

FIRE MANAGEMENT PLAN



**FRANCIS MARION & SUMTER
NATIONAL FOREST
2004**

FOREWORD

Information presented in this document is a critical component of Fire Management on the Francis Marion and Sumter National Forest. Questions regarding this plan should be directed to the Fire Planner or Fire Management Officer on the Francis Marion & Sumter National Forests. This plan shall be reviewed and updated annually.

Francis Marion and Sumter National Forests

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SECTION I INTRODUCTION

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A. Purpose of Plan

The purpose of the Fire Management Plan is to implement decisions made in the Land and Resource Management Plan(s) as it relates to Wildland Fire. It is not a decision making tool, but an implementation guide.

This Fire Management Plan formally documents the fire management program for the approved alternative for the Francis Marion and Sumter National Forests Plans. It provides specific details of the program that most efficiently meets fire management direction for the planning period, including organization, facilities, equipment, activities, timing, locations, and related costs. Each year adjustments are made in the Fire Management Plan to reflect changes in the annual planning process. This document is meant to be a working reference for fire program information.

This plan was developed for all areas subject to wildland fires on the Francis Marion and Sumter National Forests in compliance with the following (FSM 5101, 5103, 5106, and 5108): Federal Wildland Fire Management Policy and Program Review; Wildland and Prescribed Fire Management Policy and Implementation Procedures Reference Guide; Managing Impacts of Wildland fires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems - A Cohesive Strategy; the interagency fire management plan template; and A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10-Year Comprehensive Strategy Implementation Plan, and to meet the requirements of FSM 5121.2 and FSH 5109.19, 50.3.

B. Collaboration

The Fire function provided the analysis for the EIS for the Revised Francis Marion National Forest Land and Resource Management Plan and the Draft and Final Revised Sumter National Forest Land and Resource Management Plan (DEIS). The Goals/Objectives and Standards for fire suppression and use for the Revised Francis Marion National Forest Land and Resource Management Plan and Draft and Final Sumter National Forest Land and Resource Management Plan were also provided by the Fire function. This was accomplished through participation in plan developmental meetings and review of drafts.

Both Plans have undergone the public involvement process through meetings and comment periods. Site specific prescribed fire plans and wildland fire use plans all undergo the public notification and comment period process. Currently, there are no specific projects that are controversial.

Additional collaborative opportunities available during plan implementation include efforts with the following agencies: Dept. of Defense, Ft. Jackson (suppression and prescribed fire – further development of current relationship and agreement); Dept. of Interior, U.S. Fish and Wildlife Service (suppression, prevention, community assistance, hazardous fuels reduction and fire-adapted ecosystem restoration – this is one federal agency with common boundaries with the forest); DOD, Army Corps of Engineers (suppression and prescribed fire for hazardous fuels reduction and fire-adapted ecosystem restoration – only other federal agency with common boundary); South Carolina Forestry Commission (suppression, prevention and community assistance – continuance of long standing cooperative agreement), South Carolina Department of Natural Resources (fire-adapted ecosystem restoration), The Nature Conservancy (prescribed fire for fire-adapted ecosystem restoration and hazardous fuels reduction); South Carolina Dept. of Transportation and South Carolina Highway Patrol (smoke management on highways); and the South Carolina Prescribed Fire Council (promote public and media education on benefits of prescribed fire, promote training and safety for the use of prescribed fire, aid in developing policy and regulations as related to prescribed fire, and support the ability to use prescribed fire as a land management tool). Additional efforts may include the Dept. of Interior, Park Service and the Catabaw Nation.

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C. Link to Policy

The overriding objective of all fire management activities within this plan is to first provide for firefighter and public safety.

Subsequent objectives of this plan are developed through a detailed program of action to carry out fire management policies that will protect resources and other values from wildland fires and to use prescribed and wildland fire to achieve resource management goals and objectives as defined in the Francis Marion Revised Land and Resource Management Plan (Revision of March 1996), and the Sumter National Forest Land and Resource Management Plan (January 2004).

Forest Service directives can be found at <http://fsweb.wo.fs.fed.us/directives/>.

D. Link to Land and Resource Management Planning

This plan meets National Environmental Policy Act (NEPA) requirements and other State and Federal regulatory requirements by implementing approved fire management direction outlined in the Francis Marion National Forest Revised Land and Resource Management Plan 1996, analyzed in the Final Environmental Impact Statement (FEIS) Francis Marion National Forest, March 1996, and the Sumter National Forest Land and Resource Management Plan, (Final Environmental Impact Statement, 2004).

It must be noted that the terminology in the Francis Marion National Forest Land and Resource Management Plan is not consistent with that of the 2001 Federal Wildland Fire Management Policy.

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E. Authorities

FSM 5101.1 – Fire Management on National Forest System Lands. The following describes the authority for fire management activities on National Forest System Lands:

1. Organic Administration Act, Act of June 4, 1897 (16 U.S.C. 551). This act authorizes the Secretary of Agriculture to make provisions for the protection of National Forests against destruction by fire.
2. Bankhead-Jones Farm Tenant Act, Act of July 22, 1937 (7 U.S.C. 1010, 1011). This act authorizes and directs the Secretary of Agriculture to develop a program of land conservation and land utilization to "assist in controlling soil erosion, reforestation, preserving natural resources, protecting fish and wildlife, . . . mitigating floods, . . . protecting the watersheds of navigable streams, and protecting the public lands. . . ."
3. Wilderness Act, Act of September 3, 1964 (16 U.S.C. 1131, 1132). This act authorizes the Secretary of Agriculture to take such measures as may be necessary in the control of fire within designated wilderness.
4. National Forest Management Act, Act of October 22, 1976 (16 U.S.C. 1600 et seq.). This act directs the Secretary of Agriculture to specify guidelines for land management plans to ensure protection of forest resources. Implementing regulations at Title 36, Part 219 of the Code of Federal Regulations (36 CFR 219.27) specify that consistent with the relative resource values involved, management prescriptions in forest plans must minimize serious or long-lasting hazards from wildfire.
5. Clean Air Act, as amended (42 U.S.C. 7401 et seq.). This act provides for the protection and enhancement of the nation's air resources and applies to the application and management of prescribed fire.

5101.2 - Fire Management on Other Federal, State, and Private Lands. The following additional authorities provide for Forest Service wildfire protection activities on other lands under appropriate circumstances:

1. Economy Act of 1932, Act of June 30, 1932 (41 U.S.C. 686). This act provides for procurement of materials, supplies, equipment, work, or services from other federal agencies.
2. Granger-Thye Act, Act of April 24, 1950 (16 U.S.C. 572). This act authorizes expenditure of Forest Service funds to erect buildings, lookout towers, and other structures on land owned by states. It provides for the procurement and operation of aerial facilities and services for the protection and management of the national forests and other lands administered by the Forest Service.
3. Reciprocal Fire Protection Act, Act of May 27, 1955 (42 U.S.C. 1856). This act authorizes reciprocal agreements with federal, state, and other wildland fire protection organizations.
4. Wildfire Suppression Assistance Act, Act of April 7, 1989 (42 U.S.C. 1856). This act authorizes the Secretary of Agriculture to enter into agreements with fire organizations of foreign countries for assistance in wildfire protection.

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5108 - REFERENCES. Consult the publications listed in this section for guidance on the minimum standards and procedures in various aspects of wildland fire management. The National Wildfire Coordinating Group (NWCG) publications are available upon request by writing or faxing the National Interagency Fire Center (NIFC) at:

National Interagency Fire Center
Great Basin Cache Supply Office
3833 S. Development Avenue
Boise, ID 83705-5354
Fax Number: (208) 387-5548

1. Federal Wildland Fire Management Policy and Program Review, Final Report, December 18, 1995. This report establishes joint Federal wildland fire management principles, policy, and recommendations. (See para. 9 for information on the related implementation guide.)
2. Field Managers Course Guide (NWCG, PMS 901-1). This guide contains information on training principles and guidelines, wildfire training course systems, and course descriptions. Also available at <http://www.nwcg.gov/pms/training/training.htm>
3. Firefighters Guide (NWCG, NFES 1571, PMS 414-1). This guide contains material concerning firefighting basic practices.
4. National Fire Danger Rating System User's Guide (NWCG, NFES 1522, PMS 430-3) and Gaining an Understanding of NFDRS (NFES2665). These guides provide information and guidelines on the National Fire Danger Rating System (NFDRS); information concerning location, instrumentation, and maintenance of fire danger weather stations; and instructions for predicting fire danger. Also available at <http://www.nwcg.gov/pms/pubs/pubs.htm>
5. National Interagency Mobilization Guide (NFES 2092). This guide provides current dispatching and mobilization direction and procedures.
6. Prescribed Fire Complexity Rating System Guide (NWCG, NFES 2474, PMS 424). This guide provides guidance on the complexity elements and process to be used in determining the initial complexity of a project as high, moderate, or low.
7. Smoke Management Guide for Prescribed and Wildland Fire (NWCG, NFES 1279, PMS 420-1). This guide provides guidelines for planning and managing smoke from prescribed fires to achieve air quality requirements through improved smoke management practices. Also available at <http://www.nwcg.gov/pms/pubs/pubs.htm>
8. Weather Station Handbook - An Interagency Guide for Wildland Managers (NWCG, PMS 426-1). This guide provides standards and procedures for siting, installing, operating, and maintaining automated and manual weather stations.
9. Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide. This guide provides interagency guidance on carrying out the Federal Wildland Fire Management Policy (listed in para. 1 of this section). This guide is available from the Fire and Aviation Management Staff, Washington Office.
10. Fire and Aviation Management Qualifications Handbook (FSH 5109.17) (For the USFS it replaces the NWCG, PMS 310-1). This agency guide provides descriptions, qualifications, and requirements for fire suppression and prescribed fire positions. Available at http://www.fs.fed.us/im/directives/dughtml/fsh_5000.html
11. Glossary of Wildland Fire Terminology (NWCG, NFES 1832, PMS 205) This glossary includes terms used by the NWCG member agencies in wildland fire, prescribed fire, and incident management.

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12. Incident Response Pocket Guide (NWCG, NFES 1077, PMS 461). This interagency guide provides a number of checklists and management practices for use in responses to wildland fires and other incidents. Available at: <http://www.nwcg.gov/pms/pubs/pubs.htm>

13. Interagency Standards for Fire and Aviation Operations. This interagency handbook provides guidance for implementing safe and effective fire and aviation management operations. Available at <http://www.fire.blm.gov/Standards/redbook.htm>

Definitions And Acronyms Used In This Document

Confine – Confinement is the strategy employed in appropriate management responses where a fire perimeter is managed by a combination of direct and indirect actions and use of natural topographic features, fuel, and weather factors.

FMU – Fire Management Unit – Any land management area definable by objectives, topographic feature, access, values to be protected, political boundaries, fuel types, or major fire regime groups, etc., that set it apart from management characteristics of an adjacent unit. These units may have dominant management objectives and pre-selected strategies assigned to accomplish these objectives.

FMZ – Fire Management Zone – A geographic zone used in the NFMAS Initial Attack Analysis that describes protection and suppression capabilities within the context of historical fire occurrence.

FSH – Forest Service Handbook – handbooks on specific topics that have been incorporated into the FS directives system.

FSM – Forest Service Manual – defines current FS policy

Forest Plan or LRMP – The Land and Resource Management Plan for the forest. This document provides broad direction for the forest over a 10-15 year period.

NAAQS – National Ambient Air Quality Standards – Standards set by the Environmental Protection Agency for maximum amounts of various pollutants that can be introduced to the atmosphere by human activities.

NFMAS – National Fire Management Analysis System – A model for analyzing weather data, fire behavior and historic fire occurrence to predict most efficient level of fire resources for future years.

MMA – Maximum Manageable Area – The firm limits of management capability to accommodate the social, political, and resource impacts of a wildland fire. Once established as part of an approved plan, the general impact area is fixed and not subject to change.

Prescribed Fire – Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

Prescription – Measurable criteria that define conditions under which a prescribed fire may be ignited, guide selection of appropriate management responses, and indicate other required actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

T & E – Threatened and Endangered – Any wildlife or plant species classified as Endangered or Threatened by the US Fish & Wildlife Service.

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WFIP – Wildland Fire Implementation Plan – A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes appropriate management response for a wildland fire being managed for resource benefits. A full WFIP consists of three stages. .

WFSA – Wildland Fire Situation Analysis – A decision making process (and documentation) that evaluates alternative management strategies against selected safety, environmental, social, political, economic, and resource management objectives.

Wildland Fire – Any non-structure fire, other than prescribed fire, that occurs in the wildland. This term encompasses fires previously called both wildfires and prescribed natural fires.

Wildland Fire Use – The management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in FMP's. Operational management is described in the WFIP.

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RELATIONSHIP TO LAND MANAGEMENT PLANNING AND FIRE POLICY

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The following items have been extracted from the Francis Marion and Sumter Forest Land and Resource Management Plans and other policy manuals, handbooks, and documents; so that fire managers have a single source document identifying in broad programmatic terms the forest direction for their fire management activities. Only areas referencing fire are included, for complete text refer to documents listed below.

A. Reference to Planning and Policy Documents

- √ Revised Land and Resource Management Plan, Francis Marion, 1996
- √ Final Environmental Impact Statement for the Revised LRMP, Francis Marion, 1996
- √ Revised Land and Resource Management Plan, Sumter, 2004
- √ *Final* Environmental Impact Statement for the Revised LRMP, Sumter, 2004
- √ NFMAS 2004, Francis Marion Sumter, 2003
- √ Federal Review and Update of the 1995 Federal Wildland Fire Management Policy and Program Review, January 2001 (FWFMP)
- √ Wildland and Prescribed Fire Management Policy, Implementation Procedures and Reference Guide, August 1998 (WPFMP Implementation Guide)
- √ A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment -10-Year Comprehensive Strategy Implementation Plan, May 2002
- √ Forest Service Manual (FSM) 5100
- √ Forest Service Handbook (FSH) 5109
- √ Interagency Standards for Fire and Fire Aviation Operations, 2003

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B. Reference to Policy Documents

The 2001 Federal Wildland Fire Management Policy (FWFMP) provides direction for Federal fire management agencies. In summary, federal fire management activities and programs are to provide for firefighter and public safety, protect and enhance land management objectives and human welfare, integrate programs and disciplines, require interagency collaboration, emphasize the natural ecological role of fire, and contribute to ecosystem sustainability (FWFMP 2001). The 2001 Federal Fire Policy and its implementation are founded on the following Guiding Principles:

1. Firefighter and public safety is the first priority in every fire management activity.
2. The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
3. Fire management plan, programs, and activities support land and resource management plans and their implementation.
4. Sound risk management is a foundation for all fire management activities.
5. Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
6. Fire management plans and activities are based upon the best available science.
7. Fire management plans and activities incorporate public health and environmental quality considerations.
8. Federal, State, tribal, local, interagency, and international coordination and cooperation are essential.
9. Standardization of policies and procedures among federal agencies is an ongoing objective.

For more exhaustive policy refer to FWFMP 2001 (chapter 3 page 22-24) and FSM 5103 (items 1-6).

More specific guiding policies for fire management activities and programs on the Francis Marion and Sumter National Forests are found in the Francis Marion Revised Land and Resource Management Plan (1996), and the Sumter National Forest Land and Resource Management Plan (2004).

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C. Goals and Desired Condition, Objectives and Standards

Forest Wide desired conditions, goals and objectives related to fire as described in the Francis Marion and Sumter Land and Resource Management Plans. For a comprehensive listing of all resources, please see appropriate Land and Resource Management Plan (LRMP).

FRANCIS MARION

Desired conditions (Air Quality, Fire and Health, Safety and Energy)

Air Quality

“Air quality is maintained. Air quality on Forest Service lands near Cape Romain Wildlife Refuge complements the high quality standards found at Cape Romain, which is a Federal Class I area. Portions of the Forest may experience some localized and temporary reduction in air quality as a result of prescribed fire.”

Fire

“Wildfires are actively suppressed in a cost-efficient manner. The risk of resource damage and danger to the public as a result of wildfires decreases as a result of prescribed burning and a reduction of the fuels created from Hurricane Hugo. Prescribed fire is a common practice. There is evidence of fire in most upland pine stands. Areas associated with the longleaf ecosystem are frequently burned. Growing-season burns are also common in these areas.

Fewer prescribed fires of lower intensities are found in mixed pine/hardwood stands as well as transition areas between uplands and lowlands. The evidence of fire in these areas ceases near wetter sites and areas with natural barriers to fire. Fire plays an increased role in maintaining the Forest’s ecosystems.”

Health, Safety and Energy

“Public health and safety associated with the use of the Forest improve. As a result of an increase in prescribed fire, forest fuels are reduced which, there fore, reduces the risk of wildfire and the smoke generated by wildfire. Extra precautions are taken to ensure safe and successful growing-season, prescribed burns”.

Goals

- Goal 1 Provide for Forest Diversity. Of particular importance are the red-cockaded woodpecker habitat and longleaf pine communities.
- Goal 2 Protect and Conserve Unique Areas
- Goal 4 Contribute to Local Community and Social Considerations
- Goal 7 Protect and Manage Habitat for Sustainable Populations of Native Wildlife
- Goal 8 Incorporate an Ecological Approach in Management of the Forest
 - 1) Take care of the land by continuing to restore and sustain the integrity of its soils, air, waters, biological diversity, and ecological processes.
 - 2) Emphasize greater environmental understanding and sensitivity in consideration of alternatives to traditional management approaches.
 - 3) Instill public participation in the management of the Francis Marion National Forest.
 - 4) Strengthen existing partnerships and actively pursue additional opportunities.
 - 5) Increase utilization of research from Forest Service and other scientists in order to evaluate the feasibility of new concepts and learn from the results of their application.

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Objectives

- O-1 Maintain a red-cockaded woodpecker population of 450 clusters.
- O-4 Increase the longleaf pine forest type to 44,700 acres within the next 10 years and on 53,500 acres in the long term.
- O-5 Restore the role of growing-season fires on 16,000 acres of longleaf forest type in the next 10 years and on 40,000 acres in the long term by burning on a 2-4 year cycle.
- O-9 Create conditions on 38,000 to 50,000 acres of pine stands which release overcrowded live crowns, increase residual stand growth potential, allow more sunlight to the forest floor and increase suitable habitat for the red-cockaded woodpecker.

StandardsAir Quality

- FW-1 Use best available and emerging smoke management technology (including the preparation of smoke management plans for prescribed burns which comply with Clean Air Act Amendments of 1977 and "Smoke Management Guidelines for Forestry Prescribed Burning Operations for the State of South Carolina") for prescribed fires.
- FW-2 Management activities should comply with Class II Air Quality Standards and should complement Class I Standards in areas adjacent to the Cape Romain National Wildlife Refuge.
- FW-3 Consider the impact of smoke on public health and welfare during initial attack of wildland fire. Consider smoke dissipation standards and the possibility of fog formation when determining mop-up standards for fire suppression.

Fire

- FW-4 (R-8-VM) Site-specific planning for all prescribed burns is done by trained resource specialists and approved by the appropriate Forest Service line officer prior to project implementation. This planning includes description of treatment area, burn objectives, weather factors and fuel moisture conditions, and resource coordination requirements. Coordination requirements include provisions for public and worker safety, burn day notification of appropriate agencies and persons, smoke management to comply with air quality regulations and protect visibility in Class I areas, protection of sensitive features, as well as fireline placement, specific firing patterns, ignition methods, and mop-up and patrol procedures. A post-burn evaluation compares treatment results with Forest Plan objectives.
- FW-5 (R8-VM) Slash burns are done so they do not consume all litter and duff and alter structure and color of mineral soil on more than 20 percent of the area. Steps taken to limit soil heating include use of backing fires on steep slopes, scattered slash piles, and burning heavy fuel pockets separately.
- FW-6 (R8-VM) On severely eroded forest soils, any area with an average litter-duff depth of less than ½ inch is not burned.
- FW-7 (R8-VM) Where needed to prevent erosion, water diversions are installed on firelines during their construction, and the firelines are revegetated promptly after the burn.
- FW-8 (R8-VM) Avoid constructing additional plowed firelines. Use existing plowed lines and other barriers such as roads, streams and trails when possible. Where plowed firelines are needed, every effort will be made to reuse the same location for each successive burn.

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- FW-9 (R8-VM) Firelines which expose mineral soil are not located in filter strips along lakes, perennial or intermittent springs and streams, wetlands, or water-source seeps, unless tying into lakes, streams or wetlands as firebreaks at designated points with minimal soil disturbance. Low-intensity fires with less than 2-foot flame lengths may be allowed to back into the strip along water bodies, as long as they do not kill trees and shrubs that shade the stream. The strip's width in feet is at least 30 plus 1.5 times the percent slope.
- FW-10 (R8-VM) When wetlands need to be protected from fire, firelines are plowed around them only when the water table is so low that the prescribed fire might otherwise damage wetland vegetation or organic matter. Previous firelines are reused as much as possible.
- FW-11 (R8-VM) If a fireline is required next to a wetland, it is not plowed in the transition zone between upland and wetland vegetation except to tie into a natural firebreak.
- FW-12 (R8-VM) Plowed firelines are not located within savannahs except when needed to protect facilities or threatened, endangered, proposed, or sensitive species.
- FW-13 (R8-VM) The best available technology to control smoke emissions is used, including accelerated mop-up, rapid ignition techniques, and burning when moisture conditions limit total smoke production. Burning is not done during stagnant weather nor when predictions indicate that smoke drifts into highways, airports, populated areas, or other sensitive areas may be hazardous.
- FW-14 (R8-VM) Oak, oak-gum-cypress, and oak-pine stands are protected by excluding fire or by using low-intensity backing fires.
- FW-15 (R8-VM) Generally, understory burns are not scheduled during nesting season to avoid disrupting reproductive activities. Forest managers may, however, use burns to meet specific objectives, such as protecting threatened and endangered species (e.g., red-cockaded woodpecker), reestablishing natural ecosystems, controlling brownspot disease and promoting longleaf height growth, and site preparation. Burns are planned and executed to avoid damage to habitat of any threatened, endangered, proposed, or sensitive species (such as destruction of bald eagle nest trees).
- FW-16 (R8-VM) Burns are planned to achieve their most desirable distribution for wildlife habitat and to try to break up large, continuous fuel types. When consistent with burning objectives, burns are done to create a mosaic pattern of fuel types that complements fuel treatment and wildlife objectives.
- FW-17 (R8-VM) Critical values of the Keetch-Byrum Drought Index, are developed for all major vegetation-soil-landform types on which prescribed fires are conducted. Burning is allowed only on days when the Drought Index is less than this critical value.
- FW-18 (R8-VM) Forest Supervisor's approval is required on prescribed burning When Keech-Byrum Index exceeds 500.
- FW-19 (R8-VM) Prescribed fires are conducted under the direct supervision of a burning boss with fire behavior expertise consistent with the project's complexity. All workers must meet health, age, physical and training requirements in FSM 5140, and use protective clothing and equipment.

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Health, Safety and Energy

FW-28 (R8-VM) Forest Service workers must comply with dress and safety standards specified in the Health and Safety Code Handbook (FSH 6709.11)

FW-42 (R8-VM) Areas are not prescribed burned for at least 30 days after herbicide treatment.

FW-43 (R8-VM) Chainsaw operators must be periodically certified and demonstrate proficiency with chainsaws.

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SUMTER**Desired conditions (Air Quality, Wildland and Prescribed Fire, and Forest Health)**Forest Health

"Pitch pine (*Pinus rigida*), shortleaf pine (*Pinus echinata*), and table mountain pine (*Pinus pungens*) are declining in abundance throughout the southern Appalachian Mountains because of age, southern pine beetle outbreaks, lack of fire, and limited amounts of disturbance.

Fire has historically played an important role in shaping the species composition of the Sumter National Forest. Historically, relatively frequent fires have maintained and restored many forested communities across the piedmont and southern Appalachians, especially xeric pine and pine-oak forest; dry and xeric oak forests; and dry and dry to mesic pine-oak forests. Without fire or other vegetation management actions that approximate fire effects, many communities may show dramatic reductions in distribution and/or abundance in future years and shift towards shade-tolerant and fire-intolerant species. In the mountains, the absence of somewhat frequent fire has allowed fire dependent table mountain pine to shrink in distribution and is now considered a rare community."

Goals

Goal 7 Provide good air quality for people's health and the health of the forest environment.

Goal 14 Manage forest ecosystems and associated communities to maintain or restore composition, structure, function, and productivity over time.

Goal 19 Protect life, property, and resources from unacceptable damage by fire through improved fire prevention, suppression, and promoting community assistance.

Goal 20 Maintain and restore fire-adapted ecosystems by reducing hazardous fuels through the use of prescribed fire and mechanical fuels treatments. Reference this Forest Plan, Chapter 2, "Wildlife Habitat and Forest Vegetation," Goal 8, Objectives.

Goal 21 Emissions from prescribed fire will not hinder the state's progress toward attaining air quality standards and visibility goals.

Objectives

Obj. 8.02 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.

Obj. 20.01 Maintain condition class 1 by restoring historic fire return intervals and reducing the risk of losing ecosystem components to wildfire on approximately 250,000 acres over the 10 - year planning period.

StandardsWater & Air Quality

FW-4 To limit soil and water quality impacts, heavy mechanical equipment (dozers, skidders, feller/bunchers, etc.) will not be used on slopes over 40 percent except in designated locations with adequate and timely mitigation. Emergency fire lines and soil and water improvements specifically designed to stabilize or rehabilitate severe erosion such as active gullies are exceptions to this slope limit.

FW-09 Fire lines are not constructed along the length of stream channels.

SECTION II
RELATIONSHIP TO LAND MANAGEMENT PLANNING AND FIRE POLICY

FW-17 Comply with South Carolina smoke management guidelines and Forest Service Region 8 smoke management guidelines.

Forest Health

FW-38 To limit soil compaction, no mechanical equipment is used on plastic soils when the water table is within 12 inches of the surface, or when soil moisture exceeds the plastic limit. Soil moisture exceeds the plastic limit if the soil can be rolled to a pencil size without breaking or crumbling.

FW-41 Areas are not prescribed burned for at least 30 days after herbicide treatment.

Wildland Fire

FW-59 The safety of firefighters and the public is the first priority in all fire management activities.

FW-60 Suppress human-caused fires.

FW-61 Wildland fire use, the management of naturally ignited wildland fire, is allowed with an approved "Fire Management Plan" and a specific "Wildland Fire Implementation Plan" for the area.

FW-62 Wildland fire use of naturally-ignited wildland fire in wilderness is allowed with an approved "Fire Management Plan," a "Wilderness Fire Plan," and a specific "Wildland Fire Implementation Plan" for the area.

Prescribed Fire

FW-63 Prescribed fires will be implemented following the direction found in FSM 5140.

FW-64 Prescribed burns are done so they do not consume all litter and duff and alter structure and color of mineral soil on more than 15 percent of the area. Steps taken to limit soil heating include use of backing fires on steep slopes, scattering slash piles, and burning heavy fuel pockets separately.

FW-65 On severely eroded forest soils, any area with an average litter-duff depth of less than ½ inch or duff less than ¼ inch will only be burned at low intensity.

FW-66 Use existing barriers, e.g. streams, lakes, wetlands, roads, and trails, whenever possible to reduce the need for fire line construction and to minimize resource impacts.

FW-67 All managed burns will comply with Smoke Management Programs (SMP) for South Carolina.

FW-68 Conform with the "State Implementation Plan" for any prescribed fire planned within EPA-designated "non-attainment" and "maintenance" areas.

SECTION III WILDLAND FIRE MANAGEMENT STRATEGIES

SECTION III - WILDLAND FIRE MANAGEMENT STRATEGIES

A. General Management Considerations

The Forest wide standards and guidelines relating to fire management, found in Chapter 4 of the Revised LRMP and in Chapter II of this Fire Management Plan, provide the basic foundation for all resource management. They constitute the bulk of the direction necessary to meet Forest wide goals, desired future conditions, and objectives, while continuing to meet Forest Service policy.

The Francis Marion Sumter Fire Management Plan uses a collaborative, community-based approach to wildland fire that combines: cost-effective fire preparedness and suppression, and fuels management to reduce hazardous fuels, to protect communities and environments. A community-based approach relies on local knowledge and develops objectives to manage long-term activities in communities and environments. This approach recognizes fire as a necessary part of the ecosystem; focuses on hazardous fuels reduction, integrated vegetation management and wildland fire management strategies; and allocates and utilizes resources in a cost-effective manner over a long-term basis. A collaborative structure, with state and local authorities, will be the most efficient and effective way of implementing a long-term program.

Strategic priorities for wildland fire will be based on:

- Conditions listed in this document as defined in LRMPs
- Risk to firefighters and public safety in fire management actions
- Threat to values to be protected
- Preparedness levels and organizational capabilities
- Current and predicted weather
- Wildland fire risk assessment

The following core principles (10-Year Comprehensive Strategy) are overarching for all fire management goals:

- The FMP is collaborative at the local, regional and national levels.
- Protection emphasis on communities, municipal, and other high-priority watersheds at risk. Long-term emphasis to maintain and restore fire prone ecosystems at a landscape scale.
- Uniform and cost-effective measures, standards, reporting processes and budget information are established within implementation plans, folding into the Government Performance and Results Act process.

SECTION III
WILDLAND FIRE MANAGEMENT STRATEGIES

B. Wildland Fire Management Goals

The following fire program goals are intended to reflect Federal policy, core principals and goals of the Comprehensive Strategy, and Cohesive Strategy where supported by Francis Marion and Sumter Forest Land and Resource Management Plans.

1. Achieve a program where fire fighter and public safety are the highest priority in every fire management activity, and sound risk management is the foundation for all fire management activities.
2. Achieve a fire management program that balances suppression to protect life, property and resources and employs wildland fire use, prescribed fire and/or mechanical treatments to maintain healthy ecosystems and meet resource objectives.
3. Employ fire management strategies that provide for firefighter and public safety, minimize cost and resource damage (C+NVC concept), and are consistent with values to be protected and management objectives (healthy ecosystems).
4. Maintain a safe, efficient and cost-effective organization through appropriate staffing, training, equipment, and oversight. This includes collaboration at the local, regional and national levels, by agreements and MOAs with the South Carolina Forestry Commission as well as other Federal wildland management agencies, as outlined in cooperative agreements and interagency contracts (Section V, subsection C, page 57).
5. Develop an efficient, effective and diverse fire organization that is highly trained, physically fit, and meets local, regional and national needs. All personnel participating in wildland fire will meet the minimum qualifications as outlined in FSM 5140 and FSH 5109.17.
6. Promote an interagency fire prevention strategy that increases public understanding of fire management programs and objectives and decreases human-caused fire on public and private lands.
7. Use prescribed fire, mechanical treatments, and wildland fire use where appropriate to reduce hazardous fuels, restore fire-adapted ecosystems and meet other resource objectives.
8. Minimize impacts of smoke that impact public health and safety resulting from fire management activities, according to South Carolina Smoke Management Guidelines and residual smoke through local mitigation measures.

**SECTION III
WILDLAND FIRE MANAGEMENT STRATEGIES**

C. Wildland Fire Management Options

This section describes the scope of wildland fire management program elements that will be implemented on the Francis Marion and Sumter Forests and further developed through the fire management plan.

Available fire management options include both fire and non-fire treatments. Fire treatment options must consider ecological, social and legal consequences of the fire. Appropriate responses depend on ignition source and the desirability of that fire. They can be management-ignited or non-management ignited. Non-management ignited fires can be human-ignited or naturally-ignited. Additionally, the fire management program can include non-fire treatments that are used to prepare land for or mitigate the effects of desired or unwanted fire, or mimic some effects of fire where fire is undesirable.

The following includes fire management options authorized under current policy and appropriate land and resource management plans.

- 1) Wildland fire
 - a) Suppression
 - b) Wildland Fire Use
- 2) Fuels Management (Hazardous and Ecosystem management)
 - a) Prescribed Fire
 - b) Non-fire Applications
- 3) Prevention and Education

1) Wildland Fire

Defined as any non-structure fire, other than management-ignited fire, that occurs on the wildland. Previously referred to as "wildfire" or "prescribed natural fire". The appropriate management response to wildland fire is used to accomplish one of two broad objectives: wildland fire suppression or wildland fire use.

Response to wildland fire will consider ecological, social, and legal consequences of the fire. The circumstances under which a fire occurs, and the likely consequences for firefighter and public safety and welfare, natural and cultural resources, and values to be protected will dictate the appropriate management response to the fire.

All responses to wildland fire must be based on approved Forest Fire Management and Land Management Plans, regardless of the ignition source or the location of the ignition.

Human-caused ignitions are the overwhelming source of wildland fires on the forest (91% Francis Marion, and 84% Sumter), and require an immediate suppression response. Lightning fires can be considered for wildland fire use only in pre-defined FMUs and with a wildland fire use plan in place. **At this time no approved plans are in place to manage a wildland fire for Fire Use.**

- 1A. Wildland Fire Suppression– An appropriate management response to a wildland fire that results in curtailment of fire spread and eliminates all identified threats from the unwanted fire. All fires are suppressed providing for firefighter and public safety, while weighing cost, loss of cultural and economic resources, and the use of critical firefighting resources.

Wildland fire suppression includes aggressive initial attack, where fire size is minimized, to confinement, where a fire perimeter is managed by a combination of direct and indirect attack. Contain and control are no longer used to represent a management strategy, but refer to tactical operations and are used for reporting purposes.

SECTION III WILDLAND FIRE MANAGEMENT STRATEGIES

Wildland fires on both forests are to be treated according to “values at risk” under the “cost plus NVC” concept (FSM 5103-5105). Base wildland fire expenditures on resource values and potential resource loss by fire intensity. Control wildland fires while considering threats to life, property, cultural resources, biodiversity, air quality, water, soil productivity, and ecological processes.

Protection Priorities

The protection of human life is the single, overriding priority in all management activities. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on the values to be protected, human health and safety, and the costs of protection. Once people have been assigned to an incident, these human resources become the highest value to be protected.

Wildland Urban Interface

The operational roles of federal agencies as partners in the Wildland Urban Interface are wildland firefighting, hazardous fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, state, or local governments. Federal agencies may assist with exterior structural protection activities under formal interagency agreements that specify the mutual responsibilities of the partners.

- 1B. Wildland Fire Use – Wildland Fire Use refers to the management of wildland fire, regardless of cause, to accomplish resource management objectives in predefined geographic areas, as outlined in the FMP. On the Francis Marion and Sumter Forests only natural-ignited wildland fire will be used to protect, maintain, and enhance resources and, when possible, be allowed to function in its natural ecological role. The use of fire will be based on approved FMPs, and will follow specific prescriptions contained in operational plans referred to as Wildland Fire Use for Resource Benefit Plans. A Wildland Fire Implementation Plan (WFIP) must be prepared and approved for wildland fires considered for wildland fire use (FSM 5143.2).

At this time there are no WFU plans for the general forest or any wilderness areas.

2) Fuels Management

Fuel management can be used to re-introduce fire, reduce hazardous fuel levels, and to mitigate consequences of large damaging wildland fires. Treatments are strategically designed and implemented so firefighter and public health and safety are improved, fire spread and intensity are reduced, and impacts to air quality are minimized. Fuel management can also be used to protect resources and habitats, enhance and maintain diverse forest ecosystems, and to re-introduce fire into fire-dependant ecosystems. Treatments are designed to emulate fuel profiles or vegetative conditions representative of historic fire regimes. The final objective - allow fire to function as a natural process.

- 2A. Prescribed Fire– Previously referred to as “management ignited prescribed fire” or “controlled fire” it is defined as any fire ignited by management actions to meet specific objectives. Prescribed fire is used to manage natural and activity fuels for the establishment of fuel profiles that contribute to cost-effective fire suppression, aid in meeting resource management objectives, and sustain ecosystem values. Prescribed fire can also be used to mimic naturally occurring fire, enhance native plant species, provide forage and habitat for wildlife species, contribute to soil nutrient cycling, and create diversity in vegetation structure and distribution.

A written, approved prescribed fire plan must exist, and NEPA requirements met, prior to ignition.

The forest treats 35,000 to 50,000 acres each year. The largest part of this program is for the reduction of hazardous fuels and maintenance burning in Condition Class 1. However, burns are also conducted to improve wildlife habitat, including T&E species habitat maintenance and improvement, control of undesirable species, and to facilitate timber management. The

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WILDLAND FIRE MANAGEMENT STRATEGIES

Forest fire management program will continue to emphasize prescribed burning to improve Condition Classes 2 and 3, especially in the Wildland Urban Interface areas. The forest is actively moving from dormant season burning to more growing season prescribed burning.

- 2B. Non-fire Application– Non-fire treatments are designed to remove or rearrange fuels, mitigate the consequences of wildland fire, and allow for efficient and safe appropriate management responses to wildland fire ignitions. These treatments are especially useful in areas where prescribed fire is not feasible for a variety of reasons including but not limited to issues and concerns related to: safety, smoke, control, ecosystem, and political. Non-fire treatments can also be used to prepare areas for future fire applications by removing excessive ladder and surface fuels. Mechanical treatments are effective in disrupting horizontal and vertical continuity of fuels, removing larger size-class fuels, and selectively treating large areas with a defined prescription. These treatments include mechanical and non-mechanical treatments, and herbicide application.
- 3) Prevention And Education
In fiscal year 2002, 60% of the fires on the Francis Marion and 13% on the Sumter were arson caused. Human caused fires accounted for 88% of the fires on both forests combined. Fire prevention and education is an essential component of the Fire Management Program on the forest.

Cooperation with outside agencies and affected communities and individuals is essential to successfully prevent unauthorized ignition of wildland fires. A collective integration of new and existing prevention programs (RAMS, Firewise, Fire Prevention Teams) will used as tools to reduce unwanted human-caused wildland fires.

**SECTION III
WILDLAND FIRE MANAGEMENT STRATEGIES**

D. Description of Wildland Fire Management Strategies by Fire Management Unit

Identification of fire management units (FMUs) is necessary for planning and management of the wildland fire program. FMUs tie directly to decisions made in the Forest Land and Resource management planning process by management areas. Recommendations on management options available for each FMU are based on decisions made in the LRMP. This information is developed to guide decision makers in determining the appropriate management response to a wildland fire.

FMUs were developed for the Francis Marion and Sumter National Forests by considering any land management area definable by objectives, management constraints, topographic features, access, values to be protected, political boundaries, fuel types, and major fire regime groups, that set it apart from the management characteristics of an adjacent unit.

Values to be protected and management constraints were the two primary factors used to define FMUs on the Francis Marion and Sumter. The resulting appropriate management responses to wildland fire gave us three primary fire management units per district:

- wildland urban
- wilderness and scenic areas
- general forest

1. Fire Management Unit maps are located in Appendix A.

2. Summary listing of the FMU identifier:

In order to ensure the accurate delineation and information summary for each Fire Management Unit, district Fire Managers were consulted. Three primary FMUs were developed for each district based on appropriate management responses that could be considered in each FMU.

Aggressive Suppression Response

- Andrew Pickens WUI
- Enoree General WUI
- Long Cane WUI
- Francis Marion General Forest & WUI

Full Suppression Response

- Andrew Pickens General Forest
- Enoree General Forest
- Long Cane General Forest
- Francis Marion Non-WUI, General Forest

Appropriate Management Response (with approved FMP and Wildland Fire Use Plans)

- Andrew Pickens Wilderness Areas
- Enoree Broad River Scenic Area and Calhoun Experimental Forest
- Long Cane Scenic Area
- Francis Marion Wilderness Areas

SECTION III
WILDLAND FIRE MANAGEMENT STRATEGIES

Fire Management Unit Description Outline

1) FMU Description:

FMU Identifier	(District) (WildlandFireUse, GeneralArea, WildlandUrbanInterface)
FMU Number	Green, Yellow, or Red
General Risk category	Low, Moderate, High risk when a fire is present in this FMU
Fire Behavior indicator	Indicator used to determine NFDRS and fire behavior severity
NFDRS Weather station	Station name or number in WIMS
Acres	Number of FMU acres
Predominant Vegetation Types	Description of dominant fuel and vegetation types
Administration	District
Fire Management Duty Officer	Who is responsible
Management Options to Consider	Full Range of Management Responses

2) FMU Characteristics:

3) Strategic and measurable management objectives.

Strategic objective:

Measurable objective:

4) Management constraints affecting operational implementation.

5) Historical fire occurrence.

6) Fire Management situation.

- Weather patterns influencing fire behavior and historical weather analysis.
- Fire season determination.
- Fuels conditions in the FMU likely to influence fire behavior.
- Fire regime alteration.
- Control problems and dominant topographic features.

Potential control problems:

Dominate topographic features:

- Other elements of the fire environment affecting management.

Smoke Management/Smoke Sensitive Areas:

Areas of Special Concern:

- Fire fighter and public safety considerations specific to this FMU.

SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

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SECTION IV - WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

The wildland fire management program on the Francis Marion and Sumter Forests is composed of three primary components that define the Forests' wildland fire program. The components as defined in Section III are: wildland fire (suppression and Wildland Fire Use), fuels management (prescribed fire and non-fire applications), and prevention and education.

Fire has historically played an important role in shaping the species composition of the Francis Marion and Sumter National Forests. The wise use of fire is needed to maintain and restore many of the forested communities in South Carolina, including: *Xeric Pine and Pine-Oak Forest*; *Dry and Xeric Oak Forests*; *Dry and Dry to Mesic Pine-Oak Forests*, and *Longleaf Pine Forests*. Without fire or other vegetation management actions that approximate fire effects, many forest communities may decline dramatically in future years and shift towards shade-tolerant and fire-intolerant species. Recent fire frequencies that are much longer in duration than historical ones and have resulted in a decline of many fire dependent and adapted communities including: table mountain pine, prairies, woodland, and savannas.

Fire exclusion in forested ecosystems along with other forest health problems, has led to uncharacteristically high fuel loadings resulting in undesirable changes in the composition and structure (age and size) of the forest, and the potential for increased size, intensity and severity of wildland fires.

While suppression of unwanted fires will continue to be our primary response, land managers need additional options in addressing ways to help achieve the desired conditions described in both forest plans. Responsible and appropriate use of fire, both prescribed fire and wildland fire use for resource benefit, across a landscape-scale is needed to help reduce hazardous fuels and sustain wildland ecosystems into the future.

Our goal on the Francis Marion and Sumter Forest is to achieve a balance between suppression to protect life, property, and resources and wildland fire use to regulate fuels and maintain healthy ecosystems.

The appropriate management response will be developed and based on the following:

- Firefighter and public safety considerations
- Resource and cultural values at risk
- Cost-effectiveness

While also considering circumstances unique to each incident.

A. General Implementation Procedures

All wildland fires, regardless of cause, will be subject to an initial attack response based on preplanned dispatch plans. Rather than extinguishing all fires under a default aggressive suppression response, managers will respond to each fire in a manner appropriate for the objectives, constraints and conditions associated with that fire. Initial fire size up will include those items listed on the Initial Attack Size-Up card (See Appendix C). The appropriate response will be based on these factors, ranging from aggressive initial attack to a combination of strategies to achieve confinement (wildland fire use managed for resource benefit will not be used until an approved plan is in place). All ignitions determined to be human caused will be suppressed using an appropriate suppression response. Only naturally ignited fires in predefined FMUs will be considered for wildland fire use, depending on resource management objectives presented for the FMU in this fire management plan. **At this time there are no approved wildland fire use plans, thus Wildland Fire Use is not a viable option.**

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Further discussion on WFIP and the Use of Wildland Fire for Resource Benefit is for future reference only and in no way is meant to allow for its implementation at this time.

All fire use projects require an implementation plan that meets the requirements established in FSM 5142.2. A Prescribed Fire Burn Plan must be prepared and approved prior to prescribed fire ignition (FSM 5142.1). A Wildland Fire Implementation Plan (WFIP) must be prepared and approved for wildland fire use (FSM 5143.2).

Once a Wildland Fire Use plan is in place, and upon discovery of a wildland fire in a Fire Use FMU, a Wildland Fire Implementation Plan (WFIP) will be initiated and used to determine the appropriate management response. Implementation of wildland fire management components must be consistent with fire management capabilities and must consider the current and predicted conditions affecting fire behavior. A combination of fire situation and preplanned decisions based on historical fire behavior indices that have been established for each FMU will aid in Stage I decisions required for determining appropriate management response. Fire managers will use these strategies in the decision-making process to determine the appropriate management response, either suppression or wildland fire use for resource benefit. Fires will be suppressed, or managed for resource benefits, based on explicit rationale documented in the WFIP. FMU *Fire Management Options to consider* satisfy Stage 1 requirements based on decisions made in the LRMP, except when considering Wildland Fire Use for resource benefit.

Timely decisions regarding management of a wildland fire is crucial. If a wildland fire that is not caused by humans is burning in an area with approved plans (land and resource management plan, fire management plan, and wildland fire use plan), and the objectives of the plans are being met, document the response action decision and take appropriate action. If events cause a delay in the decision, and this delay may result in an increased risk to firefighter or public safety, the only response is to control the fire. (FSM 5131.03)

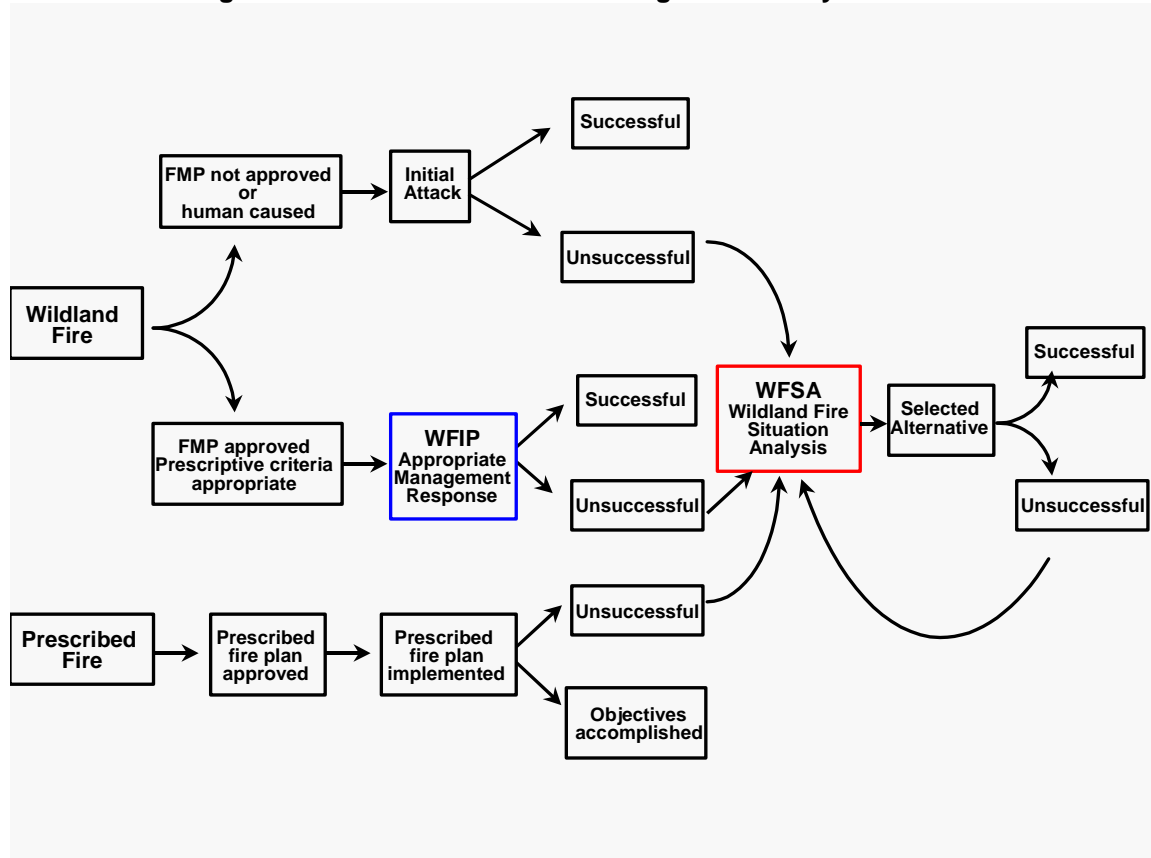
Checklist of significant criteria to consider in any decision:

- Do not compromise Firefighter or Public Safety**
- Select most cost-effective strategy, with high probability of success**
- Coordinate with adjoining land managers and air regulators to avoid Air Quality impacts**
- Consult archeologist before a wildland fire is allowed to burn through culturally significant sites**
- Follow guidelines (LRMP standards) related to protection of Threatened and Endangered species habitat**

**SECTION IV
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1. Setting Out Implementation Procedures.

Figure 1. NWCG Wildland Fire Management Policy Flowchart.



A Wildland Fire Implementation Plan (WFIP) shall be initiated for all unplanned wildland fire responses. The fire duty officer (DFMO or delegated ICs) is responsible for completing the WFIP Stage I: Initial Fire Assessment that provides the decision framework for selecting the appropriate management response. The District Ranger or acting must approve the Decision Criteria Checklist (Go/No Go).

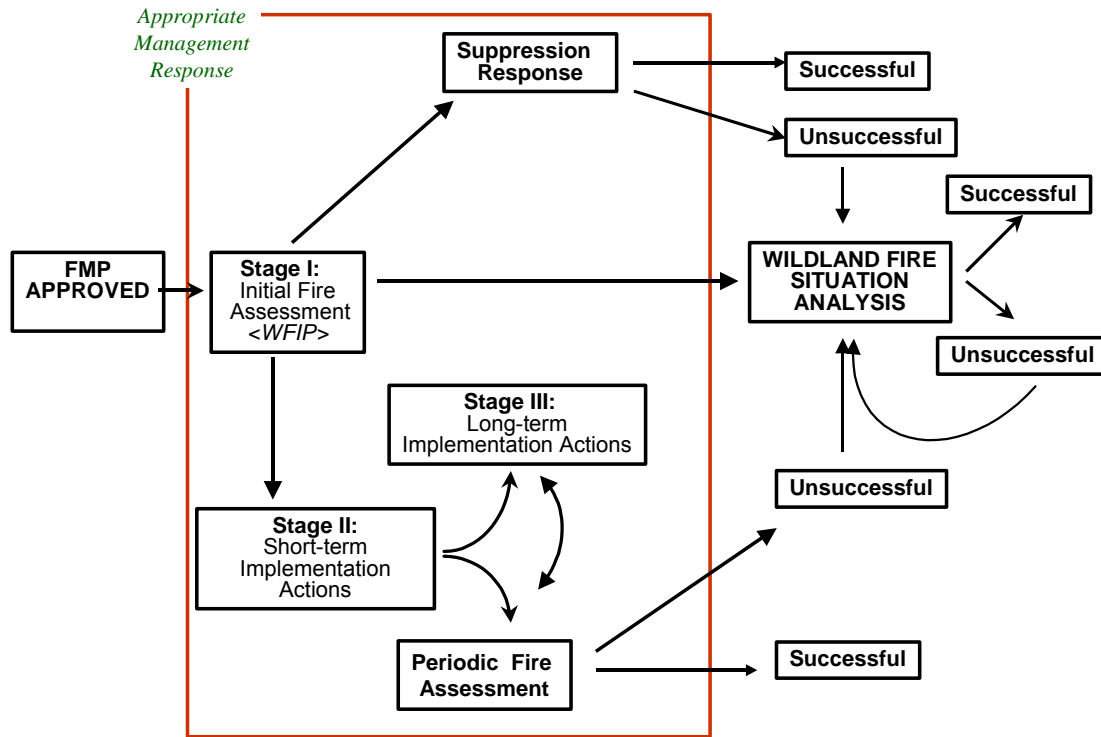
In FMUs where suppression has been determined to be the appropriate management response, based on decisions made in the land and resource management plan, the requirement for a decision checklist as part of Stage I analysis has been met. Subsequently, the *Stage I Analysis* has been satisfied in this FMP through determination made by combinations of values to be protected and/or fire behavior thresholds. **In areas (FMUs) where Wildland Fire Use is not allowed, there is no need to prepare a WFIP.**

Wildland fire use is not currently an appropriate management response, until a Wildland Fire Use Plan is developed for each District.

Specific WFIP requirements are outlined in chapter 4 of the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide referred to as the implementation guide (FSM 5103, 5108, and 5132.32).

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Figure 2. Wildland Fire Planning and Assessment



If the initial action is unsuccessful a Wildland Fire Situation Analysis (WFSA) will be prepared at the local level to determine the new set of management responses. All wildland fires that escape initial attack require a Wildland Fire Situation Analysis (WFSA). A WFSA shall be used to document wildland fire suppression strategy decisions for any incident that is expected to exceed, or has exceeded, the action planned in the Fire Management Plan (FSM 5131.1).

The full WFIP consists of three distinct stages. However, only the most complex fires being managed for resource benefits will require completion of all parts of a WFIP. When wildland fires occur, pre-planned descriptions in the FMP in combination with the Fire Situation guide Stage I decisions.

The Stage I – The Fire Management Duty Officer will complete Initial Fire Assessment or designee along with the responsible Line Officer (District Ranger) within two hours of receipt of size up information that confirms the ignition sources was natural (lightning). The Stage I assessment provides the decision framework for selecting the appropriate management response. Operational management decisions are described in the WFIP. (For a detailed description of stage 1 implementation procedures please see the Wildland and Prescribed Fire Management Policy Implementation procedures Reference Guide, 1998, page 33-39).

Stage II – Short-term Implementation Actions, represents the initiation of management of a wildland fire for resource benefits. This stage is completed by the Fire Use Manager (FUMA) and staff within twenty-four (24 hours) following the completion of the Stage I assessment. Key components of the Stage II assessment include development of short-term fire behavior predictions for different scenarios, risk assessment, short-term implementation actions required, and incident complexity analysis, and stage III assessment chart. A detailed description of wildland fire implementation procedures for this stage is found in the 1998 Wildland and Prescribed Fire Management Policy Implementation procedures Reference Guide page 40-45.

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Individual wildland fire use plans identify the responsible Line Officer who must approve the Stage II assessment. This responsibility is in large part based on the projected complexity of the incident, potential to affect multiple jurisdictions and projected duration of the incident.

Stage III – Long Term Assessment and Implementation Actions define: objectives and risk assessment considerations, maximum manageable areas (MMA), fire projections, weather discussion, long-term risk assessment, and probability of success and consequences of failure. In addition to the fire use manager (FUMA) a Long Term Fire Analyst (LTAN) or fire behavior analyst (FBAN) is required to complete applicable risk assessments and projections. A detailed description of wildland fire implementation procedures for this stage is found in the 1998 Wildland and Prescribed Fire Management Policy Implementation procedures Reference Guide page 45-63.

Progressive development of these stages will occur for wildland fires managed for resource benefits or where initial attack is not the selected response. Objectives, fire location, cause, conditions of fuel continuity, current fire activity, fire location, predicted weather and fire behavior conditions, and risk assessment results will indicate when various WFIP Stages must be completed (for a full description see Wildland and Prescribed Fire Management Policy, Implementation Procedures Reference Guide 1998). Most wildland fires will require completion of only Stage I and part of Stage II information during their management. As resource benefits become more important as strategic decision factors, additional planning and documentation requirements (additional WFIP Stages) are involved.

The following table shows critical components of each stage of WFIP completion, requirement status, and completion timeframes.

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WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

Table 1. WFIP implementation stages, requirement status, and completion time frames

(From the Wildland and Prescribed Fire Management Policy Implementation procedures Reference Guide 1998)

1 = mandatory

2 = mandatory, but can be preplanned

3 = optional

4 = completed if Stage II or Periodic Fire Assessment, Part 2 indicate need.

5 = completed if fire exceeds management capabilities

6 = completed if Periodic Fire Assessment, Part 1 indicates need

WFIP Stage	Planning and Assessment Element	Requirement Status			Maximum completion timeframe
		Initial Attack	Other Suppression-oriented appropriate management responses	Fire use actions	
WFIP Stage I: Initial Fire Assessment	Fire Situation	1	1	1	As soon as possible
	Decision Criteria Checklist (Initial GO-NO-GO Decision)	3	1	2	2 hours after first fire detection
WFIP Stage II: Short-term Implementation Actions	Short-Term Fire Behavior Predictions and Risk Assessment	3	3	1	24 hours after Stage I completion
	Short-term Implementation Actions	2	3	2	
	Complexity Analysis	3	3	1	
	Stage III Need Assessment Chart	NA	3	1	
WFIP Stage III: Long-Term Implementation Actions	MMA Definition	3	4	4	Within 24 hours after Stage II or Periodic Fire Assessment indicates need
	Fire Behavior Predictions	3	4	4	
	Long-Term Risk Assessment	3	4	4	
	Long-term Implementation Actions	3	4	4	
Periodic Fire Assessment	Part 1: Revalidation	NA	1	1	On assigned frequency
	Part 2: Stage III Need Assessment Chart	NA	1	1	
WFSA		5	5	6	Before implementing new strategy

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The text box below outlines the information required for the stage 1 assessment. Every unplanned ignition will have this information assessed before a wildland fire response is initiated. More complex fires may require completion of additional WFIP Stage II and/or Stage III as management of the fire progresses. Refer to the *Wildland and Prescribed Fire Management Policy Implementation procedures Reference Guide*, pages 31-33.

Figure 2.

Francis Marion and Sumter National Forests	
WFIP Stage I: Initial Fire Assessment	
<input type="checkbox"/>	Fire name _____
<input type="checkbox"/>	Fire number _____
<input type="checkbox"/>	Jurisdiction(s) _____
<input type="checkbox"/>	Administrative unit(s) _____
<input type="checkbox"/>	Fire Management Unit (FMU) _____
<input type="checkbox"/>	Responsible duty officer _____
<input type="checkbox"/>	Geographic Area(s) _____
<input type="checkbox"/>	Management Code(s) _____
<input type="checkbox"/>	Start date/time _____
<input type="checkbox"/>	Discovery date/time _____
<input type="checkbox"/>	Current size _____
<input type="checkbox"/>	Location _____
<input type="checkbox"/>	Cause _____
<input type="checkbox"/>	Fuel model(s)/conditions _____
<input type="checkbox"/>	Current weather _____
<input type="checkbox"/>	Forecasted weather _____
<input type="checkbox"/>	Current fire behavior _____
<input type="checkbox"/>	Forecasted fire behavior _____
<input type="checkbox"/>	Availability of resources _____
<input type="checkbox"/>	Decision criteria checklist _____
<input checked="" type="checkbox"/>	Fire behavior indicator _____
<input checked="" type="checkbox"/>	Threats to fire fighter or public safety _____
<input checked="" type="checkbox"/>	Specific risk assessment _____
<input type="checkbox"/>	Recommended response action _____

SECTION IV WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

B. Wildland Fire Suppression

The chief of the US Forest Service, Dale Bosworth, requested the following *Code of Conduct for Fire Suppression* be made an integral part of our agency culture in the August 16, 2002 Thirtymile Hazard Abatement Plan correspondence.

Code of Conduct for Fire Suppression:

- Firefighter safety comes first on every fire every time.
- The 10 Standard Firefighting Orders are firm...we don't break them; we don't bend them.
- All 18 Watch Out Situations must be mitigated before engagement or re-engagement of suppression activities.
- Every firefighter has the right to know that his or her assignments are safe.
- Every fireline supervisor, every fire manager, and every administrator has the responsibility to confirm that safe practices are known and observed.

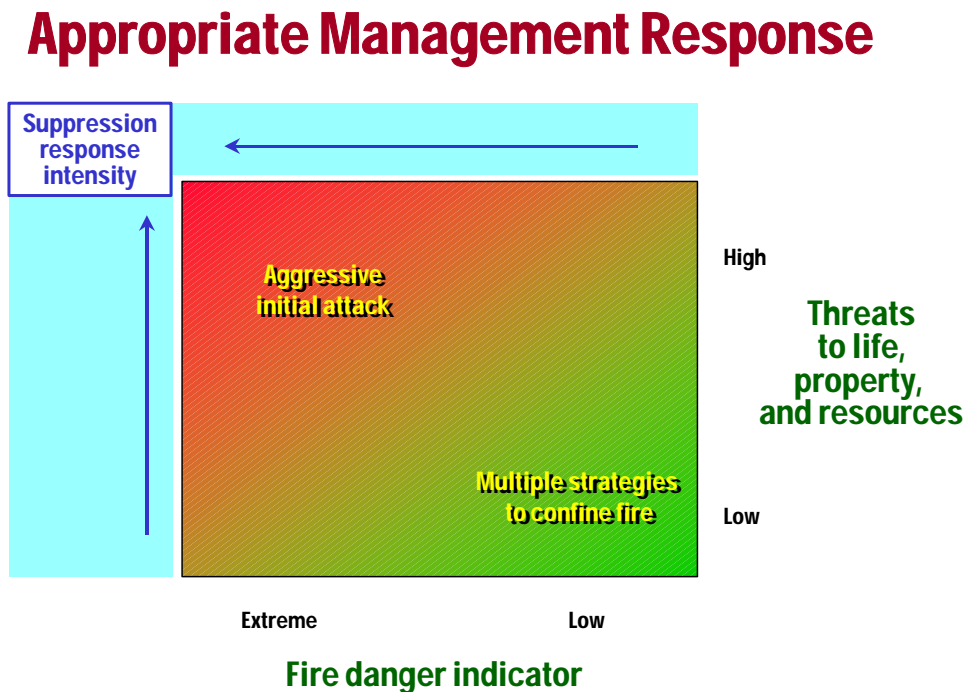
Currently the only appropriate management response to a wildland fire on the Francis Marion and Sumter National Forests is suppression.

Suppression actions can include: aggressive initial attack or a combination of strategies to achieve confinement. Fires will be suppressed using strategies that are cost effective, considering firefighter and public safety first. When suppression is the appropriate response, values to be protected consistent with resources objectives will also be considered.

A range of responses dealing with only suppression actions is available for those situations indicating a suppression-oriented response. The following chart (Figure 4) illustrates the range of suppression-oriented appropriate management responses available.

Figure 4. Appropriate Management Suppression Response

(From the Wildland and Prescribed Fire Management Policy Implementation procedures Reference Guide 1998)



SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

1. Range of Potential Behavior.

Burning Index (BI) is the major factor (5 day average) in determining staffing by Preparedness Levels (PL) in the Francis Marion and Sumter National Forests' Preparedness Plan. Burning Index is derived from the Spread Component (SC) and the Energy Release Component (ERC), and is a means of rating the difficulty of containment. Discussions with District Fire Management Officers (DFMOs) indicates Rate of Spread, in conjunction with BI, is also a factor in determining resource needs at different PLs.

Experience indicates an increase in fire intensity and staffing level at a threshold BI of 21 for the Sumter, and 25 for the Francis Marion. Independent discussions with DFMOs regarding ROS, indicates they unanimously consider resources such as dozers or tractor/plows necessary at 4-5 chains/hour.

Potential fire behavior is variable depending on a number of factors including vegetation type, weather, and topography. Key factors determining fire behavior on the Francis Marion include: wind, humidity, vegetation, available fuel loading and drought. In addition to these factors, fire behavior on the Sumter can be dramatically influenced by aspect and slope. Forest Preparedness Levels are determined by daily evaluation of the five criteria values for each are different at each preparedness level. The preparedness level is determined by the greatest number of criteria which meet the value range prescribed for a particular PL I thru V. The following criteria are used for PL determination: 1300 BI, current KBDI, Number of days since last .5" precipitation period, five day average BI, fire occurrence on NF's and adjacent lands.

Specific fire management situations affecting fire behavior are described for each FMU in Appendix A.

Fire Danger "Pocket Cards" displaying local thresholds and Watch out conditions for each forest is available in Appendix D and on the following website:
<http://famweb.nwcg.gov/pocketcards/default.htm>.

2. Preparedness Actions.

The 2004 fire season goals and objectives are:

1. Enter into cooperative effort with U.S. Fish & Wildlife Service and South Carolina Forestry Commission to provide FIREWISE principles to the Awendaw community. The objective is to have the community understand and take action to protect their community from wildland fires.
2. Develop Forest Prevention Plan. The objective is to provide a guidance and reference point for Districts to tier local prevention plans.
3. Districts shall provide their 2004 prevention, FIREWISE, community assistance, etc. by the beginning of the fiscal year.
4. Target areas of concern and appropriate prevention measures, with the completion of Risk Assessment and Mitigation Strategies (RAMS).

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a. Fire Prevention, Community Education, Community Risk Assessment, and Other Community Assistance Activities (Firewise).

The greatest cause of fires on the Francis Marion and Sumter National Forests is human activity, specifically arson and escaped debris burning.

Prevention teams have been successfully used in the past during extensive drought and arson problems. However, while the number of arson fires drops when the team is present, it often begins again when the team departs. With an increase in urban/rural interface within the forest, an increase in prevention efforts must follow. Completing RAMS, Risk Assessment and Mitigation Strategies, seems to be the next logical step in a successful Forest Prevention Program.

The current Forest fire prevention program is planned to be an interagency cooperative program with the South Carolina Forestry Commission, U.S. Fish and Wildlife Service and volunteer fire departments.

Table 2. FM fires, 2002.

2002 Francis Marion NF Wildland Fires			
<i>CAUSE</i>	<i>FIRES</i>	<i>%</i>	<i>ACRES</i>
Arson	47	60	3680.0
Debris Burning	9	11	293.4
Smoking	2	3	2.0
Equipment	2	3	0.2
Campfire	1	1	0.1
Railroad	0	0	0
Misc.	10	13	147.7
Lightning	7	9	17.3
TOTALS	78		4140.7

Table 3. Sumter fires, 2002.

2002 Sumter NF Wildland Fires			
<i>CAUSE</i>	<i>FIRES</i>	<i>%</i>	<i>ACRES</i>
Arson	3	13	23.1
Debris Burning	3	13	6.5
Smoking	0	0	0
Equipment	3	13	0.7
Campfire	1	4	0.1
Railroad	1	4	0.1
Misc.	9	37	66.2
Lightning	4	16	43.0
TOTALS	24		139.7

Table 4. Combined fire totals for both forests, 2002.

2002 Francis Marion AND Sumter NF Wildland Fires			
<i>CAUSE</i>	<i>FIRES</i>	<i>%</i>	<i>ACRES</i>
Arson	50	49	3703.1
Debris Burning	12	12	299.9
Smoking	2	2	2.0
Equipment	5	5	0.9
Campfire	2	2	0.2
Railroad	1	1	0.1
Misc.	19	17	213.9
Lightning	11	11	60.3
TOTALS	102		4280.4

Please see FMU Appendix A for historical fire data by District.

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(1) Annual Prevention Program.

To ensure prevention activities on the forest are effective annual monitoring and evaluation of prevention objectives will consist of the following:

- Determine implementation of the District Prevention Plan.
Was it implemented as planned?
- Determine effectiveness of the Prevention Plan.
Is it accomplishing desired results?
- Validation of assumptions made in the Prevention Plan.
Are assumptions made in the plan correct, or are there new and better ways to meet prevention objectives?

While the Francis Marion and Sumter National Forests continue to experience a large number of wildland fires each year, USFS Law Enforcement Officers and Agents continue to investigate those fires in an attempt to identify the origin, cause, and those persons responsible for the fires. As a result, while the exact numbers are not presently available, USFS Law Enforcement Officers have issued numerous citations to persons responsible for setting the fires/or allowing fires to escape. Also, numerous felony investigations were opened and resulted in at least two persons being indicted for their role in setting fires. Attempts to collect restitution for the suppression costs are currently in progress.

A marked decrease in the number of fires was observed during the first three quarters of 2001. While the reasons for the decrease are not fully known, contributing factors include aggressive high visibility patrols, public awareness, as well as covert operations. These enforcement actions focused on the deterrence of arson fires and on the apprehension of those responsible for setting the fires. Provided that resources and funding are available, these types of law enforcement activities will continue in the future in an effort to further limit the number of arson related fires.

5331.03 - Policy. Trained investigators shall investigate all human- caused fires to determine origin, cause, and responsible party. In all cases involving the suspected willful setting of fire and/or anticipated suppression costs exceeding \$40,000, the Forest Service Special Agent assigned to the affected area shall be immediately notified. Enforcement actions such as citations and billing for suppression costs will be pursued as appropriate.

The Forest is currently in the process of establishing guidelines to recover costs from trespass fires (Appendix M).

(2) Special Orders and Closures.

Two situations in recent years that have prompted special action for high intensity prevention activities were:

- South Carolina Department of Natural Resources limiting the time allowed to train dogs in the woods for deer hunting, and
- Several high occurrence periods of arson caused fires.

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There are several Special Orders and Closures on the Forest. None are specific to fire and have not been controversial to the point of requiring special fire prevention activities. Special fire danger closures and restrictions are handled on a case-by-case basis and coordinated with the South Carolina Forestry Commission.

Line officers, fire managers, law enforcement, and public affairs must coordinate the implementation of any special orders or closures related to Fire Prevention. Within the Francis Marion and Sumter National Forest, these are generally initiated by the State and publicly addressed on television, radio and in newspapers.

(3) Industrial Operations and Fire Precautions.

Timber sale administrators are responsible for enforcing the wildland fire prevention clause within the Timber Sale Contract. For service contracts, the Contracting Officer's Representative (COR) has the authority to enforce clauses related to fire safety.

b. Annual Fire Training Activities.

Annual Fire Fighter Refresher and Fire Shelter deployment training is conducted on each Ranger District and at the Forest Supervisors Office for all required personnel and Emergency Firefighters hosted by each unit. This training generally occurs during the period January thru May. In addition to Refresher Training the Work Capacity Testing (WCT) is also accomplished when weather conditions are suitable for WCT administration.

Prior to taking a fireline assignment, all wildland fire personnel must complete a minimum of eight hours of Fire Safety Refresher Training annually. Annual Fireline Safety Refresher Training must include the following core topics:

- Entrapment Avoidance
- Fire Shelter (entrapment recognition, deployment protocols and practice)
- Fire Safety (LCES, Watch Out Situations, Fire Orders, and Look Up Down and Around, Lessons Learned from Fatality Fires)
- Use of the Incident Response Pocket Guide is required for all fireline supervisors and is highly recommended for all firefighters (NWCG, NFES 1077, PMS 461 or <http://www.nwcg.gov/pms/pubs/pubs.htm>)

A complete listing of content requirements is found in FSM 5135.5 and the Interagency Standards for Fire and Aviation Operations 2003 (5-3 and 5-4).

For additional topics and help, instructors may find it helpful to visit the Wildland Fire Safety Training Annual Refresher web page http://www.nifc.gov/safety_study/annual-refresh/

Additional information on firefighter safety can also be found on the Internet at <http://www.fs.fed.us/fire/> or <http://www.nwcg.gov/>

Annual Aviation Re-certification courses include: Annual refresher for helicopter crewmembers, annual re-certification for PSD Operator (Interagency Aerial Ignition Guide, chapter II, section IV), and bi-annual helicopter manager refresher for all call-when-needed helicopter managers.

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(1) Qualifications and Needs Assessment.

The Wildland Fire Qualification Handbook, FSH 5109.17, establishes and describes the basic wildland fire qualifications criteria for Forest Service employees. Employees must meet the minimum standards for training, experience, and physical qualifications listed in the FSH 5109.17 prior to being certified for positions. Incident Qualifications and Certification Card (Red Card) will be issued only after annual refresher and WCT are successfully completed.

Forest Training needs are determined by analysis of individual training needs identified on employee REDCARD master records. The master records are submitted by each District FMO annually and entered into the REDCARD database. When all records have been entered into the system, the database is queried for training needs. This information is then analyzed by the Forest Redcard Committee, key position needs (shortages) are identified, and additional training needs are considered by the committee. The Redcard Committee will determine which training 100-200 level courses will be offered on the Forest, or make recommendation to the Regional Training Coordinator which 300-500 level courses are needed.

c. Fire Season Readiness.

Prior to the established fire season on the Francis Marion and Sumter, the Forest fire staff will conduct annual preparedness reviews of equipment, personnel and fire caches to ensure overall fire season readiness.

(1) Annual preparedness reviews.

2004 Preparedness reviews will be held on the following locations and dates:

1. February 2 -- Andrew Pickens Ranger District at 10:00 AM.
2. February 3 -- Long Cane Ranger District Office at 8:30 AM.
Travel to Work Centers at 10:00 AM.
3. February 4 -- Enoree Ranger District Whitmire Office at 8:00 AM.
Plan to travel to the Tyger Office at 10:00 AM.
4. January 14 -- Witherbee Ranger District Office at 10:00 AM.
January 14 -- Helibase at 2:00 PM.
January 15 -- Wambaw Office at 9:00 AM.
5. February 10 -- Supervisor's Office Fire Section at 10:00 AM

The review teams will be comprised of the following as a minimum:

District Review Team -- Forest Fire Staff Officer, or Forest Fire Management Officer, and South Carolina Interagency Coordination Center Manager. A District Fire Program Manager or District Fire Management Officer from an adjacent district.

S.O. Review Team -- District Ranger, District Program Manager, and District FMO.

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The goal of the preparedness review is to ensure the forest is prepared to suppress and/or manage wildland fire safely and efficiently. Engines, dozer/tractor-plows and caches will be examined. Engines and dozer/tractor-plows will be operational, clean, maintained, and equipped to standard. Personnel will be trained and qualified for the job assigned. Physical fitness qualifications will be current and recorded. Employees will be properly equipped with current standard PPE.

(2) Season start and stop criteria with typical dates.

The Forest fire season and the rationale for season length are recorded in the 2004 NFMAS Analysis (Certified) documentation. The established fire season for the Forest is November 1 through May 30.

The fire season on the Francis Marion is November 1 to May 30. The Sumter fire season is February 15 to May 15, but in order to maintain consistency and support for the entire forest they will staff according to the Francis Marion season.

Fire season dates for the Francis Marion and Sumter Forests were determined during the National Fire Management Analysis System (NFMAS) process. PCHA was used to display 10 years of historical fire and weather data (1989 to 1998). Burning Index (BI) was used as a threshold based on increased staffing levels from PL1 to PL2 in the Forest Preparedness Plan. Threshold levels for the Sumter is 21, and for the Francis Marion its 25. Rate of Spread (ROS) was also examined since energy release estimates, on the Sumter, may not be high enough to keep the BI above 21, but the ROS is enough to require more resources to catch fires. The ROS threshold for the Francis Marion and Sumter was 5 chains/hour.

When the Fire occurrence was looked at outside of the December through May period, the occurrence in November is more than twice the number of occurrence in any month since the season ended in May. November is also a period when vegetation is cured, temperatures are cooler, insects are less prominent, and upland and big game hunting seasons are open. This means a significant increase in people dispersed in the general forest area. It seems prudent to include this month along with the normal seasonal development period. It provides a presence for increased activity, and gets firefighting forces ready for the normal development season period.

For a complete description on fire season determination and graphical displays please refer to the *Francis Marion and Sumter Final NFMAS FY 2004*.

(3) Forest or District-level fire cache considerations, including appropriate stocking levels and management.

A Local Fire Cache will be located on and maintained by each District, sufficient to outfit a minimum of 25 people for the Sumter National Forest and 50 for the Francis Marion National Forest. These caches are generally large enough to sustain an average year's prescribed fire and fire suppression needs.

The Southern Area Interagency Fire Cache (SIFC) is located in London, KY on the Daniel Boone National Forest. The cache is designed to supply and equip a firefighting force of 750 people. Prompt return of accountable supplies and equipment is important to get items back in service.

The Savannah River Forest Station has a 250-person Cache Van pre-positioned at their office by SACC. This Cache Van is available for use wherever needed.

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Requests for Fire Cache items will be placed through the Forest Dispatch Office in Columbia when the local cache has been exhausted, specialized equipment are needed or repositioning of supplies is necessary. The South Carolina Interagency Coordination Center (SC-SCC) will place all orders for cache items through established dispatch channels to the SIFC. Requests from the field must be specific: what to order, quantity, and delivery point. All items will be ordered according to the National Fire Equipment Supply (NFES) number, to ensure proper items are being ordered.

For property accountability, all non-expendable property will be recorded on the Resource Order form, AD-107, Report of Transfer or other Disposition or Construction of Property. A Report of Unserviceable, Lost or Damaged Property, must be filled out, if property becomes lost or unserviceable, form AD-112. One signed copy kept on the Forest and the other sent to the Regional Fire Cache.

In order to provide ready reference and guidelines to follow when securing supplies, services and equipment, SC-SCC will maintain a list of available resources locally with 24-hour contacts.

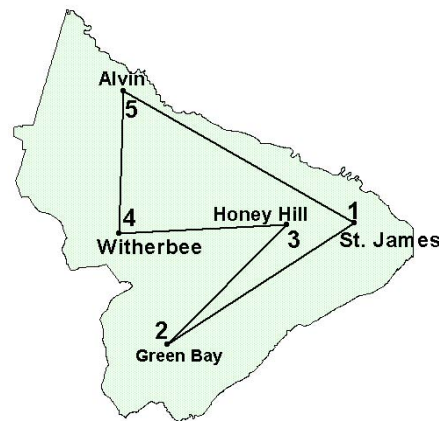
To avoid delays in reconditioning and reissue of equipment, all items should be returned directly to SIFC as soon as the need has passed. The Forest will not retain equipment for any anticipated need unless advance arrangement have been made with SACC and/or SIFC. All returned equipment will be documented on a Resource Order. Release information will be passed to the fire cache through established dispatch channels.

d. Detection.

Fire detection on the Francis Marion & Sumter NF's is primarily accomplished through reports from the general public (Forest Users or local residents or transients) to federal or state government offices. Prior to 1994, Forest Lookout towers were staffed and used as the primary fire detection resource, though in 1994 the use of the towers was discontinued due to the proven efficiency of aerial detection. Aerial detection is generally employed on the Forest at preparedness level III, occasionally aerial detection is utilized at PLII when there is an unusual number of arson related starts at this preparedness level.

Aircraft used for aerial detection are obtained through the Southern Region Airplane Call-When-Needed Contract. Qualified local aerial observers are used during detection flights for several reasons: they are familiar with operations, fire behavior, land ownership patterns. Designated flight routes are used over each district with pre-identified check points used flight following, each checkpoint is approximately 15-20 minutes apart.

Figure 5. Francis Marion Detection Route



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e. Fire Weather and Fire Danger.

(1) Weather Stations.

Table 5. Weather stations provide information used in fire weather and behavior predictions.

Station Number & Name	District	Elevation	Aspect	Slope Class	Climate Class	Fuel Model
384002 Witherbee	FM	75'	Flat	1	3	D
380902 Whitmire	Enoree	425'	Flat	1	3	E
380102 Andrew Pickens	A-P	1600'	South	2	3	E

There are two additional stations on the forest, Wambaw and Long Cane. These are not used for NFDRS outputs, but for local information only.

(2) NFDRS

Trend monitoring on the forest is primarily concerned with Burning Index (BI). A 90% threshold BI is used on both forests. This means on the Sumter between 1970-2002 10% of the days had a BI greater than 33. For the Francis Marion between 1970-2002 10% of the days had a BI greater than 82 in fuel model D and 81 in fuel model O. Local threshold or trigger points for watch-out situations include a combination of any of the following factors can greatly increase fire behavior:

Sumter Fuel Model E (winter)

Mountains: 20' winds >15 mph, RH <30%, temperature >75°F

Piedmont: 20' winds >15 mph, RH <30%, temperature >80°F

Francis Marion

Fuel Model D: 20' winds >12 mph, RH <40%, temperature >75°F

Fuel Model O: 20' winds >12 mph, RH <40%, temperature >75°F

POCKET CARDS for each district can be found at <http://famweb.nwcg.gov/pocketcards/> or in Appendix D and must be available to all firefighting resources. Every Fireline supervisor will be issued a pocket card prior to deployment on an assignment by the receiving unit (Thirtymile Action Item A-3b).

Forest planning levels use BI and KBDI primarily; however, other factors are taken into consideration such as: fires on adjacent landowners, multiple fires, and extended attack fire on the forest. For additional Preparedness or Planning Levels discussion please see the Range of Potential Behavior subsection on page 32, and Appendix B.

Note: Planning Level is a component of the Forest Preparedness Plan outlining specific actions to accomplish at the forest and district level. Specific actions are taken by Columbia Dispatch at each planning level to ensure an appropriate level of preparedness or readiness for the existing and potential situation.

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The following table displays NFDRS indices and the corresponding Fire Danger Rating. (Note: Staffing levels are currently not used by the forest.)

Table 6.

STAFFING LEVEL	A LOW		B MODERATE		C HIGH		D VERY HIGH		E EXTREME	
	SUMTER E	FRANCIS MARION D	SUMTER E	FRANCIS MARION D	SUMTER E	FRANCIS MARION D	SUMTER E	FRANCIS MARION D	SUMTER E	FRANCIS MARION D
1 BURNING INDEX	0-12	0-22	13-24	23-44	25-48	45-87	49-56	88-101	57+	102+
2 ENERGY RELEASE	0-6	0-13	7-12	14-27	13-24	28-53	25-27	54-56	27+	57+
3 SPREAD COMPONENT	0-4	0-8	5-9	9-16	10-18	17-31	19-24	32-42	25+	43+
4 IGNITION COMPONENT	0-12	0-15	13-23	16-29	24-27	30-58	48-58	59-68	59+	69+

Although fuel model O is not used in determining staffing levels on the forest, the NFDRS indices are produced by Dispatch as an additional measure of safety on the Francis Marion.

It is important to remember that NFDRS outputs are intended to show trends in Fire Danger over a large area, and not for site-specific use as with fire behavior models Behave Plus, FARSITE or Flam Map.

The 1988 version of the following NFDRS fuel models are used on the Francis Marion:

- FUEL MODEL D: Palmetto-Gallberry understory Pine association of the southeast and "low-pocosins" where FUEL MODEL O might be too severe. This model is only used in the Southeast because of the high moisture of extinction.
- FUEL MODEL O: Pocosins or dense, brush like fuels of the Southeast. Unlike FUEL MODEL B, this model is almost entirely living except for a deep litter layer. Foliage burns readily except during the active growing season. Plants are typically over 6 feet tall. If plants are under 6 feet tall, FUEL MODEL D should be used.

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1988 NFDRS fuel model used on both the piedmont and mountains of the Sumter Forest:

- FUEL MODEL E: Hardwood leaf litter, oak-hickory types, northern hardwoods, and mixed forests of the Southeast. In high winds, the fire danger may be underrated because of rolling and blowing leaves are not accounted for. In the summer after leaves have leafed out, FUEL MODEL R should replace FUEL MODEL E.

f. Policy and Forest Service Manual and Handbook Direction.

Critical thresholds of firefighting resource needs are contained in staffing guides unique to each Ranger District.

g. Aviation Management.

The Francis Marion and Sumter National Forests have a developing aviation workload that varies in complexity and use. Aircraft, both fixed and rotor-wing are involved in many aspects of management, including:

- Fire detection and suppression
- Fuels management including aerial ignition
- Transportation of people and equipment
- Insect detection and other Timber related reconnaissance
- Wildlife monitoring and improvement projects
- Aerial Fertilization
- Administrative flights
- Law enforcement

Aviation management on the forest is lead by the Forest Aviation Office (FAO), Charlie Kerr. The FAO is responsible for the direction, leadership, and management of the Forest aviation program, including coordination of aviation activities with the regional and other agencies aviation staff (FSM 5704.6).

The Dispatcher Center Manager, Dave Kuhn, is responsible for the coordination of aircraft dispatching, Forest Service flight plans, and flight following. Insures required personnel are assigned to manage aviation resources. In addition, Dave serves as Contracting Officers Representative (COR) for all Forest aviation contracts.

The Forest Exclusive-Use Helicopter/Helibase Manager, Laura Barrett, is responsible for the safe operation and management of the Forest Exclusive-use helicopter and the Seed Orchard Helibase. Serves as the primary inspector on the Forest Helicopter Contract. Each helicopter manager must ensure their assigned aircraft operates safely and adheres to contractual and agency policy.

The Pilot of each aircraft is responsible for the safety of the aircraft, its occupants, and its cargo. A Pilot will postpone, cancel, or change the flight when he/she believes existing or impending conditions are unsafe. The Pilot's word is final. Each Pilot will file a flight plan for all Forest Service flights.

Requests for aircraft that involve FS personnel or projects will be coordinated through the South Carolina Coordination Center (SC-SCC). A Project Aviation Safety plan should be completed for all recurrent special-use flights for the same project to the same areas. The local aviation manager and project aviation manager are jointly responsible for determining the need for a Project Aviation Safety plan (IHOG, pg. 3-15 and exhibit 3-3).

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All aviation operations will comply with the Federal Aviation Regulations (FAR), Forest Service Health and Safety Code (FSH 6709.11), Interagency Helicopter Operations Guide (IHOG), and Forest Service Handbooks, (5709.11 Fixed Wing Operations, Aviation Management Plan for the Southern Region, the Aviation Mishap Prevention Plan as supplemented by the Francis Marion and Sumter Aircraft Down/Missing Rescue and Medivac Plan, Francis Marion and Sumter Aviation Safety Plan, and Seed Orchard Helibase Operations and Safety Plan.

The Forest Air Operations Plan and Flight Hazard Maps can be found in the Columbia Dispatch office or the Seed Orchard Helibase. Electronic copies of both are also available.

3. Initial Attack.

Suppression strategies range from aggressive initial attack to combination of strategies to achieve confinement. Actions are based on firefighter and public safety, and values to be protected; keeping in mind: objectives, relative risk, external influences, complexity, and defensibility of management boundaries. Specific suppression strategies to consider have been developed and are addressed for each FMU in the Fire Management Unit Description Outline, Appendix A.

Initial attack forces are made up of the first suppression personnel to arrive at a fire plus reinforcements arriving during the first burning period. The Incident Commander (IC) will undertake control of the incident and identify himself or herself as such. This will be communicated over the radio to Dispatch as well as to the remaining initial attack personnel on scene. The IC will determine the appropriate initial suppression action.

Should the fire complexity increase to a level exceeding the qualifications and capability of the Initial Attack IC, that individual will advise Dispatch via the radio that a more qualified Incident Commander is required along with recommendations for additional resources and overhead positions.

SECTION IV
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a. Information Used To Set Initial Attack Priorities.

More than 40% of wildland fires on the Francis Marion occur on multiple fire days (> 4 fires per day). Prioritizing fires on these days is a primary concern to fire managers. The following information will be used to set initial attack priorities on the forest:

- Threat to firefighter and public safety or private property and improvements
- Smoke Management considerations
- LMRP direction for the management area
- Resource values at risk (Timber, T&E species, archaeological and heritage)
- Projected commitment of initial attack resources
- Ability of cooperator resources to successfully conduct initial attack actions
- Road access or lack thereof
- Single or multiple jurisdictions involved or likely to be involved
- Current and predicted fire weather
- Fire behavior currently exhibited by ongoing incidents in similar fuel types
- Proximity to and probability of fire spread into critical fuel types or loadings
- Probability of success in using minimal resources such as airtanker(s) to retard the rate of spread until additional resources are available

b. Criteria for the Appropriate Initial Attack Response.

All suppression actions will be based on corresponding FMU direction that is based on decisions made in the forest Land and Resource Management Plan. Decisions that determine an appropriate response should also include the following criteria:

- Safety
- Threat to life or property
- Current and predicted fire behavior
- Current and predicted weather
- Suppression resource availability
- Suppression costs (Net Value Change)
- Resource damage or loss (from fire and suppression actions)
- Environmental impacts (of fire and suppression actions)
- Smoke management considerations
- Political considerations

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Suppression of new fires will be prioritized over other work by local Line Officers. It may be necessary at times for certain individuals or groups to be exempt from fire suppression activities in order to meet targets, critical deadlines, or accomplish other high priority duties. For coordination purposes, local dispatch and duty officer should be kept involved.

The IC will determine staffing until fire is declared controlled. At a minimum, regular burning period checks will be made until fire is declared out.

Travel and work may occur at night, except where unsafe conditions exist and cannot be mitigated, such as: extreme weather, fire behavior, difficult or unfamiliar terrain, lack of communications, snags, or other safety hazards. Travel after 2200 violates Forest Service policy.

The IC will maintain contact and check in at regular intervals with Dispatch. If poor or no communications exist on the fire, a relay will be set up and maintained while firefighters are on the fire.

To ensure the Thirtymile Hazard Abatement Plan is followed during initial and extended attack, a Francis Marion and Sumter National Forest Incident Commander's Incident Action Record has been developed. This is a set of checklists, charts and forms to be completed by the IC or designated by the IC. The Incident Action Record ensures required documentation, complexity analysis, incident objectives, and safety are analyzed and accomplished. A copy of this form is found in Appendix C.

c. Confinement as an Initial Action Strategy.

Confinement is an appropriate management response where combinations of direct and indirect actions are used to create a fire perimeter. The confinement strategy may be implemented as the initial action as long as it is not used to meet resource objectives, and is consistent with values to be protected and firefighter and public safety (see strategic and measurable objectives in FMU descriptions). See Figure 4 *Appropriate Management Suppression Response*, page 30.

Confinement can also be a strategic selection through the Wildland Fire Situation Analysis (WFSA) process when the fire is expected to exceed initial attack capability or planned management capability.

Prepare a WFIP (after approval of Wildland Fire Use plans) or a WFSA as the fire or management considerations dictate.

d. Response Times.

Forest standards for initial attack resource response times (dispatch to mobilization) are as follows:

Helicopter – 10 minutes

Engine, Crew and Tractor Plow/Dozer Units – 15 minutes

e. Restrictions and Special Concerns.

Specific forest limitations on equipment use, aircraft use, chemical fire retardants, tracked equipment, plows, and fireline explosives are found in FMU descriptions (Appendix A), Forest Standards discussion (Section IIC of the FMP), and Land and Resource Management Plans for each forest.

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f. Social and Political Concerns.

See specific FMU description in Appendix A. Smoke is our biggest political issue forestwide.

4. Extended Attack and Large Fire Suppression.

a. Determine Extended Attack Needs.

Extended attack, sometimes called an escaped fire, is a wildland fire that has exceeded preplanned initial attack capabilities, fire management direction, or the selected appropriate management response. A wildland fire is considered to be in extended attack status when one of the following exists:

- Initial Suppression efforts have not succeeded or are not expected to reach containment within the second burning period, or 24 hours
- The wildland fire's complexity has exceeded the abilities of the Initial Attack Incident Commander (ICT4 or ICT5), or additional resources requests result in fire complexity attaining Type III status
- The wildland fire has grown over 100 acres (on the Sumter) or 300 acres (on the Francis Marion). However, other conditions may determine the extended status, e.g. fires 100 acres and 300 acres may be contained and controlled in the first burning period.

The transition from initial attack to extended attack can be especially dangerous. During this transition, all fire personnel shall be informed of the increased perilous situation.

b. Implementation Plan Requirements - WFSA Development.

The Initial Attack IC must begin preparing for the transition to extended attack, as soon as it becomes apparent the wildland fire has exceeded initial suppression forces or initial action is unsuccessful. Prior to the end of the second burn period, a Wildland Fire Situation Analysis (WFSA) must be prepared to evaluate different suppression responses and their associated benefits and costs. Preparation of the WFSA for extended attack and large fire suppression should be done to evaluate suppression responses to wildland fires that have exceeded initial attack response or exceeded planned management capability.

Forest Supervisors are responsible for preparation and documentation of the Wildland Fire Situation Analysis on fires within their areas of responsibility. These responsibilities may be delegated in writing to District Rangers. Line officers are required to conduct the Wildland Fire Situation Analysis in consultation with the assigned Incident Commander. These responsibilities and spending authorizations have been established and are now in the FSM 5131.1.

A Wildland Fire Situation Analysis (WFSA) must be completed when:

5131.11 - Preparation Requirements:

1. Wildland fire escapes initial action or is expected to exceed initial action.
2. A wildland fire being managed for resource benefits exceeds prescription parameters in the fire management plan.
3. A prescribed fire exceeds its prescription and is declared a wildland fire.

SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

A Wildland Fire Situation Analysis (WFSA) must include the following steps:
5131.12 - Analysis Requirements:

1. Identification of Criteria for Evaluating Suppression Alternatives. Develop criteria that reflect the priority for firefighter and public safety, that reflect Forest Plan objectives and constraints (including environmental and social concerns), that permit assessments of potential resource damage, and that allow for estimates of potential suppression and rehabilitation costs. Consider local, regional, and national fire suppression activities and reinforcement capabilities.
2. Development of Suppression Alternatives. Develop alternatives, consistent with Forest Plan goals, that represent a range of strategies for the wildland fire suppression situation. Each alternative must:
 - a. Focus on firefighter and public safety,
 - b. Ability to implement as planned,
 - c. Be accompanied by a strategic plan of action,
 - d. Calculate the forces required in consideration of those available,
 - e. Assess the probability of success and consequences of failure (using a decision tree (see WFSA for an example), and
 - f. Estimate the time of containment and control, acres burned, suppression cost, and resource damage.
3. Analysis of Suppression Alternatives. Use the evaluation criteria to analyze alternatives. Determine whether estimates of expected wildland fire and suppression actions are consistent with the Forest Plan objectives and values. Select the alternative that best provides for firefighter and public safety, minimizes the sum of suppression costs and resource damages, and has an acceptable expected probability of success or failure.
4. Approval and Notification. The responsible line officer selects the WFSA suppression alternative and approves any and all revisions. The line officer ensures that the public and cooperators are informed of the selected alternative as appropriate and ensures that the geographic area coordination center is notified of the selected alternative and probable commitment of resources. The line officer ensures that an appropriate level Incident Management Team is assigned, based upon the WFSA analysis of complexity.
5. WFSA Monitoring and Evaluation. Each day, the assigned line officer will validate the selected suppression alternative based on the current and predicted situation. The Incident Commander will revise and update the WFSA prior to the next burning period, if needed; the assigned line officer must approve the revised WFSA.
6. Documentation. Before leaving an incident, the Incident Commander must ensure that the WFSA, including any revisions, is documented and filed with Form FS-5100-29, Individual Fire Report.

SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

Choosing Fire Suppression Strategies (FSM 5130.3):

- (1) “The primary criteria for choosing fire suppression strategies and tactics are to maximize safety and to minimize suppression costs, resource loss, and environmental damage.
- (2) Planned and actual suppression costs must be responsive to safety considerations and commensurate with the values to be protected. These costs must be included and displayed in the WFSA and, when costs are exceeded, revision and re-approval of the WFSA are required.
- (3) Under no circumstances are suppression strategies and tactics to be tailored to achieve resource benefits. Even though resource benefits may result in some areas from the fire, do not spend suppression dollars with the objective of achieving resource benefits. Further, do not use unplanned wildland fires to achieve resource benefits unless such actions are consistent with the applicable Forest land and resource management plan.
- (4) The selection of less aggressive containment strategies in low-consequence areas is appropriate if it is determined to be the safest and least-cost alternative.”

New policy direction establishes approval authority based on monetary limits. Please see FSM 5130.41, 5131.03, 5131.14, and 5194.15 for specific direction. WFSA Approval Authority levels are described in the table below.

Table 7. WFSA Approval Authority Levels

Cost And Complexity Level	Responsibility	Actions
Up to \$2 MM or Type 2 Incident Team Activated	District Ranger	Develop and certify WFSA. Issues Delegation of Authority
\$2 MM and up to \$10 MM, or a Type 1 Incident Team, or Area Command Team	Forest Supervisor	Develop and certify WFSA. Issues Delegation of Authority
\$10 MM and up to \$50 MM, regardless of team assigned	Regional Forester	Forest Supervisor to develop WFSA and Issue Delegation of Authority. Regional Forester to Certify WFSA within 12 hours
Over \$50 MM	Chief	Forest Supervisor to develop WFSA and Issue Delegation of Authority. Regional Forester to provide WFSA and consult with Chief. Chief to Certify WFSA within 24 hours.

Additional information and help on WFSA go to <http://www.fs.fed.us/fire/wfsa/>.
For complete WFSA policy please see <http://fsweb.wo.fs.fed.us/directives/fsm/5100/5130.rtf>

Current WFSA trainers on the Forest are: Bill Twomey, Charlie Kerr, and Laura Barrett.

**SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS**

c. Complexity Decision Process for Incident Management Transition.

A complexity analysis will be completed on every fire at time of the initial attack as part of the size-up and afterwards as appropriate. Complexity is determined on the basis of risk (FSM 5143.1). Determination procedures and assessment process and are found in the Implementation Guide, and in the forest Incident Commanders Incident Action Record (Appendix C).

An incident management team will be brought in at the request of the Forest Supervisor, on advice from the Fire Management Staff Officer or Forest Fire Management Officer. The type of team ordered is determined by the complexity of the incident and severity of the situation. (Refer to FSH 5109.32a, chapter 3 and 4, fireline handbook, for more information on the transition process and in determining which type of incident management team to order).

d. Unit Example of Delegation of Authority for the Incident Commander.

The Forest Supervisor shall issue a delegation of authority letter (FSM 1230), outlining authority and responsibility to the assigned Area Commander(s), Type I, or Type II Incident Commander (National Interagency Mobilization Guide, FSM 5108). At the completion of the incident or when the complexity has lowered, the Incident Commander shall return the complete management of the incident to the Forest Supervisor. Local agency administrators are required to convey their expectations on incident management to their Type 3, 4 and 5 ICs. Those expectations should include as a minimum (From Thirtymile Action Items):

1. Provide for the safety and welfare of all personnel and the public
2. Develop and implement viable strategies and tactics for the incident
3. Monitor effectiveness of the planned strategy and tactics
4. Disengage suppression activities immediately if strategies and tactics cannot be implemented safely
5. Maintain command and control of the incident
6. Use local rules and specific criteria to determine when a fire has moved beyond initial attack

For an example of the Delegation of Authority letter see Appendix E.

**SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS**

5. Exceeding Existing WFIP - Selecting a New Strategy.

Periodic Fire Assessment is a stage in the WFIP process intended to prevent the unchecked escalation of a fire or fire management situation and ensure that evaluation and adequate planning is in place. An existing WFIP (Wildland Fire Implementation Plan) is exceeded when wildland fires cannot be controlled during the initial suppression response action or where the appropriate management response has not been successful. In either case, a WFSA is initiated at this stage. This assessment can also indicate the need for completing the next stage of a WFIP. Refer to page 57, WPFMP Implementation Guide.

The Periodic Fire Assessment consists of three stages:

- Part 1: Revalidation of appropriateness of continues management for resource benefit
- Part 2: Stage III Need Assessment Chart
- Part 3: Signature Page

“The Wildland Fire Situation Analysis (WFSA) is a decision-making process in which the Agency Administrator or representative describes the situation, establishes objectives and constraints for the management of the fire, compares multiple strategic wildland fire management alternatives, evaluates the expected effects of the alternatives, selects the preferred alternative, and documents the decision. The format and level of detail required is dependent on the specific fire and its complexity. The key is to document the decision.”

“Use of the WFSA is integral to successful management of both wildland and prescribed fires. It serves as a contingency to undesirable outcomes by providing a mechanism to quickly and thoroughly analyze new strategic alternatives for any type of fire management activity. If the alternative selected through the WFSA does not accomplish the objectives, the WFSA can be amended or a new WFSA can be completed to develop new alternatives.”(From the *WPFMP Implementation Guide, page 71*)

Components of a WFSA include:

- WFSA initiation section**
- WFSA completion/final review**
- Wildland Fire Situation Analysis**
- Objectives and Constraints**
- Alternatives**
- Evaluation of Alternatives**
- Analysis Summary**
- Decision**
- Daily Review**
- Guide for Assessing Fire Complexity**

SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

6. Minimum Impact Suppression Tactics (MIST) Requirements.

MIST is a suppression tactic where the intent is to suppress a wildland fire with the least impact to the land. For complete MIST standards, refer to Interagency Standards for Fire and Fire Aviation Operations 2003, Appendix U.

7. Other Fire Suppression Considerations.

A Job Hazard Analysis (JHA) must be completed and signed for all jobs we are doing, which may include but is not limited to the following examples:

- Initial Attack
 - Working around Dozers
 - Working with drip torches, fuel and fuses
 - Working with helicopters
 - Driving to and from fire, and backing

- Prescribed Burning
 - Working with Chainsaws
 - Working with Dozer/Tractor Plows
 - Working with Helicopters
 - Working around Smoke
 - Working with Hazardous Materials
 - Driving to and from work site
 - Walking on uneven or steep ground

For directions on filling out a JHA or a list of already developed JHAs please see the following website: http://www.fs.fed.us/r1/people/jha/jha_index_www.html

Tailgate sessions are also required as a safety refresher in the field. These are short (10 minute), informal safety meetings conducted at the crew level on a periodic and as-needed basis, usually before work begins. Sessions are designed to discuss job-related hazards and safe work practices. The goal is to inform employees of specific hazards associated with a task and the safe way to do the job. It also serves as a reminder to employees of what they already know, and establishes the supervisor's credibility and conscientiousness about his or her responsibilities for safety. A record should be kept of what was discussed and who was present during the safety session.

Consider giving tailgate safety sessions:

- When a certain task (seasonal, perhaps) hasn't been performed for some time.
- When new employees join the crew.
- When a task and/or location poses specific hazards, for example:
- Substantial change in conditions/procedures
- To review a recent accident or 'near-miss' in this or another crew.
- When a supervisor feels employees are becoming lax about safety.

Cost containment is a real concern as the cost of large fire suppression has sky-rocketed in the past decade. In an attempt to improve accountability and efficient expenditure of fire suppression funds, cost containment has become a significant part of our commitment to the fiscal responsibility with which we have been entrusted. Appendix G contains this policy direction.

SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

C. Wildland Fire Use

Wildland fire use refers to the management of naturally ignited wildland fires to accomplish specific, pre-stated resource management objectives in predefined geographic areas as defined in the Forest land and resource management plan and outlined in this fire management plan.

This section of the fire management plan would normally develop the information necessary to prepare and implement a WFIP for wildland fire use for resource benefits. However, although Wildland Fire Use is allowed in both the Francis Marion and Sumter Revised Land and Resource management plans, there is currently no Wildland Fire Use Plan in place for these areas. Until a reanalysis of prescriptive criteria currently in use by the Southern Region for prescribed fire can be examined and appropriate prescriptive criteria are developed into Wildland Fire Use parameters, a Go No Go decision tree that ties into maximum manageable areas (MMA) is created, and a Wildland Fire Use plan is developed; wildland fire use for resource benefit will not be an appropriate management response on the Francis Marion and Sumter Forest.

It is the intent of the Forest Fire Management program to develop the objectives and prescription parameters as soon as possible. Each district Fire Staff will be responsible for the development of their Wildland Fire Use Plan.

- 1. Objectives.**
- 2. Factors Affecting Decision Criteria for Wildland Fire Use.**
- 3. Preplanned Implementation Procedures.**
- 4. Impacts of Plan Implementation.**
- 5. Required Personnel.**
- 6. Public Information.**
- 7. Records.**
- 8. Cost Tracking.**

**SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS**

D. Prescribed Fire

The prescribed fire program objectives on the Francis Marion and Sumter National Forests include burn plans that are: well planned and executed, cost efficient, and responsive to Forest Plan and Management Area objectives. The Forest will continue to integrate functional goals and funding into a balanced, efficient program that maintains fire-dependant ecosystems, protects communities, reduces hazardous fuels, and meets land management forest objectives outlined in the Land and Resource Management Plans.

The forest burns 40,000 to 50,000 acres per year for fuel reduction, wildlife habitat restoration, site preparation, fire-dependant ecosystem restoration and maintenance, vegetation management and control, and forest health (or disease control). The forest is increasing its efforts in reducing hazardous fuels in Condition Class 2 and 3, especially in Wildland Urban Interface areas.

Aerial Ignition, use of helicopters equipped with plastic sphere dispensers, has proven to be the safest and most cost efficient method of management ignition. All personnel involved in prescribed fire planning and execution should be familiar with the Forest Aviation Management and Safety Plan (Appendix L), and the Forest Aircraft Down and Missing Rescue and Medivac Plan (Appendix L).

R8 direction regarding prescription numbers and how to proceed when exceeded states:

5142.1 - Management Ignited Prescribed Fire (R8 supplement)

“Place Fuel moisture sticks (10 hr.) on or near each burn unit to determine fuel moisture. Each forest must develop fuel-stick moisture values which permit safe burning and accomplish resource objectives. Do not conduct prescribe fires when fuel stick values at the designated National Fire Danger Rating Station indicates a 10 hour fuel moisture content less than seven percent (7%) or nine percent (9%) under a forest canopy. 5140.42 Exhibit 01 contains minimum parameters for development of burning prescriptions.

A general weather forecast by the National Weather Service with wind speed prediction of 15-20 MPH is acceptable in compliance with regional standard of 18 MPH maximum. Accept spot weather forecast as predicted. Conduct weather observations periodically or every 2 hours as a minimum. Record on-site weather observations on burn plan. Use accurate and reliable equipment to conduct on-site weather observations.”

Forest standards are in the process of being developed and updated, and put into directives systems.

1. Planning and Documentation.

a. Annual activities to prepare for and implement the program

Each Ranger District, on an annual basis, reviews burnable acres to select the program that fits with National Fire Plan priorities, other resource needs, NEPA coverage, and budget allocation.

b. Long-term prescribed fire strategy for each relevant fire management unit by fire regime and condition class and display planned burn units

The development process of long-term prescribed fire strategy for each relevant fire management unit by fire regime and condition class and display planned burn units is currently under development.

SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

c. Numbers and kinds of qualified personnel necessary to plan and execute the proposed annual prescribed fire program

Each unit will develop the prescribed fire program using an ID Team consisting of Fire, NEPA, Wildlife Biologist, Archaeologist, and other pertinent resource representatives as necessary for specific projects.

d. Fire behavior and fire effects monitoring associated with prescribed fire applications

See R8 5140 Supplement for specifics on weather, fire behavior and effects. The monitoring process is currently under development. As a start, each unit will implement a plot system for monitoring as soon as specifics are released by the Region. Appendix K will contain the Regional Prescribed Fire Monitoring Plan when it is released.

The prescribed fire plan must describe why the fire is needed, what the fire will accomplish, when conditions will permit the desired effects to be achieved, how specific fire application will occur, and how progress and results will be monitored and evaluated.

e. Format for critiques of prescribed fire projects.

5140.42 (6)- Forest Supervisor (R8 supplement)

Forest Supervisors shall require a post-burn evaluation for each burn unit. Conduct evaluations by an interdisciplinary team on a representative number of burn units. Long-term detailed evaluation should be made on a sufficient number of burns to determine if actual results met planned resource and cost objectives. Reviews conducted as a part of Integrated Resource Management Reviews, use Silvicultural Prescription reviews and other Functional Assistance Trips when possible to meet this requirement if they are interdisciplinary in composition and prescribed fire is integrated into the process.

f. Reporting and documentation requirements for accomplishments and escaped fires.

Currently, prescribed fire accomplishments are reported through both the Program Attainment Report (PAR) and the National Fire Plan Operations and Reporting System (NFORS). Escaped fires are reported through WFSA and Forest or Regional Review processes.

g. Develop a historic fuel treatment map of post burn activities that affect planned actions.

Each unit is responsible for development and maintenance of a historic fuel treatment map and any post burn activities that may affect any planned management actions.

h. Explain the local prescribed fire burn plan requirements and include a copy of the burn plan the unit uses in the appendix. A description of the required prescribed burn plan elements can be found in chapter 4 of the implementation guide.

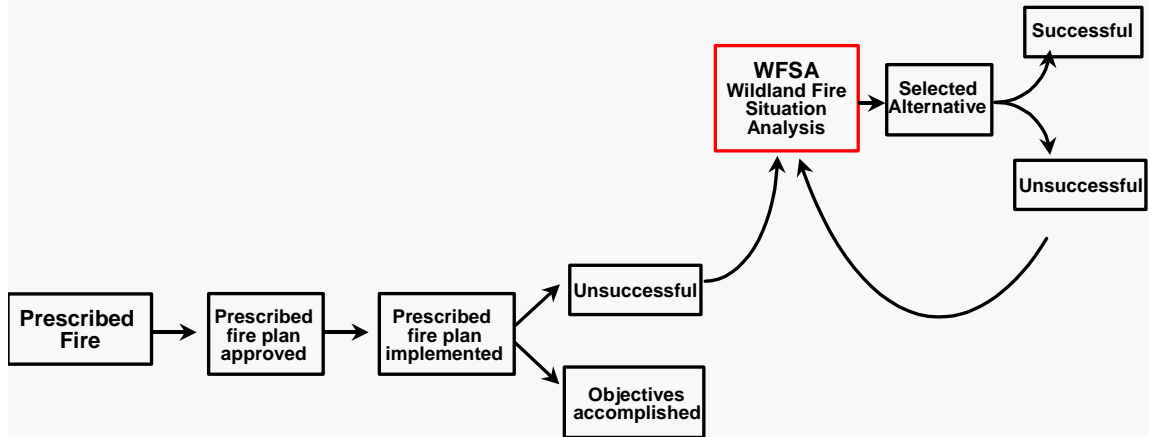
Prescribed burn plans for each burn unit will meet Forest Service Policy requirements as outlined in FSM 5140. All burn plans will be reviewed and approved by the District Ranger. The District Ranger must concur that the conditions on the day of the burn remain within prescription and will meet project objectives.

A complete description of the required prescribed burn plan elements can be found in chapter 4 of the implementation guide.

SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

2. Exceeding Existing Prescribed Fire Burn Plan.

Figure 6.



A prescribed fire is declared escaped when it burns outside the predetermined boundary and has the potential to result in unacceptable consequences or resource damage. The determination of the potential will be made by the approving line officer. This determination should consider whether private land is involved, the ability to contain the spot with the funds and resources on hand and the size of the spot. If the Forest Supervisor is the approving official the determination may be delegated to the Fire Staff Officer or Forest Fire Management Officer. (Region 8 supplemental directive 5140.3)

A WFSA will be prepared as previously described in the Implementation Plan Requirements – WFSA Development, Section IV B4b (page 44), of the FMP, and in FSM 5131.12 – WFSA Analysis Requirements.

Report escaped fires consistent with direction provided in FSM 5140. When a prescribed fire escapes and is declared a wildland fire, acres accomplished prior to escape that were burned within prescription shall be considered as prescribed fire acres accomplished. All acres burned after declaration as a wildland fire, including inside and outside burn area, must be considered wildland fire acres burned.

5140.42 (5) - Forest Supervisor (R8 supplement)

“Forest Supervisors shall conduct a review of all escaped prescribed fires and submit a report to the Regional Forester within 30 days of escape. The review report should contain the following items: (1) Weather forecast, (2) On site weather records, (3) The prescribed burn plan (R8-5100-6), (4) Maps and photographs, (5) Witness statements and narrative statements of principals, (6) Damage estimates and/or claims forms, (7) Qualifications of personnel involved.”

**SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS**

3. Air Quality and Smoke Management.

Manage all activities to assure that air quality is compatible with federal and state regulations (Standards: FW-1, FW-2, FW-4 Francis Marion National Forest LRMP, and FW-15, FW-16 Sumter National Forest LRMP). In addition the Sumter LRMP states, "it is essential that the Sumter work cooperatively with air management agencies and Regional Planning Organizations (VISTAS) to reduce air pollution impacts to resources, and to minimize the Sumter's impacts to air quality."

a. Air quality issues.

- The EPA will release data on SO₂ non-attainment areas sometime in the Spring. Preliminary indications are that this may have some affect on some units on the Sumter National Forest.
- Smoke on highways and around homes remains an issue for all units as population increases continue within Forest boundaries.

b. Smoke Management Planning

South Carolina has a long established Smoke Management Guide and burning notification process that must be followed by all units. This Guide is in compliance with the Clean Air Act.

(1) Location of Class I airsheds.

Cape Romain is the only Class I airshed in South Carolina. Cape Romain lies to the East of the Francis Marion National Forest.

(2) Description of pre-identified smoke sensitive areas.

Schools, highways, medical facilities, poultry growers, tourist attractions are some of the representative sensitive areas. Each Burn Plan will develop smoke sensitive areas through the planning process. Sensitive areas will be determined largely by wind direction, proximity, fuel consumption quantity, duration of burn, and weather conditions such as ventilation rate.

(3) Local and regional smoke management restrictions and procedures.

Forest management activities will be implemented using best available smoke management technology, so that all prescribed fire activities do not violate the following:

- Smoke Management Guidelines for Forestry Prescribed Burning Operations for the State of South Carolina
- Clean Air Act Amendments of 1977
- State Implementation Plan for any prescribed fire within EPA designated "non-attainment" and "maintenance" areas
- National Ambient Air Quality standards

The following table shows afternoon ventilation rates and corresponding smoke category day based on transport wind (MPH). **Table 8. Smoke Management**

Ventilation Rate	Category Day
0-17,249	1
17,250-34,499	2
35,500-51,749	3
51,750-68,999	4
69,000 +	5

**SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS**

E. Non-Fire Fuel Applications

With an increasing emphasis from Congress on reducing hazardous fuels in Wildland Urban Interface areas, concentrating on Condition Class 2 and 3; mechanical treatments will become more and more necessary to meet these objectives. In areas where prescribed burning is difficult and creates a greater danger to the public because of smoke on highways, mechanical treatments may be the only possible management action to safely obtain desired results. Non-fire fuel treatments are determined through the fuels program planning process. Currently the two forests are mechanically treating approximately 700 acres annually. Collaboration with adjacent landowners, South Carolina Forestry Commission and the South Carolina Native Plant Society

1. Mechanical Treatment and Other Applications.

a. Annual activities to prepare for and implement the program.

Determination of the appropriate fuels treatment method based on risk of using fire in particular WUI areas is part of the fuels treatment planning process. NEPA is necessary, but the use of Categorical Exclusion is recommended for areas up to 1,000 acres. Areas are then entered into the contracting process.

b. Equipment and seasonal use restrictions by management area or FMU.

Equipment use is not necessarily a seasonal project. Equipment use is based on ground conditions throughout the year. Species sensitivity is considered and when determining the boundaries of mechanical equipment use.

c. Required effects monitoring.

Effects monitoring is required. Short term and long term monitoring objectives will be established by the hazardous fuels treatment planning team. Measurable objectives and protocols will be established for determining effects.

d. Format for critiques of mechanical treatment projects.

Mechanical treatments will be examined for effects to sensitive species, soils and costs. Resource Specialists for those areas will be part of the impacts of treatments.

e. Cost accounting.

All costs associated with non-fire fuels treatments will be documented by category, i.e. planning, NEPA, area layout, personnel, contracting cost, and monitoring. This will be used for future planning.

f. Requirements for reporting and documentation.

Accomplishment reporting is the same as for prescribed fire.

g. Annual planned project list.

The annual planned project list will be kept on each unit.

SECTION IV
WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

F. Emergency Rehabilitation and Restoration

The most effective suppression resource used on the forest is undoubtedly the tractor plow or dozer. Both of the resources though effective in building fireline quickly and effectively, damage soil and can potentially cause associated erosion. In order to minimize the effects of suppression efforts it is necessary to rehab firelines after the wildland fire is considered out. The forest archeologist should be consulted prior to any fireline rehabilitation.

For specific policy direction refer to the Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook or FSH 2509.13, Burned Area Emergency Rehabilitation Handbook. The plan for accomplishing burned area rehabilitation is included in Appendix I.

**SECTION V
ORGANIZATIONAL AND BUDGETARY PARAMETERS**

SECTION V - ORGANIZATIONAL AND BUDGETARY PARAMETERS

A. Current fiscal year budget and the ability to support planned and unplanned actions

For preparedness, the Forest uses the National Fire Management Analysis System (NFMAS) for out year budgetary planning. NFMAS is a formal process that provides a consistent and objective method for estimating both the effectiveness and the economic efficiency of preparedness alternatives. The analysis requires compiling and summarizing historical weather and fire data to determine the most efficient level (MEL) of a fire management organization. Refer to Appendix J for documentation on the current year's budget, and current 5100-2.

For hazardous fuel reduction, the Forest uses the Budget Formulation and Executions System (BFES) to set the target/funding for a fiscal year within a constrained budget. Since this program is outside of the NFMAS process, Form 5100-2 Integrated Fire Management Organization and Financial Plan is not used. Instead, financial and planning data is entered into the Program Work Planning System (PWPS), from which a number of detailed reports can be obtained. NFPORS (National Fire Plan Operations and Reporting System) and Program Attainment Report (PAR) are used to set and report fuels accomplishments.

B. Organization chart supported by the current fiscal year budget

See Appendix J for the most current chart for the Forest's full-time, fire organization. Although all positions on the chart are not filled, there is a core of full-time fire personnel, supported by the current budget, for initial and extended attack, escapes, and prescribed burning. District militia and outside detailers supplements the full-time fire organization as needed.

Requests are made to Columbia Dispatch as forest resources are depleted. Dispatch then fills resource orders from a number of qualified sources, in the following order: agency personnel (USFS, NPS, USFWS, BIA, BLM), cooperators (SCS, DOD), casual hires (AD), or contractors. Historically, tractor plows and dozers, as well as engines have been the most needed resource. Occasionally handcrews have been ordered for mop-up on multiple and large fires. Type 2 helicopters and airtankers are usually ordered when large fires become more common, especially in drought years when KBDI remains high for months.

During periods of high fire danger and Planning Levels indicate increases in resource needs beyond the Forests ability to staff, Severity Requests will be developed to provide for full staffing needs. Severity Requests must be complete and submitted no later than Wednesday of the first week of the pay period preceding the additional staffing need. Units will coordinate Severity Requests with the Forest Fire Management Officer.

C. Cooperative agreements and interagency contacts

Wildland fire suppression is generally handled by the agency responsible for the protection of lands on which the fires occur. However, undue delay in dispatching initial attack forces is not warranted simply because of land ownership. This is especially critical because of the amount of private land intermingled with national forest land. Therefore, a Cooperative Agreement exists between the Forest and the South Carolina Forestry Commission. This allows for initial attack to be made by suppression forces that arrive at the fire first, regardless of agency. The agency performing initial attack will notify the agency responsible for the land as soon as possible, and if relief forces are available, will be relieved from the fire, or will be asked to continue suppression. The agreement provides that there will be no reimbursement of costs by either party for the first 24 hours on a wildland fire. After that time, either party may request reimbursement of actual costs incurred. Key interagency contacts for this agreement are the Forest FMO and the Deputy State Forester/Chief Fire Protection.

A copy of the agreement is in Appendix F.

SECTION V
ORGANIZATIONAL AND BUGETARY PARAMETERS

D. Equipment rental agreements

All orders for emergency equipment rental agreements will go through the South Carolina Coordination Center in Columbia, where copies of forest-wide Emergency Equipment Rental Agreements (EERA) are located. Columbia Dispatch has access to the EERA national database.

E. Contract suppression and prescribed fire resources

The Forest has a Type 6 Engine under the National Engine Contract – Chewach Enterprises. This Engine is under contract for the following periods: #/1 – 5/30 & 11/1 – 11/30. The engine comes with a crew of three. The Suppression/Severity rate is \$1,728 for a 12 hour day, and \$960 for an eight hour project work day. Additional crewmembers are available at \$24/hour. This engine can be ordered through the Forest Dispatch Office.

Various dozers, engines, water tenders are under Emergency Equipment Rental Agreements (EERA). These can be ordered through the Forest Dispatch also. Call-when-needed helicopters are also available through the Dispatch Office.

SECTION VI
MONITORING AND EVALUATION

SECTION VI - MONITORING AND EVALUATION**A. Annual Monitoring Requirements**

Monitoring questions have been established for both forests to address if desired conditions, goals, and objectives of the forest plans are being met as directed and if these are effective. Three types of monitoring questions are included: implementation monitoring (Is the Forest Plan being carried out?), effectiveness monitoring (Are desired conditions resulting?), and validation monitoring (Has the information used in developing the Forest Plan changed?).

Sumter LRMP:

- “Are Forest Plan objectives and standards being applied and accomplishing their intended purpose?”

Francis Marion LRMP:

- “Are sufficient longleaf pine acres being burned on a 2 to 4 year growing season burn cycle to achieve objectives”
- “By achieving acreage and growing season burn objectives for longleaf, is the longleaf ecosystems being restored or maintained?”
- “Are National Ambient Air Quality standards for suspended particulate matter being violated at Cape Romain National Wildlife Refuge?”

A process for developing monitoring plots on a representative number of forest ecosystems, and prescribed burns is currently being developed by the Region and will be implemented on each District as outlined in the Southern Region’s Plan. When this document is complete, it will be included in the FMP appendix.

Program effectiveness will be monitored on the forest annually, as it relates to the following components:

1. Wildland fire (Suppression and Wildland Fire Use)
2. Fuels Management (Prescribed Fire and Non-fire Applications)
3. Prevention and Education

Specific questions have been developed to monitor prevention program effectiveness on the forest:

- Was the prevention program implemented as planned?
- Is the program accomplishing desired results?
- Are assumptions made in the plan correct, or are there new and better ways to meet prevention objectives?

Much of the program effectiveness will be accomplished through annual preparedness reviews, prescribed fire reviews and wildland fire reviews conducted by the both Forest Fire Management and Regional Fire Section personnel in accordance with the Thirtymile Hazard Abatement Plan and Agency direction.

SECTION VI MONITORING AND EVALUATION

B. Reporting Requirements

Annual targets and accomplishments are submitted to the Regional Office with the out-year budget request each winter. These include:

- **PAR – FFPC:** Performance attainment reporting of Fire Fighting Production Capability (FFPC) for requested program at each required budget level (Most Efficient Level (MEL), MEL-10%, MEL-20%, MEL-30%, MEL-40% and MEL+10%)
- **PAR - FUELS-APP:** Performance attainment reporting of hazardous fuels acres to be treated in WUI and Non-WUI.
- **NFPORS:** National Fire Plan Operations & Reporting System utilized for all aspects of hazardous fuels planning for NEPA activities, prescribed burning and mechanical treatments. All activities, treatments, and accomplishments are entered into this program.
- **NFMAS:** Resource and Personnel counts at each required budget level (Form FS-5100-2)

Additional reports include the following:

- **Individual Fire Reports:** (FSH 5109.14 Individual Fire Report Handbook, Form FS-5100-29)/FIRESTAT
- **Escaped prescribed fire reports** (FSM 5145.32)
- **Aviation Management Information System (AMIS):** For all revenue flight charged to the forest, either call-when-need or exclusive-use.
- **Annual Fire Report:** A year-end summary of fires on the Forest.
- **Accident reports** (FSH 6709.12 Safety & Health Program Handbook, Chapter 30)

An Initial Attack lineup for each district will be sent to Columbia Dispatch (SC-SCC) by 1000 daily when Planning Level is 2 or above. All wildland fires, 100-acres (Class D) or larger, require a daily Incident Status Summary (FS-5100-11/ICS-209) to be completed (FSM 5182.2) and sent to Columbia Dispatch before close of business. The ICS-209 is entered into the National Fire and Aviation web applications SIT Report and is automatically available to the National Interagency Coordination Center for input into their respective reports.

Additional reports may be required under the Government Performance and Results Act.

Fire software can be located on the F&AM Fire Applications web page:
<http://www.fs.fed.us/fire/planning/nist/firestat.htm>

- A** Fire Management Units – Maps, Descriptions, and Historical Fires by District
- B** Preparedness Levels
- C** Incident Commander Initial Attack Record
- D** Fire Danger Pocket Cards
- E** Delegation of Authority Letters
- F** Cooperative agreements
- G** New Cost Containment Policy
- H** Smoke Management Guidelines
- I** Burned Area Rehab Plan
- J** Fulltime Forest Fire Organization, 5100-2, Documentation on Current Year Budget
- K** R8 Southern Region, Prescribed Fire Monitoring Plan
- L** Forest Aviation Plans
- M** Trespass Fire Guidelines
- N** Process for Prescribed Fire Variances
- O** Prevention Teams
- P** ICS Forms
- Q** R-8 Prescribed Fire Plan Template & Prescribed Fire Complexity Analysis
- R** Wildland Fire Situation Analysis
- S** 5100-29 Fire Report