
CHAPTER 1

NEED FOR THE PROPOSAL

Introduction

In compliance with the National Environmental Policy Act (NEPA) and other relevant State and Federal laws and regulations, the Forest Service has prepared this Environmental Assessment (EA) on the potential effects of management activities such as regeneration and thinning. The purpose of these actions is to promote forest and ecosystem health on the Analysis Unit 24 area. The project area is located on the Homochitto Ranger District, Homochitto National Forest, in Wilkinson County, Mississippi.

This EA is prepared according to the format established by the Council of Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508). Chapter 1 explains the purpose and need for the proposed action and discusses how the Analysis Unit 24 Project relates to the 1985 Land and Resource Management Plan for National Forests in Mississippi (Forest Plan), the Final Environmental Impact Statement (FEIS) of the Forest Plan, the FEIS of the Vegetation Management in the Coastal Plain/Piedmont, Vols. I & II (VMCP/P), and the Environmental Impact Statement (EIS) for the Suppression of the Southern Pine Beetle, Southern Region (SSPB). Chapter 1 also presents significant issues that were identified by the Forest Service and by affected individuals and organizations.

Chapter 2 describes and compares the proposed action, alternatives to the proposed action, including the no-action alternative, and those actions that were considered but not analyzed in detail because they did not address the purpose and need for the project, would not achieve the desired future condition, or were found to be unreasonable.

Chapter 3 describes the natural and human environments potentially affected by the proposed action and alternatives, and discloses what potential effects are anticipated. The appendices contain the list of preparers, the distribution list, and references. Also, the appendices provide additional information on specific aspects of the proposed project. Additional documentation may be found in the project planning record located at the Homochitto Ranger District in Meadville, Mississippi.

Tiering to Higher Level Plans and Documents

National Forest planning takes place at several levels: national, regional, forest, and project levels. Analysis Unit 24 is a project-level analysis; therefore, its scope is confined to issues about the effects of the project. The analysis does not attempt to address decisions made at higher levels. It does, however, implement direction provided at those higher levels.

In developing this EA, regulations of the National Environmental Policy Act of 1969 and National Forest Management Act of 1976 were observed. This assessment was also tiered to the following higher-level documents and analysis:

- National Forests in Mississippi Land and Resource Management Plan (Forest Plan) as stated by 40 CFR 1502.2 and to all amendments made to the Forest Plan.
- Final Environmental Impact Statement, National Forests in Mississippi, Land and Resource Management Plan (Forest Plan EIS)
- Final Environmental Impact Statement of the Vegetation Management in the Coastal Plains/Piedmont, Vols. I&II (VMCP/P) and all amendments.
- Environmental Impact Statement for the Suppression of the Southern Pine Beetle, Southern Region (SSPB).

Location

Analysis Unit 24 is located in Wilkinson county, Mississippi. In total, 3 compartments were examined within the analysis unit. A more specific set of compartment locations is in Table 1.1.

Table 1.1: Compartment Locations*

Compartment	Township	Range	Section(s)
250	4 North	1 East	21, 22, 33, 34
251	4 North	1 East	38, 39
251	3 North	1 East	5
252	4 North	1 East	39
252	3 North	1 East	4, 5

All stands are forested and capable of producing wood fiber.

*Analyzed stands only.

Analysis Unit 24 consists of approximately 5,074 total acres, with approximately 2,194 acres of National Forest lands within compartments 250, 251, and 252 of the Homochitto National Forest. Approximately 2,880 acres of private land within Analysis Unit 24 are not included within the proposed action and alternatives, but were considered in the analysis of the direct, indirect, and cumulative effects of these actions within and adjacent to Analysis Unit 24. A vicinity map and other maps associated with this project, including Alternative maps, are contained within Appendix B.

Purpose and Need

The Analysis Unit 24 project is proposed to respond to the goals and objectives of the Forest Plan, and to help move the Project Area toward the desired future condition. The Forest Plan includes both forest-wide goals and objectives, and area-specific goals based on land suitability. The Project Area has a land suitability class of timber production. The need for the proposed action is directly related to the forest-wide goal to protect or

improve the quality of renewable resources. The site-specific objectives for management within the project area are to:

- **Emphasize thinning and replacement of aging stands to reduce southern pine beetle (SPB) risk and improve forest health.** Southern pine beetles are attracted to trees stressed by over-crowding. Thinning is designed to reduce over-crowding and thereby increase the growth and vigor of the remaining trees. Areas proposed for thinning are dominated by pine. In some places, hardwood within the pine stands would also be thinned to maintain or current proportions of pine and hardwood and to increase the growth and vigor of the remaining hardwoods. Thinning also increases crown development that leads to greater seed production that is valuable for natural regeneration of trees and as food for wildlife. Commercial thinning and regeneration provide economic benefits to local businesses and communities. Occupations in southwest Mississippi are generally related to agriculture, timber production, and/or oil production. Local communities benefit from the taxes generated by timber activities to improve law enforcement activities, roads, safe drinking water, and public schools.
- **Encourage restoration of the historic interior pine forest common to the Homochitto River basin.** This ecosystem featured longleaf pine, bluestem grasses, and other components of mixed pine, pyric communities in areas where they were historically dominant. The Homochitto has changed a great deal since the time of the American Indian and the early settlers. Historic records indicate that southwest Mississippi supported extensive mixed pine forests with a significant longleaf pine component. Pines, favored by frequent fires, occupied the ridges and upper slopes. On lower slopes and in the drains, where fire burned at lower intensity, hardwoods flourished. Low-intensity, periodic fire favors oak and hickory over less fire-tolerant species such as sweetgum, yellow poplar, American beech, and magnolia. Therefore, hardmast-producing oaks were dominant in the drains. These forests not only supported game species such as white-tailed deer, wild turkey, and Northern bobwhite, but also the endangered red-cockaded woodpecker and a large number of early successional or mature pine-grassland songbirds. Populations of these species are declining across the nation as this important habitat becomes less common.
- **Manage a continuing supply of various wildlife habitats, including early, mid, and late seral habitat.** Early seral plant communities are composed of trees that are 0-10 years of age. Late seral or late succession plant communities are composed of trees >40 years. There may be a combination of pine and hardwood existing in all three seral stand categories. This objective is required by law under the National Forest Management Act. Wildlife species are dependent on at least one seral stand stage to complete their life cycles. For the Project Area, approximately 147 acres in five stands ranging from 21 acres to 38 acres have been designated late seral, where no harvesting will occur this entry.

- **Ensure continuing supply of habitat for the Red-Cockaded Woodpecker.** The red-cockaded woodpecker is a species of particular interest due to its endangered status. A variety of other species, however, share and benefit from the preferred habitat of the RCW. Through the maintenance of existing RCW habitat through thinning and prescribed burning, and the creation of preferred habitat through restoration of more stable habitat for the future, short and long-term benefits to the RCW, as well as other species which share this habitat, will occur.
- **Promote forest stand diversity.** Management prescriptions are applied to manipulate forest stands for the benefit of a variety of forest resources and investments. Management prescriptions proposed in this EA include regeneration, thinning, prescribed burning, and herbicide applications. These management prescriptions are applied in different combinations to a number of forest stands throughout the project area. Prior to any management prescriptions, the existing forest types include immature loblolly pine, mature loblolly and shortleaf pine, and mature pine-hardwood forest types. After management prescriptions are applied, the stands would be managed to promote mixed pine with longleaf and additional pine-hardwood forest types. In seedtree regeneration and thinning, shortleaf pine and hard mast hardwoods given management priority.
- **Provide Access.** Enhance recreational use by providing equal access to the portions of the National Forest not easily accessible to dispersed recreation users.

This Environmental Assessment evaluates the proposed action and four additional management alternatives in detail. The proposed actions include regeneration, sawtimber thinning, and first thinning. The proposed action was formulated in response to the objectives identified by the Interdisciplinary Team as well as the potential environmental and economic impacts and issues identified by affected individuals and organizations. Also considered in the development of the proposed action and alternatives were the Forest Plan goals (4-1), Forest Plan desired future conditions (4-79), management area prescriptions 94-133, 40145), and other standards and guidelines designed to produce a balanced program of market and non-market outputs. Determination of the “Proposed Action” was by Interdisciplinary Team concurrence of the optimum combination of treatment actions to meet the purpose and need while maintaining compliance with applicable laws, regulations, standard, guidelines, and other direction. Some desirable actions were not included in the “Proposed Action” due to these limiting factors.

The Interdisciplinary Team (IDT) used a systematic approach for analyzing the proposed project and alternatives to it. Planning was coordinated with the appropriate Federal, State, and local agencies. The analysis areas within the Homochitto National Forest fall in two general groupings; those allocated to other resource uses (lands not suitable for timber production) and those suited to timber production. Analysis Unit 24 has a land designation of “suitable for timber production”.

Desired Future Condition

The desired future condition includes healthy tree stands in a balanced mix of age classes from young stands to trees of harvest age, and a road system providing access for recreation, hunting, fishing, and other uses such as timber management. The project area would be managed with small pine sawtimber-poles and large hardwood and mixed pine sawtimber being the end product. For areas within the current burn block boundaries, the desired future condition would be to restore the longleaf pine component to the stand. Within areas allocated to late seral species, the desired future condition would increase habitat capability for late seral associated wildlife species and maintain or increase non-game populations. The late seral stage is where most den and snag development occurs.

Analysis Unit 24 lies within the Southern Mississippi Valley Silty Uplands Resource Area and is located in the southwestern portion of the Homochitto National Forest. Landform typical of this resource area generally consists of narrow ridges with semi-steep slopes draining towards the Homochitto River. The Desired Future Condition (DFC) of this analysis area is a mixed pine community on uplands and upper slopes of ridges. Longleaf and shortleaf pine would dominate these uplands, with loblolly pine occurring more frequently on lower side slopes and within drainages. Hardwoods would occur throughout this analysis area, increasing in number and variety on lower slopes and in bottomlands. A full range of forest age classes is also the desired future condition, ensuring a wide variety of habitats for wildlife and recreation, and long-term productivity of forest products.

Soil stability and water quality are good in this analysis unit, and the desired future condition is to maintain this quality through time. This area favors infrequent entry and species mixes which can be sustained for longer periods than current loblolly pine rotations based on the steepness of slopes and the potential for soil and watershed damage. Species such as longleaf pine would be a preferred species in these sites. Fully stocked pine stands, particularly loblolly, generally require thinning on a 10 year entry period for the first 40 to 50 years in order to reduce pine beetle hazard and maintain stand and individual tree vigor. Field observations by the prescriptionist and the Zone Soil Scientist indicate that it would be preferable to enter most of the steeper sites only three or four times in an extended rotation in order to provide longer periods of time between entries and minimize long term impacts.

Of the approximately 2,196 forested federal acres within this analysis area, roughly 1,070 acres – or almost half of the area – contain timber 60 years old or older. Long term desired future condition for this analysis unit is to manage stands for a multiple age class forest structure and restore the species historically found and ecologically adapted to the sites. Mixed pine would be the desired future condition within the prescribed burning boundaries and on ridges and upper slopes and a fire maintained ecosystem with pine-hardwood in the major drains and lower slopes. This includes periodic prescribed burning and longleaf pine restoration. After thinning or regeneration, pine density should be such that the next entry can be delayed without stagnation or unacceptable insect and

disease losses. The southern pine beetle hazard rating is not expected to rise into the high hazard classification prior to the next ten-year entry period.

Outside the prescribed burning boundary, the desired future condition of the project area is the forest types of hardwood, pine-hardwood, and pine. Analysis of inventory data determines appropriate management objectives. After thinning or regeneration, pine density should be reduced to a level that would prevent stagnation or unacceptable insect or disease losses. Hardwoods would be thinned as necessary to provide proper hardwood density and promote adequate crown development. Thinning surplus pines would reduce the southern pine beetle hazard, reducing possible losses to southern pine beetle outbreaks and ensuring public economic returns. Regeneration areas should have sufficient retained inclusions within the stands to provide effective wildlife corridors along Streamside Management Zones. Visual management needs would be addressed through mitigation that would be implemented across Analysis Unit 24.

Based upon the current age distribution and other resource mitigating factors, the long term desired future condition would require several entries to accomplish. These short-term actions should contribute towards balancing age classes over time and insure an even flow of forest products, including timber and wildlife.

As defined in the Forest Plan, the desired future condition for recreation in the analysis area includes an increasing supply of dispersed recreation opportunities, which would be provided primarily through increased access due to logging activities (Forest Plan 1985, page 4-79). Dispersed recreation use may also be increased through improvement of the trail system (Forest Plan 1985, page 4-2).

Recreation Opportunity Spectrum identifies the area within Analysis Unit 24 as a Roded Natural setting (Forest Plan 1985, page 4-41). According to the Forest Plan, the National Forests in Mississippi are open to camping except where restricted because resource damage or user conflicts are expected to occur (Forest Plan 1985, page 4-41).

For the desired future condition of the visual resource, the Forest Plan provides the following direction: "The most obvious change in the Forest would be in timber management. As timber production is increased, more activities would be evident and, consequently, more effects would be viewed. The Forest may take on a more "managed" look. This condition would be enforced as management intensity and utilization are increased," (Forest Plan 1985, page 4-79). The likely visual results of intensive, even-aged timber management over the planning horizon is a visible distribution of age classes. More stands of varying size would become evident. This distribution has the positive aspect of providing visual variety to the landscape (Forest Plan 1985, page 4-80). Projections of future visual conditions are based on visual variety, comparisons of total acres harvested, visual absorption capacity of the land, and comparisons between estimated volumes of harvest and growth (Forest Plan 1985, page 4-80).

The forest is dynamic and changing, very slowly progressing from birth to death. In nature, forests are renewed by natural catastrophes. Under management, harvest cutting

renews it. In nature, one successional stage would usually cover a large area as a result of fires, disease, etc. In a managed forest all stages of succession would be present from stands of seedlings and grasses through immature and mature pine stands, to the hardwood type that is considered to be the climax stage. This would provide continuing habitat for plants and animals that may do well during one stage of succession but poorly during another (FEIS-Forest Plan 1985, page 3-10).

The Proposed Action

The Forest Service proposes to regenerate approximately 199 acres by using a clearcut with reserves treatment for mixed pine, and to replant longleaf in order to restore a historic species component to the project area. Also, approximately 50 acres would be regenerated using a clearcut with reserves treatment to develop a mixed pine/hardwood stand, replanting widely spaced loblolly pine in order to maintain a pine component, while increasing the likelihood for a long-term presence of desirable hardwood species on the sites. Approximately 49 acres of mixed pine would be regenerated by using the irregular seed tree method on upland sites where regularly scheduled prescribed burns are not anticipated but that are primarily suitable for shortleaf and loblolly pine.

Other harvests associated with this proposal include thinning about 947 acres. Areas proposed for thinning include approximately 601 acres of intermediate thinning in the mixed pine forest type, and about 346 acres of first thinnings in poletimber stands for the mixed pine forest type. Due to varying stocking levels within the stands, all acres proposed for thinning will not necessarily receive treatment. Specific treatment areas within the stands will be identified in the marking prescription and established during sale layout.

Table 1.2: Proposed Action – Longleaf Pine Regeneration

REGENERATION – Longleaf					
Compartment	Stand	Acres *	Forest Type	Condition Class	Age
250	9	59	Loblolly	Mature Sawtimber	85
251	2	34	Mixed Pine	Mature Sawtimber	77
251	11	25	Mixed Pine	Mature Sawtimber	87
252	25	40 ^ψ	Loblolly	Mature Sawtimber	72
250	21	41	Mixed Pine	Mature Sawtimber	85
TOTAL		199	*Acres approximate ^ψ Remaining portion of stand will receive separate treatment		

Table 1.3: Proposed Action – Pine /Hardwood Regeneration

REGENERATION – Pine /Hardwood					
Compartment	Stand	Acres *	Forest Type	Condition Class	Age
250	2	31 ^ψ	Loblolly	Mature Sawtimber	83

251	16	19	Loblolly	Mature Sawtimber	85
TOTAL		50	*Acres approximate		

Table 1.4: Proposed Action – Seedtree Regeneration

REGENERATION – Seedtree					
Compartment	Stand	Acres *	Forest Type	Condition Class	Age
250	3	49	Loblolly	Mature Sawtimber	77
TOTAL		49	*Acres approximate		

Table 1.5: Proposed Action – Intermediate Thin

INTERMEDIATE THIN					
Compartment	Stand	Acres *	Forest Type	Condition Class	Age
250	14	58	Loblolly	Mature Sawtimber	83
250	20	27	Loblolly	Mature Sawtimber	85
250	12	181	Mixed Pine	Mature Sawtimber	82
251	4	105	Loblolly	Immature Sawtimber	31
251	14	18	Loblolly	Mature Sawtimber	72
252	9	41	Loblolly	Mature Sawtimber	78
252	12	58	Loblolly	Mature Sawtimber	72
252	14	36	Loblolly	Mature Sawtimber	81
252	15	19	Mixed Pine	Mature Sawtimber	80
252	22	58	Loblolly	Mature Sawtimber	83
TOTAL		601	*Acres approximate, all acres shown may not be treated due to varying stocking levels within the stand		

Table 1.6: Proposed Action – First Thinning

FIRST THINNING					
Compartment	Stand	Acres *	Forest Type	Condition Class	Age
250	1	45	Loblolly	Mature Poletimber	15
250	4	48	Loblolly	Mature Poletimber	27
250	8	36	Loblolly	Mature Poletimber	17
250	10	61	Loblolly	Mature Poletimber	27
250	11	54	Loblolly	Mature Poletimber	16
251	1	89	Loblolly	Mature Poletimber	29

251	6	57	Loblolly	Mature Poletimber	18
251	12	11	Loblolly	Mature Poletimber	18
252	4	51	Loblolly	Mature Poletimber	19
252	6	18	Loblolly	Mature Poletimber	19
252	8	12	Loblolly	Mature Poletimber	19
252	13	20	Loblolly	Mature Poletimber	21
TOTAL		502	*Acres approximate, all acres shown may not be treated due to varying stocking levels within the stand		

Table 1.7: Proposed Action – Mid-Story Removal

Mid-Story Removal					
Compartment	Stand	Acres *	Forest Type	Condition Class	Age
251	3	66	Loblolly	Mature Sawtimber	85
TOTAL		66	*Acres approximate		

Table 1.8: Proposed Action – Late Seral

Late Seral					
Compartment	Stand	Acres *	Forest Type	Condition Class	Age
250	6	29	Loblolly-Hardwood	Mature Sawtimber	83
250	7	21	Hardwood	Mature Sawtimber	83
251	5	36	Loblolly-Hardwood	Mature Sawtimber	80
252	1	38	Loblolly	Mature Sawtimber	87
252	20	23	Loblolly	Mature Sawtimber	84
TOTAL		147	*Acres approximate		

Other actions proposed include site preparation, release of desirable stems in seedling/sapling stands, temporary road construction, spot road reconstruction, road maintenance, and prescribed burning for site preparation.

On regenerated sites, herbicides would be used in a manner consistent with the direction identified in the VMCP/P. Herbicide treatments would include the hand tool application of Sulfometuron-methyl, triclopyr, hexazinone, and/or imazapyr for the purposes of release and site preparation.

Approximately 5 miles of road reconstruction is required to implement this decision. Within the immediate vicinity of the sale, temporary roads may be constructed as

necessary to remove timber. To access a portion of the timber sale area, 2 rights-of-way totaling 1 mile would be required.

Approximately 805 acres of prescribed burning would be implemented on a three-year interval starting one year after completion of harvesting. Within the burning area, the objective is to maintain a mixed pine forest type. Outside of the prescribed burning area, the emphasis would be for management of a pine, pine-hardwood, or hardwood forest type, depending on the soil and site conditions.

Approximately 66 acres of midstory removal would be applied to promote red-cockaded woodpecker foraging habitat.

The following table demonstrates how the “Proposed Action” meets the purpose and need of the project.

Table 1.7: Relationship of Proposed Actions to Purpose and Need

Stand(s)*	Current Conditions	MANAGEMENT OBJECTIVES/ PURPOSE AND NEED	Proposed Action	RELATIONSHIP OF ACTION TO PURPOSE AND NEED
250/1 250/4 250/8 250/10 250/11 251/1 251/6 252/4 251/12 252/6 252/8 252/13	Overstocked Loblolly Pine Poletimber Stands	<ul style="list-style-type: none"> • Improve forest health • Manage a continuing supply of various wildlife habitats • Ensure continuing supply of RCW habitat • Promote forest stand diversity 	First Thin	<ul style="list-style-type: none"> • Reduces southern pine beetle risk • Reduces over-crowding • Increases growth and vigor • Facilitates future RCW habitat • Increases stand and wildlife habitat diversity
250/20 250/14 250/12 251/4 251/14 252/9 252/12 252/14 252/15	Overstocked Loblolly and Mixed Pine Sawtimber Stands	<ul style="list-style-type: none"> • Improve forest health • Manage a continuing supply of various wildlife habitats • Ensure continuing supply of RCW habitat • Promote forest stand diversity 	SAWTIMBER THIN	<ul style="list-style-type: none"> • Reduces southern pine beetle risk • Reduces over-crowding • Increases growth and vigor • Provides ephemeral conditions equivalent to the historic interior pine forest preferred by RCW • Increases stand and wildlife

252/22				habitat diversity
250/9 251/2 251/11 252/12	Over-mature Loblolly Pine Sawtimber Stands within Burn Block	<ul style="list-style-type: none"> • Restore historic interior pine forest ecosystem • Improve forest health • Manage a continuing supply of various wildlife habitats • Ensure continuing supply of RCW habitat • Promote forest stand diversity 	Clearcut with Reserves, Plant Longleaf Pine	<ul style="list-style-type: none"> • Restores longleaf pine to the ecosystem • Reduces southern pine beetle risk • Provides early seral habitat • Retains potential RCW cavity trees • Increases stand and wildlife habitat diversity • Provides a stable ecosystem and optimal habitat for future RCW dissemination and persistence
251/16 250/2	Over-mature Loblolly and Pine/Hardwood Sawtimber Stands outside Burn Block	<ul style="list-style-type: none"> • Restore historic interior pine forest ecosystem • Improve forest health • Manage a continuing supply of various wildlife habitats • Ensure continuing supply of RCW habitat • Promote forest stand diversity 	Clearcut with Reserves, Plant Loblolly Pine	<ul style="list-style-type: none"> • Reduces southern pine beetle risk • Enhances hardwood quality and restores hard-mast component • Provides early seral habitat • Retains potential RCW cavity trees • Increases stand and wildlife habitat diversity • Provides stable ecosystem
250/3	Over-mature Loblolly and Pine/Hardwood Sawtimber Stands outside Burn Block	<ul style="list-style-type: none"> • Restore historic interior pine forest ecosystem • Improve forest health • Manage a continuing supply of various wildlife habitats • Ensure continuing supply of RCW habitat • Promote forest stand diversity 	Irregular Seed-tree Regeneration	<ul style="list-style-type: none"> • Reduces southern pine beetle risk • Enhances hardwood quality and restores hard-mast component • Provides early seral habitat • Retains potential RCW cavity trees • Increases stand and wildlife habitat diversity • Provides stable ecosystem
All above	Limited Access	<ul style="list-style-type: none"> • Provide Access 	Road Construction/ Reconstruction	<ul style="list-style-type: none"> • Enhances recreational use by providing equal access

* – Stands not included in the “Proposed Action” were eliminated by the Interdisciplinary Team on the basis of restraints imposed by laws, regulations, standards, guidelines, and other direction (such as adjacent stand conditions)

Mitigation Measures

Mitigations are intended to lessen the effects of actions such that they remain within established standards that will not lead to significant direct, indirect, and/or cumulative impacts. The proposed action includes a range of mitigation measures that can be categorized as:

- **Standard mitigations** to protect soil productivity, water quality, visuals, and other resources in accordance with standards and guides established through forest planning. These include such measures as:
 - Filter strips
 - Revegetation of disturbed areas
- **Mitigations inherent to the project implementation process, contracts, and related activities.** For this project, these include activities such as:
 - Requiring pre-work conferences to ensure that standards are understood
 - Advanced approval of all decks, roads, and skid trails by the Forest Service
 - Designating normal operating seasons and limiting activities under adverse weather conditions
- **Mitigations associated with project design and management prescriptions.** These include Forest Plan or legal direction such as:
 - Unit size limitations
 - Spacing and distribution requirementsAlso falling within this category are **mitigations inherent to the Interdisciplinary Team process**, such as locally developed enhancements in excess of Forest Plan standards. For example:
 - Expanded streamside management zones
 - Leave clumps
 - Leaving additional reserves
 - Limiting log skid length in thinning to protect residualsMitigations in this category may be developed in response to scoping issues.
- **Site-specific mitigations.** Such as:
 - Protection of a specific sensitive plant or group of plants

The Analysis Unit 24 Project incorporates all applicable legal requirements and adheres to the Forest-wide standards and guidelines established in the Forest Plan. Management requirements necessary for achieving goals and objectives are referred to as standards and guidelines. A detailed listing of the Forest Plan standards and guidelines is inappropriate here, as they are published and established guides. However, the standard mitigations are described in Appendix C for those unfamiliar with the Forest Plan. Key Forest-wide standards and guidelines in the Project Area address recreation, wildlife, timber, soil, water and air, lands, minerals, facilities, and fire. These standards meet environmental protection requirements found in the State of Mississippi Best Management Practices. Additional standards and guidelines can be found in the FEIS of the Vegetation Management in the Coastal Plain/Piedmont, Vols. I & II (VMCP/P), and the Environmental Impact Statement (EIS) for the Suppression of the Southern Pine Beetle, Southern Region (SSPB).

Additional mitigations are as follows:

All standard contract limitations and requirements apply. Appendix C provides discussion of these requirements and how they are enforced.

Skidding log length in all thinning units is limited to 50 feet and skid corridors are designated and cleared in first thinnings to protect residuals from damage. Harvest design has been modified as stated under the "Summary of Harvest Treatments" found in this chapter, in order to provide additional wildlife benefits. Potential archaeological sites are excluded from disturbance as required by law. Inventories of the project area identified no additional stand-specific mitigations.

MITIGATION - SUMMARY OF HARVEST TREATMENTS

The forest is a dynamic ecosystem, made up of a variety of tree species; each species has a biological life span and certain conditions that must be available for that species to thrive. Variety or diversity in the forest is generally described as forested "stands" which are made up of trees of like species and ages. Forest management strives to provide a mix of these age classes and species to ensure long-term productivity and diversity; this ensures habitat for many other species and the opportunity to regularly manage production of commercial timber related resources. Forest management as an art and science includes the full range of cultural treatments that could be used to keep the forest thriving and healthy. The act of replacing old trees, either naturally or artificially, is called regeneration. This term also applies to new growth that develops. Regeneration cuttings are made to remove trees and create environments favorable for establishing regeneration (Smith, 1986). Regeneration methods discussed in this document include clearcut with reserves and the irregular seed tree method.

Irregular (modified) Seed Tree

This method of regeneration retains seed trees in larger clumps of about 1/2 acre to 2 acres, distributed across the stand. These clumps break up the visual impact and provide mature areas in the young stands after regeneration. This method of regeneration is proposed for upland sites which are not prescribed burned on a regularly scheduled basis, and is suitable for the management of shortleaf and loblolly pine. This method employs seed trees grouped in reserved clumps and streamside zones as the primary source of seed for regeneration. Additional seed trees may be retained between clumps when distance between reserve areas necessitates. The reserve clumps would have sufficient seed trees around the perimeter, but also be selected to protect areas where hard mast producing hardwoods are concentrated with pines, to retain wildlife benefits and mast production for the future stand. Clumps would also be positioned as necessary to meet visual quality objectives. Individual seed trees would be removed, but reserve clumps would not be cut after successful regeneration and would be retained for 3 or more entries to provide within-stand diversity. They could be retained indefinitely, depending upon future decisions and direction. Longleaf pines of sufficient form and quality to respond and develop would be retained. The reserved seed tree clumps would comprise 15-20% of the stand acreage for stands over 20 acres.

The Proposed Action and Alternatives 2 and 3 include approximately 279 to 517 acres of regeneration, 31 to 277 acres of which will be accomplished using the seedtree method. Seed tree regeneration is a form of even-aged regeneration. See Appendix B for site-

specific area of each alternative. Based upon Forest Plan direction and the stated purpose and need for this project, even-aged silvicultural system is appropriate for timber management purposes for the proposed seed tree treatments based upon the following: 1) These stands have mature loblolly pines that are showing increasing signs of stress and associated mortality; 2) The existing pine seed trees are suitable for the regeneration of a mixed pine and pine/hardwood stand; 3) There are sufficient numbers of well formed, seed producing pines to provide adequate numbers of well distributed seed trees; 4) There is suitable root stock for desirable hardwood regeneration. Loblolly and Shortleaf pines have light seeds, which can be wind distributed up to 1/2 miles. The proximity of the reserve clumps, supplemented by additional seed trees between clumps, as needed will insure adequate distribution of seed; 5) On these sites, longleaf restoration is not the objective because of difficulty in maintaining fire as a management component; and 6) The species involved are shade intolerant and seed tree regeneration is a silviculturally sound method of regenerating these species.

These seed tree harvests would result in a suitable yield timber flow that does not impair the productivity of the land. Also, quality renewable resources are protected and/or improved through forest management actions. A discussion of why uneven-aged management was not considered in detail is included in Chapter 2.

Regeneration by the seed tree method typically leaves approximately 4-10 pines per acre on site. The modified seed tree method would leave somewhat higher numbers of trees because of the clump size of from 1/2 to 2 acres, with scattered seed trees reserved between the clumps. Mature loblolly pine would comprise most of the seed trees, although all suitable longleaf in these stands would be marked as reserve trees to increase species diversity. Pines selected for retention would include those that are dominant or codominant in the present stand, display good form and crown characteristics, and have other traits indicating good genetic potential. They should be reasonably vigorous and have a life expectancy of greater than 10 years following the harvest. Sometime there may be a compromise between form and vigor. The number of reserved and seed trees to be left depends upon the species, size, condition, and seed producing ability of the trees.

Scattered seed trees will be selected and given a distinguishing mark by a certified marker trained in recognition of suitable seed trees. Reserve clumps will be marked with a boundary. Any thinning within the clumps will be of designated and marked trees only, in accordance with mitigation for wildlife and reserved clumps, discussed later in this chapter. Seed trees scattered between clumps will be harvested once successful regeneration is secured.

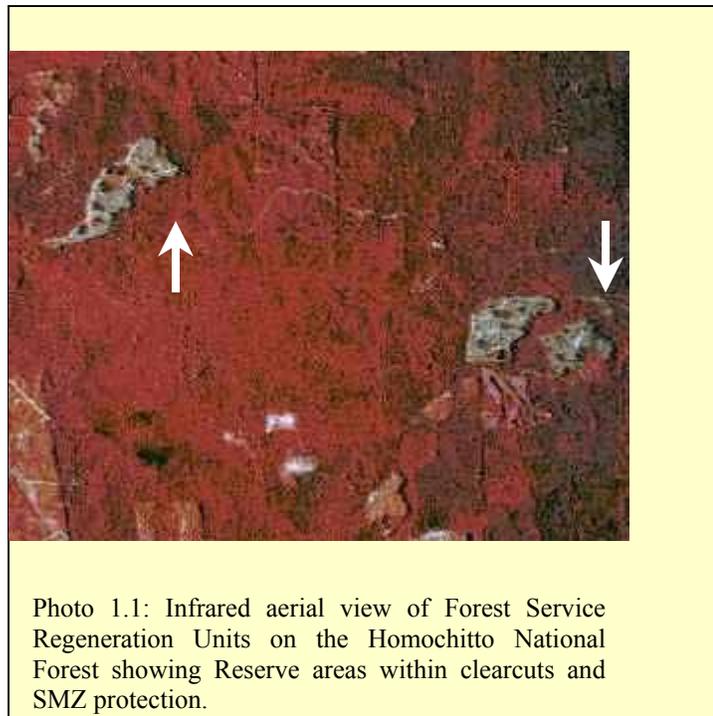
Clearcutting With Additional Reserves

The clearcutting with additional reserves regeneration method removes most of the trees in a stand but retains varying numbers of reserve trees to attain goals other than regeneration. As proposed in this project, reserve groups of from 1/2 to 2 acres would be retained in inclusions and streamside zones, to meet visual and hardwood component objectives and provide for wildlife habitat needs. These reserve areas would total

approximately 15% to 20% of the treatment acres. In addition to these larger reserve areas, individual hardwoods and small clumps of two to three trees would be left scattered throughout the stand.

Scattered longleaf pine would also be left, depending upon the objectives of regeneration. In selecting reserve areas and leave trees, hardwoods of good form and longleaf pine would receive priority. However, some clumps will be positioned to mitigate visual impacts rather than to optimize hardwoods and longleaf pines. This will provide a relatively high degree of age class and site diversity to increase forest heterogeneity and ecosystem stability. (Forest Plan 4-5) These groups should contain good mast producers as well as trees suitable for potential den trees.

The reserve clumps will be retained for three or more entry periods. This would provide within-stand habitat and age class diversity through mid-rotation of the new stand. Potentially, these reserve areas could be retained indefinitely, depending upon future decisions and direction. Where feasible, cavity trees, snags, and older relic trees can also be retained. The scattered single trees and small clumps would be retained as snags. In combination with scattered trees and reserve areas, there would be sufficient trees retained to meet forest plan direction for retaining snag trees.



This method varies substantially from the common perception of clearcutting, which does not provide for reserve trees. It also exceeds the minimum standards for the Forest Plan,

which provides for ½ acre per 20 acres of harvest, primarily for the purpose of retaining small wildlife clumps. Above these minimums, the Forest Plan provides for additional reserves as necessary to meet mitigation. All mitigation is linked directly to Mississippi's Forest Plan, which sets minimum resource protection but also sets management goals (see the Final EIS "Purpose and Need", Chapter 1) and provides for additional mitigation based on identified issues and concerns. The FEIS specifically identifies the clearcut harvest method as a preferred method, but provides that all even-aged harvest methods "can be modified for special circumstances" (Final EIS 1-12 & Forest Plan 4-37).

The basis for additional mitigation in the form of reserve trees and inclusion clumps includes, but is not limited to:

1. Provide a visually acceptable landscape by maintaining or upgrading existing visual condition (pg 4-1)
2. Limit visible opening size (Table 4-1)
3. Maintaining appropriate hardwood components across the forest and within stands (pg 3-3 q5, paragraph 2, pg 4-5-6&9)
4. Developing standards and guidelines for species dependent upon riparian habitats (pg 4-5)
5. Setting limits of regeneration along streams (pg 4-9, paragraph 4)

These, needs, along with other mitigations requirements, result in retaining larger portions of regeneration areas in unharvested conditions. The resultant stand does not have the appearance of a "classic clearcut", but appears to be a mix of openings and unharvested areas of a later age class. Two distinct age classes are visible. Retained areas also provide for recreation as the stand moves through its early seral stages where dense seedlings and brush, would otherwise restrict use of the entire stand.

While the harvest remains technically a clearcut based upon forest plan definition of even aged treatments, which include artificial regeneration, the over-all appearance is more like the modified shelterwood treatment incorporated into the Forest Plan as amended by the Final EIS for red-cockaded woodpecker management. It cannot be described as modified shelterwood only because natural regeneration is not being used as the primary means of stand replacement. Therefore, with respect to visual appearance, this treatment would comply with the "Chief's" guidelines" for reducing clearcutting, and National initiatives to manage ecosystems in a manner which mimics nature. The term "clearcut with additional reserves" is intended to be descriptive of these differences. A description of proposed management activities within streamside zones and reserve inclusions is provided later in this section.

The use of clearcutting complies with the following circumstances of the Chief's Working Guidelines for Ecosystem Management, which states: "Clearcutting would be limited to areas where it is essential to meet forest plan objectives and involve one or more of the following circumstances:"

4. To preclude or minimize the occurrence of potentially adverse impacts or insect or disease infestations, windthrow, logging damage, or other factors affecting forest health; and
5. To provide for the establishment and growth of desired trees or other vegetative species that are shade intolerant.

This determination is in accordance with the requirements of 16 U.S.C. 1604(g)(3)(f)(i) and (ii).

APPLICATIONS OF THE CLEARCUT WITH ADDITIONAL RESERVES METHOD

In the proposed action and other alternatives that incorporate regeneration treatments, the clearcut with additional reserves method is used to regenerate for two distinct forest communities. A description of these communities and the basis for regenerating by this method is provided below:

Mixed Pine/longleaf restoration (yellow pine working group)

These sites are capable of generating yellow pine stands with a natural mix of longleaf, shortleaf and loblolly pines, often times with a substantial hardwood component. Restoration of mixed pine stands is appropriate on pine sites within areas where prescribed burning can be scheduled on an interval of three to four burns per ten years. This would tend to develop a grass and herbaceous understory over time. This “mixed pine, pyrotypic community with longleaf component” is representative of the historic interior pine forests on the Homochitto prior to initial logging. This community was all but lost when this region was cut 70 to 80 years ago, having an adverse impact on species like the endangered red-cockaded woodpecker.

Alternatives 3 and 5 propose to restore approximately 199 acres to this mixed pine fire dependent community. Alternative 2 proposes to regenerate approximately 240 acres to this community type. Once harvesting is completed, the stands will be site prepared and planted to longleaf. The goal of planting is achieving at least minimum stocking levels in the Forest Plan for yellow pine species, or a survival rate of at least 300 suitable management trees at the end of 3 years. As a minimum, we would expect approximately 100 of these seedlings to be longleaf. These are stand averages. Even distribution is not an objective since we would expect longleaf stocking to be greater on the upper slopes where it historically dominated. These stocking guides and the mixed pine stocking standards provide reference points to trigger evaluation for follow up cultural work (replanting, release or precommercial thinning). This would accomplish the desired future conditions for pine sites within planned burning areas to manage a mixture of yellow pines including longleaf. The reserve inclusions and individual clumps will mitigate the impact. However, over time, some of the reserve trees may be lost to windthrow, insects, and other natural forces. See Appendix B for site specifics of each alternative.

Longleaf pine is a suitable species for the sites where this treatment is prescribed. The natural range of longleaf pine includes most of the Atlantic and Gulf Coastal Plains from southeastern Virginia to eastern Texas and south through the northern two-thirds of the Florida peninsula. This range includes the present boundaries of the Homochitto National Forest. This range establishes longleaf pine as a southern yellow pine as described in "Silvics of North America, Volume 1".

The Forest Plan describes the yellow pine working group as consisting of loblolly and shortleaf pine dominated overstories. Pure stands (greater than 70%) of a single species do exist, but stands of mixed yellow pine are more common on the Homochitto. Longleaf pine has been identified on the Homochitto National Forest as a component of these pine and mixed stands. The longleaf pine working group in the Forest Plan (4-26) occurs in largely pure stands. The Homochitto National Forest contains few pure stands of longleaf pine, largely due to the district's heavily dissected terrain, which results in considerable micro-site variation across the stand. Historically, longleaf pine did not occur in pure stands across the Homochitto National Forest. Longleaf dominated the ridges and upper slopes and was mixed with loblolly and shortleaf pines. The longleaf component diminished off the ridges and the other southern pines dominated the lower slopes. Presently, only remnants of these past longleaf component remains to be seen mixed with loblolly and shortleaf pines. There is insufficient seed source to restore the historic longleaf component by natural means. If not planted, the historic role of longleaf will not be restored and the longleaf pine component will continue to decline much like it has in the past 70-80 years.

Planting longleaf pine will not result in a pure stand. Loblolly and shortleaf pines and hardwoods are still expected to occur. This action would result in the positive implementation of four goals set forth in the Forest Plan. (4-1)

1. Protect and/or improve the quality of renewable resources. Longleaf pine is a longer lived species than loblolly or shortleaf and results in a more sustainable forest community.
2. Protect and manage important historic, cultural, and natural aspects of our national heritage.
3. Provide a visually acceptable landscape by maintaining or upgrading the existing visual condition.
4. Provide for a diversity of plant and animal communities.

Longleaf or shortleaf pine found in a regeneration area, if suitable, should be part of the reserved trees to provide potential species diversity. Hardwoods may also be selected as reserve trees providing they have good form and are desirable management species. The hardwood reserve groups will range in size from 0.5 to 2.0 acres on the lower slopes. Where good hard mast producers are available, smaller clumps of up to four trees may be scattered between the larger leaf trees.

Pine Hardwood Regeneration

These sites are not currently on the Homochitto National Forest's prescribed burn plan. Even though soils on most of these sites are favorable to longleaf pine, in the absence of fire, hardwood midstory would not be controlled except through periodic silvicultural contracts. Even with silvicultural treatments, establishment and maintenance of the grassy and low shrub understory would be erratic. The typical interior pine forest community of the past could not be established. Also, longleaf pine would be more difficult to establish, resulting in failures and increased costs to the public. In the absence of fire, sites on the Homochitto have a tendency to produce a mixed pine and hardwood characteristic with a well-developed hardwood understory, which would shade out longleaf pine in its early stages, along with grasses and low shrubs. However, over time, the hardwood component and potential for hard mast production would increase. Therefore, these sites are more favorable to pine/hardwood communities that do not require fire as part of their life cycle.

The Proposed Action (Alternative 5) and Alternative 3 include regeneration using the clearcut method with additional reserve trees left for mitigation. Alternatives 2, 3 and 5 propose to regenerate approximately 31 acres and convert or maintain the stands in a pine/hardwood community. Pines selected for retention would include those that provide for an even distribution of trees across the area, display good form, and have other traits indicating good genetic potential. Selection priority of pines for retention is as follows: 1) longleaf 2) shortleaf 3) loblolly. For hardwoods, priority for retention includes trees that have good form, cavity nesting opportunities, and/or hard mast production. See Appendix B for site-specific area of each alternative.

Once harvesting is completed, the clearcut areas would be site prepared and planted with widely spaced loblolly pine seedlings or not planted depending on the potential of natural pine regeneration at the site. The desired future condition for the clearcut with reserves stands is to manage for a mixture of yellow pines and hardwoods without any prescribed burn plans. Some of the reserve trees may be lost to wind-throw, insects, and other natural forces.



Photo 1.2: Regeneration unit managed for a mixture of yellow pines and hardwoods

In some cases, stands currently classified within the yellow pine working group will be regenerated to pine/hardwood stands in order to conform with the natural relationships which occur in the absence of fire. The Forest Plan allows for the conversion of one working group to another. The plan states that the decision to convert from one forest type to another will be based on several social, biological, and economic factors such as soil type, hard mast needs, timber markets, presence of rootstock, and species composition of the stand presently occupying the site. (Forest Plan 4-112). Each management area within the Forest Plan, including the Bude and Homochitto, has an assignment for prescriptions. The actual allocation of these prescriptions may vary from those scheduled due to several reasons. It has been established in the Forest Plan that a suitable site-species relationship will allow a conversion from one working group to another where none was previously planned (Forest Plan 4-118).

OPTIMALITY OF CLEARCUTTING

The use of clearcutting has been limited by direction of the Chief of the Forest Service in his 1330-1 letter dated June 4, 1992, and by the National Forest Management Act (NFMA) at 16 United States Code 1604 (g)(3)(F)(1). Clearcutting will be used only

where it is the best means of producing a specific desired result. The Forest Plan identified clearcutting as providing the best mix of resource outputs while meeting the Land Management Plan objectives with the most favorable economics. The Forest Plan supports us in creating natural systems and using professional judgment to do so.

All regeneration proposed in this project area is to be applied to stands classified as mature as defined by Mississippi's Land and Resource Management Plan and have reached or exceeded culmination of mean annual increment (NFMA, 16 CFR Sec. 1604m).

Where prescribed in this project, clearcutting has been found to be the optimum method of achieving the Homochitto National Forest's desired future conditions based on its ability to achieve the desired regeneration results, provide early seral habitat, maintain habitat diversity, and maintain the quality of our renewable resources. The following specific circumstances apply:

- Where restoration of a historic longleaf pine component is the objective, a suitable seed source for this species is not present. The existing dominant species, loblolly pine, is a prolific seeder with aggressive initial growth characteristics. Longleaf pine is a highly shade intolerant species with slow initial growth. Natural regeneration methods, including uneven-aged regeneration strategies, cannot provide for longleaf regeneration in the absence of a seed source, and would result in excessive competition if under-planting or other methods were used to establish a longleaf component. Clearcutting is optimal because it removes the loblolly seed source and provides appropriate light conditions favorable to longleaf pine. In the absence of adequate natural longleaf pines, clearcutting and planting is the only reasonable silvicultural method that can achieve the desired future condition of establishing longleaf pine shelterwood conditions.

Uneven-aged management by either group selection or single tree selection would not meet desired future condition. Typical group sizes do not provide sufficient shade-free growing conditions to favor development and growth of longleaf. The small openings produced would be surrounded by mature loblolly and shortleaf pines, and prolific seeding of these species would occur with results as noted above. Group selection would only be feasible in established longleaf stands, with some alterations from current accepted practices, as established by current research. Single-tree selection would not provide suitable light conditions and even higher levels of competing seed source. All current research indicates that longleaf pine will not regenerate and develop under single tree selection forest structure but that gaps or group sized openings are required to initiate height growth. After initiation of height growth, most trees would not maintain growth and vigor unless opening size increases over time to provide additional direct sunlight. Uneven-aged management was evaluated, but not considered appropriate, as described in Chapter 2.

- Where pine/hardwood regeneration is prescribed, the objective is to develop a high component of hardmast producing hardwoods (oaks). These species are shade intolerant and regenerate best in open light conditions. Pines do not regenerate from rootstock and require seed trees for natural regeneration. Leaving loblolly and shortleaf seed trees would provide an abundant seed source for these species, which is likely to produce a large number of pine seedlings. On the Homochitto, pines tend to rapidly over-top hardwoods and shade them out, consequently occupying the site and creating pure pine stands. If higher shade conditions such as shelterwood or uneven-aged management exist, pine growth rates are controlled, but there is insufficient light for successful hardmast species growth. More shade tolerant hardwoods such as beech and magnolia proliferate.

The production of hard mast was a significant public issue in the forest plan, which sets an objective of 40% of the hardwood component in hardmast producing species. It is unlikely that this could be achieved by natural or uneven-aged methods without extensive additional treatments. Harvesting all pines by clearcutting and replacing the pine component by planting on a wide spacing with limited ground clearing during site preparation controls pine density and provides the appropriate light conditions and growing space for hardmast hardwoods. As a result, clearcutting represents the optimum method for pine/hardwood regeneration in this project.

Thinning

SAWTIMBER THINNING:

Sawtimber thinning is an even-aged management tool considered to primarily be a forest health treatment. Thinning is appropriate in all working groups where justified by stem density or forest health maintenance needs. The Forest Plan (4-38) identifies thinning as appropriate in older stands in order to "salvage volume which would otherwise be lost because of natural mortality from over-crowding", when regeneration is to be delayed 20 years or more. Based upon changing US Forest Service harvest direction, the next entry's regeneration cannot be projected at this time. However, considering current mitigation and southern pine beetle hazard reduction recommendations, and in light of the history of infestation on the Homochitto National Forest, current direction dictates that high hazard stands and clumps be thinned.

In this project, sawtimber thinning within the prescribed burning area would create an open pine dominated, grass and shrub understory community which would have developed naturally had the historic fire regime been maintained. In pre-settlement times, this community type was the most common across the region. Through harvest and development, its occurrence has been critically reduced. The Southern Resource Assessment released November, 2002 identified this fire-dependent pine dominated community as a critical community reduced to less than 2% of its original range. The listing of several species such as the endangered red-cockaded woodpecker and the decline of a number of Neotropical migrant birds have been at least partially attributed to this loss. Sawtimber thinning with prescribed burning would open the canopy and

encourage a more complex understory dominated by grasses, enhancing wildlife habitat. Southern pine beetle vulnerability would also be reduced, and stands would potentially be retained in a healthy condition for a longer period. The declining populations of Neotropical migrant birds and a variety of other species associated with this habitat type would benefit.

When the long-term objective is to manage for mixed pine and the stand is currently mixed pine sawtimber, the thinning objective is to reduce pine density. Commercial thinning also removes low quality hardwoods from drier upland sites, allowing more sunlight to reach the forest floor. By combining a more open forest canopy with prescribed burning, a diverse understory can be achieved. All hard mast producing hardwood trees 12" diameter at breast height (dbh) and larger, as well as some hardwoods as small as 10" dbh, would be retained to provide a hardwood component in these stands. These trees are of sufficient size to tolerate the periodic prescribed fires planned for this category. See Appendix B for site-specific area of each alternative.

In mixed pine sawtimber thinnings, where the stand is located within the established prescribed burning area, the stand will be managed for mixed pine. The order of trees preferred for retention is longleaf, shortleaf, and then loblolly pine. This is based on their fire ecosystem relationship. These stands are thinned to a target basal area of 70 with an average basal area range between 60 and 80. Generally, these stands are thinned to a minimum spacing of 20 feet between pine leave trees. Mast producing hardwoods over 12" dbh (diameter at breast height) may be retained and protected during harvest. Pine removal to exclusively release hardwoods would not be practiced. Desirable hardwoods of good form found on moist micro-sites may be retained and protected regardless of diameter. Other hardwoods within these micro-sites may be harvested.

In mixed pine sawtimber stands that remain outside of the established burn block boundaries, the thinning objective is to reduce the pine basal area and encourage the release of more mast producing hardwoods. The long-term desired future condition for these stands is a pine/hardwood community type that transitions from primarily pine to hardwood pine over the life of the stand. These stands will be thinned to a target basal area of 80 with an average basal area range between 70 and 90. This thin will provide a larger opening within pine stands to allow shade intolerant hardwoods such as oaks to establish themselves in the dominant and co-dominant crown class. To accomplish the stand goal of a well-developed pine/hardwood community with suitable numbers of well-formed hardwoods may take several entry periods and thinnings. Generally, the pines within these stands are thinned to a minimum spacing of 20 feet between pine leave trees. Well-formed and vigorous hardwoods over 10" diameter at breast height may be retained and protected from damage during harvest.

In stands classified as a pine/hardwood stand, the management action will be to thin pine clumps to reduce the threat of Southern Pine Beetle, leaving a minimum spacing of 20 feet between pine leave trees. These stands will be thinned to a target basal area of 80 with an average basal area range between 70 and 90. Hardwood thinning will occur only to release hardmast producing species that are presently established. This management

action will produce stands with a larger species and structural diversity. Stands outside the established prescribed burning area fall within this category.

The basal areas given for management actions on the different forest types are targets only. Due to natural gaps in the overstory created by natural events, thinning will not produce an evenly grid-like pattern and may have basal areas lower than the target. Areas with a basal area lower than the target basal area in a stand may still have trees removed for stand health reasons.

FIRST THINNING:

First thinnings are proposed on pulpwood stands 15-30 years old, which have not been previously thinned. The objectives of a first thinning are to enhance wildlife habitat by reducing the stand density, create a spacing of 9-27 feet between trees, and retain trees that display the best vigor and health. This type thinning is a forest health treatment applied prior to the time trees produce sufficient seed for regeneration. Therefore, first thinning is a forest health treatment and cannot be associated with even or uneven-aged management.

In a mixed pine pulpwood stand, the first thinning would target a spacing of 15-20 feet between residual trees. Loblolly is the least preferred residual tree. The highest priority residual tree is longleaf and then shortleaf. Hardwoods would be thinned to release pines as necessary and to provide proper spacing. All “relic” longleaf pines would be retained. A hard mast component will be retained in accordance with the forest plan. This component will be primarily managed on lower slopes and in drainages where preferred site conditions exist and fire burns at lower intensity, increasing the potential for long term development. See Appendix B for site-specific area of each alternative.

In a pine hardwood stand, the first thinning would target a spacing of 15-20 feet between leave trees. Longleaf and shortleaf are the preferred leave trees. This is based on their fire ecosystem relationship. Hardmast producing hardwoods with good form will be retained and care taken to avoid damaging them during the harvest.

Due to gaps in the overstory created by natural events, first thinning will not produce an evenly grid-like pattern and may have basal areas lower than the target. The general spacing guides above are intended to provide a residual target basal area of approximately 60 square feet per acre, but individual locations may range from 50 sq. ft. to 70 sq. ft, and existing gaps may result in greater variation at specific locations. This is somewhat lower than for mature stands, but once thinned, the residual trees have less resource competition and grow more quickly. This allows stand canopies to quickly fill openings and to obtain characteristics associated with mature forests. Also vigor is closely associated with resistance to southern pine beetle infestation. In general, first thinnings create understory conditions valuable for a variety of wildlife species.

The stands proposed for first thinning are below effective regeneration age. Therefore, the first thinning does not commit the stands to even-aged or uneven-aged management.

The first thinning is a forest health treatment applied to carry the stands forward to an age where regeneration regimes may be considered. Thinning "deals primarily with the tending of stands that have already been established or regenerated. The most important kind of tending or intermediate cutting is thinning, which is a kind of partial cutting designed to guide the production of stands along desirable channels," (Smith 1996).



Photo 1.3: Dense stand of pine less than 30 years old at risk to insect and disease attack. (Stand 1, Comp. 251)



Photo 1.4: A forest stand after its first commercial thin. Note the gaps in the overstory allowing more light and growing space for existing trees.

LONG-TERM OBJECTIVES

In both mixed pine and mixed pine hardwood stands it is anticipated that it will require intermediate treatments over several entries and potentially more than one rotation to achieve the desired future condition of each stand.

After harvest mixed-pine stands are essentially non-stocked. By the second year, even if planted or natural seedlings are present, grasses, herbaceous plants and woody brush dominate the site. Management species represent only a small number of the thousands of stems per acres and are generally overtopped by the surrounding brush in the first years. However, by the 5th year, management tree species once again begin to dominate the site. Even under moderate competition, loblolly pines will tend to outgrow competition because moisture and soil relationships favor pines. The long-term structure of the stand would be dependent upon management styles after the 5th year.

Longer-term overstory selection would be achieved by multiple entry thinnings. Typically only about 100 trees per acre reach large sawtimber size, and mature pine stands of the Homochitto rarely have more than 60 dominants and codominants. Older stands have even fewer trees. Thinning would be used to remove loblolly and shortleaf pines and other species as necessary to favor the appropriate mixes of pines and hardwoods. Therefore, appropriate stands could be developed from a wide variation in initial stocking. The general expectation is that the desired future could be reached at mid-rotation, or age 50 after planting for most stands. The decision to be made on this project cannot commit actions for such an extended period such as this. Future public opinions and demands, available treatments and a variety of other factors will influence future decisions. However, initial actions provided by the proposed mixed pine regeneration and thinning treatments would provide the basis for long-term restoration of the historic forest structure.

The development of a pine-hardwood stands particularly from pine stands that are currently outside the burning area is a long-term activity. As noted above, stands pass through a series of early seral development stages before tree species dominate, and soil and site conditions generally favor early dominance of the pine component. Unlike mixed pine stands, pine-hardwood stands do not have periodic prescribed fires that would discourage hardwood development. Over time, pre-commercial and intermediate thinnings would be used to reduce the initial 200 to 300 planted pines and any natural pine regeneration to approximately 20 to 40 stems. Thinnings would also serve to favor development of at least 40% hardmast producers in the hardwood component (Forest Plan 4-9). Therefore, stands may be initially dominated by pine but develop into pine-hardwood structure by mid rotation. During this time, pines and low quality hardwoods serve as trainers, which provide for improved form development of the mature hardwoods. If rotations extend beyond 80 to 100 years, the short-lived loblolly pine component is likely to fade below 30% of the dominant and codominant stems, and the stand may take on a hardwood structure. The initial means of obtaining this managed progression is control of initial release, quality form development and selection of

preferred species mixes. This action provides the initial resource conditions that would be developed into the proposed management type through future decisions and actions.

STAND VARIABILITY

Variability is inherent in all natural systems. Insects, disease, wind events, and other natural disturbances open small gaps in the forest canopy. In mature stands, this tends to introduce a small number of individual stems that may not have reached culmination of mean annual increment. Inherent to thinning is removal of over-dense trees, or trees with poor form, damaged trees, and trees of low vigor. The National Forest Management Act (Sec. 1604(m)) requires the Secretary of Agriculture to establish standards that insure “stands of trees” have generally reached culmination or mean annual increment prior to harvest. This language refers to stands and not individual trees and recognizes “thinning and other stand improvement measures” as appropriate. Exceptions are provided for salvage and sanitation harvesting of stands substantially damaged by fire, wind or other catastrophe, stands in imminent danger from insects and disease attack, research, etc. Additional exceptions are provided for harvests where consideration establishes the need to meet multiple use objectives such as recreation and wildlife habitat improvement through harvest activities. All proposed harvests fully comply with this law and the implementation direction found in 36 CFR 219.16 (a)(2)(iii)

STREAMSIDE MANAGEMENT ZONES

Streamside management zones include those areas next to perennial and intermittent drains and are a site-specific mitigation for each regeneration unit (See Table 1-2). For perennial drains, the buffer strip on both sides of the drain would be a minimum of one chain (66 feet) but would average three chains or about 198 feet. For intermittent drains, the buffer strip on both sides of the drain would be a minimum of a half chain or 30' plus 1 1/2 times the percent of slope, but would average two chains or 132 feet. Typical streamside management zones boundaries would be located at the point of the side slope that provides a definite break between the ridge and the bottom of the slope. Actual width at any point along the drain would depend upon the landform at that point. Areas with steep ridges might be narrower than three chains or 198 feet, while areas that are broad and flat might go well beyond the three chain average distance.

The minimum standard provided by the Forest Plan and VMCP/P (Forest Plan Amendment 6) is to maintain a minimum 30ft. + 1 1/2 times the percent slope as a filter strip along perennial and intermittent streams. Additional width is required based upon landform and floodplain width. Except for stream bank trees on perennial streams, timber may be harvested from the filter strips, however, equipment use is restricted to designated crossings (Forest Plan Appendix M) and disturbance of no more than 10% of the organic layer (VMCP/P). Mitigation guidelines direct that streamside management zones be primarily for the protection of water quality.

This minimum standard would meet soil and water quality objectives. However, timber management guidelines for meeting hardwood mitigation state "Within filter strips the

objective is to maintain healthy, vigorous stands of hardwood trees with a high component of hard mast." (Forest Plan 4-8). Since one of the objectives of the Forest Plan is to maintain existing hardwood up to 20% of each square mile (Forest Plan 4-5), expanding streamside management zones to provide this hardwood component is an option supported by the Forest Plan FEIS.

Expanded streamside management zones have also been an important issue developed through local scoping. In the early 1990's a group of local hunters and non-hunters with environmental interests formed a group called "Concerned Citizens for Conservation." The hardwood issue was one of their primary concerns and the group focused on streamside management zones and other leave areas that provided substantial wildlife benefit. Their objective was to retain hardwoods in riparian areas and on upper slopes where hard mast species were more abundant. Retention of wider streamside management zones and well-distributed inclusions has largely satisfied this group's concerns, and they have supported District management decisions that incorporated these features.

Also, since the Forest Plan was developed, additional information has been published related to the relationships between streamside management zone width and wildlife habitat benefits. In 1989 Dr. James Dickson, Southern Forest Experiment Station, found that maintenance of squirrel populations was not achieved until zone widths exceeded 50 meters or approximately three chains on each side of the stream. Populations of reptiles and amphibians could be retained at zone widths of 30 to 40 meters but responded favorably to zone widths of over 50 meters. Small mammals such as harvest mice, which are characteristic of early successional conditions, invaded narrow streamside management zones, which extended less than 25 meters on each side of the stream, but populations progressively diminished as zones exceeded 50 meters. This indicates that the characteristics of mature habitat are lost in narrow streamside management zones even though some older trees and hard mast producers are retained.

The Forest Plan directs that some mitigation be provided for species associated with riparian and late seral conditions, and directs that "Standards and guidelines for species that totally depend on riparian habitat would be developed." (Forest Plan 4-5). Also, it directs that "hardwoods would also be managed in stringers and inclusions." (Forest Plan 4-6). Dr. Dickson's study indicates that mitigation minimums of 1/2 acre per 20 acres of harvest (Forest Plan 4-9) and scattered clumps and snag trees are ineffective in providing this habitat. Even as regeneration advances in age to mid-rotation, it appears there would be insufficient suitable habitat to provide a base location for squirrels, reptiles, and amphibians to effectively use the remainder of the stand under Plan minimums. Therefore, through hardwood and wildlife habitat diversity mitigation guidelines, the Forest Plan supports the retention of larger clumps and wider streamside management zones that are a site-specific mitigation in all regeneration units. (See Table 1.2)

Where the predominant forest type is pine, streamside management zones may be crown thinned. Where the predominant forest type is pine-hardwood or hardwood, these streamside management zones would rarely be thinned, and thinning would be limited to

removal of pines and lower grade hardwoods with the specific objective of releasing or developing the hard mast component in accordance with Forest Plan objectives (Forest Plan 4-6). Pines may also be removed from the edge of the streamside management zones. In all cases, directional felling techniques would be used to the extent reasonable to fell trees to the outside of the area or in a direction where disturbance would be minimized. The intent is to maintain the mesic community and its full range of understory, midstory, and overstory vegetation. Minor disturbance to brush and understory vegetation is acceptable, but trees would not be marked for harvesting if they cannot be removed without causing damage to residual trees selected for release, or changing the over-all character within the streamside management zone. In future entries, sufficient basal area may need to be removed to secure advanced reproduction of desired species. However, no site preparation or regeneration would be done inside these areas during this entry.

Within the streamside management zones, the objective is to diminish pine stocking to approximately 50 - 70% of the total basal area to reduce the risk of southern pine beetle infestations and release potential hardwood hard mast producers. However, an overstory basal area of 80-85 square feet per acre should be maintained to retain the fully shaded, open understory condition of the sites. Canopy or cover of streams would be maintained or increased when possible and riparian areas maintained (Forest Plan 4-62). Complete mitigation details are found in Appendix C.

WILDLIFE HABITAT INCLUSIONS AND RESERVE CLUMPS

Leave trees, inclusions, and tree clumps are provided in the regeneration areas to meet a variety of management and mitigation needs (See table 1.2). Clumps are intended to vary in size from 1/2 acre to 2 acres. Forest Plan justification and mitigation benefits for these large, well distributed leave areas are documented above under "Streamside Management Zones". The combination of streamside management zones and clumps are intended to comprise approximately 15% to 20% of stand acres.

These clumps mitigate visual impacts and provide wildlife mitigation targeted in the Forest Plan. These clumps can also be used to maintain concentrations of mast producing hardwoods. Pine clumps are to be thinned, and pines and hardwoods may be thinned from hardwood and pine-hardwood clumps to release or develop additional mast production.

Skidding through clumps is acceptable on designated roads and trails to access other portions of the stand on the most desirable, least soil-impacting route. However, basal areas should remain somewhat higher than the general thinning areas (about 75-85 square feet), and every effort should be made to directional fell trees to the outside of the clump. Disturbance of the understory and midstory should be minimized to maintain the closed forest, open understory character of the clumps. Trees should not be removed if they would damage specific reserve trees such as longleaf pine or large mast producers 12 inches diameter at breast height or larger, which the thinning is intended to enhance.

Monitoring

Monitoring activities are divided into several broad categories: Forest Plan monitoring, routine implementation monitoring, validation monitoring, and project-specific effectiveness monitoring. The National Forest Management Act requires that National Forests monitor and evaluate their forest plans (36 CFR 219.11). The Forest Plan (Chapter 5) includes the monitoring and evaluation activities to be conducted as part of Forest Plan implementation. Monitoring requirements in Chapter 5 of the Forest Plan would be met under all alternatives. Validation monitoring is considered longer-term research data collection to verify if implementation and effectiveness monitoring assumptions remain valid; no validation monitoring is scheduled for this proposal. Routine implementation monitoring is part of the administration of a timber sale contract. Trained timber sale administrators and road inspectors ensure that standards and guidelines are being met. Trained state and federal wildlife biologists and botanists would accomplish plant and wildlife monitoring. Soil Scientists would monitor soils and soil properties including soil productivity. For example, burn projects are reviewed by soil scientists to confirm that mitigation documented in a burn plan was followed and successful. Monitoring would ensure that the appropriate standards and guidelines and mitigation measures are followed to protect water quality, heritage resources, wildlife habitat, and other natural resources. Effectiveness monitoring is done to determine if management objectives are being met, and if mitigation measures are adequate. Monitoring for occurrence of southern pine beetle infestations would occur throughout the Project Area. More monitoring information is found within Appendix C. Also, see Appendix B for site specific areas of each alternative.

Decision To Be Made

The decision to be made is whether to implement all or part of the Proposed Actions (alternative 5) as described herein, one of the other action alternatives, or to choose the No Action alternative and do no management activities in Analysis Unit 24 at this time. The decision to implement all or part of any one alternative will be made by the District Ranger of the Homochitto National Forest, Homochitto Ranger District.

Public Involvement

The Council of Environmental Quality (CEQ) defines scoping as “. . . an early and open process for determining the range of issues to be addressed and for identifying the significant issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). The scoping process was used to invite public participation and collect initial comments. Letters were sent to interested individuals, groups and/or other agencies and a legal notice was placed in the newspaper.

Issues and concerns related to the potential effects of the proposed action have been explored through internal and external scoping. Scoping was accomplished by a combination of methods including sending letters, public notices in newspapers, contacts with interested publics, contacts with adjacent landowners, and by evaluation internally

by a Forest Service interdisciplinary team. The interdisciplinary team process was used to formulate and analyze issues, alternatives, and environmental effects in this environmental assessment. A list of team members is provided in Appendix A. As a cooperating agency, the United States Fish and Wildlife Service was consulted for a review of the “Proposed Actions” and alternatives and the associated Biological Evaluation.

On July 31, 2003, a notice was published in the Clarion Ledger, the newspaper of record for the Homochitto National Forest. This notice began the official 30-day request for comments (official scoping period) regarding this environmental assessment. One comment letter was received during the official comment period. The comments along with the responses to the identified issues have been included in Appendix H.

A copy of the scoping notice for Analysis Unit 24 was sent to a variety of agencies, individuals, organizations, businesses, and public officials who are part of the Homochitto National Forest’s mandatory mailing list (see Service Handbook 1909.15, Sections 23.2 and 63.1), or are recognized as being potentially affected by, or interested in Analysis Unit 24. A list of people who were sent scoping letters is included in Appendix A.

Issues and Concerns

The interdisciplinary team and public involvement process discussed above generated a number of issues and concerns related to the project. Issues are generally stated in their effects on or concerns related to the effects on specific resources. Issues are generally divided into two primary categories – significant issues and other issues. Significant issues are those that lead to the formulation of alternatives to the proposed action. Other issues tend to be issues that have bearing on the analysis but are more likely to be addressed through mitigations or project design. They do not inherently lead to or justify the development of an alternative to address the concern or issue. Additionally, some “other issues” raised may be related to broader topics such as the national allocation of resources or appropriateness of policy. These areas may have bearing on, or a relationship to the project, but are addressed by public policy, laws, regulations or Forest Plan level documents, and are “out of the scope” of a project level analysis. Questions may also be raised that have no bearing on the project because there is no cause and effect relationship. The rationale for why analysis of these last two categories is not appropriate at the project level is generally provided.

To be analyzed under NEPA, an issue must have a cause and effect relationship to the human environment. For the purpose of analysis, environmental resource areas have been divided into 12 broad-based resource areas with sub-categories as appropriate to the project. Subsequently, the Homochitto National Forest addresses issues by analyzing the effects of the project on these human environment facets. Since issues and concerns are generally stated in this manner, this provides the interdisciplinary team and interested publics a positive means of tracking issues through the analysis. “Issues that Govern the Alternatives and Mitigation” includes these 12 resource areas as well as a discussion of

how these resource areas relate to “significant” or “other” issues. Based on the internal and public responses and inputs from scoping, the following issues and concerns were identified:

ISSUES THAT GOVERN THE ALTERNATIVES AND MITIGATION

Issue 1. Soil Productivity

Internally raised issue based on the concern that activities of the Forest Service do not reduce the long-term productivity of the forest. The use of herbicides has raised a national issue with respect to public concerns that herbicides might have a long-term soil productivity and water quality effect, potential for effect on non-target vegetation, and potential effect on human health and wildlife. The Southern Region has determined that it is appropriate to consider a non-herbicide alternative if the use of herbicides is being considered. This issue is considered significant, and is addressed by both the “No Herbicide” and “No Action” alternatives.

Issue 2. Water Quality

Internally raised issue based on the concern that activities of the Forest Service do not degrade the quality of water for down-stream uses or negatively impact aquatic habitat. (Significant-see soil productivity above.)

Issue 3. Air Quality

Internally raised issue based on the concern that activities of the Forest Service do not negatively impact air quality. (“Other” issue - Addressed through project design and mitigation)

Issue 4. Vegetation

Internally raised issue based on the concern that the Forest Service provide for diversity of vegetation and protect or increase the quality of renewable resources. (Significant-see soil productivity above.)

Issue 5. Forest Health

Internally raised concern that the Forest Service make provisions for forest health protection and enhancement. This issue is considered significant, and is the basis for the purpose and need of the project.

Issue 6. Threatened, Endangered, and Sensitive Species

Internally raised issue based on the concern that activities of the Forest Service do not negatively affect Proposed, Endangered, Threatened, and Sensitive Species. (Significant-see soil productivity above.)

Issue 7. Management Indicator Species

Internally raised issue based on the concern that activities of the Forest Service do not alter habitat in such a way as to negatively affect management indicator species. (Significant-see soil productivity above.)

Issue 8. Local Economics

Internally raised issue based on the concern that Forest Service activities are economically efficient and are not detrimental to local businesses or communities. (“Other” issue - Addressed through project design)

Issue 9. Recreation

Internally raised issue based on the concern that activities of the Forest Service do not reduce, but enhance, recreational opportunities available on the Forest. (Significant-see soil productivity above.)

Issue 10. Heritage Resources

Internally raised issue based on the concern that Forest Service activities do not negatively affect heritage resources on the Forest. (“Other” issue - Addressed through project design and mitigation)

Issue 11. Public Health and Safety

Internally raised issue based on the concern that negative influences to public health and safety do not result from activities of the Forest Service, nor do hazards to public health and safety increase due to lack of action by the Forest Service. (Significant -see soil productivity above.)

Issue 12. Civil Rights

Internally raised issue based on the concern that activities of the Forest Service are not detrimental to civil rights and environmental justice. (“Other” issue - Addressed through project design)

OTHER ISSUES NOT FURTHER ANALYZED

Revise Forest Plan/EIS

Concern that the project be suspended until the National Forests in Mississippi revises the Land and Resource Management Plan (LMRP) and publishes a new Environmental Impact Statement supporting a revised LMRP.

Although the Forest Plan states that “[it] will be reviewed and updated as necessary...at least every 15 years” (Forest Plan 1-1), it also “establishes management direction and

associated long-range goals and objectives for the Forest for the next 45 years (through the year 2030) (Forest Plan 1-1).” National Forest planning takes place at several levels: national, regional, forest, and project levels. Forest Plan revision was specifically delayed by Congress in order to evaluate and revise planning regulations. Analysis Unit 24 is a project-level analysis; therefore, its scope is confined to issues about the effects of the project. The analysis does not attempt to address decisions made at higher levels. Forest Plan revision is beyond the scope of project level decisions. This issue is, therefore, out of the scope of this project as the Forest Plan is still able to guide management decisions on the Homochitto National Forest.

Renewable Resources Program

Concern that the project be suspended until the Forest Service develops a Renewable Resources Program.

National Forest planning takes place at several levels: national, regional, forest, and project levels. Analysis Unit 24 is a project-level analysis; therefore, its scope is confined to issues about the effects of the project. The analysis does not attempt to address decisions made at higher levels. This issue is beyond the scope of project level decisions.

Resource Sustainability

Concern was expressed that resources might be present that may not be sustained under the project.

Analysis Unit 24 has been fully inventoried for biological, archaeological, social, and economic values. There is also a continuous inventory of threatened, endangered, and sensitive species, as well as continuous monitoring of management indicator species. There are currently several Threatened, Endangered, and Sensitive species of plants residing in the National Forests of Mississippi. These include fetid trillium and a moss (*hookeriopsis heteroica*) on the Homochitto National Forest. There are also some species of local concern, such as silky camellia, single-headed pussytoes, and southern wood-fern. Several of these rare plants are confirmed to have habitat within this analysis area, but have not been physically identified. Proper management within the streamside zones and reserve areas within the stands, along with other standard mitigation, should allow individuals of these species, if present, to continue to survive and fulfill their ecological role, despite timber harvest activities in the area. The inherent design of the project is to sustain the vegetative character of the area. The Biological Evaluation indicated that the project will not lead to listing, extirpation, or extinction of any endangered, threatened, or sensitive species. A cultural resource survey has been completed for all areas proposed for action in any of the alternatives considered in detail. Recommendations for protection of cultural resources were made by a Forest Service Archeologist and approved by the State Historic Preservation Officer. Cultural sites will be protected from damage during implementation of any project in Analysis Unit 24. More than 60% of this analysis unit is economically mature and appropriate for harvest if “supply side” economics was

applied as the primary decision factor. The purpose of this project, however, is to meet desired future conditions for forest health, ecosystem restoration, wildlife, and recreation. The economics of timber production would become a deciding factor only if the project were expected to result in deficit costs. At that point, under current guidelines, it would likely result in a “No Action” decision rather than harvest. The economics of recreation is fully considered. The primary recreation activity in this project area is hunting. Chapter 3 indicates that populations of game species are likely to be maintained based on available habitat units. The discussion related to economics identifies returns to local governments and the potential for jobs associated with the project. Values associated with un-quantified benefits are discussed on an equal basis. This project does not emphasize “supply side” economics, but simply describes the economic benefits that result from maintaining healthy forests and diverse wildlife habitats. Recreation and other resource values are maintained at appropriate levels. The study of supply economics of the various multiple uses, to include water, wildlife and recreation lies at the Forest Planning level, rather than with the individual project. This has been done and this project tiers to and complies with the Forest Plan. Further information can be found in Chapter 3 of this Environmental Assessment. The respondent failed to identify any single specific resource component, but only said that there may be components for which sustainability would not be considered. Without specific concern, we could not address this issue further.

Alternatives

Concern that the Forest Service fully examines a reasonable range of alternatives.

Current National Environmental Policy Act guidance is for the Forest Service to rigorously explore and objectively evaluate all reasonable alternatives to the proposed action, based on the results of scoping and the determination of issues to be analyzed in detail, and to briefly discuss the reasons for elimination of alternatives which were eliminated from detailed study. Alternatives for this project are discussed in Chapter 2 of this environmental assessment. Please refer to Chapter 2 for discussion of the alternatives, which include thinning only, prescribed burning only, no commercial timber sale, harvesting equipment restrictions, and harvesting fewer acres. Reasonable alternatives received detailed analysis in Chapter 3. This issue was classified under “other” because the respondent did not identify a resource area or impact to analyze. Failing to identify specific impacts that appear to have importance does not provide for issue-specific response.

MIS Information

Concern that the Forest Service may not have adequate information about all MIS species to make an informed decision.

National Forests are managed for a full range of forest resources historically defined within the five major categories of Wildlife, Recreation, Soil Water, and Timber under the Multiple Use and Sustained Yield Act of 1960. Sustaining the natural diversity of

plants and animals found in our nations forests falls within that mandate. The National Forest Management act further defined this requirement and defined a process, using Management Indicator Species, to insure that this multiple use objective was met.

Wildlife and fish on the National Forests in Mississippi are managed in cooperation with the Mississippi Department of Wildlife, Fisheries, and Parks (MDWFP). The State sets hunting and fishing regulations and law enforcement programs. The Forest Service and State manage wildlife and fish habitat conditions.

Under the National Forest Management Act (NFMA), the Forest is charged with preserving and enhancing the diversity of plants and animals consistent with overall multiple-use objectives stated in the Forest Plan (36 CFR 219.27- Planning, Management Requirements). The objective, set forth in 36 CFR 219.19 is to manage fish and wildlife habitat to maintain viable populations of existing native and desired non-native vertebrate species in the planning area. This section further states:

“For planning purposes, a viable population shall be regarded as one which has the established numbers and distribution of reproductive individuals to insure its continued existence is well distributed in the planning area. In order to insure that viable populations will be maintained, habitat must be provided to support at least a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area.” (36 CFR 219.19)

By this direction, National Forest Management Act regulations link the obligation to manage for viability directly to planned actions within the range and habitat of existing native and desired non-native vertebrate species. Verification of presence and sustainability of species may be needed but methodology for insuring viability is through the allocation and management of habitat within the framework of multiple use objectives. The requirements of this act are not relevant to activities that do not alter or manage habitat. For site-specific projects, analysis is required only for species associated with affected habitats. With the exception of threatened and endangered species for which recovery activities may be required, there is no mandate to introduce species not present.

National Forest Management Act implementation regulations, 36 CFR 219, specify that management for viability will be conducted within the “Planning Area”. The Land and Resource Management Plan for the National Forests in Mississippi developed specific management plans and prescriptions by “Management Units” corresponding to the National Forest Ranger Districts within Mississippi. Initially, 11 management units were evaluated. Management prescriptions for Units falling within the same geographic province or sub-region were the same. Since the Forest Plan was written, National Forests in Mississippi consolidated districts within the same geographic sub-regions and currently manages seven unique management areas. These represent the basic “Planning Areas” for Management Indicator Species analysis. Viability analysis is conducted by species for each individual Ranger District (Management Area). The results of this analysis are available to decision makers and are discussed in the EA.

The National Forests in Mississippi has upgraded its MIS presentation in order to respond to this recurring issue. This information has been consolidated across the National Forests in Mississippi and published in the report Management Indicator Species Population and Habitat Trends (National Forests in Mississippi, March, 2002). The MIS discussion in Chapter 3 of this EA provides disclosure of the information available to the Deciding Officer, including current species, trends, and conclusions drawn from this analysis

PETS Information

Concern that the Forest Service may not have adequate information about all TES species to make an informed decision.

Every project on the Homochitto National Forest undergoes a biological review (which is published as a Biological Evaluation) as part of the planning record. Before a Biological Evaluation is undertaken, the analysis unit is examined to determine actual and potential habitat for not only Proposed, Endangered, Threatened, or Sensitive (PETS) species (which we are legally mandated to consider), but also those species of local concern, which were nominated by the Mississippi Natural Heritage Program as having a State Rank (SRANK) of at least S3. These species are considered because of our wish to head off future listing of species as endangered or threatened by insuring that viable populations continue to exist on the National Forest.

Many of these species of local concern, as well as many of the Proposed, Endangered, Threatened, or Sensitive (PETS) species, occur in specific habitats, which are not areas in which vegetation manipulation is occurring. For instance, *Stewartia malacodendron* and *Schisandra glabra* are two plant species of special concern that occur on mesic, north-facing slopes and moist streamside areas. These species can have their continued viability assured by utilizing expanded Streamside Management Zones (beyond that called for in the Forest Plan). Neither species is of Regional or National conservation concern, but they are indicators of sensitive habitats on the Homochitto National Forest, so we take every effort to insure their continued viability here.

Not every acre of the Forest is habitat for sensitive species. Most have such specific habitat requirements that their occurrence can be predicted based on habitat characteristics. For the red-cockaded woodpecker, a 100% survey of suitable habitat is conducted prior to planning so this species is ruled out or protection measures implemented before the project begins. Bachman's sparrow can utilize these upland pine forests only if the hardwood midstory has been controlled and frequent prescribed burning has taken place. Again, habitat determines the presence of the species.

It is not in the best interest of the USDA Forest Service to ignore sensitive species, and we do not do so. Sensitive species, when ignored, go on to become listed species, which cost the taxpayer much more to manage than does a sensitive species. Each sensitive species, whether plant or animal, is fully evaluated during the planning process to insure

the continued survival of the species. Most times, simply restricting management activity in sensitive habitats can do this. Not all species occur on every acre of the forest, so we must use predictive analysis to determine what may be present. If we cannot confirm the presence of a species due to conditions such as time of year, drought, or other issues, we assume that the species is present, and plan for it as though it were.

A Biological Evaluation is always completed before publication of the Environmental Assessment. In addition, if any new data comes to light (i.e. Threatened, Endangered, and Sensitive species lists are reviewed and revised each year by the US Fish and Wildlife Service as well as by the Regional Forester) the Biological Evaluation may be amended or revised even after publication of the Environmental Assessment in order to protect the species and habitats of concern. Further discussion can be found in the Chapters 1 and 3 of the Environmental Assessment; the Biological Evaluation; and Appendix C, Mitigation Measures.

Cumulative Impacts

Concern that cumulative impacts be analyzed including other activities both on and off the Forest.

The standards for analysis of cumulative impacts are outlined in the Council on Environmental Quality's publication, *Considering Cumulative Effects Under the National Environmental Policy Act*. This publication identifies the need to analyze cumulative effects on both a temporal and geographic basis. However, it sets standards for the extent of the analysis over both time and area. The publication states: "Not all potential cumulative effects issues identified during scoping need to be included in an [environmental assessment] or [environmental impact statement]. Some may be irrelevant or inconsequential to discussions about the proposed action and alternatives. Cumulative effects analysis should 'count what counts,' not produce superficial analysis of a long laundry list of issues that have little relevance the effects of the proposed action or the eventual decisions." (Council on Environmental Quality page 12)

To clarify limits on the required extent of the analysis, the Council on Environmental Quality identifies the concept of "project impact zone," which is generally an area for which the effects can be identified as associated with a project and is meaningful. Table 1-2 sets down the principles of cumulative effects analysis. Conceptually, this would apply to temporal relationships, also. The narrative for Cumulative Effects Analysis, Principal 4, states that cumulative effects should be expanded to the point at which the resource is no longer affected significantly....

Within the context of *Considering Cumulative Effects Under the National Environmental Policy Act*, significance is better described as an intensity that can be measures or is of interest to the affected parties. The Council on Environmental Quality clearly indicates that environmental assessments should include an analysis of significant cumulative effects or, essentially, effects that are not irrelevant or inconsequential. This is substantially different in context from the National Environmental Policy Act where the

term “significant impact” is more closely associated with an effect, which elevates a project to the level of major federal action that must be analyzed in an environmental impact statement rather than an environmental assessment.

The Council on Environmental Quality recognizes that through this and direction related to determining the magnitude and significance of cumulative effects in Chapter 4, all activities on the earth have some interrelationship, but analysis becomes irrelevant when impacts are so small that their affects cannot be measured or are masked by the total universe of similar impacts. An example would be trying to measure the impacts of a single project on the Homochitto once waters mix into the Mississippi River, which may carry millions of tons of silt per day.

This issue was classified under “other” because the respondent did not identify a specific resource area or cumulative impact to analyze. Failing to identify specific impacts that appear to have importance leads to the superficial analysis of issues that have little bearing upon the decision. This was not the intent of the Council on Environmental Quality or the National Environmental Policy Act.

Cumulative impacts over time and area are analyzed in Chapter 3 of this environmental assessment to the extent that they can be measured. The most meaningful potential impacts of this project relate to soil productivity and water quality. Therefore, these issues are also discussed below. Additional discussion of harvest activities on the Homochitto National Forest (area) for three years prior to and following the proposed AU-24 activities (time) is included under the Vegetation issue (Issue 4) in Chapter 3. Issue 6 (Threatened, Endangered, and Sensitive species) and Issue 7 (Management Indicator Species) also respond to this concern.

Soil productivity is specific to individual sites. Activities in adjacent areas and surrounding private land would not affect the areas to be treated in this project. Only past and future activities on these sites can be considered. Nearly the entire Homochitto National Forest was clearcut prior to public acquisition. Since that time, the second-growth forest has developed and received infrequent thinnings as needed to maintain forest health. Approximately 41% of the Forest has been regenerated as a result of planned activities and natural events.

The dispersed disturbance associated with thinning has been measured at less than 1% and the dispersed disturbance associated with regeneration has been measured at less than 5%. An ongoing monitoring program, which identified a dozen small watersheds in thinning and regeneration units and constructed silt fences across the outlets, has had difficulty capturing sufficient silt to measure. That same study measured compaction and found no sites other than established roads and decks with sufficient compaction to inhibit root development. Un-compacted soils, by definition, were not compacted by prior activities and cannot add to future compaction from projects in the same areas. There is no potential for cumulative compaction to affect soil productivity. This study also confirms earlier monitoring observations that disturbed soils were typically captured within 15 feet of the disturbed site (See Chapter 3 of this environmental assessment).

Tolerable soil losses established in Appendix L of the Forest Plan to insure no cumulative reduction in site productivity provide standards for periodic entry. In all monitored cases, losses are below the periodic levels allowed. As a result, the additive effect would be below the threshold for productivity loss.

There is no reasonable potential for the Analysis Unit 24 Project to add to cumulative effects such that long-term soil productivity would be lost. This relationship is addressed in the "Soil Productivity" section located in Chapter 3 of this environmental assessment.

The water quality for the Forest is generally good as evidenced by the cumulative effects analyses for water quality currently being conducted for analysis units. Analysis units are analyzed using a computer model developed specifically for Mississippi (Appendix I). The model analyzes the direct and cumulative effects of each project, integrating past, current, and expected future uses of both Forest Service and private land within the watershed. The model has indicated that outputs were below the threshold where adverse direct or cumulative effects would be expected to occur.

Most of the drainages on the Forest were completely cutover in the 1920's. Much of the private forestland has been cutover during the past 25 years. When viewed within the combined perspective of past harvest activities and positive results from base-line aquatic habitat studies, the validity of the model appears to be strongly confirmed.

Analysis Unit 24 is proposed during a period when forestry activities within the watershed appear to be declining. In order to have an adverse or cumulatively adverse impact, proposed and projected activities would have to result in an effect on habitat that would reduce populations or diversity of species. This has not occurred as a result of past, more intensive activities. The water quality models indicate that this project, along with other anticipated activities in the Analysis Unit 24 Project area, will not have an adverse effect.

The benchmark for determining whether cumulative effects are occurring on streams as a result of direct or cumulative effects associated with vegetation management on National Forest lands, along with other activities both on and off the Forest, is the presence or absence of aquatic management indicator species. The baseline aquatic habitat studies confirm that management indicator species are being maintained.

The water quality model computed for this project also indicated that potential impacts from this project and surrounding land uses would not have an adverse or cumulative effect. Based upon this model and verification of the model as noted above, it is reasonable to expect that the potential for direct and cumulative effects are accurately predicted and would not occur.

The cumulative effects models applied to past, present, and anticipated future activities indicate buffers between projected effects and the threshold at which adverse impacts would occur. If siltation and water quality were the only considerations, additional

alternatives with higher levels of disturbance could be considered, while still maintaining the standard. There appears to be little potential that water quality will degrade to the extent that species richness or diversity would be affected.

The base-line aquatic habitat studies also tend to confirm the effectiveness of the water quality mitigations currently being applied. By combining “Best Management Practices” with filter strips, effective unit layout and harvest administration, and revegetation of disturbed areas, water quality is protected. The Forest Service closely monitors the quality of the activities done on the land. While maintaining base-line measurements of water quality does provide the decision maker with additional information, it represents only a measure of the effectiveness of mitigation applied on the ground.

This mitigation represents pro-active prevention rather than effects monitoring. Mitigation such as this is discussed throughout Chapter 3 of this Environmental Assessment. A general listing of standard mitigations and monitoring appropriate to the Analysis Unit 7 Project are also listed in Appendix C. Soil protection and water quality are discussed at several appropriated locations in Chapter 3. This information is incorporated into that discussion.

Need For EIS

Two concerns were identified for the project that specified the need for an Environmental Impact Statement. These concerns are discussed below.

The definition of an environmental assessment, according to 40 CFR 1508.9, is (a) a concise public document that serves to: “(1) Briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact. (2) Aid an agency’s compliance with the [NEPA] Act when no environmental impact statement is necessary.”

The test for significance is very specific in 40 CFR 1508.27 in terms of:

- (a) Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant.
- (b) Intensity. This refers to the severity of impact. There are a series of ten criteria that the decision maker must answer, and these answers will then lead the deciding officer to the conclusion as to whether or not an EIS is required. These ten criteria listed in 40 CFR 1508.27 and the classes of action listed in FSH 1909.15, 20.6 are what determine whether or not an EIS is required. A decision maker does not arbitrarily make the decision. This project has no impacts that significantly affect the quality of the human environment. The number of regeneration acres in a project or the length of

environmental analysis document alone does not require an EIS document to be developed.

DOCUMENT LENGTH

Concern the length of past project documents necessitates analysis with an Environmental Impact Statement.

The District shares the concern that the length of past documents was too great. However, an Environmental Assessment is an issue-driven document where both the number of alternatives considered and the depth of analysis are based on the internal and external issues identified. In recent documents it has not been uncommon to receive 60 to 70 pages of comments from 3 to 4 individuals or interest groups when scoping and final comments are combined. The length of the responses is not necessarily related to the complexity or controversial nature of the project. For instance, comments may represent a laundry list of all possible issues that might occur. Many expressed concerns are considered non-relevant or out of the scope of the analysis.

One of the goals of the National Environmental Policy Act is to inform and share information with the public. Un-addressed issues potentially represent fatal process errors whether they have a cause-and-effect relationship to the project or not. For this reason, the District carefully discusses and provides detailed rationale for how each comment is handled in the analysis or eliminated from further discussion. When additional information is requested, data tables may be included and additional discussion provided in an attempt to share available information. Since comments seem to be similar for most projects, the District has also tried to incorporate analysis/responses to past comments into new documents in order to alleviate the burden of repeating analysis/responses and to enhance public understanding of the project. This level of response does lengthen the analysis, but the District encourages involvement and actively responds in detail to assist interested publics in their evaluation of our projects.

The District believes that the length of individual documents is appropriate to our commitment to respond to relevant, non-relevant, and out-of-the-scope comments in an effort to assist the public in evaluating our projects. In that respect, the length of the documents is driven by external factors and not the complexity of the project or by Interdisciplinary Team design. The Interdisciplinary Team would welcome specific recommendations following review of the pre-decisional environmental assessment if a respondent identifies sections, tables, and discussions that they feel are unnecessary.

There is no environmental relationship associated with this concern, where a cause and effect discussion of impacts is appropriate. The function of an environmental assessment is to determine whether or not an EIS is needed. The responsible official (District Ranger for this project) makes this determination based upon the analysis conducted in the environmental assessment and the criteria stated above. Unless the analysis identifies impacts that meet the above criteria, there would be no basis for an EIS. The responsible official provides a rationale in his decision, related to whether or not an EIS is needed.

LONGLEAF RESTORATION

Concern that restoration of longleaf pine habitats will cause impacts to such an extent that an Environmental Impact Statement will be required.

Current forested areas within the Homochitto National Forest have changed since a survey conducted in 1909; a survey, which identified primarily longleaf pine in a fire, maintained southern pine forest. After logging operations of these historical longleaf pine forests were completed early in this century, species such as loblolly and shortleaf pine easily encroached on longleaf areas due to open seedbeds and fire suppression. These conditions allowed loblolly pine to regenerate extensively due to its large production of seed and its rapid height growth within the first 10 years, which enables the terminal bud to get beyond the reach of most fires. Many species of plants and animals, which depended on the longleaf pine forests and fire to maintain stable populations, are today reduced to vestiges of their original populations.

Approximately 199 acres of Analysis Unit 24 are proposed for restoration to a “mixed-pine with longleaf” ecosystem. Discussion of the suitability of this treatment can be found in Chapter 1, and an analysis of effects is found in Chapter 3.

A substantial benefit of longleaf is its 200-year plus longevity, which supports long-term, stable late seral communities. Numerous species of the Homochitto River Basin are dependent on, or benefit from, this community type, including the endangered red-cockaded woodpecker, many of the declining neotropical migrant birds, quail, turkey, and deer. The Southern Forest Resource Assessment (<http://www.srs.fs.fed.us/sustain/>) identifies the longleaf interior pine forest ecosystem as one of the 14 critically endangered communities. The loss of interior pine forest would be considered additive to an already adverse cumulative condition. An alternative that did not restore this community on appropriate sites would not address this concern. Restoration of longleaf is a stated purpose and need of this project.

The longleaf pine forest type was not identified for the Homochitto National forest in the Land and Resource Management Plan for the National Forests in Mississippi (Forest Plan). However, records indicate that mixed pine with a longleaf component was a dominant forest type here, and restoration of this community is a priority. The Record of Decision for the FEIS for the Management of the Red-cockaded Woodpecker and its Habitat on National Forests in the Southern Region amends the Forest Plan for the purposes of restoring and maintaining habitat for this endangered species on National Forest lands where it was historically present. Amendment 14 specifically states “Clearcutting method (even-aged) will be allowed to restore longleaf, shortleaf, or other desirable native pine species to appropriate sites currently occupied with trees less suitable for the RCW.” Chapter 1 clearly establishes the longleaf component in mixed pine stands as native and desirable and appropriate to the sites where it is being regenerated.

Longleaf is only being restored where it historically occurred. In fact, because of land ownership and resource limitations, and longleaf pine's interdependence with fire, many areas, which were historically occupied by mixed pine forests with a dominant longleaf component, are not being restored. Planting of longleaf pine, in itself, does not achieve the objective or desired future condition. The actual desired future condition is restoration of the community relationships associated with this historic ecosystem. This cannot be done where a managed fire regime cannot be maintained. Therefore, this project does not restore longleaf pine to many of the areas where it once occurred. In the absence of frequent fire, these areas are being managed as a pine hardwood forest type.

The restoration of a native species to approximately 199 acres is not likely to cause such an impact to the human environment that an Environmental Impact Statement needs to be produced. Indeed, even when seen in conjunction with other longleaf restoration projects on the Homochitto National Forest the only foreseen long-term impacts are positive ones: increased southern pine beetle resistance; increased habitat for RCW and other species dependant on that habitat; increased rotation age; and enhanced visual quality. The potential for "significance" must be considered in the perspective of time. Chapter 3 provides discussion that longleaf pine was a component of the Homochitto ecosystem for thousands of years interrupted only by human intervention since about 1920 – a very brief interruption in the perspective of history. Since that time, longleaf and longleaf component ecosystems have been reduced to less than 2% of their range, and are considered some of the most rare and threatened forest communities in the United States. Within this perspective, restoring the native longleaf component could be neither cumulative nor significant.