CHAPTER 4

FOREST MANAGEMENT DIRECTION

This chapter describes, as required by the National Forest Management Act regulation 36 CFR 219.11, the following subjects: the management goals and objectives, desired future conditions, expected quantities of goods and services, management prescriptions with associated standards and guidelines, and the schedule of proposed and probable management practices. The Plan described by this chapter is the preferred alternative in the Final Environmental Impact Statement document.

FOREST MANAGEMENT GOALS

Forest management goals describe the conditions to be achieved at an indefinite time in the future. They are expressed in broad general terms. The goals for the National Forests in Mississippi are:

Multiple Use Goals

--The multiple use sustained yield management of the Forest for renewable resources shall not impair the productivity of the land.

--Manage the land in a manner that recognizes the values of all resources, both renewable and nonrenewable.

--In managing for goods and services, give consideration to the interrelationships among plants, animals, soil, water, air, and other environmental factors within the ecosystem.

--Protect and/or improve the quality of renewable resources.

Other Goals

--Protect and manage important historic, cultural, and natural aspects of our national heritage.

--Provide for safe public use and enjoyment of forest resources.

--Provide a visually acceptable landscape by maintaining or upgrading the existing visual condition.

--Provide a spectrum of dispersed and developed recreational opportunities reflective of the demands of the public. The spectrum of dispersed recreation represents such activities as hunting, hiking, fishing, canoeing, horseback riding, etc., and developed recreation is represented by such activities as swimming, camping, picnicking, etc.

--Manage Black Creek and Leaf Wilderness areas to maintain their wilderness character.

--Manage the Black Creek to maintain its character as wild and scenic and enhance the float experience.

--Manage the land in a manner that is sensitive to economic efficiency.

--Mineral resources management will be emphasized along with all other forest resources.

--Be responsive to the changing conditions of land and resources and changes in social and economic demands of the American people.

--Provide for diversity of plant and animal communities.

--Reduce or prevent unacceptable losses from insects and diseases through an integrated pest management program.

FOREST-WIDE STANDARDS AND GUIDELINES

Management requirements necessary for achieving goals and objectives are referred to as standards and guidelines. They define how management practices will be performed. The terms "standards" and "guidelines" are interchangeable with no difference in meaning. The Forest-wide standards and guidelines described in the following section were developed to resolve public issues and management concerns and to direct management practices. These apply to all areas, Forest-wide. Standards and guidelines applicable to specific management areas are found in two additional places in Chapter 4: (1) under prescriptions, and (2) under management area standards and guidelines.

*Projects must have site-specific analysis in compliance with the National Environmental Policy Act (NEPA). This environmental analysis considers site-specific techniques, intensity of application methods, and potential environmental effects of any method considered. A reasonable range of alternatives, including one which does not use herbicides and a “no action” alternative, is examined.

Potential direct, indirect, and cumulative effects are evaluated. Effects to be considered include long-term soil productivity, water quality, air quality, vegetation diversity, wildlife, fish cultural resources, civil rights (including those of minorities and women), and threatened, endangered, proposed, and sensitive species.*

The numbers shown in parentheses for each general direction or standard keys the number of the planning question and facet shown in Appendix K. Thus (1-2) refers to Planning Question #1, facet 2, found in Appendix K.

RECREATION

RESPONSE TO FACETS - GENERAL DIRECTION

Dispersed recreation use will be increased through expansion of the trail system. "Trails South," the field guide developed to provide useful information needed to meet the challenges of trail planning, development, and operation, will be utilized. (3-2)

Visual Resource Management relating to the visual quality include the systematic recognition that such values exist to varying degrees and can be protected and managed in conjunction with other National Forest resources. (3-3)

The standards for coordinating visual resource management with other management activities are included in the following matrix.

Table 4-1
VISUAL RESOURCE MANAGEMENT
COORDINATION REQUIREMENTS

CULTURAL PRACTICES	VISUAL QUALITY OBJECTIVES			
	RETENTION	PARTIAL RETENTION	MODIFICATION	MAX MODIFICATION
Clearcut	ABCDFJLMUVW	ABCDGJLNUVW	ADHKLO	AD
Seed Tree	ABCDFJLMTUVW	ABCDGJLNUW	ACDHKLO	AD
Shelter Wood	ABCDFILMTUVW	ABCDGJLNUVW	ACDHKLO	AD
Salvage Sanitation Cut	ILMUVW	JLNU	KLO	
Commercial Thin	EILMUW	EJLNU	KLO	
Pre-Commercial Thin	JLU	KLN	KL	
Shear Site Prep	I	J	K	
Chain Saw Site Prep	JL	JL	K	
Prescribed Burn	OVW	O	R	R
Injection Site Prep	Not Appropriate	Not Appropriate		
Windrow	Not Appropriate	Not Appropriate		
Chemical Site Prep	SVW	S	S	S
Special Uses	PV			
Access Roads	T			

COORDINATION TO MEET VQO'S

*A. Establish irregular stand shape avoiding straight lines or geometric forms except as necessary along land lines (follow natural land features).
B. Feather the edge of cut or adjacent stand by retaining (if present) mid and understory trees in a 25' - 100' zone.
C. Leave flowering and ornamental forms of vegetation where practical to enhance vegetative variety.
D. Reduce openings along road to as narrow as possible (l/4 mile preferred maximum).
E. Vary densities of thinnings.
F. No opening exceeding 10 acres (preferred maximum) will be viewed from any location on a travelway or lake.
G. No opening exceeding 15 acres (preferred maximum) will be viewed from any location on a travelway or lake.
H. No opening exceeding 25 acres (preferred maximum) will be viewed from any location on a travelway or lake.
I. Slash removal 150' from edge of travelway in seen area with slash in remaining seen area lopped and scattered to within 2' of ground.

J. Lop and scatter slash to within 2' of ground within 100' zone beyond ROW edge (in seen area).
K. Lop and scatter slash to within 2' of ground within 50' zone beyond ROW edge (in seen area).
L. Direct felling cuts away from travelway or lake within lop and scatter zone and adjacent trees that may fall into lop and scatter zone.
M. Log landings excluded, unless they can be screened from view and completely restored except where terrain or other resources dictate.
N. Log landings no closer than 300' from edge of travelway except where terrain or other resources dictate.
O. Log landings no closer than 200' from edge of travelway except where terrain or other resources dictate.
P. Exlude, where practical, all special uses, borrow pits, transmission lines, mining, or oil and gas developments in seen area.
*Q. Only late winter burns.
R. Burns carefully controlled in pine types permitted year round.
*S. Vegetative control by spraying permitted with environmental analysis approved by Forest Supervisor.
T. Access roads a minimum of l/4 mile apart, intersect existing roads at right angles. 150' from edge of existing road, curve alignment right or left to prevent continuous view of new road.
*U. Apply marking paint on leave trees so it's not visible from travelway.
V. Request Landscape Architect assistance during prescription preparation.
*W. Fill out 2300-1 form.

*Indicates required measures to meet VQO's (all others are recommended).

Inflation and increased energy costs will result in increasing pressures for urban or near-urban Forests, especially day-use facilities and activities. (3-4)

RESPONSE TO FACETS -
STANDARDS AND GUIDELINES

Rehabilitate and upgrade existing Forest Service facilities. Evaluate facilities that are not receiving sufficient use to justify their operation and maintenance for possible closures. In cooperation with other federal, state, and the private sector, analyze demands/needs to determine if new development is warranted. (3-1)

The visual quality will be maintained and improved by favoring the highest inventoried level of visual quality consistent with multiple use objectives in forest land and resource management plans. (3-3)

Cooperate with City/State and other Federal agencies in making available the use of forests near urban areas. (3-4)

Survey for, and maintain an inventory of, cultural resources on National Forest land. *A cultural resource inventory is conducted when soil disturbing activities are planned. An archaeologist performs a field survey to determine significance of and protection required for cultural resource sites. Significant sites are evaluated for eligibility to the National Register of Historic Places and are submitted to the State Historic Preservation Office for review. If archaeological or historic resources are encountered during soil disturbing activities, work stops until an archaeologist evaluates the site's significance.* Evaluate sites in areas of impact to determine the need for preservation. Protect sites on or eligible for the National Register of Historic Places, or significant in other ways. Enhance sites suitable in an interpretive setting. (3-5)

Listing of areas closed to ORV activity is found in this chapter under "Other Resource Summaries." (3-6)

WILDLIFE

RESPONSE TO FACETS-
GENERAL DIRECTION

*Wildlife stand improvement (WSI) seeks to improve vegetation species composition in timber stands and to develop wildlife habitat areas for game and nongame species. A variety of woody and herbaceous species suited to site conditions and burning regime are maintained to assure year-round quality habitat. Exceptions that may reduce plant species variety include treatments to improve habitat for species such as red-cockaded woodpeckers.

For understory species WSI, proper management allows full sunlight on 30 percent of the forest floor. For hardwood overstory WSI, thinning encourages full crown development, vigorous growth, and soft or hard mast production. When thinning stands older than 30 years, stems are favored which show positive indication of bearing soft or hard mast.

Larger size class requirements will not be obtainable in the moderate quality slash pine working group. (5-7)

Maintain or develop den trees as prescribed in FSM 2631 and FSH 2609.23 for the cavity using species. Retain den trees during intermediate treatments and thinning operations. (5-7)

Standards and guidelines for species that totally depend on riparian habitats will be developed. (6-5)

For firewood encourage the use of tree species that contribute the least mast to wildlife. (6-6)

Provide a relatively high degree of age class and site diversity (community) to increase forest heterogeniety and ecosystem stability. (6-8)

Maintain existing hardwood up to 20% of each square mile area. (6-8)

Sow logging roads, decks, and skid trails in accordance with the "Erosion Control and Wildlife Planting Guides for the National Forests in Mississippi."

Non-timber acres consist of permanent openings, both linear in the form of transmission lines and irregular in the form of permanent wildlife openings and savannas, and forested stands of varying ages. These acres, in addition to those in the minimum management category, will contribute to diversity as no planned regeneration will take place, and the timbered portion remains intact until pathological maturity. (6-8)

RESPONSE TO FACETS -
STANDARDS AND GUIDELINES

Artificial hardwood regeneration for wildlife benefits will normally be limited to the Bienville District and the De Soto National Forest where hard mast is critically low, and the Delta National Forest where there are large areas of timberland which should be broken up, but natural advanced reproduction is not present.

Bottomland fields and cultivated areas acquired through land exchanges may also be planted to hardwood. (5-1)

The naturally occurring hardwood component, up to 20% basal area in intermediate pine stands, will be encouraged and managed for mast production. Hardwoods will also be managed in stringers and inclusions. (5-2)

Release prime mast producing species and thin properly to optimize mast production aiming for 40% basal area or more in hard mast component. If present, maintain some pine component in hardwood stands for turkey roosts and production of pine mast. Carry on same rotation as hardwood. (5-3)

Except for hazard trees, leave all trees that occur on the perennial stream bank. (5-5)

Large trees along perennial stream banks should be allowed to decay naturally and fall into streams, increasing or maintaining natural stream cover. Where such trees are lacking or deficient, artifical creation of such habitat will be undertaken. This will be accomplished by: (1) chain anchoring trees in streams; (2) construction of log dams or deflectors; (3) construction of rock dams or gravel spawning areas. (5-5)

Patrol firewood cutting during the firewood cutting season and cite violators. (5-6)

Permit no salvage operations that would reduce average snag density below 1 per acre. The goal is to obtain a minimum snag component evenly distributed forest-wide within the following relationship:

1. Every 4 acres should contain:

DBH	Number
6"-10"	1
10"-14"	1
14"-18"	2

2. Every 200 acres should contain 10 snags over 18" DBH. (5-7)

Provide a minimum of 25 acres to be managed for large size class trees, 18"-26" DBH, per 1,000 acres (2-1/2% of each compartment). This late seral forest component will be identified for each compartment and in total for the management area will comprise at least 2-1/2% of regulated acreage. This component will be identified in stand size units. In order of preference, these stands will be selected from the (1) pine-hardwood, (2) hardwood, or (3) pine forest types. Where available, 5% of the hardwood and pine-hardwood forest types will be identified as this late seral component. (5-8) (6-8)

Strive to maintain a prescribed fire regime at 2-4 year intervals in pine management type. (5-9)

Manage to attain a goal of four red-cockaded woodpecker colonies per 1,000 acres of suitable habitat. Establish a 10-acre replacement/recruitment stand for each existing colony and for each additional colony required to meet the population objective. These stands should be at least 60 years old. Colony sites and recruitment/replacement stands are classed as unsuitable for timber production (unregulated). (FSH 2609.23)

In the compartments shown in Appendix I, provide:

1. Manage longleaf pine working group on an 80-year rotation in each compartment. Manage other pine working groups or their equivalent on a 70-year rotation in each compartment.

2. Provide at least 125 acres of foraging habitat 30-years old or older connected to and within 1/2-mile of all active colonies and replacement/recruitment stands. Forty percent of the acreage in each foraging area should be 60 years plus if available.

3. Each active colony will have a 10-acre replacement stand, 60 years old or older, if available, within 1/2-mile. A recruitment stand will be established for each unfilled population objective within 1/4 to 3/4 mile of an active colony; these will also be 10 acres and 60 years old. Replacement and recruitment stands can be served by the same area.

4. The colony site and replacement/recruitment stands can be part of the foraging habitat if it meets the qualifications.

5. Since the replacement stand is located within the foraging habitat of an existing colony, no additional foraging habit needs to be provided.

6. In compartments where management is directed toward red-cockaded woodpecker, the featured species for that compartment should be red-cockaded woodpecker. When feasible, regeneration will be by natural methods using seedtree and shelterwood cuts.

Ranger Districts with red-cockaded woodpecker populations will leave all old longleaf residuals within one mile of colony sites in thinning operation within compartments that have less than the population objective shown in Appendix I. (5-11)

Red-cockaded woodpecker constraints modeled as described in Appendix B, page B-47, of the Environmental Impact Statement met the original U. S. Fish and Wildlife Service Biological Opinion. The red-cockaded woodpecker management requirements listed above are the result of the latest Biological Opinion. The difference in resource outputs between the two opinions is well within the erro inherent in the FORPLAN model.

Provide dead and down fuelwood only in areas where suitable snags are in excess of 1 per acre. Where there is one or less dead trees per acre, only down timber will be taken. (6-6)

During TSI, WSI, and site preparation, selected groups of overstory and understory vegetation are protected and managed to assure a variety of soft-mast, hard-mast, and cover species. During site preparation, active and potential den trees are retained in clumps (at least 1/2 acre per 20 acres) if they are not provided in adjacent stands not suitable for timber production, inclusions, or streamside management zones. During TSI and WSI, all recognized den trees are protected. In addition, during TSI, WSI, and site preparation, an average of at least two standing dead snags are retained per acre, in the form of large hardwood trees (greater than 12 inches) when possible. Appropriate treatments are used to create snags where natural snags are lacking.

Provide two or more water sources per square mile. (6-8)

Regeneration will be scheduled so that no more than 25% of the forested acres will be in the 2"-5" DBH class at any one time. In compartments which are predominantly slash pine, and deer is the featured species, no more than 33% will be in the 2-5" DBH class at any one time. (For hardwood, see page 4-107)

***RANGE**

***GENERAL DIRECTION**

When managing for range forage species, wildlife and livestock use should not exceed 50 percent of current annual growth of key grass species, 20 percent of total annual production of key forb species, and 20 percent of current annual growth of key shrub species.

TIMBER

RESPONSE TO FACETS -
GENERAL DIRECTION

Planning Question #5

The primary objective in managing the hardwood forest type is to
develop and enhance wildlife and riparian habitat, aesthetics, enhance water quality by providing functioning filter strips along stream bottoms, and provide raw materials for local wood-using industries.

Within filter strips the objective is to maintain healthy, vigorous stands of hardwood trees with a high component of hard mast producing species. Any timber production within those areas will be a result of harvesting necessary to achieve this objective. The majority of the hardwood timber production will be from stands outside these areas.

In order to meet these objectives it is necessary to utilize a management system which promotes the establishment and growth of the more desirable hardwood tree species such as the oaks, gum, ash, walnut, etc. Because of the shade intolerance of these species the management system must be characterized by a cutting system which provides ample sunlight for these species to develop and grow. This requires harvesting of older stands at some point.

Several management practices will be followed which will aid in the retention and increase of hardwoods. Briefly, here is a snyopsis of these activities:

1. Hardwoods will be managed on hardwood sites.
2. Hardwood regeneration will not occur until stands, inclusions, key areas, and filter strips have reached a minimum of 90 years. Currently, 90% of the hardwood stands, other than the Delta National Forest, are less than 90 years old, while only 36% of the Delta is less than 90 years old.

3. Hardwood regeneration will not occur in compartments containing less than 20% hardwood, except in sparse, low quality or damaged stands, or where necessary, for wildlife coordination (browse, edge, etc.).
4. That portion of a stand within a minimum two-chain strip along perennial streams (minimum of one chain on either side), on other than the Delta National Forest, will be regenerated by openings up to two acres in size. On the Delta National Forest there will be a three-chain buffer strip along the three major rivers (the Yazoo, Little Sunflower, and Big Sunflower), and a five acre limit in size of regeneration cuts within the buffer.
5. A one-half acre clump will be left for each 20 acres of regeneration. Leave trees should be mast producers or trees suitable for potential den trees. On the De Soto National Forest and Bienville District leave single trees only as a last resort (no more than two hard mast producers per acre) and only in compartments containing less than 20% hardwood.
6. The naturally-occurring hardwood component, up to 20% basal area in pine stands, will be encouraged and managed.
7. In compartments with less than 20% hardwoods, efforts will be directed toward increasing the hardwood component and manipulating the hardwood species composition to contain at least 40% basal area hardmast producing species.
8. Approximately 10% of the regeneration of pine stands will be by natural method, while practically all of the hardwood regeneration, when it occurs, will be by natural methods.
9. The visual resources will be maintained along streams by adherence to the VQO objectives during harvesting operations.

RESPONSE TO FACETS -
STANDARDS AND GUIDELINES

The maximum size of stand openings to be created by regeneration cutting in one operation is 80 acres for the southern pines and 40 acres for all others. (6-1)

Regeneration cuts shall be separated from one another by a minimum distance of five chains (330 feet) and should normally be a minimum of three chains wide. (6-1)

Areas adjacent to or in proximity of even-aged harvest units should not be scheduled for regeneration entry until openings from earlier harvests have been regenerated, have taken on a regenerated appearance, and are no longer considered openings.

An even-aged regeneration area will no longer be considered an opening when the certified reestablished stand has reached a height that is approximately 20% of the height of the tallest adjacent stand. Heights will be based on the average of the dominant and co-dominant trees in the reestablished and tallest adjacent stands. The above standards are intended to separate regeneration areas spatially and temporally. The determination of the height relationship will be made at the time of silvicultural examination and prescription. This determination should show whether the appropriate height has been reached or whether the

appropriate height is projected to be reached by the time of treatment. The percentage relationship will be allowed to vary up or down for specific stand situations where an interdisciplinary planning team, following the NEPA process, recommends to the responsible official that adjusting the percentage will lead to better attainment of the overall objectives of multiple use management. (6-1)

Ensure the reestablishment of a new stand of desirable trees within five years after the final cut of clearcutting, shelterwood overstory removal, or seedtree removal. (6-1)

In pine stands adjacent to wilderness, where spot spread from wilderness is possible, priority will be given to reducing or eliminating potential losses to SPB. For example, stand densities would be lowered and rotation ages shortened to maintain or increase tree vigor.

Control activities within 1/2 mile of RCW colonies will conform to the guidelines set forth in the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R). Where cut and leave and cut-and-remove techniques are not feasible, and cut and hand spray is used, no standing trees will be sprayed. Pile and burn will not be used near active RCW colonies.

Mitigation of adverse impacts from the cut-and-remove method will be similar to mitigation measures employed during a commercial timber harvest on a national forest. The guidelines and general mitigating measures for this activity are found in the Forest Service Manual - 2430 Commercial Timber Sales. Specific guidelines and mitigating measures are found in forest plan standards and guidelines and timber sale contract clauses. Direction pertinent to similar activities on State, private, and other Federal lands may also apply.

When pile and burn is used to control SPB, the work will comply with the Forest Service Manual directions on air quality management for prescribed fire (Chapters 2120, Air Resource Management; 5140, Prescribed Fire; and 5150, Fuel Management). All Federal and State air pollution laws must be followed.

Weather conditions will be closely monitored before prescribed burning activities occur to ensure that atmospheric conditions allow for quick smoke dispersal to maintain air quality. Air quality values for Class I wildernesses and national forest lands will be protected by conducting prescribed burning under a smoke management plan.

Existing landscape form, line, color and texture will be used to mitigate effects on visually-sensitive areas that result from SPB control. This is accomplished by adjusting the shape of managed sites to be more natural and by feathering edge lines between disturbed and undisturbed areas. Visual effects are further mitigated by debris disposal, and by reducing the apparent size of the work site.

Use existing roads or access ways whenever possible for control activities.

Retain selected hardwoods in an uncut or untreated state for wildlife and plant diversity.

Trees vacated by the SPB will not be cut or chemically treated unless necessary to insure public safety.

Inactive and relict cavity trees, if infested, or within a designated treatment buffer zone, may be cut to secure RCW colonies. (Requires evaluation by a Forest Service wildlife biologist.)

Uninfested trees within a 200-foot buffer around RCW cavity trees would not be cut or chemically treated unless such control efforts would be likely to prevent SPB infestation of cavity trees.

Disturbance in the colony sites will be kept to a minimum especially during the breeding season. No salvage operations will be conducted in active colony sites from March 1 through the time RCW young have fledged (approximately July-August). Control activities would be limited to the felling of trees or chemical treatment, or both, if necessary to secure the colony site during the breeding season.

Control activities within 1/2 mile of RCW colonies will conform to the guidelines set forth in the Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R). Where cut and leave and cut-and-remove techniques are not feasible, and cut and hand spray is used, no standing trees will be sprayed. Pile and burn will not be used near active RCW colonies.

Site-specific analysis must be completed for any proposed SPB control action. This analysis will determine if a biological evaluation is necessary to determine if any threatened and endangered species or species being proposed for this status may be affected by the treatments. If the proposed treatment may affect one of these species or its habitat, consultation with the Fish & Wildlife Service is required under the Endangered Species Act. If sensitive species may be affected, coordination with the appropriate Federal or State agencies will occur. If adverse impacts could occur, the site-specific biological evaluation will identify possible mitigation measures.

Use control methods that will minimize soil disturbance.

Use of erosion control measures as soon as possible after the ground-disturbing, SPB-suppression activities are completed, to prevent or minimize erosion, sedimentation and long-term site deterioration.

Cultural resource surveys and coordination before soil-disturbing activities are implemented. Site evaluation and protection will minimize disturbance of significant sites.

The cut-and-hand-spray technique must only be used according to general direction set forth in Forest Service Manual Chapter 2150, Pesticide-Use Management. Label instructions for insecticides registered for beetle control must be followed.

Standing trees will not be sprayed with insecticides.

Insecticides will not be used in a manner that would adversely affect threatened or endangered species.

The potential risk to humans and the environment will be minimized by applying insecticides only according to label instruction, Forest Service policies and other Federal regulations. Application will be supervised by a certified pesticide applicator. Areas treated with insecticide will be signed and closed to firewood collection. (See appendix C.)

Workers who apply insecticides will be trained to ensure minimum impacts and maximum effectiveness. Only those methods that assure proper application of insecticides on the infested tree bole would be used.

Riparian ecosystems that encompass floodplains and wetlands will receive appropriate protection. As a minimum, riparian areas will extend 100 feet from the edge of all perennial streams and other perennial water bodies, including lakes. Site investigations to identify riparian areas and floodplains will consider the soil and plant characteristics of the site, and will be guided by appropriate Forest Service direction and State requirements. Roads that cross riparian areas will be stabilized with rip-rap, vegetative establishment, or other appropriate methods.

Logging equipment will be kept out of perennial and intermittent stream channels except on approved, designated crossings. Crossings will be at right angles to the stream or riparian area.

SOIL, WATER, AND AIR

RESPONSE TO FACETS - GENERAL DIRECTION

Soil with a high iron concentration (usually red soils) tend to crust on prolonged exposure preventing revegetation effects. These soils need to have seed bed preparations, fertilization, seeding and mulching to ensure successful revegetation. (6-2)

Certain geological formations covering about 5% of the National Forests contain minerals that weather over time to produce toxic substances that virtually inhibit vegetation needed for protective ground cover. These include sulfates from pyrite, alkalinity from high base rock material, sodium chloride from spills and seeps, and aluminum toxicity due to increased soil acidity. Ground cover will be maintained if the soil depth above these formations is maintained. (6-2)

Guidelines in the Forest Service Manual will be followed to establish priority and direction for preparing soil and water improvement projects. (6-4)

Landslides - These soils cover 5% of the forests, and are confined to the unconsolidated geology. The standards and guidelines are restrictions of roading and mechanical site preparation in those areas of greater than 20% slope. (6-2)

Toxicity - As these conditions are found, soil tests are made, and type and amount of soil amendment are added. (6-2)

Evaluation of soil-site characteristics derived through the Soil Resource Inventory have generated a forested soil loss T-factor that can be used to assign a tolerable accelerated soil loss rate for various rotations and practices. Appendix L indicates the acceptable management activities on the most easily erodible (benchmark) soils. The standards and guidelines to control surface soil movement during timber management operations must be followed. These guidelines are found in the documents such as Mississippi Supplement 117 to FSM 2472.4 and R-8 Supplement 238 to FSM 2472.4. (6-7)

Some of the more important mitigating measures are:

1. *Windrows and piles are spaced no more than 200 feet apart to limit soil exposure, soil compaction, and nutrient loss from piling and raking. Windrows are aligned on the contour.*
2. Strip discing - leave alternating grass strips in conjunction with windrows.
3. Restricting mechanical equipment from slopes greater than 20%. Chopping vs. windrows on slopes 15 to 20%.
4. Tables for planting erosion control and wildlife grass mixtures by dates and pounds per acre for seeding.

*On severely eroded forest soils, any area with an average litter-duff depth of less than 1/2 inch is not burned.

*Growing season underburns are not allowed on the same site more than twice in succession without an intervening dormant season burn.

*Where needed to prevent erosion, water diversions are installed on firelines during their construction, and the firelines are revegetated promptly after the burn.

*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.

*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 pencil size without breaking or crumbling.

When piling, at least 80 percent of the area must retain some ground cover of litter and duff, and soil must not be displaced by piling rakes.

As a minimum the state of Mississippi's best management practices will be applied to protect water quality. See Appendix L. (6-2)

Acres identified as needing improvement work will have a rehabilitation prescription made in accordance with FSM 2520 containing priorities for rehabilitation, on page 319 of Regional Guide. (6-2)

Pine management on wet soils will be confined to slash pine site index 60 and above. Fertilization is carried out in accordance with the Fertilization Plan for the management area which would contain the standards and guidelines for this site. Low PSI

equipment and cable logging systems are needed to harvest timber on those soils with minimum soil damage. (6-3)

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.

In site preparation operations, the maximum amount possible of litter layer will be retained in surface raking and pushing operation. No root raking will occur. This should maintain present soil productivity. (6-4)

Post the highest past flood levels and probable 100-year flood heights at developed recreation sites, administrative sites, and other permanent structures. (6-5)

On those soils identified as having a landslide potential, road locations will be restricted to slopes less than 20 percent. (6-2)

In order to protect the riparian areas, the guidelines outlined in the National Forest in Mississippi "Management Guidelines for Streamside Areas - Filter Strips" will be followed, see Appendix M. (6-5)

LANDS

RESPONSE TO FACETS -
GENERAL DIRECTION

Adjust landownership as needed to support resource management goals. (2-1)

A Forest Landownership Plan is dynamic and must be capable of change. The federal ownership pattern should permit management efficiency, protect and enhance forest resources, and maximize

opportunities for forest use and enjoyment. To accomplish these things the Plan must be able to adjust to change in forest use, development on adjacent private land, and to regional social and economic needs. (2-1)

Through land exchange we can acquire inholdings by disposing of isolated tracts. Frequently we do not have adequate access to the isolated tracts. Private inholdings frequently require the Forest Service to acquire rights-of-way. (2-1)

National Forest land should be available to all the public. (2-2)

Public access is necessary to accomplish both administration of the Forest and also use and enjoyment by the general public. Right-of-way acquisition will be geared to facilitate resource management. (2-2)

Maintain or improve the forest productivity as shown in Table 4-6. (2-3)

The land exchange program can do much to promote management efficiency, coordinate needs of other federal agencies, and of state and local governments, promote goals of legislation creating special areas, and protection of resources existing on National Forest and adjacent lands. In the process we do not diminish the capability of the Forest to produce a variety of resources and benefits. (2-3)

Land exchange will be considered with a view toward the public good and also the desire to maintain productivity. (2-3)

Lands that are acquired that need soil and water improvement will be added to job needs inventory and will be rehabilitated. (2-3)

Be responsive to public and private needs for National Forest land and resource through authorized occupancy and use. (7)

Allow on suitable tracts of Forest Service land such uses as are consistent with the overall Forest Service objectives that cannot be serviced by development on private land. (7)

Allow uses only on lands suitable for the proposed use, and under conditions which protect the public interest, including the proper consideration of environmental quality and landscape integrity. (7)

Require utilities needing to place transmission lines on National Forest to put them in existing transportation corridors if at all possible. If this will not meet public needs, a site specific assessment of alternatives will be used to determine the best route. (7)

*Works with utility special-use permittees to establish vegetation management objectives (such as wildlife, watershed, recreation, visual quality) for location of new utility lines and maintenance

of existing ones. These objectives determine maintenance techniques and strategies.

Where feasible, low-growing shrubs and grasses are established and maintained along utility lines where wildlife an aesthetic objectives are dominant.

Requests for liquid or solid waste disposal sites will be evaluated for their public benefits.
The National Forests in Mississippi

will participate as needed with other federal agencies in evaluating the question of nuclear waste disposal. (7)

RESPONSE TO FACETS -
STANDARDS AND GUIDELINES

National Forest boundaries will be marked and posted to R-8 standard and maintained periodically. This clearly identifies the land as public and tends to reduce encroachment and trespass by adjoining landowners. (2-2)

Reserve needed right-of-way on selected lands in exchange proposals. (2-2)

It is anticipated that approximately 1,000 acres over the next 50 years will be acquired in need of rehabilitation. They will be rehabilitated in accordance with the Soil and Water Handbook.

MINERALS

RESPONSE TO FACETS -
GENERAL DIRECTION

Work with the Bureau of Land Management within the guidelines of the Interagency Agreement regarding oil and gas operations on National Forest System lands in order to expedite oil and gas drilling applications. (7)

Manage minerals development on the National Forests in Mississippi so as to optimize the use of these resources in a manner that contains suitable environmental safeguards. (7)

Review applications for common variety minerals. Through NEPA process determine environmental impacts as well as potential need to retain for Forest Service use. When appropriate, issue permits. (7)

Applications for mineral leases will be evaluated through the NEPA process and mitigation will be specified at both the leasing stage and the site development stage. (7)

RESPONSE TO FACETS -
STANDARDS AND GUIDELINES

Review oil and gas lease applications, complete title report, develop surface use stipulations, and return to RO within 60 days of receipt to expedite leasing by the Bureau of Land Management. (7)

Leasing applications will be reviewed in light of the impacts and mitigation indicated in the "Environmental Analysis Report - Oil and Gas Leasing on the National Forests in Mississippi" dated 1/26/76. (7)

FACILITIES

RESPONSE TO FACETS - GENERAL DIRECTION

Plowed firelines are not located within savannahs except when needed to protect facilities or threatened, endangered, proposed, or sensitie species.

Complete the Forest Transportation Analysis on all Districts, to conform with the multiple use goals and objectives of the Plan. (1-1)

Construct/reconstruct roads based on recommendation in the analysis. (1-1)

Operate the transportation system in accordance with the recommendations in the analysis and the Operation and Management Plan. (1-1)

Sign all roads on the Forest development transportation systems to the degree needed for the assigned maintenance level and amount of use. (1-2)

Each road on the system will be assigned a maintenance level from 1-5 with Level 1 being the lowest and Level 5 the highest. (1-2)

Roads will be maintained in accordance with the level assigned pending availability of funds. (1-2)

Emphasis will be placed on having commercial users pay a proportionate share of maintenance cost. (1-2)

Roadside banks and ditches will be vegetated in accordance with seeding and fertilizer guidelines now in effect. See FSH 7709.11, Chapter 24 and "National Forests in Mississippi Erosion Control and Wildlife Planting Guide." (1-2)

Where practical, native flowering species are established, maintained, and enhanced on intermittent service roads when they are closed and on cut and fill slopes of all roads.

Construct/reconstruct only roads identified in the transportation analysis as being necessary to meet resource objectives. (1-3)

Roads identified in the transportation analysis as not needed on a continuing basis will be classified for intermittent use and placed in maintenance Level 1. (1-5)

Roads identified as no longer needed for resource management objectives will be obliterated and returned to resource production. (1-5)

Roads will be closed based on recommendations in the transportation analysis, the Operation & Management Plan, silvicultural examination, or when emergencies arise. (1-6)

Except for a few cases in the former statement, roads to be closed will be permanently closed to all traffic by an earth barricade. (1-6)

Roads identified as no longer needed will be obliterated and put back into resource production as funds become available. (1-6)

Where possible and economically feasible, utilize dead-end roads to avoid expensive stream crossings. (1-7)

Where the transportation analysis shows that through roads are not needed, utilize dead-end roads. (1-7)

Dead-end roads will be constructed as either long- or short-term depending upon land management and resource needs. Long-term facilities will be managed as either constant or intermittent service; while short-term facilities will be managed as constant service, and obliterated after use is completed. (1-7)

Road construction and reconstruction will be to no higher standard than is necessary to accomplish the purpose for having the road. This can range from a short-term road which will subsequently be obliterated, to a high standard permanent road. (1-8)

A permanent unrestricted easement will be obtained on all system roads where the transportation plan and the road operation and management plan establishes the need for continuous access for the public. (1-8)

If roads are not needed for continuous resource management purposes, but only a short time for a specific resource activity, short-term roads may be used. (1-9)

Short-term roads will be designed and constructed to last until a specific resource activity is completed and then it will be returned to resource production. (1-9)

Limit season of use for short-term roads in order to minimize damage due to wet weather conditions. (1-9)

Roads will be designed and constructed to support the design and critical vehicle used during normal weather and operating conditions. (1-10)

Roads will be designed and constructed/reconstructed to the appropriate "traffic service level" (TSL) for the resource objectives prescribed. (1-10)

When the equipment starts creating resource damage the operation will be shut down until the road and operating conditions improve. (1-10)

Commercial users of Forest Service roads for other than occasional trips may be assessed a proportionate share of the road maintenance costs. (1-11)

Small, non-commercial landowners within or adjacent to the National Forest boundaries will not be assessed road maintenance for their use of Forest Service roads. (1-11)

A sufficient number of lead-off ditches and/or terraces will be incorporated into the road design to disperse runoff before it

gains enough velocity to start eroding the soil. See FSH 7709.11, Chapter 24. (1-12)

Continue the use of mulches, soil blanket, and other sediment trapping materials in road construction and maintenance operation. See FSH 7709.11, Chapter 24. (1-12)

RESPONSE TO FACETS -
STANDARDS AND GUIDELINES

Have I.D. Team review and input into the Forest Transportaion Analysis before Forest Supervisor approval. (1-1)

All crossings for streams will be designed to avoid inducing flooding or ponding. Culverts will be designed to adequately carry the yield from the watershed involved. See FSH 7709.11, Chapter 70. (1-2)

Where turkey are featured, one mile of open system roads per 500 acres should not be exceeded when developing the Forest Transportation Analysis. (1-4)

In cooperation with the Mississippi Wildlife Conservation Department, seasonally close those roads identified where there is a significant history of game law violations. (1-5)

Gates will only be used for closure where there is a need for traffic restriction on constant service roads. (1-6)

Gates will be used to close roads into and within developed recreation areas. (1-6)

Temporary rights-of-way may be acquired in the following circumstances: (1-8)

--Access to an isolated parcel of National Forest land that is designated for disposal by land exchange.

--Access is needed for emergency salvage, e.g., wind-thrown timber, fire-killed timber, or insect-infested timber.

--There is a one time need for access over a route after which this route will never be used again.

Forest Service roads receiving regular commercial hauling of non-federal products will have to be posted "Commercial Hauling by Permit Only" in order to collect maintenance costs. (1-11)

Roads under construction, but not completed prior to the wet weather season (shut down season) will be seeded temporarily and barricaded to protect from erosion. (1-12)

Representative soil samples will be taken as necessary on new road projects and analyzed in order to specify the lime and fertilizer application rates needed to establish a healthy vegetative cover. (1-12)

FIRE

RESPONSE TO FACETS -
GENERAL DIRECTION

The fire management analysis process (FSH 5109.19) has confirmed that our current wildfire suppression goals for the general forest area are the most cost efficient.

RESPONSE TO FACETS -
STANDARDS AND GUIDELINES

Goals are to contain 90% of all wildfires within these time frames and acres: De Soto National Forest, two hours, 38 acres; Bienville, Holly Springs, Homochitto, and Tombigbee National Forests, 1-3/4 hours, 23 acres; Delta National Forest, one hour, 10 acres. These goals are based on the premise that each wildfire ignition will be confined, contained, or controlled depending upon the threat to life and property, damage to resources, and those fires which threaten to escape to private land.

*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 plan objectives.

*Prescribed fires in loblolly, shortleaf, slash, and sand pine stands are not done until pines are 10 to 15 feet tall or 3 to 4 inches in diameter at ground level. In longleaf pine stands, burns can be used prior to height growth for brownspot disease control when root collars of grass stage seedlings are at least 0.3 to 0.5 inch in diameter. After height growth begins, burns can be used once seedlings are 3 to 5 feet tall.

*Slash burns are done so they do not consume all litter an 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, scattering slash piles, and burning heavy fuel pockets separately.

*On severely eroded forest soils, any area with an average litter-duff depth of less than 1/2 inch is not burned.

*Growing season underburns are not allowed on the same site more than twice in succession without an intervening dormant season burn.

*Where needed to prevent erosion, water diversions are installed on firelines during their construction, and the firelines are revegetated promptly after the burn.

*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.

*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.

*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.

*Plowed firelines are not located within savannahs except when needed to protect facilities or threatened, endangered, proposed, or sensitive species.

*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 drift into highways, airports, populated areas, or other sensitive areas may be hazardous.

*Oak, oak-gum-cypress, and oak-pine stands and inclusions are protected by excluding fire or by using low-intensity backing fires.

*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).

*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.

Critical values of the Keetch-Byram Drought Code (Cumulative Severity 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 Code is less than this critical value.

FOREST MANAGEMENT OBJECTIVES

Objectives are the outputs resulting from implementing this Plan and most were calculated, scheduled, and displayed by the FORPLAN computer model. The outputs were at the mid-point of a 10-year period and represent the average annual production for the given period. The Forest Plan periods start in 1986-95 and continue through the 150-year planning horizon. Outputs were then extrapolated from the FORPLAN run to represent the outputs by RPA time periods for use in the budget process. Others were calculated outside the model and have been inserted into the following resource output table:

Table 4-2
AVERAGE ANNUAL RESOURCE OUTPUTS

		PERIODS				
OUTPUT	Unit	1	2	3	4	5
Developed Recreation	MRVD	352	360	385	432	480
Dispersed Recreation						
Semi-Prim., Non-Motor.	MRVD	0	0	0	0	0
Semi-Primitive Motor	MRVD	48	50	52	61	70
Roaded Natural	MRVD	933	972	1,017	1,189	1,357
Urban & Rural	MRVD	215	224	235	274	313
Total Dispersed Recreation	MRVD	1,196	1,246	1,304	1,524	1,740
Visual Quality Objective						
Preservation	%	1	1	1	1	1
Retention	%	1	1	1	1	1
Partial Retention	%	6	6	6	6	6
Modification	%	14	14	14	14	14
Maximum Modification	%	78	78	78	78	78
Trail Const./Reconst.	Miles	18	9	9	8	7
Wilderness	MRVD	10	11	11	12	12
	ACRES	5,460	5,460	5,460	5,460	5,460
Deer	MHCI	29.9	30.0	30.8	33.5	33.8
Turkey	MHCI	26.6	26.9	26.1	25.4	23.8
Cavity Nesters	MHCI	73.0	74.0	65.1	55.6	50.2
Habitat Improvement	MAc	200	200	200	200	200
Wildlife Visitor Days	MRVD	536	535	522	547	562
Range						
Permitted Use	MAUM	15.0	17.0	20.0	20.5	22.5
Forage	MAUM	111.0	115.0	125.0	137.0	126.0
Timber						
Allowable Sale Quantity	MMCF	51	72	76	76	76
Total Pine	MMCF	45	67	65	58	70
Total Hardwood	MMCF	6	4	11	19	7
Firewood	MMCF	13	15	11	6	12
Intermediate Cut	MAc	14.7	13.4	18.9	26.1	25.3
Pine Reforestation	MAc	16.7	17.4	16.8	10.7	14.0
Hardwood Reforestation	MAc	2.1	1.4	3.4	5.9	1.7
Timber Stand Improvement	MAc	2.8	4.8	4.4	3.7	2.7

Table 4-2 (contd)
AVERAGE ANNUAL RESOURCE OUTPUTS

		PERIODS				
OUTPUT	**Unit**	**1**	**2**	**3**	**4**	**5**
Water						
Output 1/	**MMAF**	**2,130**	**2,129**	**2,131**	**2,126**	**2,128**
1/ All water yields meet quality goals						
Mineral Leases & Permits		**1,004**	**1,091**	**1,141**	**1,190**	**1,240**
Human Resource Program		**32**	**32**	**32**	**32**	**32**
Soil & Water Resource Imprv.	**Acres**	**22**	**22**	**22**	**22**	**22**
Prescribe Burn	**MAcres**	**165.8**	**165.4**	**168.2**	**169.5**	**180.9**
Lands						
Purchase & Acquisition	**Acres**	**575**	**590**	**675**	**750**	**875**
Property Boundary Est.	**Miles**	**20**	**20**	**20**	**20**	**20**
Property Boundary Mtce.	**Miles**	**600**	**600**	**600**	**600**	**600**
Land Exchange	**Acres**	**2,500**	**3,500**	**3,500**	**3,500**	**3,500**
R.O.W. Acquisition	**Cases**	**20**	**20**	**20**	**20**	**20**
Roads - Construction						
Arterial	**Miles**	**0**	**0**	**0**	**0**	**0**
Collector	**Miles**	**0**	**0**	**0**	**0**	**0**
Local	**Miles**	**24**	**18**	**14**	**10**	**5**
Roads - Reconstruction						
Arterial	**Miles**	**15**	**14**	**14**	**16**	**15**
Collector	**Miles**	**43**	**41**	**42**	**46**	**45**
Local	**Miles**	**77**	**78**	**85**	**100**	**101**
Economics						
Fixed Cost	**MM$**	**8**	**8**	**8**	**8**	**8**
Total Cost	**MM$**	**14**	**15**	**16**	**16**	**17**
Total Disc. Value	**MM$**	**2,306**				
Total Disc. Costs	**MM$**	**387**				
W.L. Disc. Value	**MM$**	**252**				
Timber Disc. Value	**MM$**	**2,054**				

PROJECTED OUTPUTS IN RPA PERIODS

Table 4-3
RPA Outputs, Activities and Costs

ALL VALUES ARE THE ANNUAL VALUE FOR THE MIDPOINT OF THE PERIOD

Program Element And Activity	Unit	Value
Recreation		
Developed Recreation Use	**MRVD's**	
1986-1990		352
1991-2000		360
2001-2010		385
2011-2020		431
2021-2030		480
Dispersed Recreation Use	**MRVD's**	
1986-1990		1183
1991-2000		1232
2001-2010		1290
2011-2020		1509
2021-2030		1725
Trail Const./Reconst.	**Miles**	
1986-1990		18
1991-2000		9
2001-2010		9
2011-2020		8
2021-2030		7
Wilderness		
Wilderness Recreation Use	**MRVD's**	
1986-1990		10
1991-2000		11
2001-2010		11
2011-2020		12
2021-2030		12
Wilderness Acres	**Acres**	
1986-1990		5460
1991-2000		5460
2001-2010		5460
2011-2020		5460
2021-2030		5460

Table 4-3 (Continued)
RPA Outputs, Activities and Costs

Program Element And Activity	Unit	Value
Wildlife and Fish		
Wildlife Habitat Improvmt.	**M AC/EQUI**	
1986-1990		**200**
1991-2000		**200**
2001-2010		**200**
2011-2020		**200**
2021-2030		**200**
Range	**AUM'S**	
Grazing Use (Livestock)		
1986-1990		**15000**
1991-2000		**17000**
2001-2010		**20000**
2011-2020		**20500**
2021-2030		**22500**
Timber	**MM BD FT**	
Allowable Sale Quantity		
1986-1990		**241**
1991-2000		**316**
2001-2010		**382**
2011-2020		**382**
2021-2030		**382**
Reforestation	**H Acres**	
1986-1990		**187**
1991-2000		**188**
2001-2010		**198**
2011-2020		**177**
2021-2030		**160**
Timber Stand Improvement	**H Acres**	
1986-1990		**28**
1991-2000		**42**
2001-2010		**45**
2011-2020		**39**
2021-2030		**30**

Table 4-3 (Continued)
RPA Outputs, Activities and Costs

Program Element And Activity	Unit	Value
Water		
Meeting Water Quality Goals	**M AC FT**	
1986-1990		**2130**
1991-2000		**2130**
2001-2010		**2130**
2011-2020		**2127**
2021-2030		**2127**
Minerals		
Leases and Permits	**OP. PLANS**	
1986-1990		**1004**
1991-2000		**1091**
2001-2010		**1141**
2011-2020		**1190**
2021-2030		**1240**
Human and Community Devel.	**EN. Years**	
Human Resources Programs		
1986-1990		**32**
1991-2000		**32**
2001-2010		**32**
2011-2020		**32**
2021-2030		**32**
Protection	**$/M Acres**	
Fire Management Effect. Index		
1986-1990		**764**
1991-2000		**864**
2001-2010		**864**
2011-2020		**874**
2021-2030		**862**
FuelBreaks and Fire Trtmt.	**M Acres**	
1986-1990		**45**
1991-2000		**45**
2001-2010		**45**
2011-2020		**45**
2021-2030		**45**

Table 4-3 (Continued)
RPA Outputs, Activities and Costs

Program Element And Activity	Unit	Value
Lands		
Purchases and Acquisition (Excludes Exchanges)	**Acres**	
1986-1990		**575**
1991-2000		**590**
2001-2010		**675**
2011-2020		**750**
2021-2030		**875**
R-O-W Acquisition	**Cases**	
1986-1990		**20**
1991-2000		**20**
2001-2010		**20**
2011-2020		**20**
2021-2030		**20**
Property Boundary Lines	**Miles**	
1986-1990		**20**
1991-2000		**20**
2001-2010		**20**
2011-2020		**20**
2021-2030		**20**
Property Boundary Mntnce	**Miles**	
1986-1990		**600**
1991-2000		**600**
2001-2010		**600**
2011-2020		**600**
2021-2030		**600**
Land Exchange	**Acres**	
1986-1990		**2500**
1991-2000		**3500**
2001-2010		**3500**
2011-2020		**3500**
2021-2030		**3500**

Table 4-3 (Continued)
RPA Outputs, Activities and Costs

Program Element And Activity	Unit	Value
Soils		
Soil and Water Res. Imprv.	**Acres**	
1986-1990		**22**
1991-2000		**22**
2001-2010		**22**
2011-2020		**22**
2021-2030		**22**
Facilities	**Miles**	
Local		
1986-1990		**101**
1991-2000		**96**
2001-2010		**99**
2011-2020		**110**
2021-2030		**106**
Arterial and Collector	**Miles**	
1986-1990		**58**
1991-2000		**55**
2001-2010		**56**
2011-2020		**62**
2021-2030		**60**
Total Funds	**M Dollars**	
1986-1990		**14340**
1991-2000		**15119**
2001-2010		**15913**
2011-2020		**15656**
2021-2030		**16174**

TIMBER RESOURCE SUMMARY

The timber management objectives of this plan are to:

--Accelerate the harvest of pine sawtimber. Final product size to range from 14"-20" DBH for pine species except moderate yield slash which will be 10"-14" DBH and 16"-30" DBH for hardwood species, except moderate yield hardwood which will be 12"-18" DBH.

--Provide additional fuelwood for home use.

--Manage hardwood to provide increasing amounts of late seral stage forest type for all management areas except the Delta.

--Accelerate the harvest of hardwood sawtimber on the Delta Management Area.

LAND SUITABILITY

The suitability of National Forest lands for timber production was evaluated by Management Areas. The evaluation criteria are shown in the land classification plan, Table 4-4.

The first consideration was water areas which included ponds over one acre and streams over 120' wide. The second category was non-forest lands which included roads, administrative sites, military firing ranges, impact areas, pipelines, and powerlines. The third category included areas withdrawn by legislative, departmental, or Chief's actions, and includes research Natural Areas, Experimental Forests, Wild and Scenic River Study Areas, Ashe Forest Tree Nursery, and red-cockaded woodpecker threatened and endangered species habitat. The next category of lands removed was areas not physically suited for timber production due to the lack of adequate site preparation technology or the inability to restock within five years. Included in this category are limestone outcroppings, sterile river outwash, and waterlogged soils. In the category for forest land, inadequate information, no available acres failed to meet the test of suitability. The remaining acres were classed as tentatively suitable for forest production.

From the tentatively suitable lands, additional lands were withdrawn from timber production for assignment to other resources by the Regional Forester and Forest Supervisor. Regional Forester withdrawals included developed and undeveloped recreation sites, slough structures on the Delta Management Area, and Erambert Seed Orchard on the Black Creek Ranger District. The Forest Supervisor withdrawals included special uses for the Soil Conservation Service Plant Materials Center, Corps of Engineers spoil bank, Department of Defense tank maneuvers and impact areas and firing range buffer zones. Other withdrawals include the Black Creek and Leaf Wilderness areas, permanent wildlife openings, Southern Forest Experiment Station permanent growth plots, Forest Service Hydrology laboratory, and proposed special interest areas.

The final test of suitability was the economic test performed by FORPLAN in the acreage allocation by prescription. All acres in this alternative contributed positively to PNV and were assigned a timber production prescription.

The moderate yield slash pine and moderate yield hardwood working groups may have significant acreage changes in the first period. The land occupied by these working groups and the associated physically unsuitable lands will undergo an intensive survey during the first five years of this Plan.

WORKING GROUPS OR VEGETATIVE TYPES

Yellow Pine Working Group - This working group consists of loblolly and shortleaf pine overstories in both pine and mixed stands, and containing a hardwood component of up to 30%. This is the largest working group and occurs on 11 of the 12 Management Areas.

Slash Pine Working Group - This working group occurs only on the three Management Areas of the De Soto National Forest. It consists of slash pine growing on site index 80 and above land. It occurs in pure stands and in association with longleaf and loblolly pine. The hard mast component of this working group is typically less than 10%.

Longleaf Pine Working Group - This working group occurs principally on the De Soto National Forest with a small (4,000 acres) amount on the southern portion of the Strong River Management Area. It occurs in largely pure stands. Other pines may be associated with it on the heavier soils and more moist sites. The hard mast component of this working group is typically less that 10%.

Hardwood Working Group - This working group is subdivided into the Delta Bottomland Hardwood Working Group and the Mixed Hardwood Working Group.

The Delta Bottomland Hardwood Working Group - consists of pure stands of bottomland hardwood with the dominant species being nuttall oak, overcup oak, water hickory, sweet gum, bitter pecan, willow oak, sugarberry, elm, and ash. Regeneration is frequently hampered by heavy vine growth. A lack of desirable advanced reproduction over much of the area occupied by this working group presents a regeneration problem.

The Mixed Hardwood Working Group - occurs throughout the remainder of the Management Areas. It occupies both uplands and stream bottoms and is usually represented primarily by the oaks, hickories, maple, gum, and yellow poplar growing in conjunction with a loblolly pine component of up to 30%.

The Pine-Hardwood Working Group - occurs only on the Bude and Homochitto Management Area. It consists of mixed stands of hardwood and yellow pine growing on high site index (100 for

loblolly) lands. These mixed stands contain between 31% - 69% each of the yellow pine and mixed hardwood working group.

The Moderate Yield Slash Pine Working Group - occurs only on the Biloxi and Black Creek Management Areas. It occupies the wet, poorly drained soils adjacent to the natural pitcher plant flats. Site index for slash pine is typically 60 to 70. These are slower growing stands of principally poletimber. Many of these are overstocked, stagnated 30-year old plantations. The acreage in this working group will probably change as inventory methods and intensity improve.

The Moderate Yield Hardwood Working Group - occupies waterlogged soils along drains on the Biloxi and Black Creek Management Areas. This working group is found in conjunction with lands classed as unsuitable due to probably irreversible resource damage or an inability to restock because of probably raised water table. The acreage in this category will probably change as inventory methods improve and management experience is acquired.

TABLE 4-4
LAND CLASSIFICATION PLAN

Classification	Management Area						
	Bien-Ville	Strong River	Biloxi	Black Creek	Chicka-sawhay	Bude	Homo-chitto
Non-Forest Land (includes Water)	1,355	1,531	1,530	16,608	2,739	1,144	2,401
Forest Land	84,629	90,859	115,924	216,245	147,563	90,478	94,758
Forest Land Withdrawn	2,943	690	4,666	14,583	428	392	1,113
Forest Land Physically Not Suited	0	0	*11,117	*16,071	0	11	31
Forest Land Inadequate Information	0	0	0	0	0	0	0
Tentatively Suited Forest Land	81,686	90,169	100,141	185,691	147,135	90,075	93,614
Forest Land Not Appropriate for Tbr. Production by Reason Of:							
1. Assignment to Other Resource Uses (Total)	(57)	(535)	(1,161)	(19,971)	(676)	(58)	(26)
a. Timber				590			
b. Wildlife		160		115	154		12
c. Research				16			
d. Recreation	57	375	67	140	522	58	14
e. Other Agency Use			1,094	19,110			
2. To Meet Management Requirements	0	0	0	0	0	0	0
3. Not Cost Efficient	0	0	0	0	0	0	0
Unsuitable Forest Land	3,000	1,225	16,944	50,625	1,104	461	1,170
Total Suitable Forest Land	81,629	89,634	98,980	165,620	146,459	90,017	93,588
Total National Forest Land	85,984	92,390	117,454	232,853	150,302	91,622	97,159

*** These areas lie within and/or adjacent to flood plains, usually contain organic soils, are water-logged (perched water table within 6"-2', 9-12 months). Approximately 2000 acres on the Black Creek and 10,000 acres on the Biloxi Management Area will be retained and managed to promote the pitcherplant community.**

Table 4-4
LAND CLASSIFICATION PLAN (continued)

Classification	Management Area					
	Holly Springs	Trace	Yalo-busha	Ackerman	Delta	Forest Total
Non-Forest Land (includes Water)	4,721	784	786	1,049	2,401	37,049
Forest Land	121,594	25,322	19,737	38,940	57,117	1,103,166
Forest Land Withdrawn	4,095	119	0	80	162	29,271
Forest Land Physically Not Suited	0	383	0	0	0	27,613
Forest Land Inadequate Information	0	0	0	0	0	0
Tentatively Suited Forest Land	117,499	24,820	19,737	38,860	56,955	1,046,402
Forest Land Not Appropriate for Tbr. Production by Reason Of:						
1. Assignment to Other Resource Uses (Total)	(146)	(54)	(227)	(663)	(4,460)	(28,034)
a. Timber						590
b. Wildlife	26	17	10	54	2,796	3,344
c. Research	34				298	348
d. Recreation	86	37	20	609	437	2,422
e. Other Agency Use			197		929	21,330
2. To Meet Management Requirements	0	0	0	0	0	0
3. Not Cost Efficient	0	0	0	0	0	0
Unsuitable Forest Land	4,241	556	227	743	4,622	84,918
Total Suitable Forest Land	117,353	24,766	19,510	38,197	52,495	1,018,248
Total National Forest Land	126,315	26,106	20,523	39,989	59,518	1,140,215

Table 4-5
TIMBER PRODUCTIVITY CLASSIFICATION

Potential Growth (cubic feet/acre/year)	Suitable Lands (acres)	Unsuitable Lands (acres)
Less than 20	0	8,804
20-49	11,782	18,944
50-84	195,919	4,198
85-119	467,944	33,369
120-164	226,964	11,057
165-224	21,205	3,005
225+	95,908	4,067
TOTAL	1,019,722	83,444

Table 4-6
TIMBER PRODUCTIVITY CLASSIFICATION FOR SUITABLE LANDS BY MANAGEMENT AREAS

Working Group	Potential Growth CuFt/Ac/Yr	Bien ville	Strong River	Biloxi	Black Creek	Chicka-sawhay	Bude	Homo-chitto	Holly Springs	Tom-bigbee	Delta
Yellow Pine	20-49								607	1,333	
	50-84	5,893	1,232	585	2,555	3,220	232	1,603	25,855	14,858	
	85-119	19,551	17,008	1,070	14,584	13,168	2,841	6,903	48,879	32,498	
	120-164	36,921	32,341	983	11,646	10,401	33,856	43,194	12,998	8,361	
	165-224				530	236		600	828		
	225+	9,556	10,200	728	5,037	2,107	39,656	22,191	577	1,894	
TOTAL		71,921	60,781	3,366	34,352	29,132	76,585	74,491	89,137	58,944	
Hardwood	20-49		57	485	154	208		27	782	466	
	50-84	4,659	10,931	1,465	8,035	23,562	1,422	1,265	20,010	14,826	12,285
	85-119	5,049	13,087		5,699	3,446	2,002	4,998	6,849	7,878	33,091
	120-164		708		336		610	2,697	595	282	6,021
	165-224									77	1,098
TOTAL		9,708	24,783	1,950	14,143	27,106	4,034	8,987	28,216	23,529	52,495
Slash	20-49					795					
	50-84			2,463	202	1,435					
	85-119			20,893	20,487	17,932					
	120-164			8,107	8,839	18,596					
	225+			571	1,094	1,934					
TOTAL				32,034	30,622	40,692					
Longleaf	20-49		58	162	207	269					
	50-84		299	4,811	8,138	1,977					
	85-119		3,862	35,768	74,589	46,529					
	120-164			337	563	644					
TOTAL			4,219	41,078	83,497	49,419					
Pine Hardwood	85-119						2,197	3,198			
	120-164						6,223	5,577			
	165-224						978	1,635			
TOTAL							9,398	10,410			
Mod. Slash	20-49			6,690	751						
	50-84			10,204	1,573						
TOTAL				16,894	2,324						
Mod. Hardwood	20-49			3,658	802						
TOTAL		81,629	89,783	98,980	165,740	146,346	90,017	93,888	117,353	82,473	52,495

Table 4-7
TIMBER PRODUCTIVITY CLASSIFICATION FOR UNSUITABLE LANDS BY MANAGEMENT AREAS

Land Classification	Potential Growth CuFt/Ac/Yr	Bien-ville	Strong River	Biloxi	Black Creek	Chicka-sawhay	Bude	Homo-chitto	Holly Springs	Tom-bigbee	Delta
Withdrawn	20-49	135									
	50-84	120	150						3,968		
	85-119			3,985	3,685	15				180	
	120-164	189			3,942				107	29	22
	165-224										140
	225+					15					
Withdrawn RCW	50-84			150							
	85-119	500		531	1,276	398					
	120-164	1,749	391				300	600			
	165-224	250					92	213			
Physically Unsuited	20			8,453	266					85	
	20-49			2,064	15,805		11	31		298	
Assignment to Other Resources											
Timber	85-119				590						
Wildlife	85-119		160		115	154				27	
	120-164							12	26	54	2,796
Recreation	50-84								46		
	85-119		75	27	40	422			40	400	
	120-164	57	300	40	100	100	18	10		266	
	165-224						40	4			437
Wilderness	89-119				2,020						
	120-164				2,540						
	165-224				900						
Other Agency Use	85-119			1,094	18,000						
	120-164				1,110					197	
	165-224										929
Research	50-84								34		
	85-119				16						
	120-164										298
TOTAL		3,000	1,076	16,944	50,545	1,104	461	870	4,221	1,536	4,622

ALLOWABLE TIMBER SALE QUANTITY

The Allowable Timber Sale Quantity (ASQ) increases sharply between the first and second plan periods, reaching Long-Term Sustained Yield Capacity (LTSYC) in the middle of the second period. The projected annual volume increases slowly the first five years(1.0 MMCF/Yr), rather rapidly the next ten years (2.4 MMCF/Yr), and then reaches LTSYC in the year 2001.

The rationale for the volume flow is threefold: (1) allow industry time to plan for the sharp increase in volumes coming on the market beginning in 1990; (2) allow Forest Service line officers to obtain the additional personnel ceilings and provide for possible relocation of timber personnel to achieve the projected volumes on the Ranger Districts as predicted by FORPLAN; and (3) allow time to analyze yield projections and determine if volume projections and implementation of the Plan is feasible within existing constraints.

Figure 4-1
Annual Volume Path
Base Sale Schedule
Average Annual Growth
Long-Term Sustained Yield Capacity

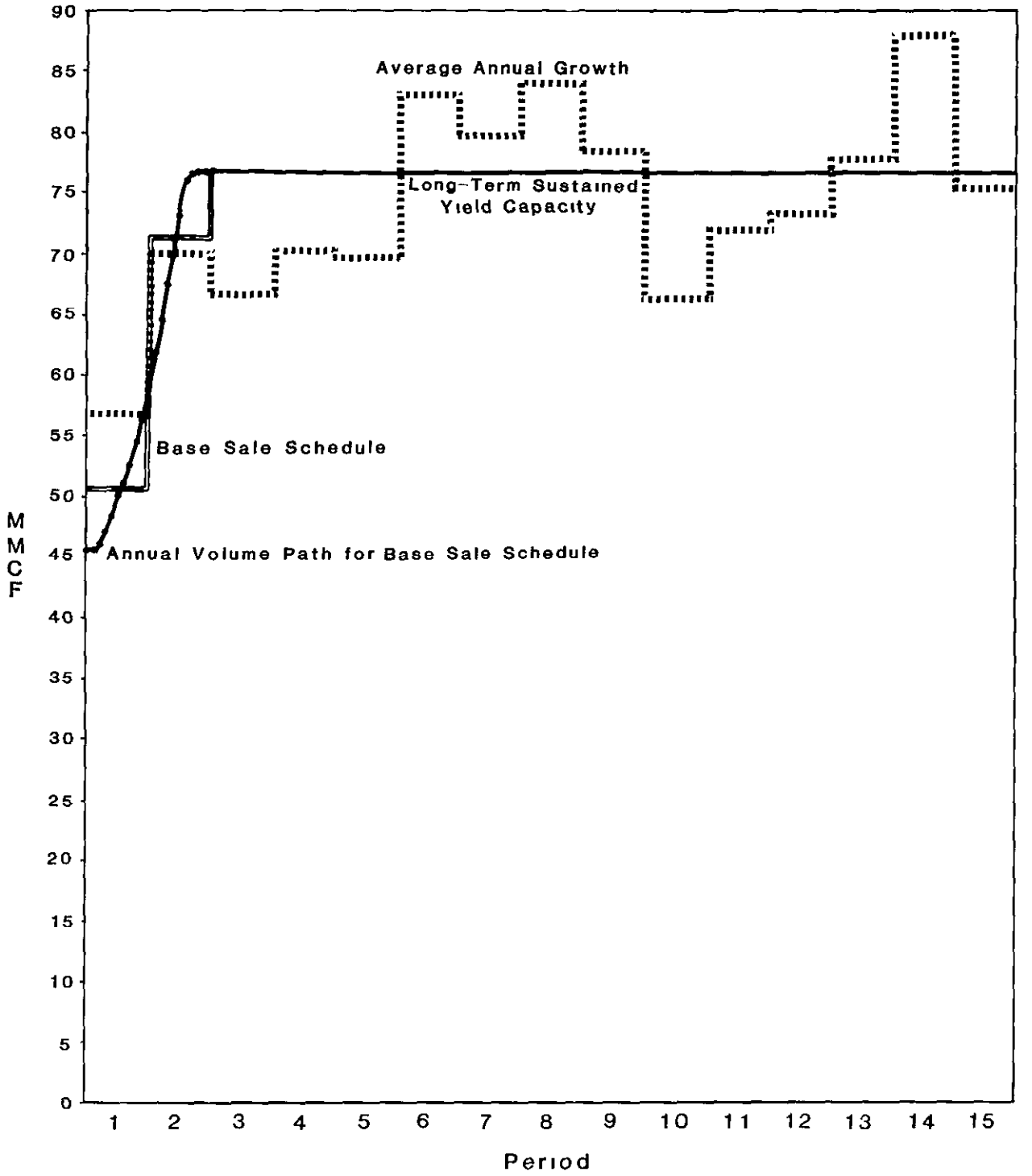

Table 4-8

ALLOWABLE SALE QUANTITY & TIMBER SALE PROGRAM QUANTITY 1/
(Annual Average for First Decade)

Harvest Method	Allowable Sale Quantity 2/ Sawtimber (MMCF)	Allowable Sale Quantity 2/ Other Products (MMCF)
Regeneration Harvest:		
Clearcut	32.7	5.8
Shelterwood and Seed Tree		
Preparatory Cut	0	0
Seed Cut	1.4	0.6
Removal Cut	0.5	0
Selection	0	0
Intermediate Harvest:		
Commercial Thinning	2.7	5.2
Salvage/Sanitation	1.0	1.0

	Additional Sales 3/ Sawtimber (MMCF)	Additional Sales 3/ Other Products (MMCF)
Total for all Harvest Methods	0.1	0
Allowable Sale Quantity	50.8(MMCF)	254(MMBF) 4/
Timber Sale Program Quantity 5/	50.9(MMCF)	254.5(MMBF) 4/

1/ To be expressed to nearest .1 MM board and cubic feet.
2/ Only includes chargeable volumes from suitable lands.
3/Only includes nonchargeable volumes from suitable and/or unsuitable lands.
4/ Based on local unit of measure.
5/ Total of allowable sale quantity and additional sales.

Table 4-9

ADDITIONAL TIMBER PERSONNEL CEILING NECESSARY IN FIRST PERIOD

Year	MBF Volume	Clerical Contract Speclst.	Refores-tation Tech.	Timber Markers	Timber Sale Admin.	Forester
1983	216			-	-	-
1984	227			-	-	-
1985	221			-	-	-
1986	227			-	-	-
1987	230		1	2	-	-
1988	234			2	-	-
1989	240			2	1	-
1990	247		1	1	-	1
1991	255			2	-	-
1992	263	1		1	1	1
1993	271			2	-	-
1994	281			3	-	-
1995	294		1	3	-	-
TOTALS:						
1986-90		0	2	7	1	1
1991-95		1	1	11	1	1