

SCOPING RECORD

Airey Lookout Vegetation Management Project
for
Compartments 592, 593, 616, and 617
De Soto Ranger District
National Forests in Mississippi

I. PURPOSE OF AND NEED FOR ACTION

A. Proposed Action

The De Soto Ranger District of the National Forests in Mississippi is proposing the following management actions for the *Airey Lookout Vegetation Management* project in Compartments 592, 593, 616, and 617 (See Proposed Action Map) during Fiscal Year 2004 for project implementation in Fiscal Year 2005. A more detailed description and summary of the proposed actions are found in Table 1, Appendix A. *The quantities for the units of measure in these descriptions and throughout the document are approximate.*

CONNECTED ACTIONS ***

1. –Vegetation Management (Acres):
 - Provide early successional habitat on 239 acres through regeneration to longleaf from off site pine species using the clearcut with hardwood reserves method of cut.
 - Improve forest health by reducing stand density to minimize threat of Southern Pine Beetle infestation by thinning- 555
2. Site Preparation (Acres):
 - Single Chopping and Prescribe Burning or Shear and Pile or Single Stem Herbicide Injection (Triclopyr/Imazapyr) -239
3. Release (Acres)
 - Single stem herbicide injection (Triclopyr/Imazapyr), if necessary-239
 - Directed foliar spray (Hexazinon/Sulfometuron methyl or Triclopyr/Imazapyr)-239
4. Regeneration (Acres):
 - Artificial
 - Hand/Machine Plant Longleaf (on stands clearcut for regeneration to longleaf from off site pine species) -239
5. Roads
 - Temporary Road Development- 6 miles
 - Classified Road Restoration (Maintenance)- 6.62 miles
 - System Road Closure- .38 miles

SIMILAR ACTIONS***

- Native Grass Restoration- 6.5 acres

-Gopher Tortoise Habitat Improvement (Includes monitoring) {If feasible, rotary brush cutter with herbicide (Triclopyr/Imazapyr)- may be used over entire stand}-47 acres

-Visual Resource Enhancement around Bigfoot Trail Camp and Airey Lake Recreation Areas (200' radius) with rotary brush cutter, if feasible, using herbicides (Triclopyr/Imazapyr)- 16 acres.

-Stump grinding within Bigfoot Trail Camp and Airey Lake Recreation areas- 4 acres

-Relocate Tuxachanie Hiking Trail-.8 miles.

*** Connected actions (40 CFR 1508.25) are actions that are closely related which:

- Automatically trigger other actions
- Cannot or will not proceed unless other actions are taken previously or simultaneously
- Are interdependent parts of a larger action and depend on the larger action for their justification

Similar actions (40 CFR 1508.25) are actions that have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography.

Mitigation measures are included as part of the Proposed Action description and are addressed in the mitigation section (II-C).

SIMILAR ACTIONS NOT INCLUDED IN PROPOSED ACTION

Cogongrass Eradication- As needed. The control of cogongrass on the De Soto Ranger District have been adequately addressed in the Control of Cogongrass through Integrated Pest Management (IPM) on the Bienville, Chickasawhay, De Soto, and Tombigbee Ranger Districts National Forests in Mississippi EA and Decision Notice-2003 and need no further analysis in this project.

-Prescribed Burning (Acres): Prescribed burning is currently approved through Decision Memos prepared in accordance with Forest Service Handbook 1909.15, Section 31.2, Category 6 (wildlife habitat improvement and fuels reduction).

-Wildlife Habitat Improvement-3,141 {Dormant season (Twice)} -6,282

-Ecosystem Restoration- 3,141 {(Growing season (Twice))}-6,282

-Pre-Entry (Fuels Reduction)-1,271

The following are categorically excluded from documentation in EA under Category 6, FSH 1909.15, Section 31.2 (wildlife habitat improvement activities):

-Install Woodduck Boxes and monitor annually- (ea) - 10

-Install bluebird boxes and monitor annually (ea)- 8

-Wildlife foodplot development (Disking, seeding fertilizing, and liming-acres) -5

-Linear wildlife foodplot establishment (Disking, seeding, fertilizing, and liming-acres)-2.5

-Pitcher plant bog restoration (cut and leave-acres)- 19

-Designation of Late Seral-198 acres.

-Plant live oaks within Bigfoot Trail Camp- 3 acres

The following are categorically excluded from documentation in EA under Category 6, FSH 1909.15, Section 31.2 (modification or maintenance of lake habitat improvement structures):

-Shoreline deepening at Airey Lake, lime, seed, fertilize, install gravel beds, install brush structures- 3 acres.

The following are categorically excluded from documentation in an EA under Category 6, FSH 1909.15, Section 31.1b (repair and maintenance of recreation sites):

- Aquatic weed control with herbicides at Airey Lake (includes monitoring) –3 acres
- Stock grass carp at Airey Lake-3 acres
- Install interpretive sign at Copeland Springs (ea) – 1
- Recreation pond construction (waterhole for horses-ea)-1

Project Vicinity: Compartments 592, 593, 616, and 617 are located in Harrison and Stone Counties {See Vicinity Map (Figure # 1)}. Compartments 592, 593, 616, and 617 contain 652, 928, 944, and 779 acres, respectively, for a total area of 3,303 acres.

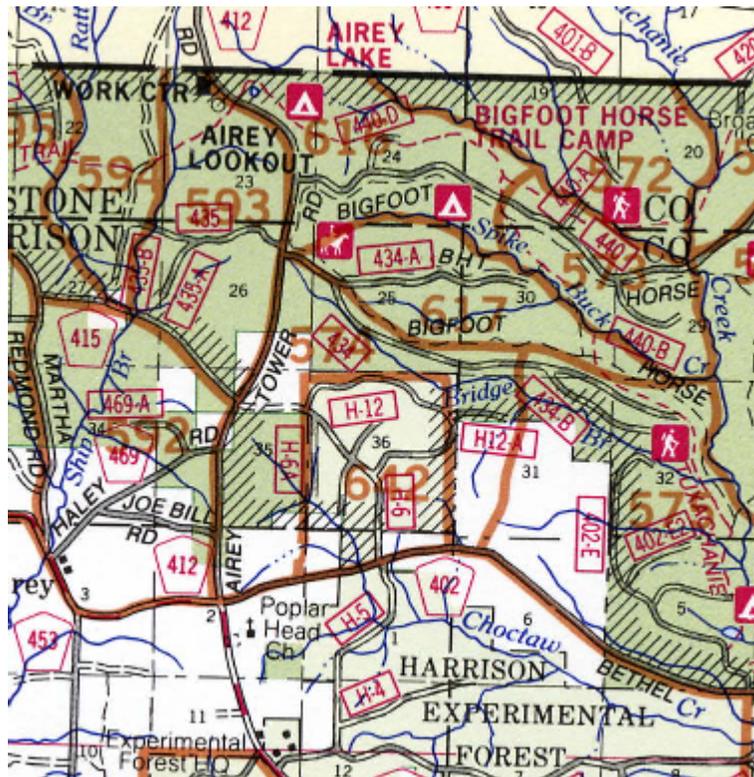


Figure 1. Vicinity Map for Compartments 592, 593, 616, and 617

B. Purpose of and Need For Action

The purpose of the Proposed Action is to implement and achieve several of the *goals* of the Final Land and Resource Management Plan (Forest Plan) for the National Forests in Mississippi (Forest Plan, pages 4-1 and 4-2). These *goals* include:

- *Managing the land in a manner that recognizes the values of all resources, both renewable and nonrenewable. In managing for goods and services give consideration to the interrelationships among plants, animals, soil, water, air, and other environmental factors*

within the ecosystem. The direct, indirect, and cumulative effects of the Proposed Action on these resource values would be analyzed in depth in the EA;

- ***Providing a visually acceptable landscape by maintaining or upgrading the existing visual condition.*** Visual quality would be maintained or enhanced with the Proposed Action in the long-term (Forest Plan 4-80). In addition, the view throughout the stand in time would not be obstructed and the desired future condition of a “park like stand” that the majority of the forest visitors enjoy would be achieved.

The following photo is an example of the desired future condition for a mature longleaf pine stand on the De Soto Ranger District. Note open park like appearance and native grass understory. This stand was planted in 1936. The last sawtimber thinning was done in 1995. Prescribe burns occurred in 1980,1983,1986,1991,1997, 2001 (dormant season) and 2003 (growing season). This stand condition is a result of sound Forest Service management.



- ***Protect and manage significant historic, cultural, and natural aspects of our national heritage.*** Heritage resources may be discovered through surveys, evaluated, and avoided as a result of the Proposed Action;
- ***Managing a cost-effective and efficient transportation system.*** The Proposed Action improves the existing transportation system for public safety, administrative use and public dispersed recreational access. Forest roads that are properly maintained protect against erosion and degradation of water quality, the dispersal of exotic species, and fragmentation of wildlife habitat. All classified roads would be restored through maintenance associated with the Proposed Action. Road closure on system road 440D and temporary roads would reduce road maintenance costs, road density, dumping, erosion, stream siltation, improve opportunities for hunter satisfaction while still hunting, protect and improve wildlife habitat, and also provide better enforcement of game laws through traffic control.

- ***Ensuring that the multiple use/sustained yield management of the Forest for renewable resources shall not impair the productivity of the land.*** As shown in Figure 3 and Tables 4-4c, the Proposed Action attempts to balance age class distribution and provide sustained yield management for these compartments through an area regulation system designed to achieve at the earliest possible time a balance between growth and harvesting without impairment of the productivity of the land. Nutrient displacement and loss in soil productivity are not expected to result from implementation of the Proposed Action with mitigations applied. Water quality is expected to be within levels that do not impair aquatic communities or other beneficial uses.

The Proposed Action is within the “Proposed and Probable Management Practices” to achieve Forest Plan objectives (Forest Plan, pages 4-17-78) and within the Management Area Prescriptions for the De Soto Ranger District, pp. 4-122 through 4-132. *The Proposed Action is needed now* since these compartments were last scheduled in the order of entry during 1988-1990. The order of entry is established and followed to ensure that each compartment is entered every 10 years (vegetation management cycle). The order of entry provides a mechanism to ensure that a diversity of habitats is provided across the Forest landscape and multiple use benefits are being achieved and maintained throughout the Forest;

- ***Managing the land in a manner sensitive to economic efficiency.*** The Proposed Action would result in a Benefit Cost Ratio of 1:13 and a Present Net Value (PNV) of \$41,361;
- ***Provide a spectrum of dispersed recreational opportunities reflective of the demands of the public.*** Recreational values such as hunting for large and small game could be enhanced through short and long term improvements in wildlife habitat. Hiking and horseback riding activities would be improved through proposed visual resource management activities for Airey Lake and Bigfoot Trail Camp Recreation Areas, Tuxachanie and Bigfoot Horse Trails.

The relocation of Tuxachanie Trail in Compartment 616 is needed to reduce conflict with a road (440D) used for vegetative management activities. It would be more desirable to relocate this section of the trail to avoid this conflict and provide for a more scenic location of the hiking trail along a hardwood stream course. The present location is also in conflict with Forest Service policy (FSH 2309.18-91-2, 2.31a-Exhibit 01).

- ***Providing for diversity of plant and animal communities.*** The Proposed Action increases the early successional stage habitat in the longleaf ecosystem by 239 acres through clearcut and artificial regeneration. The opportunity for regeneration to longleaf from off site species in these compartments for suitable acreage (managed for timber production) is 1,053. The Proposed Action reduces this amount by 239 (Tables 2) acres. All proposed regeneration harvests would sustain a healthy longleaf ecosystem that would potentially provide for high plant and animal species richness. Longleaf ecosystems have the highest level of small-scale species diversity in North America. The number of groundcover plants, for instance, ranges from up to 300 species per 2 1/2 acres. The longleaf pine forest has almost vanished over the past 200 years. It presently occupies only 2% of its original pre-settlement range (Means, 1996-p.12);

Comparing Desired Future Condition and Existing Conditions

Comparing the desired future condition and the existing condition presents the ability and opportunity to identify treatment needs that will promote the existing condition toward the desired future condition.

Table 2. Existing and Desired Future Conditions and Opportunities –Regeneration (Clearcut*)

Compartment	Stand	Acres	Forest Type (Existing)	Management Type (Desired)	Condition Class
592	8**	21	Loblolly	Longleaf	Mature Poletimber
	12**	13	Slash	Longleaf	Poletimber
	26**	24	Slash	Longleaf	Poletimber
593	13	19	Mixed Pine***	Longleaf	Mature Sawtimber
	15**	21	Slash	Longleaf	Poletimber
	16**	22	Slash	Longleaf	Sawtimber
	22**	36	Slash	Longleaf	Poletimber
616	2**	25	Slash	Longleaf	Mature Poletimber
617	28**	43	Slash	Longleaf	Immature Sawtimber
Total		239			

* All hardwoods within drainages and suitable hardwood/hardmast clumps would be retained and protected.

** Clearcut is the optimum method of cut for these stands because the forest type and management type are incompatible.

*** Includes a mixture of loblolly, slash, and/or shortleaf predominately. Some isolated longleaf may occur in these stands primarily on ridgetops. Clearcut is the optimum method of cut for this stand and is best suited to meet the desired future condition of an open park-like stand. Since this stand is mixed yellow pine, the opportunity to regenerate to longleaf exists through clearcut and artificial regeneration of longleaf pine (Forest Plan- 4-138).



The picture above taken in November, 2003 is an example of the desired results for longleaf artificial regeneration where at least 300 longleaf seedlings are in height growth (at least 6" from root collar to terminal bud) at age three (Note abundance of native grasses). This stand was planted in 2001.

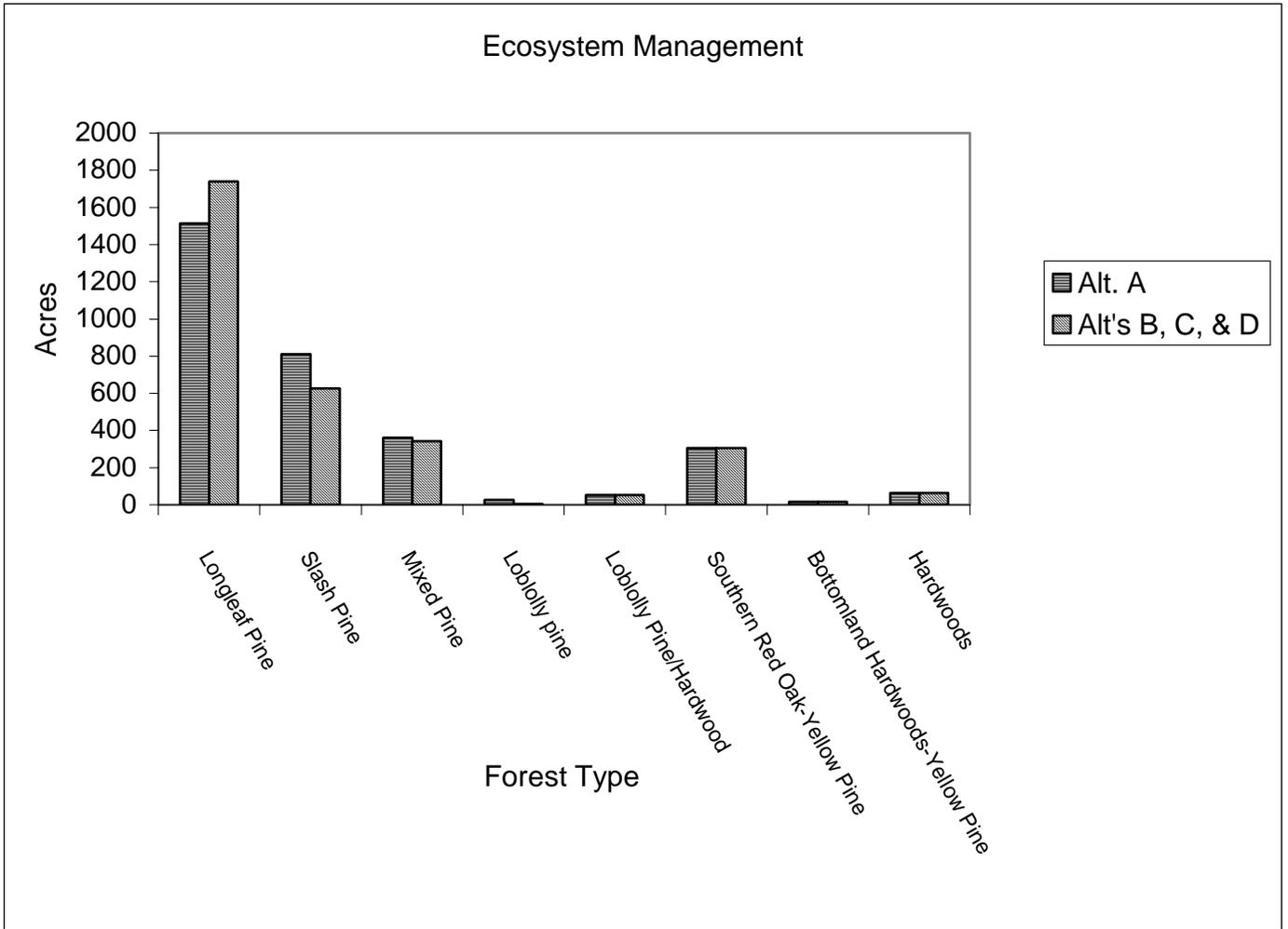


Figure 2. Compartments 592, 593, 616, and 617 (forested acres as of 2004).



Figure 3. Compartments 592, 593, 616, and 617 Age Class Distribution (forested acres as of 2004-suitable and unsuitable land class). Along with Tables 4-4c in the Comparison of Alternatives-Effects-Section II-E, this table demonstrates a need to balance age class distribution. A balanced age class distribution provides for a non-declining flow of timber products while sustaining a healthy ecosystem.

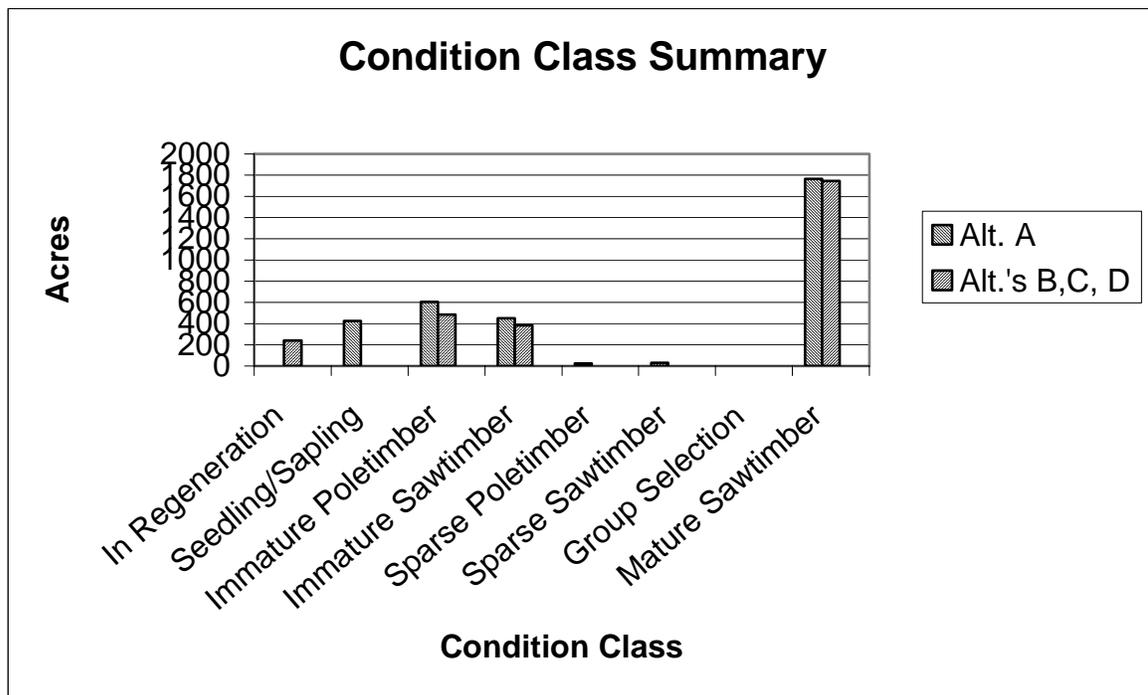


Figure 4. Compartments 592, 593, 616, and 617 Condition Class (forested acres as of 2004-suitable and unsuitable land class).

Wildlife habitat carrying capacity would be increased in the short term through disturbances created by timber harvests and subsequent revegetation, including restoration of native grasses on log landings, temporary roads, skid trails, and associated site preparation, reforestation, and timber stand improvement activities along with other closed classified and temporary roads. This would create early successional habitat beneficial to certain animal species such as Bob White Quail, White-tailed Deer, and Bachman’s Sparrow.

The foraging conditions for early successional species and turkey decline with forest canopy closure and subcanopy development. Gopher tortoise, another early successional species and federally threatened, would benefit from improvement of it’s priority soil habitat through herbicide treatments. The Proposed Action would also provide for optimum growth and development of desired shade intolerant understory pine species which would shorten the period of time necessary for initiation of thinnings for wildlife and PETS habitat improvement (Reference Section II E-Two Age Silviculture). In those stands proposed for longleaf artificial regeneration, the shortened period of time for initiation of height growth would provide more needle production sooner for successful prescribe burning. Longleaf pine ecosystems are valuable for wildlife for several reasons:

1. Unlike other southern yellow pines, young longleaf pines are relatively fire tolerant, and being able to burn young, regenerated longleaf stands benefits many wildlife species by helping to maintain early successional habitat until crown closure.

2. Since longleaf has a grass stage, early successional habitat is provided until the saplings reach crown closure, which typically occurs at an older age than in loblolly or slash pine plantations of similar density.
 3. Because of the branch and needle structure, longleaf pine canopies seem to intercept less light than other southern pines. Once the crowns of saplings in a young stand close, more sunlight reaches the forest floor in a longleaf pine stand than a slash or loblolly pine stand with the same density. This sunlight is important for maintaining understory plants. The structure and composition of this vegetation can then be managed to provide habitat for many wildlife species (Smith, 1998).
- ***Reduce or prevent unacceptable losses from insects and diseases through an integrated pest management program.*** A compartment/stand examination was done to identify needs and opportunities to achieve the Forest Plan desired future conditions of the Forest (Forest Plan, pages 4-79 thru 4-88 and Forest Plan EIS, B-27). Some of the needs and opportunities are presented in Table 2 and Figures 2-4. Overall, there are currently 1,846 forested acres of the total forested compartment acreage (55%) in the mature condition class. According to Table 2, there is an opportunity to improve forest health by reducing the amount of forest type in the mature condition class through artificial regeneration by 65 acres during this plan period. regeneration.

Also, the field examination found 25 stands (555 acres) in need of thinning for stocking control. These stands are presented in Table 3. There are 54 acres currently in the medium risk category for Southern Pine Beetle (SPB). The commercial thinning of overstocked stands offers the opportunity to improve the habitat for wildlife while capturing potential mortality and producing desired sawlogs and poletimber. Indirectly, these regeneration harvests and thinnings would improve forest health and vigor while reducing the susceptibility and associated loss to Southern Pine Beetle infestation and fusiform rust disease. Competition, increased tree stress, and uniform stocking, age, and species composition provide a strong setting for pest establishment and outbreak development. Natural stands susceptible to SPB attack in the Southern Coastal Plain are characterized by high stand densities, a large proportion of pine sawtimber, and declining radial growth.

Thinning from below is proposed to reduce competition and remove slow-growing trees. The poorer crown classes, suppressed, diseased, and intermediate trees are cut first. Dominant and codominant trees with large live crown ratios and desirable phenotypic traits would be favored as crop trees. Longleaf, relatively resistant to insect and disease attack, would be favored to leave on longleaf sites once the above criteria are met. An example of the desired future condition for a sawtimber stand was shown on page 4 of this EA

Table 3. Existing and Desired Future Conditions and Opportunities-Thinnings

Compartment	Stand	Acres	Forest Type	Existing Pine Basal Area*	Existing Hardwood Basal Area*	Desired Pine Leave Basal Area (BA)*
592	5	6	slash	80**		50

Compartment	Stand	Acres	Forest Type	Existing Pine Basal Area*	Existing Hardwood Basal Area*	Desired Pine Leave Basal Area*
	10	27	slash	75**		50
	28	6	slash	80	4	60
593	6	90	longleaf	84**		60
616	3	11	slash	72	2	60
	Part of 4	30	mixed pine	83	7	70
	Part of 9	31	mixed pine	95	6	70
	Part of 13	14	longleaf	84		70
	Part of 14	6	longleaf	120		70
	15	6	slash	92	6	70
	16	47	longleaf	102		60
	18	10	slash	81**		50
	19	19	longleaf	68		60
	20	37	slash	96	1	70
	23	4	slash	85	6	70
	25	3	mixed pine	110		70
	Part of 27	19	longleaf	86		70
Clumps range from 90-130 BA	30	17	longleaf	68*	10	70
	33	6	slash	83		70
	Part of 35	13	longleaf	78		70
	41	4	longleaf	98		70
617	10	36	slash	112	11	7
	11	36	longleaf	86	13	70
	12	62	slash	100	13	70
	18	15	mixed pine	90	5	70
Total		555				

* Approximate. Refers to average basal area in square feet per acre (measure of density). Average basal area does not reflect need for thinning as well as a clumped distribution would. Stands listed above contain clumps with basal areas as high or higher than the average basal area throughout the majority of the stand. Field data was collected in FY's 99, 00, and 04 (growth not factored into data shown in table).

** First Thinning

*** Includes a mixture of loblolly, slash, and/or shortleaf predominately. Longleaf, if present, would be favored to leave over other pine species in these stands and any stands where longleaf is present, providing the poorer crown classes, suppressed, diseased, and intermediate trees are cut first.

C. Scope of Environmental Analysis

The Forest Plan established the desired condition through land management direction. This includes Forest-wide management requirements and management area prescriptions, with their corresponding directions and standards and guidelines. Specifically, the following documents are incorporated by reference:

- Forest-wide standards and guides (Forest Plan, pages 4-2 through 4-17), and Analysis Area prescriptions for Management Area 2 (Forest Plan, pages 4-122 through 4-132).
- Forest Plan Amendments #2, #3, #6, and #8, are also incorporated by reference. These amendments incorporate the management requirements and mitigation measures from the Record of Decision for the FEIS for the Suppression of the Southern Pine Beetle, Management Guidelines for Lakes and Streamside Management Zones, FEIS for Vegetation Management in the Coastal Plain/Piedmont, and Interim Standards and Guidelines for the Protection And Management of RCW Habitat within ¾ Mile of Colony Sites.
- Chief's Policy statements regarding ecosystem management (Forest Plan Amendment #13).
- The Biological Opinion for the Draft Gopher Tortoise Habitat Management Plan
- FY 99 Monitoring and Evaluation Report for National Forests in Mississippi
- Draft Memorandum of Understanding (MOU) between the U.S. Department of Agriculture, Forest Service, the Mississippi Department of Archives and History, and the Advisory Council on Historic Preservation concerning the management of heritage resources on the National Forest in Mississippi.
- Control of Cogongrass through Integrated Pest Management (IPM) on the Bienville, Chickasawhay, De Soto, and Tombigbee Ranger Districts National Forests in Mississippi EA and Decision Notice-2003
- Management Indicator Species Population and Habitat Trends (March 2002) for the National Forests in Mississippi

The EA for this project would present a site-specific Proposed Action and alternatives to meet the desired condition of the Forest Plan. The EA would display the direct, indirect, and cumulative environmental effects of the Proposed Action and alternatives.

D. Decision to be Made

Based on the analysis to be documented in the EA, the District Ranger (Responsible Official) Judith L. Henry would make the following decisions:

1. Whether or not the proposed vegetation management should be done and if so, what methods and tools should be used.
2. What management requirements, mitigation measures and monitoring are necessary to protect other resources and to achieve other resource goals, objectives, and desired future condition?

E. Scoping

Formal Interdisciplinary (ID) Team meetings were held to identify and discuss existing and desired future conditions in the project area, issues, proposed management action(s), and recommend alternatives for preparation of the EA. The dates of these meetings were as follows:

Compartment 592-April 6, 1999 and April 23, 2004
Compartments 593- April 6, 1999 and April 23, 2004
Compartments 616- April 14, 2000 and April 23, 2004
Compartment 617- April 13, 2000 and April 23, 2004

The following ID Team members participated in the formulation and analysis of issues, alternatives and/or environmental effects: Larry Walters, Diane Tyrone, Robert Smistik, Robert Reams, Steve Cobb, Tony Rivers, Dan Wyrick, Keith Coursey, Mike Lick, Tate Thriffiley, Jack Greenlee, Tony Rivers, Ron Smith, Kent Ainsworth, Bob Cooper, Wayne Stone, Andy Hunter, and Bruce Wilson

The Environmental Assessment (EA) would be prepared after scoping responses have been evaluated by Robert Smistik-Integrated Resource Analyst, Diane Tyrone-Wildlife Biologist (Effects Analysis for Fauna/PETS issues and Biological Evaluation (BE)), Tate Thriffiley-Botanist (Effects Analysis for Flora/PETS issues and BE), Robert Reams-Archaeologist (Effects Analysis for Recreation, Visual, and Heritage issues).

The Forest Service, De Soto Ranger District, identified landowners and others that could be affected by or interested in the proposed management actions of these compartments. A total of 109 scoping notices are being sent to resident adjacent landowners as well as to individuals and organizations on the District mailing list who have expressed an interest in Forest Service management practices. A Legal Notice would be published in the Clarion-Ledger initiating a 30-day scoping comment period. Those who respond to this initial scoping include the Mississippi Natural Heritage Program concerning threatened, endangered, candidate, and sensitive species and special habitats for flora and fauna on the District and the Mississippi Department of Archives and History concerning information regarding heritage resources. Information from these contacts would be incorporated into the Biological Evaluation and EA.

Based on the internal process, the following list of relevant issues were developed.

F. Relevant Issues

1.BIOLOGICAL ENVIRONMENT

a. Effects on Vegetation

1. No Action or action alternatives may negatively affect Threatened, Endangered, Sensitive (TES), and locally rare plant species and their habitat or rare community types.
2. No action or action alternatives (regeneration) may have positive and/or negative effects on plant species diversity.

b. Effects on Wildlife:

1. Changes in habitat conditions from No Action or action alternatives may affect populations of Management Indicator Species (MIS).
2. PETS animal species may be negatively affected by the No Action or action alternatives.
3. Use of herbicides may have a direct effect on wildlife (toxicity) and an indirect effect on wildlife by altering vegetation species composition and structure.

c. Effects on Forest Health

1. No Action or action alternatives may affect incidence of insect pests.

2. PHYSICAL ENVIRONMENT

a. Effects on Soil, Water, and Air

1. No Action or Action Alternatives for road development may increase soil erosion and reduce water quality.
2. Logging equipment may affect soil productivity and water quality through soil compaction, nutrient displacement, and soil erosion.
3. Timber harvesting (primarily clearcutting) may increase soil erosion, impair soil productivity, and disrupt stream channel stability due to increase in water yield from vegetation removal and also increase risk of sediment transport to stream channels.
4. Herbicide application may have adverse effects on water quality.

b. Effects on Visual Resource

1. No Action or action alternatives may have adverse effects on visual quality.

c. Effects on Heritage Resources

1. No Action or action alternatives may disturb or destroy or fail to preserve prehistoric or historic sites and artifacts valuable for learning about past cultures.

3. SOCIO-ECONOMIC ENVIRONMENT

a. Effects on Human and Safety

1. Herbicide use may adversely affect health of forest users or nearby residents.

b. Effects on Socio-Economics

1. No Action or action alternatives may result in negative socio-economic effects

c. Effects on Civil Rights and Environmental Justice

1. Consideration given to effects on the civil rights and opportunities for all segments of society, including women and minority groups.

G. Other Issues

After careful analysis, the ID Team determined that the following issues would not have a meaningful impact on the quality of the human environment. Following the CEQ regulations (1500.4(c)(g)), we discuss these issues only briefly here, to emphasize the issues most useful to the decision maker and the public.

1. Use of Uneven-aged (UEA) silviculture .

Response: UEA silviculture was considered as a non-relevant issue that resulted in an alternative considered but eliminated from detailed study because it failed to fulfill the purpose and need for the proposed action. Additional rationale is found in Section II-E.

2. Failure to analyze economics and impacts of recreation.

Response: Hunting, hiking, and horseback riding is the primary recreation use in these compartments and in the general area. Hunters would be beneficially served from the harvest of timber because habitat for game species in this area would be improved. Hikers and horseback riders would also benefit from the proposed activities as a result of improvements to the visual resource. Since there are no material adverse effects, there is no requirement to assess the impacts on recreation economics.

Economic impacts to recreation from this proposal are not issues discussed at the project level unless there is significant impact to these resources expected from the sale. Programmatic analysis should not be confused with project analysis. In the former, all resources are valued in a present net value format for quantifiable resources and discussed for those resources not quantifiable. In the latter (analysis at the project level), specific impacts or lack of impacts related to the project under analysis are discussed.

Many of the rules governing Forest Service management activities, such as Multiple Use Sustained Yield (MUSY) and National Forest Management Act (NFMA) address general agency policy, agency-wide planning and forest planning and direct the use of economic and social analysis for these purposes. None of these laws prescribe the use of particular economic and social analysis or specific analysis components that might be required at the project level. The implementing regulations of NFMA outline the economic analysis and criterion requirements for forest planning, but do not specify that they be applied at the project level.

3. Out of Date Forest Plan

Response: 16 U.S.C. 1604 (f) states that “plans developed in accordance with this section shall – (5) be revised (A) from time to time when the Secretary finds conditions in a unit have significantly changed, but at least every fifteen years.” It does not say that the existing plan would cease to exist after 15 years, only that it needs to be revised. The National Forests in Mississippi are currently working on revising their LRMP. The Notice of Intent to Revise their

LRMP was published in the Federal Register on December 14, 1999. Until the revised plan is approved, the current, existing plan stays in effect. This type of transition is described in 16 U.S.C. 1604 (c), “Until such time as a unit of the National Forest System is managed under plans developed in accordance with this Act, the management of such unit may continue under existing land and resource management plans.”

4. Need for Wider Range of Alternatives.

Response: According to the National Environmental Policy Act (NEPA), reasonable alternatives to the proposed action would fulfill the purpose and need and address relevant issues. The No Action alternative, however, must be considered, even if it fails to meet the purpose and need or is illegal. The no-harvest alternative is addressed as part of the No-Action alternative. The no-harvest alternative and others such as thinning only prescribe burning only, or less harvesting would not satisfy the purpose and need for the proposal. The alternatives that were analyzed in detail meet the purpose and need and define the relevant issues. Alternatives considered but eliminated from detailed analysis are included as part of the range of alternatives necessary to permit a reasoned choice.

II. ALTERNATIVES CONSIDERED

A. Introduction

Alternatives to the Proposed Action, along with mitigation measures, were developed to respond to the issues identified during the internal scoping process. Forest Plan management requirements and standards and guidelines are incorporated in to the design of the proposed alternatives as mitigation measures. Map locations for alternatives are attached.

B. Description of Alternatives

Alternative A- This alternative is to take no action. The goal of this alternative is to allow for only ecological changes to occur. This alternative would be responsive to avoiding or minimizing any effects associated with timber management and prescribed burning activities. This alternative is required by NEPA, and serves as the benchmark for other alternatives in order to show change or effect on the environment. Selection of this alternative would not preclude the consideration of other proposals for the compartments in the future.

The following activities would be permitted under this alternative: land line maintenance; protection of Proposed, Endangered, Threatened or Sensitive (PETS) species; SPB salvage; wildfire suppression; motorized and non-motorized recreation; and protection of heritage resources.

Alternative B- Proposed Action. Described and summarized in detail in Table 1 in Appendix A along with a main summary in Section IA of this document.

Alternative C- This alternative would be Alternative B without the use of herbicides. The stands that would have had herbicide used in them (See Alternative B), except for those proposed for directed foliar spray, would be managed using either prescribed burning, hand tools or mechanical equipment to achieve the objectives.

C. Mitigation

Mitigation measures are defined as actions taken to avoid, minimize, reduce, or eliminate adverse effects of implementing the proposed action or alternative action. Specific mitigation measures that apply are found in, but not exclusive to, Chapter 4 (pp. 94-116, and 122-132) of the Forest Plan; Chapter II and Appendix A of the FEIS for Vegetative Management in the Coastal Plain/Piedmont (VMEIS CP/P) Vol. 1 (pp. II-44-64); Best Management Practices (BMP'S) for the State of Mississippi; and the Draft Gopher Tortoise Management Plan for the recovery of the federally threatened gopher tortoise. A detailed description of all applicable mitigation measures is included in these documents along with effectiveness of mitigations. Listed below is a summary of site-specific applications of the most important mitigation measures unique to this project:

Vegetation:

1. After artificial regeneration stands have been planted, all temporary roads, skid trails, and landings would be rewaterbarred, disked, fertilized, and seeded, if necessary, according to the following specifications:

Seeding Season	Grass Species (Seeding Rate)	Fertilizer and Rate/Ac.
March 1 - June 1 lbs/ac	Switchgrass; (Alamo, 3 lbs PLS/ac)	0-20-20; 300 lbs/ac or 13-13-13; 3000
	Big bluestem (Rountree, 5 lbs PLS/ac)	
	Little bluestem (Aldous, 5 lbs PLS/ac)	

2. If any PETS plant species are discovered before or during proposed management activities, the work would stop and the Botanist/Wildlife Biologist would be consulted for required protection measures.

3. Streams are depicted on the Alternative Maps in the Environmental Assessment (EA) to be protected. These streams, which would be either perennial or intermittent, would be designated as **“protected streams”** in the timber sale contract. Wetlands would be protected in the timber sale contract as **“special areas”**. Ephemeral channels would ordinarily not be designated unless they are well-defined channels requiring protection as **“protected streams”**. Ephemeral well-defined channels would be painted out and protected from harvesting, mechanical site preparation and planting equipment. Rutting would be prohibited in ephemeral channels. Roads should not be permitted in sideslope ephemeral drains. **Do not fell trees into streamside filter strips or into well-defined ephemeral channels.**

4. If prior to site preparation, it has been demonstrated that mechanical site preparation by rotary brush cutter with herbicide is an effective method for controlling competition while maintaining habitat quality for PETS plant species, then this site preparation method would be favored over single-drum chopping.

5. Cogongrass **encountered** off roads **in stands of timber should be flagged by marking/survey crews** and should be avoided **by mechanical equipment.**

- **Trees would be directionally felled away from cogongrass infestations**
- **Felled trees would not be dragged through cogongrass infestations**

6. Cogongrass infestations along roadsides **in the analysis area should be treated prior to logging activity and roadwork.**

Wildlife:

1. If any PETS animal species or potential Red Cockaded Woodpecker (RCW) cavity trees are discovered before or during proposed management actions, the work would stop and biologists would be consulted for any required protection measures.
2. In gopher tortoise colonies do not harvest regeneration areas from May 15 – June 30 in the gopher tortoise protection zone. This zone is defined as the perimeter of the aggregate of colony burrows plus a 200-foot wide buffer zone surrounding the perimeter.
3. Gopher tortoise burrows shall be avoided and protected when doing road restoration or reconstruction.
4. Windrows would be separated every 150 feet by overlapping gaps on shear and pile sites to facilitate gopher tortoise movement. No mechanical equipment within 25’ of gopher tortoise burrows.

Soil and Water:

1. Logging activities would be restricted when soils are wet to avoid excessive rutting and compaction. Special attention would be given to protecting sensitive soils as are shown on the Soils Hazard Rating Maps in the EA.
2. **Mechanical equipment and cutting of overstory and understory vegetation would be prohibited in streamside filter strips** except at necessary crossings selected by the Timber Sale Administrator. As described in Appendix M of the Forest Plan: log landings would be prohibited in streamside filter strips. These measures would preserve the geological, hydrological, and biological integrity of the riparian zone encompassed by the streamside filter strip.

Timber cut near streamside filter strips would be **directionally felled away from streamside filter strips** to prevent effects from falling vegetation.

Protected streams are depicted on Alternative B and C maps. Perennial, intermittent, and ephemeral (well-defined channel) streams would be designated as protected streams in the timber sale contract. If during marking, intermittent or perennial streams are found that are not depicted as protected streams requiring filter strips, then these streams would be delineated and included as protected streams in the timber sale contract. **Streamside filter strips would not be required for ephemeral streams, but the ephemeral stream courses would be protected from ground disturbing effects of mechanical equipment.** Wetlands would be designated in the timber sale contract as “special areas” and would be protected with filter strips. Appendix M of the Forest Plan and pp. 48, 53-54, 56-57, and 63 of the VMEIS CP/P Vol. 1, Chapter II describe additional mitigations, which would be used for soil and water protection.

Visual Quality

1. All slash would be removed from Tuxachanie and Bigfoot Horse Trails during thinning operations.

Heritage Resource

1. If heritage resources are discovered during implementation, the project would stop and the resources would be evaluated for the National Register eligibility. For those that are eligible, a determination of (a) no effect; (b) no adverse effect; or (c) adverse effect would be made. Where the project would impact an eligible site, litigation requirements and costs would be prepared in consultation with the SHPO. Should the decision be made to carry out the project, these mitigation measures would be carried out in consultation with the SHPO/ACHP before the project proceeds. In addition, those mitigation measures described in the heritage resources survey report on file at the District Ranger's Office would be implemented.

2. The heritage resource sites considered potentially eligible for the National Register of Historic Places would be protected from future human disturbances until further testing is completed. The testing usually consists of additional shovel tests, further research, scientific tests such as OCR or Carbon-14, and excavation units. After these tests are completed, the sites would either be nominated for the National Register of Historic Places or determined ineligible. Sites would be marked out and avoided during the proposed project. The District Archaeologist would be consulted before the timber is marked.

D. Monitoring and Evaluation

Monitoring and evaluation of the Forest Plan is required by the National Forest Management Act (NFMA). The Forest Service monitors activities, practices, outputs, and services identified in the Forest Plan in order to determine if: the goals and objectives of the Forest Plan are appropriate; management practices are effective in meeting the intent of the standards and guidelines; and the projects were implemented according to direction. Evaluation of the results identifies changes needed to better achieve objectives.

The following monitoring would be for this project:

1. All timber sales would be monitored by the Timber Sale Administrator, Harvest Inspector, Construction Inspector, Engineering Representative, and Forest Service Representative to insure that mitigation measures are implemented properly and that the purchasers contractual and legal obligations are being met.
2. All service contracts for site preparation and release would have an inspector to ensure contract compliance.
- 3 All regeneration areas would be monitored to determine if lands are adequately restocked within five years.

4. All planting of seedlings would be monitored in the first and third year to determine success and release needs. All natural regeneration areas would be monitored annually to determine stocking and need for overstory removal.
5. All herbicide applications would receive a post herbicide monitoring report to determine effectiveness of the prescribed treatment.
6. Aerial detection flights to identify SPB outbreaks would continue with 3 to 6 flights per year.
7. A Post-Burn Evaluation would be completed to determine if objectives were met and if follow-up action is needed. The Evaluation would include the condition of the plowed firelines. Monitoring would also be implemented to help determine the effects of the activities on the vegetation.
8. Harvest data on game species would be obtained from the Wildlife Management Areas. Bird data would be obtained from bird count surveys conducted in accordance with the Southern Region Landbird Conservation Strategy.
9. A monitoring plan would be developed and implemented prior to and after timber harvesting and site preparation to validate effectiveness of mitigations regarding soil disturbance and sedimentation.
10. After the site preparation is completed but before the planting is done, the clearcuts would be monitored for additional heritage resources.

E. Alternatives Considered but Deleted From Detailed Analysis

Uneven-aged Silviculture

This alternative was not further considered due to the silvicultural or biological requirements of the tree species to be managed. These factors included tolerance to shade, reproduction and growth of individual tree (FEIS of Forest Plan, Appendix G). Single-tree selection favors reproduction of tree species that do not need very much direct sunlight during early growth (shade tolerant). The dominant overstory tree species that currently occur in the project area are either shade intolerant or moderately intolerant to shade. Because part of the regeneration objective is to maintain those existing dominant species, the single-tree selection method cannot be used. This project area does not contain the forest types necessary to successfully implement this method.

Harvest method analysis is presented in Appendix G of the Forest Plan, FEIS and Chief's letter of June 4, 1992 (FSM 2471.11). These are referenced in this EA as a basis of determination that clearcut is the optimum method of cut for those stands listed in Table 1 (Appendix A). Based on the site-specific analysis of the proposal, the discussions of silvicultural systems and their harvest cutting methods in Appendix G of the FEIS of the Forest Plan are applicable to the forest conditions in these compartments.

The rationale for not examining group selection in detail is found on pp. G-18-19 of the Forest Plan FEIS. The following sections were adopted for not using group selection as an alternative examined in detail:

"In the first few cutting cycles of a selection cutting regime, group selection may work reasonably well. As more of these mini, even-aged stands are introduced in an area, regulation becomes more difficult. The groups are thinned according to even-aged principles while in intervening areas cutting concentrates on developing the desired diameter distribution. These differences in the purpose for cutting add to the complexity of stand management and makes it exceedingly difficult to develop and maintain both the desired diameter class distribution and species necessary for sustained yield in an uneven-aged management system. Furthermore, "Use of an uneven-aged size class structure could be brought about only after many cutting cycles over an extended period. The older stands of economically mature timber would have a significant portion carried 1-1/2 to 2 times the rotation before being harvested. This would result in substantial losses in the high valued pine species to insects and diseases."

"Group selection logging requires logging activity to be spread over the entire area to gain the distribution of group selection cuts. Extensive areas of woods roads, log decks and skid trails must be used with this method of harvest each cutting cycle. The roads under uneven-aged management are used for harvest traffic more frequently in a time period equivalent to an even-aged rotation, which minimizes the period of exposure and allows time for soils to recover. The real advantage of one management system over the other is tied to the frequency of entry (Forest Plan FEIS pp. G-28-29)."

In addition, according to research on the silviculture of longleaf pine, "group selection or clearcutting in patches is inadvisable because the "walls" or border trees of the residual forest retard seedlings in adjacent openings. This retarding effect exceeds the reach of tree crowns, extending as far as 55 feet. In addition to vigor, survival is also reduced near walls (Boyer, 1993)." This suggests competition for moisture and nutrients.

Group selection is dependent on successful natural regeneration of the preferred species. In the case of longleaf, a major regeneration problem is irregular seed production. During a 20 year period in southern Mississippi, there were two heavy seed crops, six medium, five light, and seven failures or near failures (Dennington, Farrar, 1983). Prescribe burning is the primary method to ensure adequate site and seedbed preparation is done for successful natural regeneration to occur. In stands with mixtures of loblolly and longleaf, prescribe burning would need to be done approximately every two years to control loblolly encroachment. The shelterwood method of harvest would remove all loblolly from the stand and leave only 25 sq. ft. basal area/acre of the best longleaf seedtrees, whereas group selection would create up to two acre openings with the possibility of loblolly seeding in from the surrounding stand, unless all loblolly were removed from the stand along with any group selection openings. Removing all loblolly from the stand would create numerous openings and more opportunities for hardwood encroachment, reduce soil moisture through increased drying, and reduce stocking for adequate site utilization. According to the District Fire Management Officer, it is not likely that the prescribe burn would be done every two years on a large District such as the De Soto where the normal burning rotation is every 5-6 years or longer due to lack of proper burning conditions which severely restricts the number of burning days needed to meet resource objectives. In lieu of prescribe burning, there would need to be an increase on use of mechanical equipment (disking) for seedbed preparation and herbicides for control of loblolly and hardwood encroachment over an extended period of time.

Two-aged Silviculture

The alternative to leave all seed trees and implement two-aged silviculture instead of even-aged silviculture was considered but eliminated from detailed analysis because it does not support the desired future condition of an open park-like stand (Boyer, 1993) and (Brockway, Outcalt, 1997).

Longleaf pine restoration with longleaf retention is the terminology used for Red Cockaded Woodpecker (RCW) Habitat Management Areas (RCW FEIS and ROD). The De Soto Ranger District currently has 73,760 acres in RCW HMA's. The purpose of longleaf retention in the RCW HMA is to expedite development of potential cavity trees. This vegetation management project is not located in an RCW Habitat Management Area (HMA) where this method of harvest would be mandated as are the other project areas for other Forests that were mentioned in scoping comments. Throughout the EA, the terminology which best describes the method used to achieve the desired future condition is clearcut for regeneration to longleaf from off site pine species. This activity would only occur on longleaf sites. Longleaf retention would be used in site-specific situations such as in RCW HMA's and along visually sensitive corridors such as hiking trails.

F. Comparison of Alternatives: Effects

Table 4. Comparison of Effects on Biodiversity by Alternative by forested acres

ACTION/EFFECTS	ALT A (forested)	ALT's B & C (forested)
Compartment 592		
FOREST DIVERSITY (% BY SPECIES)		
Longleaf Pine	29	38
Slash Pine	35	29
Loblolly Pine-Hardwood	8	8
Loblolly Pine	4	1
Slash Pine-Hardwood	7	7
White Oak	12	12
Hardwoods	2	2

0-10	4	19*
11-20	2	2
21-30	8	8
31-40	30	21
41-50		
51-60		
61-70	14	14
71-80	26	26
81-90	8	8
91+	3	3

* 7% Drops out after 2004

Age classes above reflect all forest types

Table 4a. Comparison of Effects on Biodiversity by Alternative

ACTION/EFFECTS		
Compartment 593	ALT A (forested)	ALT's B & C (forested)
FOREST DIVERSITY (% BY SPECIES)		
Longleaf Pine	47	58
Slash Pine	17	8
Slash Pine-Hardwood	17	17
Yellow Pine	17	15

0-10	5	16*
11-20	6	6
21-30	9	9
31-40	26	15
41-50	2	2
51-60	3	3
61-70	29	29
71-80	14	14
81+	2	2

* 11.5 % Drops out after 2008

Age classes above reflect all forest types

Table 4b. Comparison of Effects on Biodiversity by Alternative

ACTION/EFFECTS		
Compartment 616	ALT A (forested)	ALT's B & C (forested)
FOREST DIVERSITY (% BY SPECIES)		
Longleaf Pine	44	47
Slash Pine-Hardwood	7	7
Yellow Pine	19	19
Slash Pine	20	17
Upland Oak-Yellow Pine	4	4
Bottomlands/Hardwood-Yellow Pine	2	2

0-10	11	14*
11-20	-	
21-30	7	7
31-40	4	1
41-50	14	14
51-60	2	2
61-70	50	50
71-80	6	6
81-90	4	4

*11.3% drops out after 2006

Age classes above reflect all forest types

Table 4c. Comparison of Effects on Biodiversity by Alternative

ACTION/EFFECTS		
Compartment 617	ALT A (forested)	ALT's B & C (forested)
FOREST DIVERSITY (% BY SPECIES)		
Longleaf Pine	62	67
Slash Pine	30	25
Slash Pine-Hardwood	2	2
Yellow Pine	1	1
Longleaf Pine-Hardwood	1	1

0-10	9	14*
11-20	7	7
21-30	2	2
31-40	25	20
41-50	3	3
51-60	-	
61-70	41	41
71+	10	10

*10 % drops out after 2005.

Age classes above reflect all forest types