United States Department of Agriculture
Forest Service

Francis Marion National Forest

Draft Forest Plan Assessment

Francis Marion National Forest, Berkeley and Charleston Counties, South Carolina

Introduction

December 2013

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Francis Marion National Forest
Draft Forest Plan Assessment
Berkeley and Charleston Counties, South Carolina

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1 Introduction

Please note: In this document we use "Forest" and "Francis Marion" synonymously with "Francis Marion National Forest". The lowercase "forest" refers to any forested area or a national forest in general.

1.1 Overview

The National Forest Management Act of 1976 requires each national forest to develop a land and resource management plan (commonly referred to as a forest plan) and amend or revise the plan every 10 to 15 years. The Francis Marion National Forest Plan was approved in 1996 and the Francis Marion is revising its Forest plan under the 2012 planning rule. Planning and revision for a national forest plan is an iterative process that includes an "assessment" (36 CFR 219.6); developing, amending, or revising a forest plan (§§ 219.7 and 219.13); and monitoring (§ 219.12).

This document summarizes the assessment stage and is designed to rapidly evaluate existing information about relevant ecological, economic, and social conditions; trends; and sustainability and their relationship to the land management plan within the context of the broader landscape. Assessments are not decision-making documents, but provide current information on select topics relevant to the plan area.

This assessment identifies and evaluates existing information relevant to the plan area for the following topics:

1. Terrestrial ecosystems, aquatic ecosystems, and watersheds
2. Air, soil, and water resources and quality
3. System drivers, including dominant ecological processes, disturbance regimes, and stressors, such as natural succession, wildland fire, invasive species, and climate change; and the ability of terrestrial and aquatic ecosystems on the plan area to adapt to change
4. Baseline assessment of carbon stocks
5. Threatened, endangered, proposed and candidate species, and potential species of conservation concern present in the plan area
6. Social, cultural, and economic conditions
7. Benefits people obtain from the national forest system planning area (ecosystem services)
8. Multiple uses and their contributions to local, regional, and national economies
9. Recreation settings, opportunities and access, and scenic character
10. Renewable and nonrenewable energy and mineral resources
11. Infrastructure, such as recreational facilities and transportation and utility corridors
12. Areas of tribal importance
13. Cultural and historic resources and uses
14. Land status and ownership, use, and access patterns
15. Existing designated areas located in the plan area including wilderness and wild and scenic rivers and potential need and opportunity for additional designated areas

1.2 Location of the Plan Area

The Francis Marion National Forest is located within Berkeley and Charleston counties in southeastern South Carolina and contains 258,942 acres (see Figure 1-1). The land the forest occupies is a triangle formed by the Santee River to the north, the Intracoastal Waterway to the east, and Lake Moultrie and the Cooper River to the west.

The Forest comprises about 12 percent of the public lands in the State. Major highways into the Forest include U.S. highways 17, 17A, 52, and state highways 41 and 45.

The Forest is within a 30-minute drive of the Charleston metropolitan area. The area surrounding the Francis Marion National Forest is predominantly urban. While few people live within the boundaries of the Francis Marion National Forest, the Francis Marion includes the communities of Awendaw, Huger, Jamestown and McClellanville. Persons per square mile in Berkeley and Charleston counties are 161.8.9 and 382.3, respectively. As a comparison, the State has 153.9 persons per square mile.

1.3 History and Distinctive Features of the Plan Area

This assessment follows two previous forest planning efforts. The one in 1985 was directed at the increased emphasis to do forest-level planning as directed in the National Forest Management Act, but our available resource information and ability to process it effectively at landscape scales was limited in comparison to the tools today.

Hurricane Hugo came ashore near Bull Island, South Carolina, on September 21, 1989. Estimated maximum sustained wind at landfall was 138 miles per hour. The center of the eye passed within 5 miles of the Forest. Vast areas of the forest were blown down or damaged with a storm surge of up to 20 feet. Immediate concerns after Hurricane Hugo were life and safety, which included opening roads that were hidden under the fallen trees. It became obvious that the 1985 plan was no longer going to be effective guidance.

Damage from Hurricane Hugo

The 1996 Francis Marion Forest Plan focused on recovery efforts from Hurricane Hugo. On the Francis Marion National Forest, 60 percent, or about 92,500 acres, of pine received heavy or moderate damage; pine age-class distribution changed primarily to the 0 to 10-year age class; and about 43 percent of the bottomland hardwood species were broken and 43 percent were uprooted.

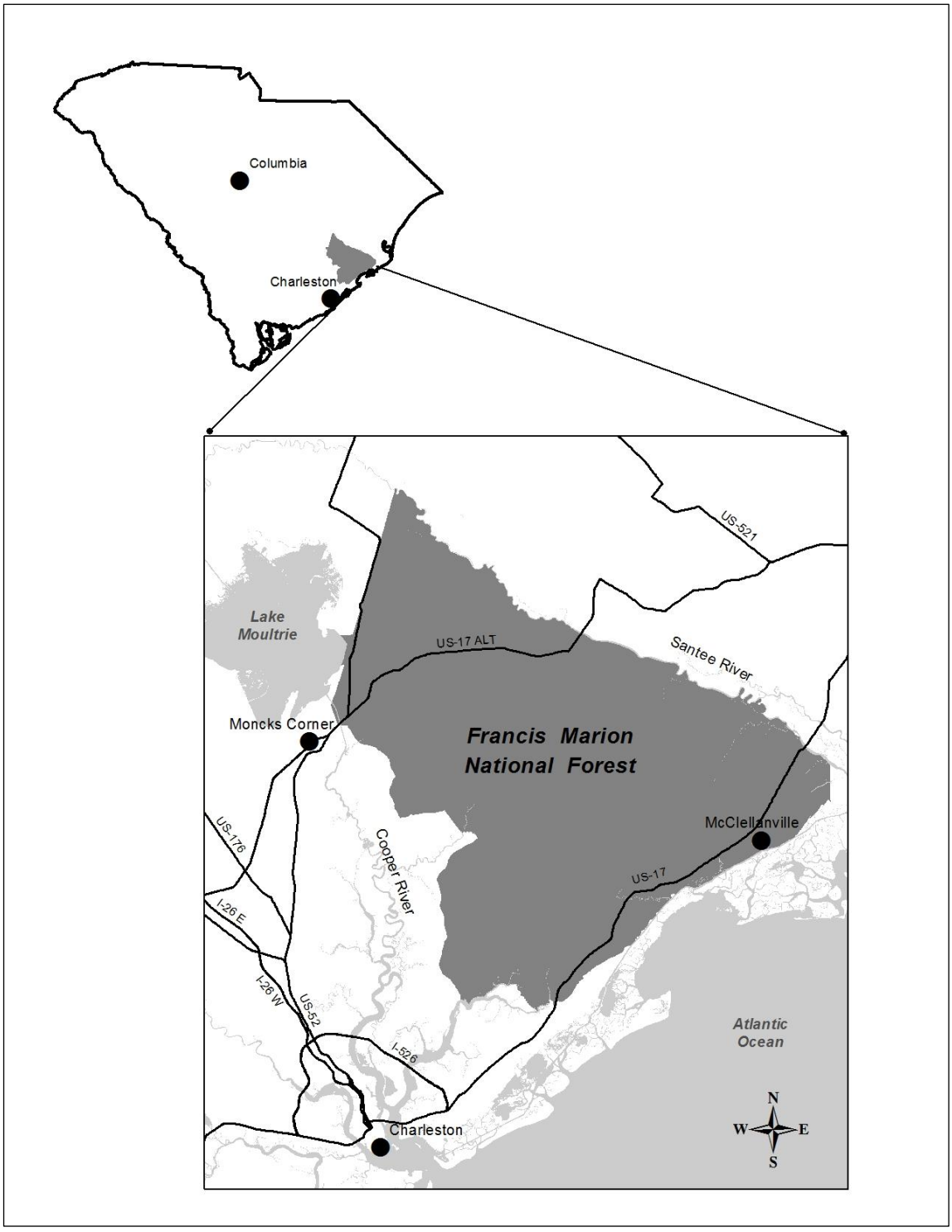

Figure 1-1. Vicinity map of the Francis Marion National Forest

After the immediate safety threats were addressed, the Forest personnel focused on recovery of the red-cockaded woodpecker, a federally endangered species. Many nesting trees with cavities were damaged, so recovery efforts focused on inserting artificial cavities. Other management efforts focused on creating foraging habitat. Today, the Francis Marion National Forest supports one of the largest populations of red-cockaded woodpecker in the world.

In 1996, the Forest staff also saw an opportunity to increase the amount of longleaf pine forest on the Francis Marion National Forest. Longleaf pine once dominated the Forest, but past management efforts had established loblolly pine.

1.4 Important Ecological Influences on the Plan Area

1.4.1 Climate

The climate of the area is humid and subtropical. Weather is highly variable. Annual rainfall averages 50 inches. Summer temperatures range from 85 to 95 °F in the afternoons and 65 to 75 °F in the early morning hours. Winter temperatures range from 55 to 65 °F in the afternoons and 40 to 50 °F in the early morning hours. The average annual temperature is 68 °F and the average humidity is 74 percent. Average annual runoff is about 10 inches per year meaning 40 inches is lost to evapotranspiration and seepage loss. Most of the area is underlain at some depth by limestone, which may have sinkholes in the more shallow areas (such as Chicken Creek and Dutart Creek Area). When limestone is within the rooting zone, productivity may be improved due to the increased available nutrients. Most upland soils are highly productive except spodisols. The productivity in wetlands for some tree species is affected due to the anaerobic soil conditions.

1.4.2 Dominant Ecosystems

The Francis Marion National Forest is within the Atlantic Coastal Plain and Flatwoods physiographic areas. The Forest's topography is relatively flat to low sloping terrain, with localized surface depressions such as connected and isolated wetlands, Carolina bays, and stream channels. Stream terraces and floodplains are most noticeable along the larger streams and rivers and tidal waters, while small tributaries range from well to poorly defined drainage patterns. Elevations range from sea level to about 60 feet. The general slope of the area is southeastward to the Atlantic Ocean. Most soils in the Forest area are highly weathered and acidic, and sands may have low nutrient status. Site productivity, however, is generally high because soils are generally deep with ample moisture available to plants due to regular rainfall.

1.4.3 Terrain

The Forest topography is relatively flat to low sloping terrain, with localized surface depressions of Carolina bays, connected and isolated wetlands, floodplains and stream channels. Extensive loblolly and longleaf pine stands are found on drier sites; hardwoods are found on moister sites, usually along streams and adjacent floodplains. The climate of the area is humid and subtropical.

1.4.4 System Drivers

Dominant ecological processes within the Forest include disturbance regimes and stressors, such as natural succession, wildland fire, invasive species, and climate change. Insects and diseases are ongoing ecosystem drivers. They have been present as long as the Forest has been in existence and continue to affect Forest composition and structure. Fire also drives ecosystem changes; it is often tied to insects and diseases that have left dead wood in the forest, increasing fuel loads and fire risk. Invasive animal and plant species have the potential to impact the ecosystem.

Forests have a substantial influence on global climate by removing CO_2 from the atmosphere and storing carbon as biomass. The 2011 estimates for the Francis Marion National Forest total 18.5 teragrams (Tg or million metric tonnes) ± 2.8 Tg of carbon. This represents about 0.04 percent of the total of approximately 45,278 Tg of carbon in forests of the coterminous United States (EPA 2012). The principal drivers of aboveground forest carbon stocks are forest growth and mortality. The primary agents for decadal and longer-scale carbon changes on the Forest are prescribed burning, wildland fire, bark beetles, and timber harvest.

1.4.5 Vegetation

Common vegetation species vary by location. The most critical factor in maintaining both longleaf pine and fire-dependent communities is the presence of relatively frequent fire (2- to 4-year cycle). Wildland-urban interface areas and smoke management concerns have limited periodic prescribed burning in certain areas of the Forest. These areas generally follow the U.S. Highway 17 and 41 corridors and a substantial area in the northern part of the Forest north and south of U.S. Highway 17A around Macedonia. Regular use of prescribed fire has led to the development of vastly different, highly desirable understory conditions in all management areas. In contrast, lack of periodic prescribed burning in some areas has increased hazardous fuel loadings in the understory. This has adversely impacted a number of fire-dependent species and ecosystems, including habitat for threatened, endangered and sensitive species.

The Francis Marion National Forest contains numerous, small, isolated forested wetland depressions dominated by pond cypress (*Taxodium ascendens*), swamp gum (*Nyssa biflora*), pond pine (*Pinus serotina*), Virginia chain fern (*Woodwardia virginica*) and often a variety of herbaceous and graminoid species including pitcher plants (*Sarracenia* spp.). These areas are embedded in other management areas and are usually very small. Some of them can contain open water habitat for at least a portion of the year. Fifty pond cypress wetland depressions were surveyed on the Forest; of those, only nine had an area in excess of 2.5 acres.

1.5 Relevance of National Forest System Lands

While national forests are important to all people of the United States, the Francis Marion National Forest is geographically located along the coast of South Carolina. Many residents from South Carolina work or recreate on the Francis Marion National Forest.

For public land managers, understanding the age distribution of the local population most likely to use the Forests can help determine whether management actions might affect some age groups more than others. It also may help highlight the needs, values, and attitudes of different age groups. For example, if a geographic location has a large retired population or soon-to-be-retired population, the needs and interests of the public may place different demands on public land managers than in an area with a larger number of minors or young adults.

1.6 Important Social and Economic Influences on the Plan Area

1.6.1 Demographics and Population Trends

The population with the eight-county area surrounding the Francis Marion National Forest steadily grew between 1980 and 2010 (+60 percent). Population growth was unevenly distributed between the study area counties, ranging from 12 percent in Orangeburg to 166 percent in Horry County. Growth in Williamsburg has been more varied relative to the other counties. Between 1980 and 2010 Williamsburg's population declined by 10 percent; most of the population loss occurred during the early 2000s.

South Carolina has gained considerable attention in recent years as a retirement destination. Between 2007 and 2011 more than 10,000 people 65 years or older moved to the State from another state or country. In-migration by older populations accounted for 6 percent of all new South Carolina residents over this 5-year period, including large numbers of retirees to counties surrounding the Forest as well. While the coastal County of Horry welcomed the greatest number of new residents 65 and older, the majority of the region's new residents 65 years or older settled in the Forest gateway counties of Berkeley, Charleston, and Dorchester.

The area surrounding the Forest is predominately urban and land development trends suggest that the area will likely become increasingly urban. Populations are forecasted to grow through 2030 and net migration is expected to play an increasing role in the region's anticipated growth. Much of this in-migration can be attributed to the areas natural and cultural amenities.

1.7 Current Contribution to Ecological, Social, and Economic Sustainability, and Multiple Uses

1.7.1 Ecological, Social, and Economic Sustainability and Multiple Uses

The Forest provides economic, social, and cultural benefits for local and regional communities and for people across the Nation. Products and services generated on national forest system lands continue to sustain traditional livelihoods; provide for subsistence uses; and provide new economic opportunities, jobs, and benefits, such as those generated through sustainable recreation and tourism, restoration activities, ecosystem services, and renewable energy. The Forests lands are also of immense social and cultural importance, enhancing quality of life; sustaining scenic, historic, and culturally important landscapes; sustaining traditional life ways; and providing places to engage in outdoor recreation, improve physical and mental health, and reconnect with the land.

The current Forest plan provides for multiple uses, including outdoor recreation, timber, watershed, wildlife and fish. To meet multiple use requirements and provide for integrated resource management, responsible officials consider a range of uses, values, and benefits that may be important to communities and relevant to the unit. These include outdoor recreation, range, timber, water, wildlife, wilderness, energy, minerals, and ecosystem services; as well as issues such as sustainable infrastructure needs; opportunities to work with neighboring landowners; habitat conditions needed for hunting, fishing, subsistence; public drinking water supplies; and reasonably foreseeable risks to sustainability.

The Francis Marion contributes to the economic sustainability of forest-dependent communities by cultivating a robust tourism and recreation industry and by continuing to support economic activity in local logging and wood manufacturing industries. Understanding how these forest-related industries benefit from the Forest's resources is essential to understanding the consequences of changes in Forest management. As part of the assessment process Forest specialists identified how the Forest's multiple uses (timber, watershed, fish and wildlife, and outdoor recreation), infrastructure, and cultural and historic resources contribute to the viability of the local economy.

The Francis Marion contributes to social sustainability by providing opportunities for families and friends to recreate in an outdoor setting. Management activities within the Forest has some limited lifestyle impacts to the local communities, due to the integration of family, work, outdoor recreation, and place and the quality of life for residents. At the public meeting, participants indicated that the Francis Marion was important, because it provided opportunities to get away from the hectic pace of city life, to find peace and solitude, and to enjoy the natural environment in a number of ways, such picnicking, kayaking, fishing, hunting and bird watching.

Communities located near and individuals living close to the Forest place a high value on the recreational experiences. Activities such as hunting, fishing, hiking, kayaking, wildlife viewing, berry picking, and bird watching are outdoor recreation activities enjoyed by people when they are not working. The outdoor activities can be family gatherings or simply reinforce social bonds. The rivers and trails are all important because they enable the resident's recreation lifestyles. After work, on weekends, or on vacations, people engage in outdoor recreation activities. The outdoor recreation activities and the perceived tradeoffs to pursue them are important characteristics of lifestyles in these neighboring communities. Concerns over increased conflicts with other Forest visitors could impact people's recreation use pattern. At the public meetings, some concerns about the impacts of dog hunting on other users were mentioned. On the other hand, the Francis Marion National Forest is one of two locations in the state where hunting deer with dogs is allowed.

The rapid growth in the area is leading to changes in values, beliefs, and attitudes along with changes in the demographics with the area. While the Lowcountry of South Carolina has a shared developmental and cultural history, the influx of retirees and other people from outside the State bring a different set of values, beliefs, and attitudes that have profound impacts on how people use the Forest and view management activities.

The rapid population growth will also impact ecological sustainability. Urbanization of private forest land will have indirect impacts on national forest management and the ability of the natural resources to provide goods and services. When natural ecosystems become tightly linked to human settlements and economic and social forces, the ecosystems become increasingly vulnerable to disturbances from which it was previously able to recover. Conversion of private forest lands to altered, largely-urban areas impact ecosystem integrity and its ability to recover from natural disasters, which in turn affects the ecosystem's ability to provide goods and services, which can result in losses in timber products, water availability and quality, native habitats, and air quality. The rapidly growing population will increase pressure on aging sewer systems, increase storm-water runoff into stream systems, and create an intensified heat-island effect that will have indirect effects on the key ecosystem services that the Forest currently provides.

1.7.2 Key Ecosystem Services and How Communities Benefit

1.7.2.1 Provisioning Services

The Forest is capable of providing each of these "provisioning services" at varying levels to the local and national communities. For example, clean air is ensured through compliance with regulatory agencies, with spatial and temporal thresholds regularly assigned to standards. Fresh water is ensured through managing watershed lands for multiple uses while recognizing domestic supply needs.

Renewable energy resources include wood biomass (fiber), and wind, solar, geothermal and hydroelectric energy. On the Forest, wood biomass has been sold as a product and development of wood biomass, a byproduct of timber operations, may be feasible. An occasional solar panel is used to power a remote site and firewood for personal use is commonly collected and used as a heat source. No nonrenewable energy is being produced on the Forest.

Nonrenewable energy resources consist of oil, gas, and coal. There are no known oil or coal deposits on the Forest. No mineral activity is occurring on the Forest. No gold, silver or copper resources are known on the Francis Marion. Two mineral resources, limestone and sand, occur within the boundaries of the Forest, but there are no active leases or permits.

1.7.2.2 Regulating Services

Forests substantially mitigate the climate effects of increasing atmospheric CO_2 concentrations by removing carbon from the atmosphere and storing it as biomass. U.S. forests offset about 10 to 20 percent of U.S fossil fuel emissions. Available information suggests that carbon stocks of the Forest have been increasing over the last several decades as they recover from extensive agriculture in the late 19th and early 20th centuries, though the future trajectory of carbon stocks on the Forest is uncertain.

The current strategy of the Forest is to ensure that its management actions continue to provide water quantity and quality that support recreational uses, healthy riparian and aquatic habitats, the stability and effective functioning of stream channels, and the ability to route flood flows. Additionally, in filtering and buffering, the Forests' soils act as a filter to protect the quality of water, air, and other resources. Though past agricultural practices have impacted soil functions through compaction, erosion, and loss of organic matter, the Forest has substantially decreased these types of effects through management practices. These management practices, coupled with current soil restoration activities, should lead to an increased capacity of the soils to provide multiple uses and ecosystem services in perpetuity, including storage, soil stabilization, and flood control.

Human health, particularly risk of exposure to many infectious diseases, may depend on the maintenance of biodiversity in natural ecosystems. Biodiversity is the number, abundance, and composition of genotypes, populations, species, functional types, communities, and landscape units. Evidence is accumulating that greater wildlife species richness may decrease the spread of wildlife pathogens to humans. The Forest is committed to maintaining biodiversity.

1.7.2.3 Supporting Services

Major ecosystem services are supported by the direct interactions between plants and animals, such as herbivory, pollination, and seed dispersal. Biodiversity strongly influences the provision of these ecosystem services and therefore human well-being. The Forest recognizes the full economic benefits of wild pollinators and seed dispersal as important functions of the ecosystem; therefore, management actions are sensitive to maintaining biodiversity.

Regarding soil formation and nutrient cycling, the emphasis of soil management focuses on long-term soil quality and ecological function. The two objectives of this emphasis adhered to by the Forest are to maintain or restore soil quality on Forest lands and manage resource uses and soil resources on Forest lands to sustain ecological processes and function so that desired ecosystem services are provided in perpetuity.

1.7.2.4 Cultural Services

Across the Forests, nature provides opportunities for numerous recreational experiences, including biking, camping, hiking, big game hunting, fishing and boating. Visitors can travel the intracoastal waterway, visit interpretive and educational sites that reveal the rich history of the region, reach remote areas on foot or in a vehicle, and view wildlife in natural surroundings. Visitors who participate in these activities generally visit adjacent communities and contribute to those economies in various ways.

Travel and tourism consists of sectors that provide goods and services to visitors of the local economy, as well as to the local population. These industries are retail trade; passenger transportation; arts, entertainment, and recreation; and accommodation and food.

There are hundreds of historic properties across the plan area; these vary by resource class, location, age, and condition. Taken as a whole, historic properties across the plan area are in fair condition, and Forest's managers are dedicated to their conservation.

Additionally, particular landscape features and places connect the traditions and history of the past with the identity and values of the present for members of the various tribes interested in the Forests, including the Catawba Indian Nation. The Forests respect these cultural values and works with tribal contacts as appropriate.

1.8 Risk Factors and Uncertainty

The management direction (goals, objectives, desired conditions, standards and guidelines) in the Forest plan assumes that our desired outcomes will remain so for at least a decade. In addition, any unplanned natural or human caused events will be at a scale small enough to not be a significant threat to achieving the planned objectives. The Forest relies predominately on its monitoring reporting to assess changing conditions and new risks as they develop, and adapt management direction as necessary to reach the Forest plan's desired outcomes.

1.9 Best Available Science

In the preparation of this assessment of the Forest plan, best available science was used to update some of the information. Forest personnel worked with individuals, university and research personnel, non-profit organizations and county, state and Federal agencies to identify existing, relevant, accurate and reliable information to inform the findings in the assessment. These contacts included individual telephone calls or emails or information gathered at public meetings. Other sources of information included the annual monitoring reports and public input gathered using a combination of public meetings and on-line canvases.

1.10 Public Involvement

To date, the Forest has hosted four community conversations starting in October 2012.

- The first two public meetings of October 25 and November 15, 2012, used a "World Café" meeting format.
- The third public meeting was held on February 26, 2013, with a focus on sustainable recreation and benefits that people get from the Forest. This effort included using an on-line collaborative website to gather public input for 60 days.
- The fourth community conversation, a forum on ecological sustainability held on August 6, 2013, was co-sponsored by the Coastal Conservation League and The Nature Conservancy. This meeting used a combination of presentation and break-out groups to create an understanding of terminology and discuss the plan revision process and public involvement.

Notes from each public meeting are posted on the public website at http://www.fs.usda.gov/scnfs. Highlights from the meetings are summarized below.

1.10.1 Fall 2012 Public Meetings

1.10.1.1 Emerging Themes from 2012 Fall Public Meetings

1) Sharing resources with partners and integrating into other planning efforts for efficiency is important to stakeholders. One example is the Sewee Longleaf Conservation Cooperative, currently under the leadership of the The Nature Conservancy, who is starting a landscape-scale planning process for longleaf restoration. Another example is the planning for the East Coast Greenways Project. Increasing coordination should decrease time and costs for planning and improve future outcomes.

2) Outreach should include presenting and discussing information at stakeholder sponsored meetings rather than relying solely on stakeholders to attend Forest Service sponsored meetings. Partners can share information through their networks if they are provided information in a timely manner. This includes local community meetings, such as city councils, churches, and schools. The local underserved community or minorities may not know that they are stakeholders in national forest management and outreach to them in their own supporting environments could increase their participation in Forestwide planning.

3) Many of the nature features on the Forest are unique in the local and regional context. Dozens of places have been identified with special features that are unique to the Forest. Nature-based experiences and the supporting recreational facilities are important for stakeholders.

4) Stakeholder interaction with the Forest environment appears to improve their quality of life, health, and well-being. Stakeholders cited important aspects of improving their livelihood, such as getting away from congestion (reducing stress), silence, exercising, and learning about the environment.

5) Among the major challenges are: The management of the wildland-urban interface zone and, specifically the restrictions on prescribed fire to maintain or restore the fire-adapted ecosystems; the maintenance of infrastructure, specifically trails and roads; the invasion of nonnative species, such as the degradation of ecosystems caused by feral hogs; and more challenges as listed in the responses.

1.10.1.2 Emerging Themes from Sustainable Recreation and Ecosystem Services (February 26, 2013)

Forest as a Provider of Benefits. Of the benefits identified by all participants, four primary themes emerged:

1. The Forest benefits the public by providing diverse outdoor recreation experiences set within beautiful, natural scenery. In particular, the Forest is uniquely suited to provide trail, wildlife viewing, and hunting opportunities.

2. The Forest benefits the public by providing green space which can enhance quality of life through spiritual renewal, physical exercise, mental "escapes," and the opportunity for quiet reflection.

3. The Forest benefits the public by providing a large area of land for birds and wildlife to thrive. The varied ecosystems of the Forest support a diversity of birds and wildlife, including both rare, native species and migratory species such as neo-tropical birds.

4. The Forest benefits the public by reflecting the Lowcountry heritage of South Carolina, as well as by protecting historical sites of significance and allowing for the continuation of traditional uses.

Forest as a Unique Contributor. Participants identified that the Francis Marion National Forest was the only place they could go to do, see, and experience a variety of features. Of the unique roles and attributes identified by all participants, four primary themes emerged:

1. The Forest is significant because it provides approximately 250,000 acres of natural habitat for birds and wildlife, including the endangered red-cockaded woodpecker.

2. The Forest is significant because it has great ecological diversity, including longleaf pine, Carolina bay and cypress swamp communities.

3. The Forest is unique because it can provide visitors with a sense of remoteness. The Forest provides a convenient and free place to "get away from it all," thus being able to escape the noise, lights, and congestion of neighboring metropolitan areas.

4. The Forest offers recreation settings, activities, and infrastructure which, when combined, create a unique recreational experience that cannot be found elsewhere. Particularly, paddling trails, motorized trails, and hiking/walking trails are most unique to the Forest.

Forest Favorite Places. Participants identified 125 favorite places both on and off the Francis Marion National Forest. Cape Romain National Wildlife Refuge, the Palmetto Trail, I'on Swamp Trail, and Wambaw Creek were among the most frequently mentioned places. In reviewing all favorite places, three characteristics of primary importance emerged:

1. Favorite places provide recreation infrastructure which facilitates certain types of uses. Nearly 25 percent of participants noted their favorite place included a trail.

2. Favorite places offer beautiful natural settings and scenic vistas, particularly of the Longleaf Pine Ecosystem and water bodies.

3. Favorite places allow access to water, including the Intracoastal Waterway, inland ponds, and many rivers and creeks.

Forest Improvements. Participants identified many ways in which they felt their connection to the Francis Marion National Forest could be improved. According to most participants, a higher quality of experience and more frequent use could be achieved if the following areas were improved: Recreation infrastructure and management, hunting, visitor information, signage and interpretation, fire, vegetation, and wildlife management.

1.10.1.3 Ecological Sustainability Forum

The synopsis of comments from the evaluation of the forum include:

- Overall, respondents felt the Forest Service planning process was well-explained, even for those who did not have prior knowledge of the Forest plan.
- Majority of respondents felt meeting and greeting stakeholders and networking were the most valuable aspects of the forum.
- Majority of the respondents felt that sustainability issues were too deep and wanted more time in breakout sessions.
- Additionally, the majority of respondents wanted more clarification on what input was desired from the audience and wanted more interaction.
- Prevailing topics respondents wanted to see covered in future forums were social and economic issues and other wildlife studies to include wildlife criteria and other management considerations and wildlife threatened or endangered species.

1.11 Summary of the Assessment

On December 18 1995, the Revised Land and Resource Management Plan for the Francis Marion National Forest (Forest plan) was signed. Several primary post-Hugo concerns drove the 1996 plan revision in response to the drastically changed conditions including activities to address the fuel hazard/fire potential that existed, recovery of the red-cockaded woodpecker habitat and replacement of

lost colonies. Connected to these was an emphasis to identify and recover suitable areas to longleaf pine with regular prescribed burning in the future.

An assessment was completed to identify existing conditions of resources and trends changes that have occurred since implementation of the 1996 plan.

1.11.1 Timber Harvest

Harvest levels in the 1996 Forest plan are sustainable. There is still a strong, competitive timber market; and there are new wood markets emerging due to changes in technology. For instance, logging debris and small-diameter materials may provide wood biomass.

1.11.2 Impacts on Forest Revenues to Counties

Counties receive 25 percent of the receipts from the sale of timber, recreation fees, and royalties from mineral leasing on Federal lands within the county. Most receipts come from the sale of timber.

1.11.3 Protection of At-risk Species

Many of the "at-risk" species identified in the assessment are dependent on frequent fire (2- to 4-year-fire-return interval). The Wando area has the highest density of at-risk species and is at the greatest risk of impacts from urban sprawl. The Francis Marion is home to the one of largest populations of red-cockaded woodpeckers in the world. More recently, critical habitat for frosted flatwoods salamander was identified on the Forest in the Wando area. The Wando area is under pressure from urban sprawl from Charleston.

1.11.4 Wildlife Habitat

The Longleaf Pine Ecosystem is one of the most diverse ecosystems in the world. This ecosystem provides habitat for many at-risk plants and animals that depend on a frequent fire return interval (2 to 4 years).

1.11.5 Resource Potential

National visitor use monitoring shows an increased demand for dispersed recreation opportunities, such as photographing wildlife, nature viewing, hiking, horseback riding, mountain biking, and water-related activities.

Hunting on the Forest continues to be popular. However, there is a shift toward hunting big game rather than small game. The demand for fishing is increasing faster than the demand for hunting.

1.11.6 Acres Classified as Wetlands

The 1985 plan classified 37,650 acres as wetlands; in the 1996 Forest plan about 145,000 acres are classified as potential wetlands. Although the definition the Forest uses for wetlands has remained the same since the last planning period, the method of inventory, or wetland delineation, has changed. One potential wetland inventory is based on hydric soils and another method used ecological classification. These two methodologies produced similar estimates of 145,000 acres and 148,000 acres, respectively.

1.12 What is the Next Step?

The assessment findings will provide the basis for the "need for change" statements used in the need for change document. However, the need for change will identify potential changes in Forest plan direction. These changes are related to:

- Analysis tools such as LiDAR, GIS, and other capabilities have grown since 1996. These new analysis tools provide us additional information as we look at what has been accomplished and what has changed over the last 15 to 20 years.
- Since 1996, emerging technologies have created new markets, such as the potential to sell wood biomass as a renewable energy source. The State of South Carolina is looking into renewable energy opportunities, such as off-shore wind development.
- Projected sea-level rise and population increases. Consumptive water uses on the Forest, such as municipal or industrial withdrawals are limited, but dams limit the recharge of freshwater into areas where there are tidal changes. Sea-level rise has the potential to increase salinity within the area influenced by tidal changes.
- More recently the introduction and spread of nonnative invasive species impact management of the Francis Marion National Forest. For instance, feral hogs have spread throughout the Francis Marion and often damage plantings of longleaf pine seedlings.
- Changes in law, policy, or regulation affect the implementation of management activities. For instance the release of the 2012 planning rule provides direction on required forest plan components.