and exposing artifacts for illegal collection. Eight fire lookout towers are historic sites in need of repair, restoration and documentation.

Findings

The forest needs to develop Heritage Preservation Plans for at risk sites and implement regularly scheduled monitoring. Plowed wildlife openings should be inventoried for heritage resources and any significant sites found protected. A Forest Heritage Curation Plan should be developed to assess curatorial needs. The effects on archeological sites due to dispersed recreation should be assessed.

Issue 3. Organizational Effectiveness
MQ 17: How do actual outputs and services compare with projected?

Information

This monitoring question is responsive to goals 14, 18, and objective 10B-OBJ-1. Objective 10B-OBJ-1 states provide local economies with 4.7 – 7.4 million cubic feet (MMCF) of wood products annually.

The monitoring element is defined as follows:

1. Emphasize high quality forest products on the piedmont.

2. Are roads being maintained, constructed or reconstructed to reduce sediment delivery to water bodies and to provide a transportation system that supplies safe and efficient access for forest users while protecting forest resources?

3. Determine the costs of doing management.

4. Estimate the returns to counties

Results

1. The Sumter NF offered 0.4 MMCF of forest products for sale in management prescription 10B in FY 2005. Total Sumter offer (all management prescriptions) in FY 2005 was 3.7 MMCF.

2. The roads constructed, reconstructed and maintained are shown in the Table 2-15.

Table 2-15. Road Activity					
Activity	**Unit of Measure**	**FY 03**	**FY 04**	**FY 05**	**10 Year Plan Estimate**
Construction	Miles	0.0	0.0	0.0	9.0
Reconstruction	Miles	7.5	12.5	4.3	342.0
Timber Roads	Miles	8.2	16.3	20.0	N/A
Decommissioned	Miles	6.0	5.2	5.5	0.0
System Mileage	Miles	1,051	1,047	1,059	N/A
Maintained	Miles	800	831	782	8,450

3. The annual budget is shown in Table 2-16.

Table 2-16. Francis Marion and Sumter National Forests Budget					
Activity	Unit of Measure	FY 03	FY 04	FY05	10 Year Plan Estimate
*Annual Budget	MM$	14.6	14.1	10.8	N/A
* The budget allocation includes both the Sumter and Francis Marion National Forests and is not tracked separately. Annual Budget expenditures are adjusted for inflation and do not include any dollars allocated for grants and other specific programs.					

4. In 2000, Congress passed legislation to make up for the reduction in timber sales. The Secure Rural Schools and Community Self-Determination Act gave local communities a choice. All 13 affected counties chose to receive the full payment option. The 11 counties on the Sumter National Forest and the payments are displayed in Table 2-17.

Table 2-17. Returns to Counties, FY 2005 Full Payment	
County	Amount
Abbeville	$150,028
Chester	$80,100
Edgefield	$200,359
Fairfield	$71,641
Greenwood	$69,178
Laurens	$135,464
McCormick	$317,512
Newberry	$366,129
Oconee	$517,121
Saluda	$28,270
Union	$387,653

Findings

Most of the timber offered in FY 2005 was in management prescriptions other than in 10B. Budgets and personnel are a limiting factor in providing timber offers. NEPA process compliance and costs are also a factor.

Roads continue to be reconstructed to meet the intended traffic volumes safely and to lessen the impacts to the forest resources. Utilizing the Forest Service road construction, maintenance, and reconstruction standards, current Best Management Practices, and technical assistance from other resource experts; road are designed tomitigate negative impacts to resources while focusing on watershed health. Road projects for timber harvesting activities mainly resurfaced and replaced culverts. Timber road mileas increased slightly because of more harvest activity while road reconstruction decreased because of significant road program budget reductions. No new roads were constructed in FY 2005.

The Sumter National Forest continued to survey road conditions in FY 2005 to access the backlog of deferred maintenance. The surveys resulted in a slight increase and shift in mileage between road maintenance levels when compared to previous information. The current updated survey identified $22,962,711 dollars of deferred maintenance needed on the 1,059 miles of road on the Sumter National Forest. The deferred maintenance figure has been reduced slightly because more data has been collected on both open and closed roads.

Road miles are expected to increase slightly because of new land acquisitions and updated road lengths from condition surveys. Decommissioning system mileage has remained steady for the past

few years but is expected to slow in future years. The forest will be shifting some road miles into a lower maintenance level in future years due to reduced maintenance budgets.

MQ 18: Are silvicultural requirements of the Forest Plan being met?

Information

This monitoring question is responsive to goals 14 and 18.

The monitoring elements are defined as follows:

1. Are lands being adequately restocked within 5 years of regeneration treatments?

Results

1. A review of the 2005 plantation report shows that all plantations except one meet the stocking guide. The single stand below the minimum number is within 2.5 per cent of the guide. Most stands are now regenerated by natural regeneration (seed trees vs. planted seedlings). These stands typically have regeneration far in excess of minimum numbers.

Findings

No additional action is needed.

MQ 19: Are Forest Plan objectives and standards being applied and accomplishing their intended purpose?
Information

This monitoring question is responsive to desired conditions, goals, objectives and standards in the Forest Plan.

The monitoring elements are defined as follows:

1. Are projects being managed according to requirements and making progress toward achievement of desired future condition for vegetation?

2. What is the management on newly acquired lands?

Results

1. An Integrated Resource Review (IRR) was conducted on the Andrew Pickens District on June

1 – 3, 2005. Issues related to out year projects, per cent of early successional habitat, water effects, unmanaged recreation – equestrian use, unmanaged recreation – special areas, Longnose Fire, riparian prescription and decommissioning roads were discussed and recommendations for resolution were made. A report entitled "Final Report of the Integrated Resource Review Andrew Pickens District" is available for review.

2. The Forest acquired 4,830 acres.

Findings

No additional action is needed.

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

Actions Not Requiring Forest Plan Amendment or Revision

a) Action: Baseline acreage, condition and distribution of rare communities on the forest.

Responsibility: Forest biologists

Date: ongoing

Status: Collection of baseline data continues. Needs to be reported every 5 years.

b) Action: Gap creation and forest stand composition changes need to be integrated into silvicultural and other projects.

Responsibility: Forest biologists

Date: ongoing

Status: No projects were implemented in 2005 to create gaps.

c) Action: Emphasize efforts to made the Regional database operational for estimating forest-wide Management Indicator Species (MIS) trends.

Responsibility: Forest biologists

Date: FY07

Status: Data to estimate MIS trends remains in transition because the new Regional database is still under construction.

d) Action: Wetland habitat development and hardwood restoration activities need to be incorporated into silvicultural and other projects on the forest.

Responsibility: Forest biologists

Date: FY06

Status: No projects were implemented to create wetland habitats. Most vegetation management projects include release and site-preparation treatments to favor desirable hardwood species (i.e., oaks and hickories).

e) Action: Establish and maintain woodland and savanna habitats on the forest.

Responsibility: Forest biologists, Districts

Date: FY 2006 and 2007

Status: The acres of woodland and savanna conditions will increase by 654 acres with decisions on two projects. Additional projects both in the planning and in NEPA process would also create additional woodland habitat.

f) Action: Non-native populations need to be monitored and follow-up treatments applied. A long-term desired condition should be identified for the site, and an integrated management plan developed for achieving that condition.

Responsibility: Forest biologists

Date: FY 2006

Status: An inventory of acres infested with non-native invasive plants is ongoing.

g) Action: Inventory and document off trail horse, OHV and other ground disturbing uses, and identify areas that need treatment because of impacts to soil productivity and water quality.

Responsibility: Forest recreation specialist, soil scientist, hydrologist, districts

Date: FY 2006

Status: Presently working on a demand/supply study about equestrian use. A contract was awarded for this in FY 2005 with a report expected in 2006/07.

h) Action: Riparian areas should be inventoried. Develop and maintain dense understories and improve stand composition and structural diversity in riparian corridors.

Responsibility: Forest Biologist, hydrologist

Date: FY 2008

Status: No acres of riparian areas were inventoried.

i) Action: NVUM needs to be done every 5 years.

Responsibility: Forest Landscape Architect.

Date: FY 2007 and 2008

Status: Last inventory completed in FY 2002.

j) Action: the result from a monitoring strategy for all recreation sites and trails needs to be reported.

Responsibility: Forest recreation specialist

Date: FY 2006

Status: Results have not been reported yet.

k) Action: The forest needs to develop Heritage Preservation Plans for at risk sites and implement regularly scheduled monitoring.

Responsibility: Forest archeologist

Date: FY 2006

Status: The forest has not developed Heritage Preservation Plans for most sites and at risk sites are not monitored on a regular basis.

l) Action: The effects on archeological sites due to dispersed recreation need to be addressed.

Responsibility: Forest archeologist, recreation specialist

Date: FY 2006

Status: Unauthorized wood roads, OHV, horseback riding and bike trails are causing erosion and disturbance on sites.

m) Action: An Integrated Resource Review (IRR) needs to be completed on the Andrew Pickens District.

Responsibility: Forest planner

Date: FY 2005

Status: The IRR was completed and the report finalized.

n) Action: A new monitoring element of management of newly acquired lands needs to be added.

Responsibility: Forest planner

Date: FY 2007

Status: The forest has acquired 4,834 acres.

o) Action: Inventories of benthic macroinvertebrate, crayfish and mollusk communities need to be accomplished.

Responsibility: Districts and Forest Fisheries Biologist

Date: FY 2005 and FY 2006

Status: Crayfish have been collected for identification purposes from a limited number of streams on the Enoree and Long Cane Ranger Districts. Mussel surveys have been conducted on a limited number of streams on the Andrew Pickens and Long Cane Ranger Districts.

Actions That Require Forest Plan Amendment or Revision

a) Action: Prepare a Forest Plan Amendment to respond to the April 28, 2005, Appeal Decision reversing the Regional Forester's decision to continue to exclude boating on the Chattooga Wild and Scenic River above Highway 28. In the interim management of boating above Highway 28 will revert to the direction in the 1985 Forest Plan, and the closure decision made in that Forest Plan will remain in effect.

Responsibility: SO planning and resource staffs

Date: FY 2008

Appendix A. List of Preparers

The following individuals contributed to this report:

Jim Bates	Forest Archaeologist
Bill Hansen	Forest Hydrologist
Ed Hedgecock	Forest Engineer
John Cleeves	Forest Planner
Dennis Law	Forest Soil Scientist
Robert Morgan	Forest Archaeologist
Gary Peters	Forest Wildlife Program Manager
Robin Mackie	Forest 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
Bill Jackson	Air Resource Specialist
Jeanne Riley	Fisheries Program Manager
Jim Knibbs	Environmental Coordinator

Appendix B. Amendments to Forest Plan

Since the Sumter Plan was revised on January 2004 no amendments have been completed.

Appendix C. Summary of Research Needs

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 type of management is needed to maintain or restore habitat for small whorled pogonia on the Forest?

How can viable populations of Oglethorpe Oak be maintained and managed on the forest?

Appendix D. References

Eversole, A. G. and Jones, D.R. 2004 Key to the crayfish of South Carolina. Clemson University, Clemson, SC 43 pp.

Warren, M.L, B.M Burr, S.J. Walsh, H.L Bart, R.C. Cashner, D.A. Etnier, B.J. Freeman, B.R. Kuhajda, R.L.
Mayden, H.W. Robison, S.T. Ross and W.C. Starnes. 2000. Diversity, distribution, and conservation status of the native freshwater fishes of the Southern United States. Fisheries 25(10):7-29.

Dolloff, C. A., D. G. Hankin, and G. H. Reeves. 1993. Basinwide estimation of habitat and fish populations in streams. General Technical Report SE-83. Asheville, North Carolina: U.S. Department of Agriculture, Southeastern Forest Experimental Station.

Sumter 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