

Attachment 42 to

GNRO-2012/00039

**Decision Notice And Finding of No Significant Impact Utility Corridor Maintenance for
Wildlife Habitat Enhancement and associated Environmental Assessment (provided in
Attachment C on the Terrestrial Ecology response CD)**

**Decision Notice
And
Finding of No Significant Impact**

**Utility Corridor Maintenance
For
Wildlife Habitat Enhancement**

USDA Forest Service
Homochitto National Forest
Adams, Amite, Copiah, Franklin, Jefferson,
Wilkinson, & Lincoln Counties, Mississippi

Introduction

This project is a wildlife habitat enhancement project initiated by a proposed partnership with the National Wild Turkey Federation and Entergy Corporation. Long-term experience has demonstrated that current mechanical hand and machine maintenance methods produces large areas of unnatural, perpetual, dense brush that has limited wildlife benefit. Conversion of these areas to natural grass and low shrub cover, along with additional wildlife habitat improvements sponsored by partners, would enhance wildlife habitat in these areas. It was considered that herbicide useage was required to support the desired condition of grasses and low shrubs.

In general, utility corridor maintenance is categorically excluded from documentation. However, in his 1989 decision related to Vegetation Management in the Coastal Plain/Piedmont, the Regional Forester directed that projects proposing the use of herbicides in the general forest would require appropriate analysis and be considered against non-herbicide alternatives. While the proposed wildlife improvements are inherently categorically excluded, herbicide applications supporting the improvements required analysis to comply with Regional Forester direction.

The Environmental Assessment for the Utility Corridor Maintenance For Wildlife Habitat Enhancement project documents two management alternatives, including a "No Action" alternative. The Environmental Assessment is on file in the Homochitto Ranger District Office in Meadville, Mississippi. The Environmental Assessment was prepared by an Interdisciplinary Team for the purpose of permitting herbicide use for vegetative maintenance on all power, oil, and gas utility corridors on the Homochitto National Forest, and also permits wildlife habitat improvements to be established in these areas. This project will maintain natural ecosystem components and promote ecosystem diversity on the Homochitto Ranger District through control of vegetation which interferes with wildlife use of utility corridors. This decision will continue for a period of five (5) years from the date of implementation. This decision will be periodically reviewed for consistency as guidelines or conditions change. In the absence of substantial change, this decision may remain valid beyond the projected period.

Utility Corridor Maintenance
Decision Notice and Finding of No Significant Impact

Public Involvement

Public Involvement included an initial scoping period in which mailings were made to individuals and organizations who have expressed interest in projects concerning utility corridors, recreation, and herbicide use. Two comments which fully supported the project and the appropriate use of herbicides in a utility corridor maintenance program were received during initial scoping. A third individual voiced inquiries pertaining to the project during the scoping and comment period, but officially withdrew any interest in the project that might have been implied by his questions. Under current direction, comments that are wholly supportive of a project do not provide cause to elevate the level of analysis, nor to make projects appealable if evaluated in an EA or EIS.

A description of the proposed activities and a request for comments was posted in the Jackson *Clarion Ledger* (paper of record for the National Forests in Mississippi). This initiated a 30 calendar day period in which the Environmental Assessment was made available for public review and comment. There were no substantive comments received during the public comment period, nor interest expressed concerning the proposed action.

Prior to this decision, the National Wild Turkey Federation and Entergy petitioned the Forest Service to include Escort (metsulfuron methyl) herbicide in the environmental analysis. The herbicide was included and analyzed in the "Proposed Action" of the final environmental assessment. No substantial direct, indirect, or cumulative effects were revealed by the analysis as a result of the inclusion of this herbicide in the project.

Issues and concerns found in Chapter 1 of the Utility Corridor Maintenance Environmental Assessment were generated internally. The Responsible Official has not modified the preferred alternative (proposed action) and has elected to implement the preferred alternative as originally described in the Pre-Decisional Environmental Assessment.

Decision

Based upon the analysis in this Environmental Assessment, it is my decision to implement the "Proposed Action" – Herbicide Maintenance. The environmental analysis discloses that no adverse cumulative effects or irreversible commitment of resources would take place with implementation of the "Proposed Action." The "Proposed Action" is detailed in Chapter 1 of the Utility Corridor Maintenance Environmental Assessment.

Implementation of the "Proposed Action" includes the following:

- Triclopyr (ester), triclopyr (amine), imazapyr, glyphosate, metsulfuron methyl, and/or fosamine ammonium herbicide will be applied to briars, vines, woody sprouts, and other vegetation that inhibits access to and wildlife use of utility corridors.
- Application will be by hand methods of directed foliar spray, cut surface spray, or streamline basal spray utilizing backpack sprayers, or by selective mechanical methods using specialized application equipment.

Utility Corridor Maintenance
Decision Notice and Finding of No Significant Impact

- This herbicide maintenance option will be added to current maintenance options, which include clearing with hand tools, tractor mowing, and cutting equipment such as powerline cutters.
- Selected areas will be disked with a light tractor or similar equipment and/or revegetated for purposes of wildlife food plot establishment.

Herbicide quantities are listed in detail for the “Proposed Action” in the Utility Corridor Maintenance Environmental Assessment. These are class “A” herbicides with low toxicity in compliance with the Record of Decision for the Vegetative Management Plan for the Coastal Plain/Piedmont.

The Environmental Assessment discloses the effects of the “Proposed Action” alternative with mitigation measures applied. Any specific mitigation that is above the standard mitigation measures specified in the Forest Plan is discussed for each alternative. Standard mitigation measures that generally apply to all activities across the forest, including the actions discussed in the Environmental Assessment for the Utility Corridor Maintenance Project, are attached in Appendix F for reference.

Other Alternatives Analyzed in Detail

Alternative 1: No Action

The “No Action” alternative proposes no change in the current methods of utility corridor maintenance. Vegetative maintenance objectives would be accomplished through the use of hand tools and/or mowing/cutting equipment.

Alternatives Not Analyzed in Detail

Alternatives considered but not analyzed in detail include:

The “Proposed Action” Without Wildlife Plots

An alternative that did not include wildlife food plot construction was considered. Although the construction of wildlife food plots could be performed as a Categorical Exclusion and, therefore, not included in the Environmental Assessment, the Interdisciplinary team determined that food plots could be more effectively constructed and maintained through removal of competing root stock with herbicides. For that reason, it was determined by the Interdisciplinary Team that incorporation of wildlife food plots as a similar and connected action in the environmental analysis would enhance public understanding of the wildlife enhancement portion of the project. This alternative, therefore, was not pursued further.

The “Proposed Action” Utilizing Other Herbicides

An alternative that considered the use of herbicides other than those detailed in the “Proposed Action” was considered. Other herbicides considered for use in utility corridor maintenance include 2,4-D, picloram, dicamba, and hexazinone.

Utility Corridor Maintenance
Decision Notice and Finding of No Significant Impact

The herbicides selected for use do not move readily within the soil, have very low toxicity, and have relatively short half-lives. They are effective against most woody plants. They do not adversely affect water quality and fish at the low concentrations required to control undesirable vegetation.

Other herbicides were eliminated from consideration for use in utility corridor maintenance for various reasons. They either do not effectively control the target vegetation, relocate easily within the soil, are more costly, pose higher safety risks, or are considered generally less environment-friendly. These factors or a combination of these factors made other herbicides less desirable than those selected for the accomplishment of project objectives.

This alternative did not meet the stated purpose and need to accomplish objectives in the safest, most cost effective, and least environmentally disturbing manner; therefore, it was not considered further.

Decision Rationale

The "Proposed Action" was selected because it provides:

- **Increased wildlife habitat quality and diversity.** The existing maintenance policy has promoted a proliferation of woody vegetation that interferes with wildlife use. The use of herbicides in utility corridors of the Homochitto National Forest would increase diversity of plant species in these areas and produce a more open, grassy habitat. (Page 38 of the Utility Corridor Maintenance Environmental Assessment)
- **Selective control of target vegetation.** The use of herbicides will be selective and generally confined to areas with a heavy briar or woody component. (Page 6 of the Utility Corridor Maintenance Environmental Assessment)
- **Lower risk to workers.** Herbicide treatments produce low human health and safety risks, while increased hand-tool work results in a high rate of accidental lacerations from chainsaws and cutting tools. (Pages 43-45 of the Utility Corridor Maintenance Environmental Assessment)
- **No identified environmental disadvantages.** The proposed herbicides do not have significant adverse impacts on populations of non-target plants and animals. Due to their short half-lives, they do not bioaccumulate, and no cumulative effects were identified. (Throughout Chapter 3 of the Utility Corridor Maintenance Environmental Assessment)
- **A visually pleasing corridor system.** Both herbicide and hand tool treatments would brown vegetation; however, grasses present on the site or those that develop rapidly after herbicide treatment would screen the smaller brown vegetation. (Page 42 of the Utility Corridor Maintenance Environmental Assessment)
- **Economic and operational efficiency.** Hand-tool treatments are less effective and generally require repeated entries for vegetative control. (Pages 40-41 of the Utility Corridor Maintenance Environmental Assessment)

Utility Corridor Maintenance
Decision Notice and Finding of No Significant Impact

- **Positive implementation of the following goals set forth in the Forest Plan (4-1).**
 - Provide for safe public use and enjoyment of forest resources.
 - Provide a visually acceptable landscape by maintaining or upgrading the existing visual condition.
 - Provide a spectrum of dispersed and developed recreational opportunities reflective of the demands of the public.
 - Manage the land in a manner that is sensitive to economic efficiency.

Alternative 1, the “No Action” alternative, was not selected because:

- It offered no increase in wildlife habitat quality or diversity.
- It offered no identified environmental advantages over the “Proposed Action”.
- Under “No Action”, current methods of hand and machine cutting would continue to be employed. These treatments have higher worker safety risks than herbicide use.
- The “Proposed Action” provides more effective removal of undesirable vegetation that hinders wildlife use and decreases sight distances.

The existing maintenance strategy for the utility corridor networks of the Homochitto Ranger District utilizes methods that pose inherent health and safety risks to workers, and have promoted a proliferation of woody vegetation that re-grows quickly and interferes with access to and wildlife use of these sites. In light of these circumstances, the use of herbicides for vegetative management along the utility corridor network is more desirable than existing methods.

Consistency with Laws, Regulations, and Previous NEPA Decisions

It is my finding that actions in this decision comply with the requirements of the National Forest Management Act (NFMA) of 1976, NFMA implementing regulations in 36 CFR Section 219, and the National Forests in Mississippi Land and Resource Management Plan as amended with this decision.

Suitable Lands

The project will not occur on land classified as suitable for timber production as described in the 16 U. S. C. 1604(k) and 36 CFR 219.14 and 36 CFR 219.27(c)(1). The land is not included in the District acreage of lands suitable for timber production due to assignment to other resource use. There are no planned timber harvests under this proposal. Consequently, determinations as to lands which are suitable for timber production is not appropriate.

National Forest Management Act Requirements

This proposal does not involve the manipulation of tree cover for any purpose; therefore, compliance with the seven requirements found in 36 CFR 219.27(b) is not required.

Utility Corridor Maintenance
Decision Notice and Finding of No Significant Impact

National Historic Preservation Act

No cultural resources were recorded in prior archaeological field surveys performed in the project area. A standard pedestrian survey of proposed food plots installation areas located no new archaeological sites. Herbicide usage does not require ground-disturbing activity that may impact undiscovered heritage resources. The "No Heritage Resource Form" completed for this project by the District Archaeologist is included in Appendix E of the Utility Corridor Maintenance Environmental Assessment.

Clean Water Act

The actions in my decision will have no measurable effects on localized water quality or aquatic species. A site-specific examination of the sites and knowledge of soils in the project area shows that the density of the soils is sufficient to fix the herbicide on the site at the proposed concentrations. Riparian buffer zones and other mitigations as described in the Environmental Assessment would prevent soil and herbicides from entering streams. No large-scale, cumulative, or other adverse effects are anticipated.

Finding of No Significant Impact

I have determined from the analysis in the Utility Corridor Maintenance Environmental Assessment that this is not a major federal action that would significantly affect the quality of the human environment; therefore, an environmental impact statement is not needed. This determination is based upon the following factors:

1. The analysis documented in the Environmental Assessment did not identify any individual or cumulatively significant adverse or beneficial short- or long-term effects. (Chapter 3 of the Utility Corridor Maintenance Environmental Assessment)
2. The decision will not result in any adverse effects on public health and safety (Pages 43-45 of the Utility Corridor Maintenance Environmental Assessment).
3. This decision will not result in adverse effects to wetlands, prime farmlands, wild and scenic rivers, ecologically critical areas, or other unique characteristics of the area. (Pages 21-28 and Appendix H of the Utility Corridor Maintenance Environmental Assessment)
4. Effects disclosed in the Environmental Assessment are not highly controversial. Controversy here refers to extent or types of effects, not to the level of opposition. (Chapter 3 of the Utility Corridor Maintenance Environmental Assessment)
5. I am satisfied that the analysis documented in the Environmental Assessment discloses the effects of the alternatives and that they do not involve uncertain, unique, or unknown risk. (Chapter 3 of the Utility Corridor Maintenance Environmental Assessment)
6. This proposal does not establish a precedent for future action beyond the alternatives proposed.

Utility Corridor Maintenance
Decision Notice and Finding of No Significant Impact

7. This proposal is not related to other proposals that would cause a cumulatively significant impact. The cumulative effects of this action and other actions are documented in the Environmental Assessment. Those effects are not significant. (Pages 26-28, 38-39, and 47-48 of the Utility Corridor Maintenance Environmental Assessment)
8. This proposal does not affect any properties on or eligible for listing for the National Register of Historic Places. It will not cause the loss or destruction of significant scientific, cultural, or historic resources. (Page 43 and Appendix E of the Utility Corridor Maintenance Environmental Assessment)
9. Documented in the Biological Evaluation is the conclusion that no Threatened or Endangered species will be adversely affected by implementing this project. The U.S. Fish and Wildlife service has concurred with this determination. (Appendix D of the Utility Corridor Maintenance Environmental Assessment)
10. I find that this proposal does not threaten a violation of any Federal, State, or local law or requirement for protection of the environment. Carrying out the proposed actions will ensure consistency with the standards and guidelines, management requirements, and mitigations outlined in the Forest Plan. (Throughout Chapters 1, 2 and 3; and Appendices D, F and H of the Utility Corridor Maintenance Environmental Assessment)

Implementation and Request for Review

This decision is not subject to appeal pursuant to 36 CFR 215.12. Implementation of this decision may occur on, but not before, one (1) business day from the date the legal notice is published in the *Clarion-Ledger*, Jackson, Mississippi. For additional information concerning this decision or the Forest Service appeal process, contact the District Ranger, Homochitto Ranger District, 1200 Hwy 184 East, Meadville, Mississippi 39653, or phone the District Planning Team Leader, Charles Price, at (601) 384-5876.

GARY W. BENNETT
District Ranger (Responsible Official)
Homochitto Ranger District

Date

Environmental Assessment

Utility Corridor Maintenance For Wildlife Habitat Enhancement

USDA Forest Service
Southern Region (8)
National Forests in Mississippi
Homochitto National Forest
Adams, Amite, Copiah, Franklin, Jefferson,
Lincoln, and Wilkinson Counties, Mississippi

September 25, 2003

Contact: GARY W. BENNETT, District Ranger
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Homochitto National Forest
National Forests in Mississippi

Table of Contents

CHAPTER 1: Need For The Proposal	1
Introduction.....	1
Location and Duration of Project.....	2
Purpose and Need for the Proposal.....	2
Desired Future Conditions	5
The Decision to be Made	6
The Proposed Action.....	6
Public Involvement	10
Scoping	10
Issues and Concerns.....	11
CHAPTER 2: Alternatives.....	15
Introduction.....	15
Development of Alternatives.....	15
Alternatives Analyzed in Detail	15
The “Proposed Action” – Herbicide Maintenance.....	15
“No Action” Alternative	15
Comparison of Alternatives.....	16
Alternatives Not Analyzed in Detail	20
The “Proposed Action” Without Wildlife Plots.....	20
The “Proposed Action” Utilizing Other Herbicides.....	20
CHAPTER 3: Environmental Impacts.....	21
Introduction.....	21
Physical Factors.....	21
Soil Productivity (Issue 1).....	21
Water Quality (Issue 2).....	22
Air Quality (Issue 3)	26
Cumulative Physical Effects (Issues 1, 2, and 3)	27
Biological Factors.....	29
Vegetation (Issue 4).....	29
Forest Health (Issue 5).....	31
Threatened, Endangered, and Sensitive Species (Issue 6)	32
Management Indicator Species (Issue 7)	34
Cumulative Biological Effects (Issues 4, 5, 6, and 7)	39
Socio-Economic Factors.....	41
Economics (Issue 8).....	41
Recreation (Issue 9).....	42
Visual Quality (Issue 9).....	43
Heritage Resources (Issue 10).....	44
Public Health And Safety (Issue 11).....	44
Civil Rights and Environmental Justice (Issue 12)	47
Cumulative SocioEconomic Effects (Issues 8, 9, 10, 11, and 12).....	48
Irreversible and Irretrievable Commitment of Resources (All Issues).....	48
Cumulative Effects (All Issues).....	49

IIList of Figures

Figure 3.1: Frequency of Occurrence of the White Eyed Vireo.....	36
Figure 3.2: Frequency of Occurrence of the Yellow Breasted Chat	37

List of Tables

Table 2.1: Comparison of Activities by Alternative	16
Table 2.2: Comparison of Effects.....	19
Table 2.3: Other Relevant Relationships	19
Table 3.1: Known Harvest Activities Currently Being Planned/Implemented	28
Table 3.2: Threatened and Endangered Summary of Conclusions of Effects.....	32
Table 3.3: Sensitive Species Summary of Conclusions of Effects.....	33
Table 3.4 Terrestrial Management Indicator Species	35
Table 3.5 Aquatic Management Indicator Species.....	37
Table 3.6: Southwest Stream Management Indicator Species.....	38
Table 3.7: Average Per Acre Maintenance Costs of a Single Treatment	42
Table 3.8: Toxicity Data for Proposed Herbicides.....	45
Table 3.9: County Statistics.....	47
Table 3.10: County Population and Minority Status	47

List of Appendices

Appendix A: Interdisciplinary Team Members, Internal Scoping, and Agencies and Individuals Consulted.....	A
Appendix B: Public Involvement.....	B
Appendix C: Project Maps.....	C
Appendix D: Biological Evaluation.....	D
Appendix E: Heritage Resource Survey.....	E
Appendix F: Mitigation and Monitoring.....	F
Appendix G: Public Comments and Responses from Initial Scoping.....	G
Appendix H: Water Quality.....	H
Appendix I: References.....	I
Appendix J: Public Comments and Responses from the Pre-Decisional Environmental Assessment	J

CHAPTER 1

NEED FOR THE PROPOSAL

Introduction

The Homochitto Ranger District is proposing to permit maintenance on power, oil, and gas utility corridors through the use of herbicides to control woody vegetation that interferes with access to and wildlife use of these sites. This project came about through a partnership offer from the National Wild Turkey Federation and Entergy Corporation to enhance wildlife habitat in utility corridors on public lands administered by the Forest Service.

In general, utility corridor maintenance is categorically excluded from documentation. The use of labeled pesticides for uses such as insect and weed control in administrative and recreation areas is also excluded from documentation. However, in his 1989 decision related to Vegetation Management in the Coastal Plain/Piedmont, the Regional Forester directed that projects proposing the use of herbicides in the general forest would require appropriate analysis and be considered against non-herbicide alternatives. While the proposed wildlife improvements are inherently categorically excluded, herbicide applications supporting the improvements required analysis to comply with Regional Forester direction.

This Environmental Assessment documents that analysis and is prepared according to the format established by the Council of Environmental Quality regulations implementing the National Environmental Policy Act (40 CFR 1500-1508). It responds to the Land and Resource Management Plan for National Forests in Mississippi (Forest Plan); the Final Environmental Impact Statement for the Forest Plan; and the Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont, Vols. I & II.

This document is organized in the following manner:

- Chapter 1 explains the purpose and need for the “Proposed Action” and discusses the methods and mitigations to be employed for controlling vegetation along the Homochitto’s utility corridor system under the “Proposed Action”. Chapter 1 also lists the issues that were identified during the scoping process.
- Chapter 2 describes the alternatives to the “Proposed Action”, which include the “No Action” alternative. This chapter provides information on how the issues were addressed for the “Proposed Action “ and each alternative.
- 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, project maps, and references. The appendices also provide additional information on specific aspects of the proposed project and document any public comments received. Additional documentation may be found in the project planning record located at the Homochitto Ranger District in Meadville, Mississippi.

Location and Duration of Project

All utility corridors located on lands managed by the Homochitto National Forest in Mississippi are included in this project. Project maps showing the locations of known utility corridors are included in Appendix C. The project plan area discussed in this document includes all areas within the rights-of-way of the utility corridors on the Homochitto National Forest. It is possible that all rights-of-way are not identified on the maps included in Appendix C. However, every utility corridor on the District has been mapped and evaluated for the Special-Use Permit involving the right-of-way. Therefore, site-specific knowledge is readily accessible for every existing utility corridor on the District. There is also a possibility that new utility corridors will be required to serve new customers. These new areas would also receive site-specific examination. Unless interdisciplinary team review indicates a variance from conditions described or impacts considered in this environmental document, this Decision will be implemented in these new areas without additional detailed documentation.

Duration of the project is five years from the date of Decision. The decision would be periodically reviewed for consistency as guidelines or conditions change. In the absence of substantial change, the decision may remain valid beyond the projected period.

Purpose and Need for the Proposal

Right-of-way vegetation management is essential to providing utility transmission and distribution services and safety for utility workers. Trees and other vegetation can cause disruption of electric utilities when they grow into power line rights-of-way. Overgrown utility corridors inhibit access for maintenance and repair of utilities.



Photo 1.1: Utility right-of-way showing possible vegetative interference of power transmission.

The utility corridors located on the Homochitto National Forest collectively comprise roughly 340 miles of linear wildlife habitat corridors. The existing maintenance policy for these areas has promoted a proliferation of woody vegetation that re-grows quickly and interferes with access to and wildlife use of these sites. The perpetual thickets created by current procedures are not a natural occurrence in the ecosystem and are less beneficial to many species of wildlife than an open, grassy site.

Right-of-way maintenance usually involves manual/mechanical cutting and/or the use of herbicides to control vegetation. The existing maintenance strategy for utility corridors on the Homochitto Ranger District utilizes hand tools and mowing/cutting equipment as the primary means of removal or control of vegetation. While these methods may at first seem to be more favorable than the use of herbicides, they involve certain risks and disadvantages. These methods are time-consuming and costly, may cause damage to the soil, and pose inherent health and safety risks to workers involved in utility corridor maintenance operations. Due to re-sprouting, hand tool or mechanical control of undesirable vegetation often requires repeated and more frequent entries for control. Repeated mechanical treatments most often result in dense monoculture thickets that are low in diversity, wildlife food, and nesting potential.



Photo 1.2: Utility corridor on Sandy Creek WMA exhibiting an over-abundance of sweetgum and other woody species.

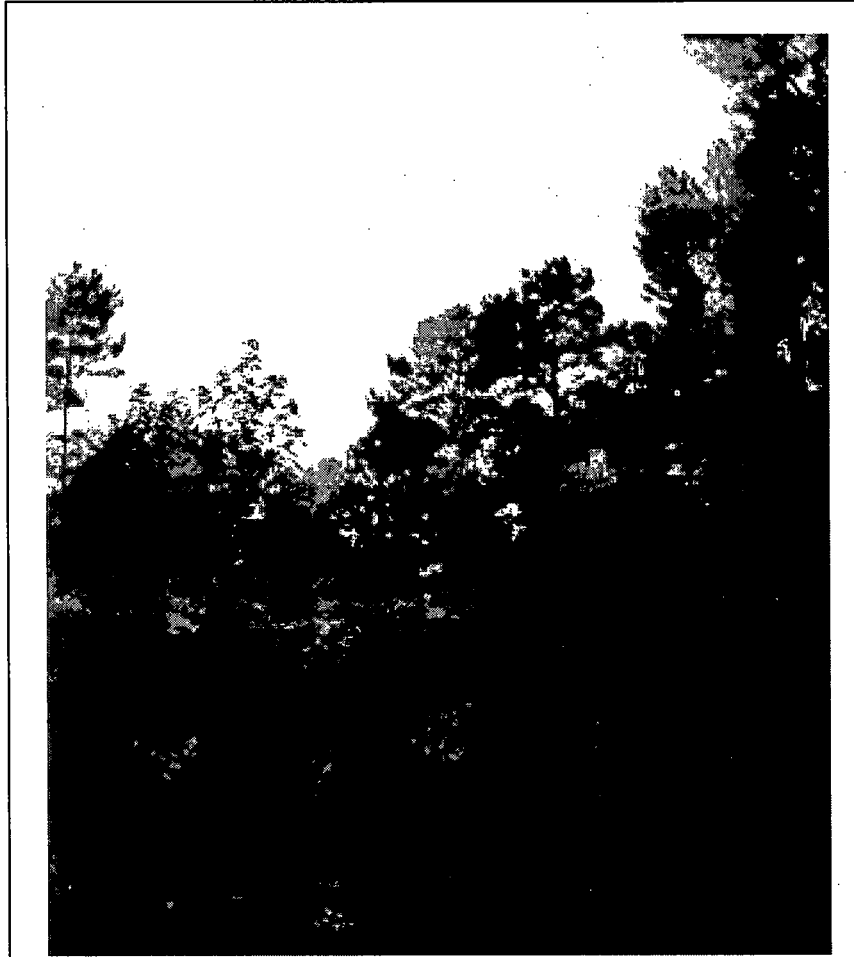


Photo 1.3: Utility corridor on the Homochitto National Forest exhibiting excessive growth of woody species.

In contrast, herbicides can be used in a controlled manner to concentrate control on undesirable vegetation. Herbicides used for vegetation control generally have low human and animal toxicity. The inclusion of herbicide methods also can result in more desirable wildlife habitats. In most cases, wildlife habitat enhancements such as the creation of food plots are also more easily accomplished through the use of herbicides.

In light of these circumstances, the use of herbicides for vegetative management along these utility corridors is more desirable than existing methods. The proposed actions are necessary to provide the greatest long-term benefit to the public.

Based on the needs outlined above, the purpose of this project is to:

- Allow removal/control of woody sprouts, briars, vines, and other vegetation that interferes with access to and wildlife use of utility corridors in the safest, most cost effective, and least environmentally disturbing manner.
- Enhance wildlife habitat and promote floral and faunal diversity through establishment of native vegetation and wildlife food plots in utility corridors.

Desired Future Conditions

The long-term desired condition for the Utility Corridor Maintenance Project consists of the following:

- Maintain an environment which is conducive to exploitation by wildlife through the control of vegetation which interferes with wildlife use of utility corridors on the Homochitto Ranger District.
- Maintain natural ecosystem components and promote ecosystem diversity in utility corridors on the Homochitto Ranger District.



**Photo 1.4: Utility corridor on Caston Creek WMA
representative of a desirable grass and low shrub cover.**

The Decision to be Made

Based upon the analysis documented in this environmental assessment, the District Ranger (Responsible Official) will make the following decisions:

- Whether or not to permit herbicides to be utilized in the maintenance of utility corridors of the Homochitto Ranger District as described in this document.
- What methods and actions are appropriate in the use of herbicides for utility corridor maintenance.
- Whether or not to permit establishment of wildlife food plots in utility corridors on the Homochitto Ranger District as described in this document.
- What methods and actions are appropriate in the establishment of wildlife food plots in utility corridors.

The Proposed Action

The Homochitto Ranger District proposes to permit utility corridor maintenance and wildlife food plot establishment using the following methods and mitigations.

Herbicide Maintenance

Herbicide will be applied to briars, vines, woody sprouts, and other vegetation that inhibits access to and wildlife use of utility corridors. Application will be by hand methods of directed foliar spray, cut surface spray, or streamline basal spray utilizing backpack sprayers, or by selective mechanical methods using specialized application equipment. This herbicide maintenance option will be added to current maintenance options, which include clearing with hand tools, tractor mowing, and cutting equipment such as powerline cutters.

The use of herbicides will be selective and generally confined to areas with a heavy briar or woody component. Mechanical applications would be utilized on areas where slopes, soil types, and vegetation allow. Mechanical methods will be limited to the use of specialized selective equipment such as the Brown Brush Monitor[®] — which utilizes a mowing deck with an attached herbicide application chamber in which only the cut stubble is treated — for general maintenance or tractor/truck-mounted low volume directed spray for side trimming. Side trimming is selective in that the operator controls rate of application, direction of spray, timing of operation, and system on/off. Hand application methods would be used in areas not accessible to equipment. Directed foliar spray would be applied to shrubs, vines, and other low/leafy vegetation during the growing season. Where taller, woodier vegetation develops, the streamline treatment would be used, primarily in the dormant season. Cut surface or stump treatments would be used when larger woody material (≥ 3 inches diameter) is present.

The proposed herbicides to be used are Garlon 4[®] (triclopyr ester), Garlon 3A[®] (triclopyr amine), Arsenal[®] (imazapyr), Accord[®] (glyphosate), Escort[®] (metsulfuron methyl), and Krenite S[®] (fosamine ammonium). Specific herbicides or combinations of these herbicides would be applied depending upon vegetation and site conditions. Herbicides would be applied at the lowest rate

effective in meeting project objectives, and at rates not to exceed “*typical*” as defined in Table 4-6 of the *Final Environmental Impact Statement, Vegetation Management in the Coastal Plain/Piedmont, Appendices (Volume II)*.

The typical proposed herbicide application mixtures are:

- 2-4% Garlon 4 emulsified in water for foliar spray and 20% Garlon 4 solution in a mineral oil/adjuvant base for streamline
- 1.5 gallon of Krenite mixed with 10 to 40 gallons of water with surfactant added for side trimming
- 2% Accord mixed in water with surfactant as an alternative foliar spray
- A mixture of 5% Krenite, ¾% Arsenal, and 0.03 ounces Escort with surfactant per gallon of water as an alternative foliar spray
- A mixture of 33% Garlon 3A and 6 ounces of Arsenal Applicator’s Concentrate per gallon mixed in water will be used for injection or stump spray
- A foliar/cut surface treatment consisting of 5.0 ounces of Garlon 4 and 0.50 ounces of Arsenal per gallon mixed in water would be applied with specialized mechanical equipment

Approximate typical per acre application rates for the two application methods are:

- Foliar Spray w/Garlon 4
 - 4.0 gal/ac, 4% Garlon 4 @ 4 lbs/gal = 0.64 lbs/acre
- Streamline
 - 2.0 gal/ac, 20% Garlon 4 @ 4 lbs/gal = 1.6 lbs/acre
- Foliar Spray w/ Accord
 - 4.0 gal/ac, 2% Accord @ 5.4 lbs/gal = 0.43 lbs/acre
- Foliar Spray w/ Krenite/Arsenal/Escort
 - 10.0 gal/ac, 5% Krenite @ 4 lbs/gal = 2.0 lbs/acre
 - 10.0 gal/ac, ¾% Arsenal @ 2 lbs/gal = 0.15 lbs/acre
 - 10.0 gal/ac, 0.001875 lb Accord/gal @ 60% A.I = 0.01125 lbs/acre
- Side trimming w/ Krenite
 - 20 gal/ac, 1.5 gal Krenite @ 4 lbs/gal = 6.0 lbs/acre
- Cut and Stump Spray w/ Garlon/Arsenal Mix
 - .75 gal/ac, 33% Garlon 3A @ 3 lbs/gal = 0.74 lbs/acre
 - .75 gal/ac, 6 oz/gal Arsenal @ 4 lbs/gal = 0.14 lbs/acre
- Injection w/ Garlon/Arsenal Mix
 - .5 gal/ac, 33% Garlon 3A @ 3 lbs/gal = 0.50 lbs/acre
 - .5 gal/ac, 6 oz/gal Arsenal @ 4 lbs/gal = 0.09 lbs/acre
- Mechanical Application w/ Garlon 4/Arsenal Mix
 - 20 gal/ac, 5.0 oz/gal Garlon 4 @ 4 lbs/gal = 3.1 lbs/acre
 - 20 gal/ac, .5 oz/gal Arsenal @ 4 lbs/gal = 0.31 lbs/acre

For further enhancement of wildlife habitat, selected areas will be disked with a light tractor or similar equipment and/or revegetated in accordance with the “Erosion Control and Wildlife Planting Guides for the National Forests in Mississippi” for purposes of wildlife food plot establishment. These areas are identified on the projects maps included in Appendix C.



Photo 1.5: Existing wildlife food plot on utility corridor in Sandy Creek WMA.

The basis for these management activities is the National Forest Management Act and the Forest Plan. In addition, the Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont provides technical information and parameters for herbicide use. All of these documents are available to the public and can be reviewed at the District Ranger's or Forest Supervisor's Office.

Utility corridor maintenance using herbicides would result in the positive implementation of the following goals set forth in the Forest Plan. (4-1)

1. Provide for safe public use and enjoyment of forest resources.
2. Provide a visually acceptable landscape by maintaining or upgrading the existing visual condition.
3. Provide a spectrum of dispersed and developed recreational opportunities reflective of the demands of the public.
4. Manage the land in a manner that is sensitive to economic efficiency.

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 along streams.
- 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.
- Mitigations associated with project design and management prescriptions. These include Forest Plan or legal direction, and mitigations inherent to the Interdisciplinary Team process, such as locally developed enhancements in excess of Forest Plan standards. Mitigations 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. For this project, sensitive plants will be protected if found in the project area.

This 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, mitigations that apply to this project, including those considered in the design and implementation of wildlife food plots, are described in Appendix F of this Environmental Assessment for those unfamiliar with the Forest Plan. These standards meet or exceed environmental protection requirements found in the State of Mississippi Best Management Practices.

Herbicide usage in this project follows all mitigating guidelines as stated in the Final Environmental Impact Statement: Vegetation Management in the Coastal Plain/Piedmont, Volumes I and II. Examples of mitigating activities include:

- No herbicide is aerially applied within 100 horizontal feet, nor ground-applied within 30 horizontal feet, of lakes, wetlands, or perennial or intermittent springs and streams.
- No herbicide is applied within 100 horizontal feet of any public or domestic water source.
- Herbicide mixing, loading, or cleaning areas in the field are not located within 200 feet of private land, open water or wells, or other sensitive areas.

Right-of-way holders will be required to submit a Pesticide-Use Proposal to the Forest Service for approval prior to any herbicide application. Additional standards and guidelines can be found in the Final Environmental Impact Statement: Vegetation Management in the Coastal Plain/Piedmont, Vols. I & II (VMCP/P).

Monitoring Activities

Monitoring ensures that the appropriate standards and guidelines and mitigation measures are followed to protect water quality, heritage resources, wildlife habitat, and other natural resources, and ensures that the “Proposed Action” or chosen alternative is effective in accomplishing the desired future condition identified for the project. 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. However, substantial validation monitoring was incorporated into the Vegetation Management Environmental Impact Statement and the Forest Plan Environmental Impact Statement, which are the basis for the proposed activities of this project.

Routine implementation monitoring is part of the special-use administration process. Trained specialists or technicians ensure that standards and guidelines are being met. Special uses and pesticide use on the District are assessed annually. Trained state and federal wildlife biologists and botanists would accomplish plant and wildlife monitoring. A more detailed discussion of monitoring is provided in Appendix F.

Public Involvement

An 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.

Scoping

The environmental analysis process was initiated on March 19, 2003, by forwarding a scoping letter to individuals and organizations on the District’s mailing list that have expressed interest in projects concerning herbicide use, utility right-of-ways, and wildlife habitat. A scoping notice was also printed in the Jackson MS *Clarion-Ledger* (paper of record) to inform individuals who may not have been on the mailing list. A copy of the scoping letter and mailing list can be found in Appendix B. Comments received through scoping and responses to those comments can be found in Appendix G of this document.

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 to be Analyzed**” 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 to be Analyzed

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 the “No Action” alternative.)

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.)

3. Air Quality

Internally raised issue based on the concern that activities of the Forest Service do not negatively impact air quality. ("Other" issue – No cause/effect relationship identified for this project)

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.)

5. Forest Health

Internally raised concern that the Forest Service make provisions for forest health protection and enhancement. ("Other" issue – No cause/effect relationship identified for this project)

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.)

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.)

8. Economics

Internally raised issue based on the concern that Forest Service activities are economically efficient. ("Other" issue - Addressed through project design)

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.)

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)

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.)

12. Civil Rights and Environmental Justice

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

Economic efficiency: There was concern that herbicides of least cost to the public be used in the project. The public would not bare the cost of right-of-way maintenance.

This environmental assessment proposes to *permit* the use of herbicides for vegetative management of utility corridors on the Homochitto Ranger District. Utility corridor maintenance using herbicides would allow for enhanced wildlife and public use of the utility corridors of the Homochitto Ranger District, and would correspondingly provide continued support of local businesses through sale of food, fuel, and other items to hunters, hikers, and other recreationists. However, the Forest Service is not intending to perform or to contract any activities related to this project. Other than the cost of preparation of this environmental document, there would be no further direct monetary cost to the public, regardless of the herbicides or alternative chosen. This issue, therefore, is not relevant to the decision to be made.

Need for project: There was concern as to the need for the project; *specifically*, with regard to who requested that the project be undertaken.

This project was initiated by the Forest Service to address the problem of species diversity and wildlife use in utility corridors on the Homochitto National Forest. Utility corridors are valuable wildlife areas due to their placement in the landscape, providing needed travel-ways and edge habitat for various wildlife species. These areas are currently maintained through mechanical means only. Repeated mechanical treatments on right-of-ways on the District have resulted in many of these areas becoming heavily stocked with single-species “thickets” of woody sprouts. These areas of perpetual woody brush are not a natural component of the ecosystem and are less diverse and provide less wildlife food and nesting potential than would an open, grassy site. This project would alleviate these concerns to some degree by breaking the cut-sprout cycle by removing the rootstock from which these thickets develop. This issue, therefore, is not relevant to the decision to be made.

Target wildlife species: Concern was expressed that wildlife species that would be affected by the project are identified.

The repeated mechanical clearing of utility corridors has resulted in the creation of dense, woody, monoculture thickets on many areas of these rights-of-way. Large root systems allow tremendous rates of woody re-growth after treatment. Such stands have low diversity and offer little wildlife food or nesting potential. The use of herbicides in utility corridors would increase diversity of plant species in these areas and produce a more open, grassy habitat — a

habitat type that is limited on the Homochitto Ranger District. This would, in turn, benefit the bobwhite quail and other species associated with early seral and grassland habitats. Species representative of late seral habitats, such as the wild turkey and screech owl, may also benefit through increase in available foraging habitat. Wildlife food plots would directly benefit herbivores such as the whitetail deer, while providing feeding grounds for turkey and quail and hunting grounds for kestrels and screech owls, and with the additional provision of habitat for certain neotropical migrants and other species which utilize early seral habitats.

Nevertheless, any analysis of the effects of management on terrestrial wildlife species must recognize that it is difficult, if not impossible, to satisfy the needs of all "wildlife" at the same time on the same area. The goal of the manager is to attempt to balance the needs of all, giving special consideration to those species most at risk of extinction/extirpation. The Biological Evaluation for this project identified no potential negative impacts to endangered, threatened, or sensitive species. This concern, therefore, is not relevant to the decision to be made.

Site specificity: Concern was expressed that site-specific areas to be treated are identified.

There are roughly 340 miles (or approximately 1200 acres) of utility corridor on the Homochitto National Forest. These areas are important to wildlife as they present essential edge habitat and travel ways. Site-specific evaluation of these areas has been completed for special-use permitting and has been analyzed for this environmental assessment. These areas are documented in the discussion of project *Location* in this chapter and on the maps in Appendix B. Site-specific evaluation is an integral part of National Environmental Policy Act compliance for site or condition specific projects. This project and environmental document, therefore, are inherently site specific and additional discussion of this issue is not required.

Determination of specific treatment areas: There was concern as to the determination of specific areas to be treated; *specifically*, pertaining to who determines these areas.

This environmental assessment proposes to **allow** the use of herbicides for vegetative management of utility corridors on the Homochitto Ranger District. The Forest Service is not intending to perform or to contract any activities related to this project. Other than specifying the allowable application rates and methods, detailing areas where mitigating measures are to be undertaken, defining areas requiring the various specific treatments, and delineating the specific treatment areas, this analysis does not specify the areas in which actual treatment will take place. The analysis assumes that treatments would be applied to all available areas, but does not infer any obligation for treatment of any area. In the case of herbicide treatment, the choice of whether or not to treat specific areas will be left to the right-of-way special-use permit holder. In the case of wildlife food plots, the choice will be made by those individuals, groups, or organizations willing to partner with the Forest Service for the promotion of quality wildlife habitat in the public domain. This concern, therefore, is beyond the scope of this analysis.

CHAPTER 2

ALTERNATIVE

S

Introduction

This chapter provides descriptions of alternatives to the “Proposed Action” and presents the alternatives in comparative form, defining the issues and providing a clear basis for choice among options by the decision maker and the public (National Forest Management Act, 40 CFR 1502.14). It includes a discussion of how the alternatives were developed, a description of each alternative considered in detail, and a comparison of how these alternatives relate to the significant issues. It also identifies the “Proposed Action” as the preferred alternative.

Some of the information in Chapter 2 is summarized from Chapter 3, “Affected Environment and Environmental Consequences.” Chapter 3 summarizes the scientific basis for establishing base lines and measuring the potential environmental consequences of each of the alternatives. For a full understanding of the effects of the alternatives, readers will need to consult Chapter 3.

Development of Alternatives

While still meeting the stated “Purpose and Need” (see Chapter 1), the “Proposed Action” and each alternative presented in this environmental analysis provide a different response to the significant issues. Each of these alternatives was developed through Interdisciplinary Team evaluation.

The Interdisciplinary Team used information from the analysis of scoping comments in conjunction with resource data from forest personnel, silvicultural prescription plans, and data that is available in the geographic information system (GIS) to formulate different alternative approaches. Preliminary analysis and management direction were used to further refine the alternatives described in this chapter.

Alternatives Analyzed in Detail

The “Proposed Action” – Herbicide Maintenance

The activities and mitigation included in the “Proposed Action” were described in Chapter 1. Analysis of these activities and an explanation of how they respond to the issues developed for this project are discussed in Chapter 3.

“No Action” Alternative

Alternative 1, “No Action”, was developed to address the issue of the effects of pesticide use on the terrestrial and, especially, aquatic environments, as well as to meet legal requirements. The

inclusion and full consideration of this alternative is required by the National Forest Management Act and presents an evaluation of what would be expected to occur if no management activities were implemented. It is intended to act as a benchmark against which other alternatives are compared.

The “No Action” alternative proposes no change in the current methods of utility corridor maintenance. The choice of the “No Action” alternative by the decision maker does not imply that vegetation along the utility corridors will not be controlled or that wildlife food plots will not be constructed, but only excludes the use of herbicides to accomplish vegetative management objectives. These objectives would be accomplished through existing methods, which utilize hand tools and/or mowing/cutting equipment.

Analysis of this alternative and an explanation of how it responds to the issues developed for this project can be found in Chapter 3.

Comparison of Alternatives

This section compares outputs, objectives, and effects of the alternatives in terms of the significant issues for the Utility Corridor Maintenance Project. The discussions of effects are summarized from Chapter 3. The following table provides an overview comparison of information from the alternative descriptions.

Table 2.1: Comparison of Activities by Alternative

Activity	Measure	Proposed Action	Alternative 1 No Action
Mechanical Maintenance			
Mowing/Cutting Equipment	Acres	Equipment Accessible	Equipment Accessible
Hand Tools	Acres	By Site*	Majority of Area
Pesticide Maintenance			
Selective Mechanized	Acres	Equipment Accessible**	None
Hand-directed	Acres	By Site**	None
Wildlife Food Plots			
Disking/Planting	Acres	Selected Areas***	Selected Areas***

* No herbicide use will be allowed in riparian areas

** Herbicides will generally be confined to areas where past management has resulted in a heavy woody component

*** Affiliated partners would determine the total number of acres

Issues to be Analyzed: Summary of Impacts

1. Soil Productivity

Neither of the alternatives would result in any measurable impacts to soil productivity. Further discussion of soil productivity can be found in Chapter 3 of this environmental assessment.

2. Water Quality

No impacts to water quality would result from the “No Action” alternative, since no pesticides would be used. The potential for impacts upon water quality do exist for the “Proposed Action. These impacts, however, would be minimal due to mitigation measures discussed in Appendix F, Chapter 1, and Chapter 3 of this environmental assessment.

3. Air Quality

There would be no impacts to air quality resulting from either of the alternatives

4. Vegetation

The “No Action” alternative would retain the current vegetative condition. The “Proposed Action” could result in a more diverse plant community. Major impacts to vegetation are not likely under either of the alternatives. Impacts related to the various alternatives are presented in Chapter 3 of this document.

5. Forest Health

No impacts to forest health would be related to either of the alternatives.

6. Threatened, Endangered, and Sensitive Species

The “No Action” alternative would not affect TES species. The “Proposed Action” may have minimal impact to some TES species. Further explanation of the impacts to threatened, endangered, and sensitive species are addressed in Chapter 3.

7. Management Indicator Species

Some Management Indicator Species would benefit slightly from the floristic diversity and food plots created by the “Proposed Action”. No Management Indicator Species would be negatively affected by either alternative considered. Chapter 3 further discusses the impacts of the alternatives upon management indicator species.

8. Economics

The cost of implementation would be incurred by the special-use permit holder or, in the case of food plots, the partners involved, and not by the Forest Service. Therefore, the selection of either the “Proposed Action” or “No Action” alternative would impart no economic consequences. Economics is further discussed in Chapter 3 of this document.

9. Recreation

No substantial impacts to recreational concerns would result from either alternative. However, the “Proposed Action” better addresses recreation through more effective removal of undesirable vegetation that decreases sight distances along the corridor and the possibility of increased hunting opportunity in these areas. Further discussion of the impacts to recreation can be found in Chapter 3.

10. Heritage Resources

Neither of the alternatives would impact heritage resources. Heritage resources are further discussed in Chapter 3 of this document.

11. Public Health and Safety

Public Health and Safety issues in land management mostly concern the use of pesticides. Due to the exclusion of pesticides, no impacts would result from pesticide use in the “No Action” alternative. Higher worker safety risks, however, would result from implementation of “No Action”. An explanation of the concerns and mitigation measures which would result in protection of public health and safety for the “Proposed Action” is discussed in Chapter 3 and Appendix G of this environmental assessment.

12. Civil Rights and Environmental Justice

The United States Department of Agriculture, Forest Service is a diverse organization committed to equal opportunity in employment and program delivery. The United States Department of Agriculture prohibits discrimination on the basis of race, color, national origin, sex, religion, age, disability, political affiliation and familial status. Civil rights and environmental justice would be upheld and protected in both the “Proposed Action” and the “No Action” alternative. Further explanation of the impacts to civil rights and environmental justice can be found in Chapter 3 of this environmental assessment.

Issues to be Analyzed: Summary of Impacts

The following table compares alternatives and how they address the identified significant issues and other concerns.

Table 2.2: Comparison of Effects

Issue	Measure	Proposed Action	Alternative 1 No Action
Soil Productivity	Reduction in soil productivity	Not measurable	Not applicable
Water Quality	Effect on aquatic life and public health	Below all recognized thresholds with prescribed application	None
Air Quality	Reduction in air quality	Not applicable	Not applicable
Vegetation	Reduction in diversity	None	None
Forest Health	Decrease in forest health	None	None
Threatened, Endangered, and Sensitive Species	Negative impact to TES species	Minimal	None
Management Indicator Species	Impact to MIS habitat	Slightly beneficial	None
Economics	Cost to public	Not applicable	Not applicable
Recreation	Enhancement of preferred conditions	High	Low
Heritage Resources	Amount of modification	None	None
Public Health and Safety	Effect on public health and safety	No adverse effect with mitigation	Higher risk to workers
Civil Rights and Environmental Justice	Effect on civil rights of surrounding population	None	None

Table 2.3: Other Relevant Relationships

Issue	Proposed Action	Alternative 1 No Action
Consistent with Forest Plan	Yes	Yes
Consistent with NFMA	Yes	Yes
Consistent with VMEIS	Yes	Yes

Alternatives Not Analyzed in Detail

The following alternatives were considered by the interdisciplinary team but were not developed in detail due to the reasons stated.

The “Proposed Action” Without Wildlife Plots

An alternative that did not include wildlife food plot construction was considered. Although the construction of wildlife food plots could be performed as a Categorical Exclusion and, therefore, not included in the Environmental Assessment, the Interdisciplinary team determined that food plots could be more effectively constructed and maintained through removal of competing root stock with herbicides. For that reason, it was determined by the Interdisciplinary Team that incorporation of wildlife food plots as a similar and connected action in the environmental analysis would enhance public understanding of the wildlife enhancement portion of the project. This alternative, therefore, was not pursued further.

The “Proposed Action” Utilizing Other Herbicides

An alternative that considered the use of herbicides other than those detailed in the “Proposed Action” was considered. Other herbicides considered for use in utility corridor maintenance include 2,4-D, picloram, dicamba, and hexazinone.

The herbicides selected for use do not move readily within the soil, have very low toxicity, and have relatively short half-lives. They are effective against most woody plants. They do not adversely affect water quality and fish at the low concentrations required to control undesirable vegetation.

Other herbicides were eliminated from consideration for use in utility corridor maintenance for various reasons. They either do not effectively control the target vegetation, relocate easily within the soil, are more costly, pose higher safety risks, or are considered generally less environment-friendly. These factors or a combination of these factors made other herbicides less desirable than those selected for the accomplishment of project objectives.

This alternative did not meet the stated purpose and need to accomplish objectives in the safest, most cost effective, and least environmentally disturbing manner; therefore, it was not considered further.

CHAPTER 3

ENVIRONMENTAL IMPACTS

Introduction

This chapter provides information concerning the existing environment and the potential consequences to the environment associated with the alternatives listed in Chapter 2. It also presents the scientific and analytical basis for the comparison of the alternatives. Following each resource description is a discussion of the potential effects to the resources associated with the implementation of each alternative. All significant or potentially significant effects, including direct, indirect, and cumulative effects, are disclosed. Effects are quantified where possible, and qualitative discussions are also included.

The proposed herbicides to be used are Garlon 4[®] (triclopyr ester), Garlon 3A[®] (triclopyr amine), Arsenal[®] (imazapyr), Accord[®] (glyphosate), Escort[®] (metsulfuron methyl), and Krenite S[®] (fosamine ammonium). These herbicides do not move readily within the soil, have very low toxicity, and have relatively short half-lives. They are effective against most woody plants. They do not adversely affect water quality and fish at the low concentrations required to control undesirable vegetation.

Physical Factors

Physical factors are the environmental consequences of the alternatives on soil, water, and air resources. Sites evaluated by these factors are widely distributed across the District and vary from broad ridges to steep side slopes and drains.

Soil Productivity (Issue 1)

Current Situation

An extensive soil resource inventory for the Homochitto National Forest was completed in 1984 (Soil Resource Inventory Report, Homochitto National Forest 1984). This survey identified the different soil types and associated soil map units along with their locations. Important characteristics of these soil types along with the implications for management were also presented as part of this report. The interpretation of the soil map units provides the limitations and capabilities of the soils to anticipated impacts related to management. Factors that may determine the level of impacts to soils include the soil type, topography, ground cover, weather, type of equipment and the intensity of the activities.

Soils on the Homochitto National Forest generally fall within the ridge, steep side-slope, or side-slope categories. The Lorman and Smithdale soil series predominate. Very limited acres fall within the floodplain classification. All of the soils have moderate to high erosion hazard and seasonal restrictions. Although some sites may have a high sand content, most areas have dense

soils, and the sandy sites have some fine soil particles mixed in. The steep side-slopes are not conducive to the use of mechanized equipment. Due to the fragile nature and erosion hazard of most soils in this forest, excessive rutting and compaction would occur if heavy mechanized equipment were used when the soils are wet. For this reason, mechanized activities may be restricted during the wet season (November 30 through March 1). Further restrictions might be needed if rainfall is excessive during the dry season.

Environmental Consequences

The effects of the proposed herbicides on soil productivity were addressed in the Final Environmental Impact Statement: Vegetation Management in the Coastal Plain/Piedmont (FEIS VMCP/P). The proposed herbicides were found to have no known effect on soil physical and chemical properties. The proposed application rates are well below the threshold where adverse effects to soil biota were observed. These herbicides are formulated strictly to affect the more complex metabolic processes of higher plants that are absent in microflora. The selective herbicide treatments proposed in this analysis do not expose soil. The proposed herbicides do not inherently disturb soil, so treated areas would have intact litter and duff that maintain erosion at low levels. Nutrient leaching would be limited to minimal nitrogen losses due to suppression of vegetative uptake. Nitrogen budgets should experience long-term buildup from growth of new vegetation and deposition of adjacent timber litter. Losses of other, less mobile nutrients would be negligible. The FEIS VMCC/P states that overall risk to soil productivity from herbicides is minimal. It is therefore highly unlikely that use of the proposed herbicides at the proposed rates would have any measurable effect to soil productivity.

Soil compaction is caused by the weight of machinery on the ground, which increases bulk density and decreases aeration porosity. Disking restores bulk density and aeration porosity in the topsoil and should eliminate the shallow compaction caused by equipment use. Disking can cause soil erosion by exposing and tilling soil. The impact of diskings would be minimized, however, due to mitigations such as prompt revegetation of the sites in accordance with "Erosion Control and Wildlife Planting Guides for the National Forests in Mississippi". Mitigations for food plot construction also include diskings only on slopes of less than 20%, tillage along the landform contours, avoiding disturbance of soils with high clay content near the surface, avoiding wetlands, partitioning of larger areas with un-disked strips, and the use of "no-till" planting techniques where practicable. Losses of nitrogen and other nutrients due to diskings would also be negligible. The FEIS VMCC/P indicates that overall risks to soil productivity from diskings are minimal. Therefore, it is unlikely that any measurable effect on soil productivity from constructing and maintaining wildlife food plots would be realized.

Water Quality (Issue 2)

Current Situation

The water-related resources of the Homochitto National Forest include floodplains, riparian areas (including rivers, streams, and ponds) and wetlands. Floodplains are those portions of the river valley, adjacent to the river channel, which is covered with water when the river overflows its banks at flood stages. Riparian areas are adjacent to streams, lakes and ponds and are sites that

are influenced by groundwater from the water body or where ground-disturbing activities can have a direct influence on the water quality of the water body. Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater with a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions" (40 CFR 230.41 (a)(1)). "Frequency and duration" of a groundwater table sufficient to support a prevalence of hydrophytic plants can include areas where the groundwater table is 12 inches below the soil surface for as little as two weeks during the growing season.

Standards and guidelines have been established to address forest management activities in wetlands, floodplains, and riparian areas (also known as streamside management zones). Buffer zones are designated adjacent to all lakes, perennial or intermittent springs and streams, wetlands, or seeps for the express purpose of protecting water quality. Streamside zone protection measures include prohibiting the use of herbicides within 30 linear feet of the stream or water body. Vegetation is retained within buffer zones, which helps to retain channel stability and maintain water temperature.

Precipitation averages 50-70 inches per year for the Homochitto National Forest. Runoff for the Homochitto National Forest averages about 18-20 inches per year with 36 to 40 inches of water per year released to the atmosphere through evapotranspiration (Soil Resource Inventory Report, Homochitto National Forest). The highest potential for precipitation and associated runoff and flooding occurs in the winter and early spring. Winter rains are usually widespread and prolonged while much of the summer rains are localized thunderstorms of short duration.

Water quality on the Homochitto National Forest is generally good, although some local problems do exist. Channelization of the Homochitto River has lowered the normal water level and increases the rate of flow in the river and associated tributaries, resulting in stream bank cutting. Local problems may be the result of erosion and sedimentation from Loess soils, head cutting of streams, or infrequently from oil and gas operations. Since much of the watershed drainage originates on private lands, primary negative impacts on water quality come from private agricultural (farming and cattle), small woodlot, and residential uses. Erosion and sediment are impacts from these activities that may have a direct negative impact on water quality. In addition, some streams may be locally impaired from fecal coliform associated with the lack of or improperly functioning private on-site septic treatment systems, livestock runoff from private land, and natural sources such as wild animals.

Aquatic health is an essential aspect of the water resource and is included in the term "water resource." The measure of an adverse affect upon water quality would be that the project changes water quality to the extent that the cost of down-stream uses increases, or the quality of the aquatic habitat decreases as measured by a decline in the presence of aquatic management indicator species.

Since the Forest Plan was initiated in 1985, the District has periodically inventoried six representative streams. Each inventory has identified ichthyo-management indicator species to be present in streams. Typically five or six of the eight species are represented, but some streams

have all eight species. Since habitat varies according to seasonal rain patterns and individual stream characteristics, there is no expectation that all indicators would be present in all streams. The purpose of multiple management indicator species is to have representatives for the full range of streams that occur across the Forest.

The Homochitto National Forest was purchased during the mid-1930's. Since that time, it has undergone continuous management activities, which include herbicide usage. Since 1968, 41% of the forest has been harvested and regenerated, typically facilitated by the use of herbicides, and much of the remaining acres have been thinned. Stream monitoring captures the effect of that activity upon aquatic habitat. Neither the direct, indirect or cumulative effects have eliminated appropriate indicator species from the aquatic habitat. Streams have maintained healthy environments.

Environmental Consequences

Typical soils on the Homochitto have a high concentration of fine particles that minimize leaching and lateral movement. Soils in the project area are sufficiently dense to hold the proposed herbicides on site and are in the range of the analysis done for the Vegetation Management in the Coastal Plain/Piedmont, Final Environmental Impact Statement. Analysis of these risk assessments reveals little, if any negative effects on water quality from the use of the proposed herbicides with the proposed application rates and methods.

A site-specific examination of the sites and knowledge of soils in the project area shows that the vegetative components on the site can be controlled by the proposed herbicides, and that the density of the soils is sufficient to fix the herbicide on the site. Employing herbicides to obtain undesirable vegetation control would introduce slightly toxic chemicals to target sites. However, concentrations are such that, with the dense soils of the Homochitto, there is little or no movement of herbicides.

An evaluation of the estimated application rates indicates that the rates applied per acre will be less than the typical rate prescribed in the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont (FEIS VMCP/P). Impacts and risks associated with the typical rates were considered insignificant in the evaluation completed for the Environmental Impact Statement.

The proposed herbicides are Class "A" chemicals, and the methods of applications are addressed in the FEIS VMCP/P (pp. II-41, 42). Research and technical data reviewed in preparation for the above Environmental Impact Statement and the Material Safety Data Sheets for these herbicides indicate that they have a relatively short half-life and biodegrade through microbial action. Therefore, they do not build up between successive treatments. Riparian buffer zones would prevent herbicides from entering streams, resulting in no measurable effects to water quality and aquatic species.

Detailed herbicide risk assessments, including surface and subsurface off-site movements, may be found in Appendix A, Section 4 of the FEIS VMCP/P. Mitigating measures are discussed in Appendix F of this document. Mitigations include no herbicide application within 30 linear feet of

streams, seeps, ponds, and other water bodies.

Wetlands, floodplains, and riparian areas are addressed in the Forest Plan, in Amendment 6 to the Forest Plan; in the Final Environmental Impact Statement, Vegetation Management in the Coastal Plain/Piedmont; and in Executive Orders 11988 (floodplains) and 11990 (wetlands). Mitigation measures for protecting these areas are based on the National Forests in Mississippi's "Management Guidelines for Streamside Areas" and are discussed in Appendix F of this document.

As previously described, disking exposes soil and increases the risk of erosion. However, the location of food plot sites away from streams, the prompt revegetation of these sites, and the implementation of riparian buffer zones would decrease potential impacts to a non-measurable status.

No effects to water quality would be realized from herbicide use in the "No Action" alternative. Construction of wildlife food plots would have the same effects as described for the "Proposed Action". Since the use of herbicides was determined to be below the application rates as evaluated by the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont, this alternative does not represent an improvement in the quality of the human environment over the "Proposed Action". In fact, the over-all impact is considered to be the same.

Air Quality (Issue 3)

Current Situation

The air quality objective for the National Forests in Mississippi is Class II (as described in the amended Clean Air Act). The present air quality is better than the National Ambient Air Quality Standards.

Environmental Consequences

The Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont, Volumes I and II, analyzed the effects of herbicide application on air quality. Because this is not an aerial application project, neither the "Proposed Action" nor "No Action" alternative would have any measurable direct, indirect, or cumulative impacts on air quality.

Cumulative Physical Effects (Issues 1, 2, and 3)

The President's Council on Environmental Quality (CEQ) publication, *Considering Cumulative Effects Under the National Environmental Policy Act* states, "Evidence is increasing that the most devastating environmental effects may result not from the direct effects of a particular action, but from the combination of individually minor effects of multiple actions over time." (p 1) Cumulative impacts must be analyzed for effects over both area and time; however, the CEQ makes it clear that it is unproductive to analyze the cumulative effects of an action on the universe. The purpose of cumulative effects analysis is described as an aid to the decision maker and information for interested parties. To meet this objective, analyzed effects must be "meaningful" to the proposed action and alternatives. (p 8) The CEQ cautions against an analysis of a laundry list of all possible issues that may have "little relevance to the effects of the proposed action..." and directs the analysis to "count what counts". For example, Item 8, Table 1-3 (p 8) of the referenced document describes the characteristic of a trigger or threshold as causing "fundamental changes in system behavior or structure." An example of a secondary effect (Item 7) is commercial development following highway construction. Vegetation is the most visible forest component, however, highly visible changes such as harvest and reforestation of a mature stand is not necessarily cumulative.

Land use practices within the Homochitto River watershed include the clear-cut harvest, thinning, midstory removal, chemical release, prescribed burning, road maintenance, grazing, farming and private residences. These examples include only a partial representation of the activities on private lands that can potentially share cumulative effects

The proposed actions are expected to take place over a period of about 5 years. Other vegetative management activities on other Homochitto National Forest lands within which are currently being planned for implementation are summarized in Table 3.1 on the following page. The three-year period was chosen because the Final EIS for the Forest Plan confirmed that, with mitigation, the potential for soil and water impacts diminished rapidly over the first year after implementation and returned to normal base levels by the end of the third year.

Table 3.1: Known Management Activities Currently Being Planned/Implemented

Analysis Name	Year Actions Planned / Implemented	Regeneration Acres	Thinning Acres	Total Analysis Unit Acres (FS only)
AU 1	2003 μ	605 λ	720	5,697
AU 2 ξ	2006 μ	318	1,240	4,645
AU 4 ψ	2004 μ	131	1,111	4,609
AU 5 ψ	2004 μ	295	850	3,800
AU 7	2003 μ	502	915	7,290
AU 12	2003 μ	273	1,140	3,760
AU 14	2000	172	3,151	5,569
AU 16 ξ	2006 μ	291	953	4,040
AU 17	2001	719 λ	2,594	6,028
AU 20	2003 μ	351	1,645	5,097
AU 22 ψ	2004 μ	294	518	3,300
AU 23 ξ	2006 μ	360	1,328	5,230
AU 24 ξ	2005 μ	140	522	2,096
AU 27 ξ	2005 μ	294	1,174	5,872
AU 30 ξ	2005 μ	206	768	3,084
AU 32 ξ	2006 μ	245	938	4,097
AU 36 ξ	2006 μ	226	905	4,526
AU 37 ξ	2006 μ	214	1,062	3,773
AU 38 ψ	2004 μ	233	782	3,973
AU 39 ψ	2004 μ	278	856	5,886
1st Thinning 2	2000 - 2003 μ	0	2,578	2,578
1st Thinning 3 ψ	2005 μ	0	2,740	2,740
2002 SPB Spots \mathfrak{f}	2002	378	0	378
TOTALS:		6,525	28,490	98,068

ψ - Acres projected based on stand review. ξ - Acres projected based on long-term averages.

μ - Projected implementation date. \mathfrak{f} - Not planned harvest. Includes spots greater than 5 acres.

λ - Includes only regeneration openings in uneven-age management areas. Acres between these small openings are included with "thinning acres".

In determining significance, NEPA directs that we look at impacts rather than acres or other factors. As a result, cumulative effects determination must relate to the scale of the treated and untreated lands and the amount of actual vegetative change taking place in the natural and/or managed system. The total herbicide project area is roughly 1200 acres, which are distributed along the approximately 340-mile utility corridor system. It is not likely that all of this acreage would be treated. However, if all acreage was treated, the additional treatment acreage is only slightly more than *one percent* of the acres available for vegetative management in the projected period. The total acreage apportioned for wildlife food plots is roughly 80 acres, or *8 hundredths of a percent* of the available acreage.

Many comments the district has received over the past several years seem to presuppose that if we did not manage the forest resource through harvesting, etc., the forest would remain intact and unchanged. This is not the case. In looking at some natural loss rates, in 1995, more than 5000 acres of mature forest were lost to southern pine beetle infestations. This represents approximately 2½% of the forest base in one year – more than four times the estimated planned harvest rate shown above. Since that time we have had four major windstorms that resulted in large numbers of sub-acre gaps in the forest, and a tornado that cleared approximately 400 acres. Pine beetle activity is now increasing in accordance with its predictable cycle. It would be difficult to establish a cumulative effect for planned management activities taking place at less than the normal loss rate expected over the next five-to-six entry cycles.

The herbicide that was evaluated for site-specific use does not bio-accumulate and was determined not to have a significant cumulative impact at the rates and total quantities to be used by the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont. Because of the short half-life, it would not build up on the site or be additive to other herbicide treatments across the district.

Equipment use may cause slight compaction. Compaction reduces transpiration and may cause a short-term increase in water yields and sediment production. Increased surface runoff could cause erosion where soils are exposed and water is channeled. However, the ground pressure produced by small tractors is very low; therefore, the effects of soil compaction from the proposed small equipment are incidental to that of compaction originating from larger equipment or even foot traffic. There would be sufficient uncompacted acres surrounding the corridor to absorb any increased run-off and not result in an increase in water yields or erosion within the watershed. Subsequently, no cumulative impacts would occur.

As a result of the proposed action, there will be minor impacts to physical resources. These impacts would be mitigated through strict control of activities, implementation of riparian buffer zones, and observance of herbicide use restrictions. With mitigation, these impacts would not be additive to other projects in future operating seasons. There appear to be no physical effects that are not mitigated to the extent that they are not cumulative.

There would be no direct or indirect cumulative impacts on the physical environment for the “No Action” alternative. Since the use of pesticides as prescribed in this project was found to have no cumulative effect, the prohibition of pesticides would have no cumulative impact advantage over the “Proposed Action”.

Biological Factors

Biological factors are the environmental consequences of the alternatives on vegetation, forest health, threatened/endangered/sensitive species, and management indicator species.

Vegetation (Issue 4)

Current Situation

It has been Forest Service Policy to look at the most appropriate management in the most natural manner. In Native American and early settlement times, most of the proclaimed Homochitto National Forest showed substantial influence of fire. The historical forest was a mosaic involving a longleaf pine-shortleaf pine dominated ridge community with loblolly pine occurring more frequently on lower slopes and within drainages. Fire controlled midstory vegetation and encouraged open stands with a grass and low shrub understory. Hardwoods species were found in mesic drains and creek bottoms where the microhabitat conditions prevented frequent occurrence of fire. (Holmes, J.S. and J.H. Foster, 1908).

The Homochitto National Forest represents a limited resource in southwest Mississippi. Part of the associated obligation is the avoidance of placing species of special concern at risk. There are no Threatened and Endangered plant species confirmed to occur on the Homochitto National Forest. A detailed discussion of potential project impacts on Sensitive plant species is found in the Biological Evaluation (Appendix D). The conclusions reached in this document with respect to plant species of local concern are summarized here.

Botanical Species of Local Concern that could occur in the project area include the silky camellia (*Stewartia malacodendron*), single-headed pussytoes (*Antennaria solitaria*), Florida Keys hempweed (*Mikania cordifolia*), swamp hickory (*Carya leiodermis*), appendaged lobelia (*Lobelia appendiculata*), Allegheny spurge (*Pachysandra procumbens*), ginseng (*Panax quinquefolium*), and crested fringed orchid (*Platanthera cristata*). Although not designated by the Region 8 Regional Forester as sensitive species for the National Forests in Mississippi, these species have a Mississippi Natural Heritage Program state rank of S1, S2, or S3.

The silky camellia can most commonly be found on north facing bluffs and in deep ravines where it is nearly always associated with small trees of witch hazel. It seldom grows in areas that have repeated or frequent fires. The single-headed pussytoe seems to be more restricted to rich mesic woods habitat than the common headed pussytoes. The habitat for this species on the Homochitto seems to be disturbed patches of bare soil where the topsoil has eroded or slipped in rich mesic woods (well drained with good organic and mineral content) and wooded slopes (usually on upper to mid slope). Florida Key's hempweed occurs in rich hardwood slopes and ravines, mixed pine-hardwood slopes, and hardwood bottomland forests and thickets. Swamp hickory and the crested fringed orchid may occur in swamps or in the margins of swamps. The orchid occurs in shaded mucky wetlands along streams and lower slope seepages over organic soil. This is a woodland species growing with or near the green rein orchid – both occurring on streamside hummocks and in swampy woods that have abundant wet soil. Appendaged lobelia is associated with grasslands. Grass dominated understories can be found in openings and in pine stands that have been thinned and prescribed burned. While not specifically documented on the Homochitto National Forest, the likelihood exists that further survey efforts will locate this species in open, burned, thinned pine stands. Allegheny spurge and ginseng are associated with deep moist drainages with dense canopies near perennial and large intermittent streams. To date,

ginseng has not been documented on the Forest and Allegheny spurge has been documented at only two locations on the Forest.

Environmental Consequences

Herbicides, sites, and vegetation fall within the range evaluated in the Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont. Prescribed rates for this project are lower than those rates determined to have no significant impact on plant communities evaluated in that document. The lack of substantial off-site movement results in no measurable effects outside of the treatment zone.

According to Mississippi Natural Heritage Program records, and with the exception of appendaged lobelia, plant species of local concern are more likely to occur in the mature, mesic hardwood and pine-hardwood forest components of the Homochitto National Forest than in the open, brushy habitat of utility corridors. Due to habitat preferences, the likelihood of conflict between these sensitive plant species and maintenance operations is minimal. The grassland-associated appendaged lobelia would possibly benefit from management actions through creation of suitable habitat. Some individual plants may be negatively impacted by herbicide application, but impacts should be minimal for each species. Herbicide use limitations imposed in riparian habitats should reduce impacts to these species. Individuals may be lost, but overall habitat should remain intact.

Floristic composition and structure would be altered and floristic diversity would be increased in utility corridors through the use of herbicides. Herbicides would effectively remove the dense, woody, monoculture thickets now present on many parts of the treatment area. Grass and herbaceous species that were effectively shaded out by the brush would increase, and these areas would more closely approximate an open, grassland or prairie habitat.

Vegetative effects of the "No Action" alternative would be a continuation of the current conditions, which is less diverse and less beneficial to wildlife than would be a more open, grassy site.

Forest Health (Issue 5)

Current Situation and Environmental Consequences

Forest Health concerns are addressed by neither the "Proposed Action" nor the "No Action" alternative. The same vegetative management outcomes would result from both alternatives; therefore, any effects on forest health would remain the same regardless of the alternative chosen. Forest Health, therefore, is not pertinent to the Decision to be made.

Threatened, Endangered, and Sensitive Species (Issue 6)

Current Situation

Section 7 of the Endangered Species Act obligates all federal agencies to ensure that any action carried out is not likely to jeopardize the continued existence of any threatened, endangered, or sensitive flora or fauna. As a part of this analysis, the current threatened and endangered species lists (USDA, 2002) were reviewed. The Regional Forester's list of sensitive species (dated August 7, 2001) and State Species of Local Concern were also included in this review.

Environmental Consequences

A Biological Evaluation was prepared for Threatened, Endangered and Sensitive (TES) species. This document is included as Appendix D of this Environmental Assessment. The effects and impacts of each alternative are summarized below. A detailed discussion of each species can be found in the Biological Evaluation.

Threatened or Endangered species

From the information and sighting records available to the District and based on field surveys conducted, no threatened or endangered species will be affected. There is a "No Effect" determination for all TES species for all alternatives, except for a "Not Likely To Adversely Affect" determination for the Louisiana black bear under the "Proposed Action".

Table 3.2: Threatened and Endangered Summary of Conclusions of Effects

Species	Occurrence on the Homochitto	Proposed Action	No Action Alt 1
Red-cockaded woodpecker	Confirmed	NE	NE
Louisiana black bear	Confirmed	NLAA	NE
Bald eagle	Confirmed	NE	NE

NE = No Effect, NLAA = Not Likely To Adversely Affect, LAA = Likely To Adversely Affect

Potential effects to Threatened and Endangered Species including the RCW, Louisiana black bear, and bald eagle are discussed in detail in the Biological Evaluation.

Sensitive Species

The Biological Evaluation (Appendix D) explains in detail determinations made for the Homochitto Ranger District's Sensitive species. The reader is referred to this document for details concerning how determinations of impact were made.

No impacts resulting from any of the alternatives discussed were found for the Alabama shad, rayed creekshell, crystal darter, broadstripe topminnow, cypress-knee sedge, Small's woodfern, pearl blackwater crayfish, Natchez stonefly, chukcho stonefly, Bachman's sparrow, Rafinesque's big-eared bat, arogos skipper, or Trachyxiphium moss. The Alabama shad is a catadromous fish, which means in the spring it migrates to fresh water from salt water. Due to fish barriers (i.e. dams) these species have not been found recently in the Homochitto River. The crystal darter and

broadstripe topminnow are large river fish that have been documented in the Homochitto River. It was determined that forest management activities would have no impact on these species due to the unlikelihood of the effects of management activities reaching the Homochitto River. The Rayed creekshell will not be impacted by activities due to its location and habitat. This species is found within the larger creeks of the Amite River watershed, of which only minuscule headwater portions are found on the Homochitto Ranger District and where riparian buffers will mitigate effects. The cypress-knee sedge and the Small's woodfern are located in wet swampy areas, in which herbicides are excluded, and therefore will not be impacted. The pearl blackwater crayfish and both stoneflies (Natchez and chukcho) would not be affected due to the lack of effect on their habitat in streams. Bachman's sparrow and Rafinesque's big-eared bat would also not be impacted due to no adverse effect upon their habitat. The Argos skipper has not been found on the District, therefore, it would not be impacted. No impact to the spring seep habitat of Trachyxiphium moss also results in no impact to this species.

No potential impacts were found for Webster's salamander, bay starvine, and fetid trillium as a result of the "No Action" alternative.

Webster's salamander, bay starvine, and fetid trillium were found to have potential impacts associated with vegetative management activities of the "Proposed Action". However, these impacts were minimal and would not lead to the loss of viability or listing of these species. Webster's salamander, although it has not been found on this District, could be directly impacted by management activities if individuals were found to be present. Herbicide usage could impact individuals of bay starvine and fetid trillium, but due to the habitat of these species (riparian habitats, hardwood bottoms and ravines) the impacts on these species should be minimal.

Table 3.3: Sensitive Species Summary of Conclusions of Effects

Species	Occurrence on the Homochitto	Proposed Action	No Action Alt 1
Webster's salamander	Possible	MII	NI
Bachman's sparrow	Confirmed	NI	NI
Pearl blackwater crayfish	Confirmed	NI	NI
Alabama shad	Unlikely	NI	NI
Crystal darter	Unlikely	NI	NI
Broadstripe topminnow	Unlikely	NI	NI
Natchez stonefly	Confirmed	NI	NI
Chukcho stonefly	Confirmed	NI	NI
Rafinesque's big-eared bat	Confirmed	NI	NI
Rayed creekshell	Unlikely	NI	NI
Argos skipper	Possible	NI	NI
Trachyxiphium moss	Confirmed	NI	NI
Cypress-knee sedge	Confirmed	NI	NI
Small's woodfern	Confirmed	NI	NI
Bay starvine	Confirmed	MII	NI
Fetid trillium	Confirmed	MII	NI

NI = "no impact"

MII = "may impact individuals but not likely to cause a trend to federal listing or a loss of viability"

L = "likely to result in a trend to federal listing or a loss of viability"

BI = "beneficial impact"

The "Proposed Action would have the greatest impact to sensitive species. However, as stated in the Biological Evaluation, impacts would not result in a trend towards federal listing or a loss of viability. Most of the Forest Service Sensitive species are located in or adjacent to riparian habitats or wetlands. These types of habitat are maintained by prohibiting herbicides within filter strips adjacent to streams.

State Species of Local Concern

One State species of local concern that has potential for occurring in the project area is the hoary bat (*Lasiurus cinereus*). Hoary bats roost in the foliage of a variety of trees and therefore have a wide distribution. In general, the high densities of insects that can be found around bodies of water, such as streams and ponds, makes this very important foraging habitat. Surveys for this bat have not been conducted, however, the Forest is known to contain habitat preferred by this bat species.

The hoary bat's foraging habitat would remain undisturbed by management activities through the maintenance of SMZs. Therefore, there would be no adverse effects to State Species of Local Concern under any alternative.

Management Indicator Species (Issue 7)

Current Situation

Under the National Forest Management Act (1976), the Forest Service is charged with managing National Forests to provide for a diversity of plant and animal communities consistent with multiple-use objectives. Management Indicator Species are one tool used to accomplish this objective as they and their habitat needs are used to set management objectives and minimum management requirements to focus effects analysis, and to monitor effects of plan implementation. MIS were selected in the 1985 Land and Resource Management Plan to serve three major functions: 1) represent issues of hunting demand, 2) consider species for which population viability may be a concern, and 3) species which serve as ecological indicators of certain communities or habitats. In this analysis, MIS affected by the project are used to focus analysis of effects of this project on these issues.

Available Management Indicator Species information has been compiled and consolidated to provide as clear a picture as possible of how indicator species have responded to management activities or the absence of such activities. The current report is available to the public on the National Forests in Mississippi web site (<http://www.southernregion.fs.fed.us/mississippi/>). Information from this report, along with additional information available to the Interdisciplinary Team, is summarized below and used to assist the responsible official in reaching a decision.

NFMA intends use of management indicator species, in part, to ensure that national forests are managed to "maintain viable populations of existing native and desirable non-native vertebrate species." Because indicator species cannot adequately represent all species (Landres et others 1988), new strategies are emerging for accomplishing this goal. One strategy is the coarse and fine filter approach (Nature Conservancy 1982, Noss 1987, Hunter 1990). This strategy assumes that most species can be maintained at viable levels by providing a diversity of habitat conditions across a landscape. Providing a diversity of habitat types serves as the coarse filter. However, some species with narrow habitat requirements or for which viability is of concern require special attention (or a fine filter) to ensure viability. This analysis uses habitat availability for management indicator species as the coarse filter for ensuring that a mix of habitat types is provided across the landscape. The Biological Evaluation serves as the fine filter to ensure that those species most at risk of losing viability (threatened, endangered, and sensitive species) are not negatively affected. This combination of approaches ensures that all species on the Homochitto National Forest are maintained, or are moving toward, viable population levels.

Management Indicator Species (MIS) were selected as provided in Section 6, 219.12(g)(2) of the National Forest Management Act (1976), planning regulations. The species and the habitats represented by them are presented in the following tables.

Table 3.4 Terrestrial Management Indicator Species

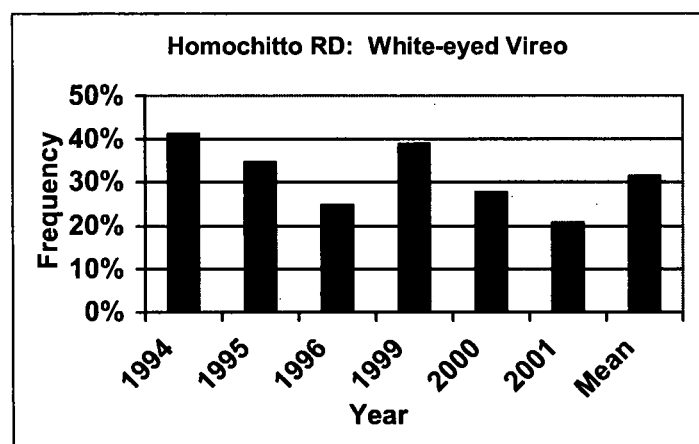
MIS	Habitats Represented On Homochitto National Forest
White-tailed deer	0-10 years, all forest types
Bachman's sparrow	0-10 years, longleaf*/mod. yield slash pine
Bobwhite quail	0-10 years, longleaf*/yellow pine
Eastern meadowlark	0-10 years, yellow pine
American kestrel	0-10 years, pine/hardwood
Rufous-sided towhee	0-10 years, hardwood
Eastern wild turkey	40+ years, all forest types
Pileated woodpecker	40+ years, all forest types
Red-cockaded woodpecker	40+ years, all pine forests except slash
Fox squirrel	40+ years, longleaf* pine
Pine warbler	40+ years, yellow pine
Eastern gray squirrel	40+ years, pine/hardwood and hardwood
Hooded warbler	40+ years, hardwood
Screech owl	40+ years, pine/hardwood

** The original Forest Plan did not acknowledge the presence of Longleaf Pine on the Homochitto. Longleaf occurs on the Homochitto primarily in mixed stands with shortleaf and loblolly. The MIS indicators for Longleaf forest are used here to represent these mixed pine stands which are the functional equivalent of Longleaf forest elsewhere.*

While not selected Management Indicator Species, a number of other birds share early-seral yellow pine habitats. Looking at population information available for these species can provide additional insight into the effects of management activities. One such species is the white-eyed vireo. The Homochitto National Forest's breeding bird surveys have collected data for the white-

eyed vireo since 1994. It utilizes a shrubby type of habitat, which more closely represents early-seral yellow pine conditions, as opposed to the northern bobwhite, which represents the grassier end of the spectrum, and the eastern meadowlark, which utilizes prairie or grassland conditions. Because the breeding bird survey data for the white-eyed vireo is not available in the Forest's Management Indicator Species analysis, the following graph provides frequency of occurrence population information for this species.

Figure 3.1: Frequency of Occurrence of the White Eyed Vireo



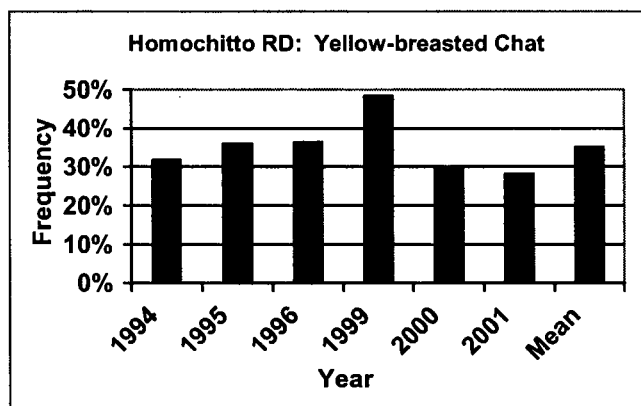
As with all early seral habitat species, preferred habitat has declined for the white-eyed vireo. Early seral yellow pine is currently at only about 50% of that available in 1981. In contrast, populations of the vireo have fluctuated in a pattern more typically associated with normal, short-term breeding cycle responses dependent on weather and disease. There appears to be a slight downward trend, but not to the extent that preferred habitat has diminished. Like quail and a number of ground and shrub-nesting Neotropical migrants, populations seem to be increasing or stable as these birds take advantage of the early seral vegetation relationships which develop in the understory of stands that are burned and/or managed for the red-cockaded woodpecker.

The American kestrel was selected for early age (0-10 year old) pine - hardwood forests. Data on populations of American kestrel on the National Forest in Mississippi are sparse, despite considerable effort expended on point counts. As regional data indicate a stable population trend, it would appear that this species either is not an adequate indicator for early-age pine-hardwood habitat or a different monitoring protocol is needed. In the spring of 2002, the Homochitto Ranger District began a process to establish new sampling protocols. Implementing the new protocols in the summer of 2002 resulted in a frequency of occurrence of 16% for the kestrel. These preliminary data indicate that the new protocols are effective and that the kestrel population is greater than previously recorded.

The yellow-breasted chat is an example of a species that can also be found in the 0-10 year old pine-hardwood habitat represented by the American kestrel. Breeding bird survey data demonstrates that the yellow-breasted chat is an exceptional indicator for this habitat. Because the breeding bird survey data for this species is not available in the Forest's Management Indicator

Species analysis, the following graph provides frequency of occurrence population information for this species. These data show that this species is well represented on the Homochitto National Forest.

Figure 3.2: Frequency of Occurrence of the Yellow Breasted Chat



Acres of available suitable habitat have decreased for all inhabitants of this type due to reduced regeneration activities in this forest type. Overall, this habitat type has declined since adoption of the Forest Plan, but has recently nearly reached pre-Plan levels. As with other early successional habitats, current availability is below that anticipated by the Plan, but such habitats are not rare on national forests or surrounding private lands.

Table 3.5 Aquatic Management Indicator Species

MIS	Habitats Represented On Homochitto National Forest
Southwest stream fish (8 species listed)	Streams south of Interstate 20 and west of Highway 49
Lake and pond fish (8 species listed)	Lakes and ponds

Streams on the Homochitto National Forest are, for the most part restricted to the Homochitto River drainage, with relatively small acreages in the Amite, Bayou Pierre, and Buffalo drainages. Streams on the Homochitto National Forest are characteristically slow flowing, clear, warm, sand-gravel bottom, 1st - 3rd order streams. These streams are moderately shaded, wide and shallow with low conductivity and with an acid pH. The species of fish selected as Management Indicator Species for Southwest Mississippi Streams represent an assemblage of fish from all trophic levels. Lampreys, darters, and madtoms require very good water quality and low turbidity and are rarely found in degraded habitats. Spotted bass are the major carnivore in the system and with the longear sunfish comprise the major game species. The blacktail redhorse, longnose shiner, and bluntnose shiner are significant forage species in the system. In contrast to terrestrial MIS, which were to represent changes in habitat (the conversion of acres of late seral forest into early seral forest), the aquatic MIS serve to indicate changes in water quality, not quantity of habitat.

Table 3.6: Southwest Stream Management Indicator Species

Common Name	Scientific Name
spotted bass	<i>Micropterus punctulatus</i>
banded darter	<i>Etheostoma zonale (Etheostoma lynceum)</i>
rainbow darter	<i>Etheostoma caeruleum</i>
brindled madtom	<i>Noturus miurus</i>
longnose shiner	<i>Notropis longirostris</i>
bluntnose shiner	<i>Notropis camurus (Cyprinella camura)</i>
blacktail redhorse	<i>Moxostoma poecilurum</i>
southern brook lamprey	<i>Ichthyomyzon gagei</i>

Fish are sampled by seining or electro-shocking short segments of streams. Fish species are highly sensitive to flow rates and water temperature, with respect to their seasonal locations within streams. Because of differences in size and flow rates, not all streams have habitat to support the full range of management indicator fish species. The expectation is highly variable samples over time, with multiple surveys required to establish the full range of species inhabiting a stream.

The fish fauna of the Homochitto National Forest are reasonably well known considering the general state of knowledge of stream fishes in southwest Mississippi. Douglas (1975) reported on rare fishes of the Homochitto. He considered the bluntnose shiner, northern studfish, rainbow darter, and northern hogsucker to be fishes of significance due to their geographic isolation from more northern populations. Danny Ebert, fisheries biologist with the U.S. Forest Service, conducted an intensive survey of the fishes of the Homochitto River drainage over a six-year period, which included 96 fish collections representing 81 fish species (Ebert, *et. al.* 1985).

Additional sampling was conducted on selected streams during 1996 as part of an on-going Forest Service study of the fish fauna of the Homochitto National Forest. Both diversity and species richness were reported as high and the Index of Biotic Integrity (IBI) characterized the streams of the forest as generally "good" to "excellent" (Johnston and McWhirter, 1996). It was confirmed by both studies that all eight of the aquatic Management Indicator Species occurred on the Homochitto National Forest.

During surveys conducted by Mel Warren, Research Biologist with the Forest Service Southern Research Station (2000 – 2002), many species of fish and crayfish were collected throughout the Homochitto National Forest stream systems. This data was summarized and analyzed in the Management Indicator Species Supplement: Lotic Fish Data (1980-2002). Preliminary trend data show fluctuations in numbers. We considered that these changes could be tied to timber management, however, when examining four different watersheds, three outside of harvesting activities, these fluctuations seem to be widespread (MIS Supplement: Lotic Fish (1980-2002)). When looking at presence-absence data (1980-2002), MIS fish species were found in more streams sampled during 2000-02 than during 1980-84 (MIS Supplement: Lotic Fish (1980-2002)). Again, although the variables mentioned previously make it difficult to assess anthropogenic

impacts, we could not draw the conclusion that these changes were tied to timber management activities on the Homochitto National Forest.

Environmental Consequences

Any analysis of the effects of management on terrestrial wildlife species must recognize that actions benefiting species utilizing early seral stages will ultimately be done at the expense of those species utilizing older forest stands. On the same area, it is difficult, if not impossible, to satisfy the needs of all "wildlife" at the same time. The goal of the manager is to attempt to balance the needs of all, giving special consideration to those species most at risk of extinction/extirpation.

Open, grassland-type habitats are rare on the Homochitto Ranger District. The use of herbicides for the reduction of the profuse woody monoculture conditions that prevail on many acres of the utility corridors of the Homochitto National Forest would increase diversity of plant species in these areas and produce a more open, grassy habitat. This would, in turn, benefit the eastern meadowlark and other species associated with early seral and grassland habitats. Species representative of late seral habitats, such as the wild turkey and screech owl, may also benefit through increase in available foraging habitat. Any reduction in escape cover provided by the woody thickets would be more than offset through the creation of feeding habitat.

Wildlife food plots would directly benefit herbivores such as the whitetail deer, while providing feeding grounds for turkey and quail and hunting grounds for kestrels and screech owls, and with the additional provision of habitat for certain neotropical migrants and other species which utilize early seral habitats.

The risks associated with the proposed herbicides were evaluated in the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont. By applying the rates using application methods and safety considerations specified in the "Record of Decision" for that document, no significant risk to terrestrial or aquatic wildlife was found.

The considered range of alternatives will impact the same number of acres of habitat in essentially the same way, with the exception of the resultant species diversity and floristic structure. With the "No Action" alternative, no herbicides would be used to decrease the dense, woody monoculture habitat conditions, and no wildlife food plots would be constructed. Any benefits to management Indicator Species, therefore, would be sacrificed if the "No Action" alternative were selected.

Cumulative Biological Effects (Issues 4, 5, 6, and 7)

Cumulative effects are effects from multiple projects that over time or area become additive. In their cumulative effects analysis manual "*Considering Cumulative Effects Under the National Environmental Policy Act*", The President's Council on Environmental Quality clearly states that cumulative effects analysis is applied to a "project impact zone", which is an area within which the effects can be measured. The council further states, "Not all potential cumulative effects issues identified during scoping need to be included in an EA or an EIS. Some may be irrelevant or

inconsequential to decisions about the proposed actions and alternatives. Cumulative effects analysis should “count what counts”....” This places the benchmark for cumulative effects as effects that can be measured and have a real and consequential relationship to the decision when viewed over time and/or area.

On sites without herbicide restrictions, the “Proposed Action” includes the use of herbicides. Studies documented in the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont indicate that when used at approved rates and with required safety precautions, the herbicides evaluated for this project do not bioaccumulate and do not have significant adverse impacts on populations of non-target plants and animals. No direct cumulative impacts were identified.

Cumulative effects analysis is based on the effects of planned actions. The same impacts to forest health would result regardless of the choice of actions of the Forest Service. Therefore, it is inappropriate to discuss the cumulative effects of planned actions on forest health.

With the use of herbicides over time, the overall vegetative characteristics of utility corridors would change from an area with many impenetrable, monoculture thickets that have little benefit to management indicator species to a more open, grassier area which provides habitat for early seral management indicator species as well as other species, including many neotropical migrants. This effect is short term, however, and the FEIS Vegetation Management in the Coastal Plain/Piedmont found no evidence that repeated typical applications of herbicides in right-of-way settings causes permanent effects on plant succession. The area to be treated is quite small relative to the general forest area. Therefore, there would be no cumulative effects to vegetation or management indicator species.

A Biological Evaluation (BE) has been prepared and documents the determination of effects for Threatened or Endangered species. The US Fish and Wildlife Service has provided concurrence for the Biological Evaluation. The Biological Evaluation will be included in the project file and is attached as Appendix D. It was determined that the Forest Service action alternative would not contribute to other unconnected action that would result in the loss of viability of any listed threatened or endangered species.

The Biological Evaluation (Appendix D) made a determination on project effects to Sensitive Species. It was determined that the Forest Service action alternative does not contribute to the loss of viability of any Sensitive Species. Most species are associated with mesic conditions along drainages. Any populations located along the project area will be protected, even though a few individuals may suffer damage. By maintaining critical habitats, and protecting populations, the potential for cumulative effects appears to be remote.

Habitat for state species of local concern should remain intact by maintaining streamside management zones. Cumulative effects of combined projects, therefore, would not occur.

Socio-Economic Factors

Socio-economic factors are the environmental consequences of the alternatives on economics, recreation and visual quality, heritage resources, public health and safety, and civil rights and environmental justice.

Economics (Issue 8)

Current Situation

Mississippi's primary source of revenue is based on agricultural production, which includes timber. Timber harvesting on Forest Service lands provides a 25% return to the counties directly related to the value of the timber sold. This money is distributed to the counties for support of local schools and roads.

Additional revenues to local communities as a result of the Homochitto Ranger District comes in the form of support of local businesses through sale of food, fuel, and other personal needs of hunters, campers, hikers, mountain bikers, horse riders, and other recreationists. Trends in recreational use of the National Forest System reflect increased demand for both developed and dispersed recreation.

Environmental Consequences

Utility corridor maintenance using herbicides would allow for enhanced wildlife and public use of the utility corridors of the Homochitto Ranger District and would correspondingly provide continued support of local businesses through sale of food, fuel, and other items to hunters, hikers, and other recreationists.

"The Proposed Action" and the "No Action" are similar in that both would incorporate maintenance activity and have the same eventual impacts. Other than the cost already incurred from this environmental analysis, no direct, indirect, or cumulative costs to the public would be realized through the implementation of either alternative. The use of herbicide treatments, however, could reduce the frequency and cost of maintenance of the utility corridors. The possibility exists that these savings could be passed from the utility companies to local residents.

The following table gives the most recent per acre cost estimates for a single treatment for each type of maintenance activity.

Table 3.7: Average Per Acre Maintenance Costs of a Single Treatment

Right-Of-Way Vegetation Maintenance Activity	Per Acre Cost of Single Treatment
Backpack Herbicide Application	\$71
Mechanical Herbicide Application	\$72
Disking/Planting Food Plots	\$114
Hand Tools (includes chainsaw)	\$71
Mechanical Cutting	\$54
Tractor Mowing	\$44

Herbicide and hand tool treatment costs are essentially the same for a single treatment. Labor costs for hand treatments are much higher and offset the expenditure in herbicide cost. However, hand-tool treatments are less effective, due to re-sprouting of vegetation, and generally require repeated entries for the same amount of vegetative control. Mowing and mechanical cutting treatments are less expensive than either herbicides or hand tools, but equipment access is limited in many areas of the utility corridor and, like hand-tool treatments, re-sprouting results in the need for repeated entries for control. Food plots are an additional cost in the "Proposed Action", but would be financed by willing project partners (not the Forest Service). The small relative area to be treated in this manner negates any overall economic shortcoming derived from the high cost of food plot construction.

Recreation (Issue 9)

Current Situation

Demand for dispersed recreation activities such as hiking, biking, and horse riding have all increased by more than 50% in last 5 years in Southern Region National Forests, and is expected to increase above current levels in the future (Southern Resource Assessment).

Hunting is the largest single dispersed recreational use of the Homochitto National Forest and driving for pleasure is secondary in dispersed recreation use. Hiking, bird watching, and canoeing are approximately equal (Final Environmental Impact Statement-Forest Plan 1985, page 3-15). In general, recreation use during the summer declines because of the associated heat and humidity. Recreation use is high during the fall, winter, and spring when hunting seasons and weather conditions promote outdoor activities.

Goals stated in the Forest Plan (pages 4-1 and 4-2) include:

- "Manage the land in a manner that recognizes the values of all resources, both renewable and nonrenewable."
- "Provide for safe public use and enjoyment of forest resources."
- "Provide a spectrum of dispersed and developed recreational opportunities reflective of the demands of the public. The spectrum of dispersed recreation represents such activities as hunting, hiking, fishing, canoeing, horseback riding, etc., and developed recreation is represented by such activities as swimming, camping, picnicking, etc."

Environmental Consequences

Utility corridor maintenance using herbicides would provide for better enjoyment of forest resources by public users of the Homochitto National Forest by allowing better access to and through these areas and providing better opportunities for wildlife viewing. Hunting opportunities could be increased through the construction and maintenance of wildlife food plots.

These increases, however, would be relatively small, resulting in little difference between outcomes by choice of alternative. Therefore, both alternatives would provide essentially the same recreation conditions. Recreation, therefore, is not considered to be relevant to the Decision to be made.

Visual Quality (Issue 9)

Current Situation

The visual quality objective of the foreground along the major travel routes is partial retention. Secondary paved and high standard, frequently used gravel roads have a foreground visual quality objective of modification. The less frequently used improved gravel roads, closed Level D roads, and general forest area have a visual quality objective of maximum modification. Most utility corridor sections fall within the general forest area, but many of these corridors cross major roads or are in otherwise highly-visible areas.

Environmental Consequences

The primary visual impact of utility corridor maintenance is associated with the “browning” of vegetation after treatment, and would occur regardless of the alternative chosen. However, the removal of vegetation that obscures the view far out-weighs these impacts.

Both herbicide and hand tool/mowing treatments would brown vegetation when performed during the growing season. However, grasses and forbs present on the site or those that develop rapidly would screen the smaller vegetation as it browns after treatment. The selective use of herbicides would promote the growth of grasses and forbs, while re-sprouting of mechanically removed vegetation would inhibit growth of grasses. Herbicide treatments during the fall or winter would result in no noticeable browning of vegetation; the foliage simply would not re-grow the following spring. The primary effects of either the herbicidal or mechanical / manual treatment would not be visible within one year, which meets the duration requirement for partial retention and exceeds the requirement for areas with lesser visual quality objectives.

Utility corridor maintenance results in the removal of vegetation that decreases sight distances. The net result would be an improved visual environment after a very short period following treatment. See pages IV 115-116 of the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont, Volume 1, for further discussion of effects on visual quality.

Heritage Resources (Issue 10)

Current Situation

Field surveys by qualified archaeological technicians were performed in the project area prior to the construction of the utility corridors. No cultural resources were recorded in the survey. The "No Heritage Resource Form" completed for this project by the District Archaeologist is included in Appendix E.

Environmental Consequences

Herbicide usage does not require ground-disturbing activity and, correspondingly, would not impact heritage resources in any way. These sites are already disturbed, so shallow disking for food plot construction should not impact undiscovered heritage resources, and mitigations would prevent destruction of heritage resources discovered during operations. Therefore, neither the "Proposed Action" nor the "No Action" alternative would impact heritage resources.

Public Health And Safety (Issue 11)

Current Situation

The Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont addressed the effect of herbicide use on human health as a significant issue and identified that many people feel herbicides may have serious effects on human health (Vegetation Management in the Coastal Plain/Piedmont, Volume 1, Page V).

Environmental Consequences

The "Proposed Action" proposes the use of herbicides for utility corridor maintenance. The chemicals proposed for use are Garlon 4[®], Garlon 3A[®], Arsenal[®], Accord[®], Escort[®], and Krenite S[®]. The respective active chemical ingredients in these herbicides are triclopyr (ester), triclopyr (amine), imazapyr, glyphosate, metsulfuron methyl, and fosamine ammonium.

Hand-tool application by backpack sprayer and specialized mechanical application utilizing the Brown Brush Monitor[®] (or equivalent machinery) or selective, low-volume spray are the proposed application methods. During any of the proposed treatments, the target vegetation absorbs almost all of the herbicide.

The risks associated with the herbicides proposed for use have been evaluated in the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont. By applying the rates and using the application methods and safety considerations specified in the "Record of Decision" for this document, no significant risk to the human environment, wildlife, or non-target vegetation was found. Risks for all proposed herbicides, except Krenite, were also analyzed in documents prepared for the Forest Service by Syracuse Environmental Research Associates, Inc. and Syracuse Research Corporation (SERA TR 95-22-02-02a, SERA TR 98-21-14-01b, SERA TR 96-22-02-01c, SERA TR 01-43-08-04a, SERA TR 99-21-21-01f). These

documents also noted no apparent risk to the human environment from typical Forest Service herbicide applications.

Herbicides would be used in a manner consistent with the direction identified in the Final Environmental Impact Statement for Vegetation Management in the Coastal Plain Piedmont. The Pesticide Safety Plan on file at the Homochitto Ranger District office would be followed.

These herbicides are Class "A" herbicides with low toxicity in compliance with the Record of Decision for the Vegetative Management Environmental Impact Statement for the Coastal Plain/Piedmont. The proposed herbicides have low toxicity and short persistence in the environment. Class A herbicides are generally not measurable a year after application. Application of recommended rates of Class A Herbicides have not been shown to cause cancer, mutations or birth defects or to accumulate in the food chain or the bodies of humans or animals (Record of Decision FEIS Vegetation Management in The Coastal Plain Piedmont Page 10).

The proposed herbicides have not been shown to have a significant effect on human health. None of the proposed herbicides have not been identified as carcinogenic or mutagenic. The lowest LD₅₀ exposure rates for any proposed herbicide are >2000 mg/kg dermal and 1338 mg/kg oral. Toxicity data for each proposed herbicide is listed in the following table.

Table 3.8: Toxicity Data for Proposed Herbicides

Herbicide	Active Ingredient	Formulation	Oral LD-50	Dermal LD-50
Garlon 4	Triclopyr (ester)	4 lb AI/gal	1338 mg/kg	> 2000 mg/kg
Garlon 3A	Triclopyr (amine)	3 lb AI/gal	1847 mg/kg	> 5000 mg/kg
Arsenal	Imazapyr	4 lb AI/gal	> 5000 mg/kg	> 5000 mg/kg
Accord	Glyphosate	5.4 lb AI/gal	> 5000 mg/kg	> 5000 mg/kg
Escort	Metsulfuron Methyl	60% AI/lb	> 5000 mg/kg	> 2000 mg/kg
Krenite	Fosamine Ammonium	4 lb AI/gal	> 5000 mg/kg	> 5000 mg/kg

The term "LD-50" is used to describe the toxicity of a chemical. Simply put, the LD-50 is the dose of a substance that would be lethal to 50% of the organisms in a specific test situation when ingested (oral) or absorbed through the skin (dermal). It is expressed in weight of the chemical (mg) per unit of body weight (kg). As an example of the minimal toxicity of these chemicals when used in a manner consistent with their labeling, a 160-pound herbicide applicator would have to ingest more than 3 pints of undiluted Garlon 4 in order to reach the minimum oral LD-50 for Triclopyr. Once the herbicide is mixed and ready for application, that worker would have to ingest nearly 10 gallons of the mixture to reach the 2000 mg/kg minimum LD-50. When compared to ingesting common food and household goods such as table salt or borax, the herbicide proposed for use is very low in toxicity.

If label directions are not followed properly, Garlon 4, Escort, and Krenite can cause eye, skin, and upper respiratory irritations to workers; and Arsenal may cause mild skin irritation. The only chemical proposed for use that has been shown to have a significant effect on human health is Garlon 3A, which causes severe eye irritation with possible corneal injury that may result in

permanent impairment of vision. Dow Chemical Company states that, "goggles are recommended during handling or use of Garlon 3A before dilution." (Ag. Handbook 633, pg. T-15). This safety measure is incorporated into the Pesticide Safety Plan and would be used when mixing Garlon 3A. For a typical application, however, the use of these chemicals poses a low risk to safety. Under the conditions of typical public exposure to any herbicide being proposed for use, no member of the public would be affected (Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont, Volume 1, page IV-14).

The proposed herbicides are soluble and do not accumulate in human or animal tissue. Human and animal exposure and risk studies conducted for, or cited in the VMCP/P indicate that cumulative buildup effects on human health do not occur when these herbicides are used at prescribed rates with appropriate application methods. Garlon 4 is highly toxic to aquatic organisms; but application methods, rates, and mitigations insure that herbicide will not negatively impact fish or other aquatic organisms.

Mixed with the pesticidal chemical to produce the marketed products are other chemicals known as inert ingredients. The herbicide producer for various reasons adds these to the active herbicide chemical. Several of the LD-50 toxicity tests cited above were performed with the registered product as well as with the herbicide itself. These numbers, therefore, take into account any inert ingredients in the formulation. In addition to previously cited research, risk assessments were performed for the VMCP/P EIS that analyzed forest workers using these herbicides. No human health effect was found for the inert ingredients in the herbicide formulation proposed for use.

No herbicide application is proposed under the "No Action" alternative. Subsequently, there would be no effect to human health from herbicide use under this alternative. As a consequence of not using herbicides for utility corridor maintenance, vegetation management along the corridor would require more intensive efforts with the use of hand tools and mechanized equipment.

There are trade-off risks associated with hand treatments. Woods workers experience one of the highest industrial accident rates, and hand tools, such as axes, machetes, and chainsaws, are very dangerous. Hand tools expose workers to briars, poison ivy, yellow jackets, and other hazards. While herbicide treatments produce low human health and safety risks, increased hand-tool work results in a high rate of accidental lacerations from chainsaws and cutting tools (Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont, IV-130). Annually, deaths occur from chainsaw injuries and from falling cut vegetation. The incidence of allergic reaction to bites and stings is much higher than health risks associated with herbicide use. Heat and related injury and health concerns increase for hand-cutting methods.

Mechanical equipment such as tractors are safer than hand tools, but require wider clearance and can cause damage to the trail and soils, which must then be repaired requiring further worker exposure to risks.

Civil Rights and Environmental Justice (Issue 12)

Current Situation

Based on information available in 1997, statistics for counties within the proclamation boundary of the Homochitto National Forest are as follows:

Table 3.9: County Statistics

County	Total NF Acres	% Pop below Poverty Level	Per Capita Income	% of National Average PCI	10-year Average Unemployment
Adams	14,310	30.5%	15,791	73%	9.98%
Amite	35,642	30.9%	11,281	52%	8.39%
Copiah	7,305	32%	12,490	58%	10.47%
Franklin	95,572	33.3%	11,911	55%	9.5%
Jefferson	8,003	46.9%	9,767	45%	20.97%
Lincoln	4,936	23.6%	14,069	64%	9.77%
Wilkinson	22,803	42.2%	11,701	54%	12.43%

Table 3.10: County Population and Minority Status

County	1998 est. Population	1996 Minority %
Adams	34,225	50.5%
Amite	13,644	46.9%
Copiah	28,883	52.2%
Franklin	8,319	38.1%
Jefferson	8,427	86.7%
Lincoln	31,771	31.6%
Wilkinson	9,223	68.8%

All documents and notices related to this proposed project were readily accessible to all segments of the public. See Appendix A for a list of people contacted. Also, notices were placed in the Jackson, Mississippi Clarion-Ledger, the paper of record, detailing proposed activities. The United States Department of Agriculture Forest Service is a diverse organization committed to equal opportunity in employment and program delivery. The United States Department of Agriculture prohibits discrimination on the basis of race, color, national origin, sex religion, age, disability, political affiliation, and familial status.

Environmental Consequences

A Civil Rights Impact Analysis is not needed as a separate document in an environmental analysis. This analysis is a component of the EA process and is discussed in length in our ID team meetings. Through these meetings and other information sources, it is determined that this project does not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. This project is most likely to improve

economic and health conditions for the surrounding populations. During our public comment period no issues or impacts were identified. During this time, we scoped a wide range of people including businesses, governments, and landowners through paper mailings as well as the general public through legal advertisements in the Clarion Ledger, our paper of record. No civil rights issues associated with this project have come to our attention.

Cumulative SocioEconomic Effects (Issues 8, 9, 10, 11, and 12)

There would be no cumulative effects resulting from either the “Proposed Action” or “No Action”. The annual influx of recreational users is expected to remain about the same. Subsequently, community income from recreational users is also expected to remain about the same.

The primary adverse visual impact is the presence of brown vegetation, which would occur regardless of the alternative chosen. Visuals would be improved in the long-term as a result of this project; therefore, cumulative impacts would not occur.

The No Heritage Resource finding precludes any significant adverse effect of the historical record; therefore, cumulative impacts would not occur.

The proposed herbicides are soluble and do not accumulate in human or animal tissue, so no significant negative cumulative impacts occur. Human and animal exposure and risk studies conducted for or cited in the Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont indicate that cumulative of buildup effects on human health do not occur when used at prescribed rates with appropriate application methods. Due to the speed at which they degrade and the typical time period between treatments, use of these herbicides would have no cumulative effects on the human environment.

As noted above, the Final Environmental Impact Statement for Vegetative Management in the Coastal Plain/Piedmont did determine that the potential for human injury was much higher for hand-cutting techniques. However, because of the small area being treated and the relatively low risk, this would not be cumulative on the county, state, or national scale.

It is determined that this project does not have disproportionately high and adverse human health or environmental effects on minority populations and low income populations. This project is most likely to improve economic and health conditions for the surrounding populations. Therefore, no cumulative effects are expected.

Irreversible and Irretrievable Commitment of Resources (All Issues)

An irreversible commitment of resources refers to resources that are renewable only after a long period of time (such as soil productivity) or non-renewable resources (such as heritage or cultural resources). There would be no irreversible commitment of resources under any of the alternatives in this analysis.

An irretrievable commitment of resources refers to losses of productivity or losses in the use of renewable resources. This represents opportunities foregone for a period of time that the resource cannot be used. There would be no irretrievable commitment of resources under any of the alternatives in this analysis.

Cumulative Effects (All Issues)

Cumulative effects are discussed in detail for each alternative by environmental factor. Cumulative effects relate to additive effects of this project and other projects being implemented at the same time. They also relate to additive changes and impacts associated with projects being implemented over time. Soil and water quality impacts would be cumulative where activities in the same watershed are added to a reduction in water quality. Cumulative effects can also develop if the impacts from a completed project have not diminished sufficiently and were added to the impact of a new project.

Activities involving the use of equipment could cause compaction on small, widely dispersed areas surrounded by natural filter strips that would buffer any increased water yields to the extent that they would be difficult to detect above those which occur from existing methods and general public use. Mitigations would prevent herbicides or sediment from reaching streams or other water resources. The result would be to at least maintain current conditions, which are identified in the Forest Plan as better than Mississippi water quality standards. Therefore, the effects on soil and water quality are not accumulating either within areas or over time.

No cumulative effects can be associated with either action or non-action alternatives in the floral and faunal component of the forest.

The proposed herbicides are Class "A" herbicides with low toxicity in compliance with the Record of Decision for the Vegetative Management Environmental Impact Statement for the Coastal Plain/Piedmont. Class A herbicides are generally not measurable a year after application. Application of recommended rates of Class A Herbicides have not been shown to accumulate in the food chain or the bodies of humans or animals (Record of Decision FEIS Vegetation Management in The Coastal Plain Piedmont Page 10). Human and animal exposure and risk studies conducted for, or sited in the VMCP/P indicate that cumulative buildup effects on human health do not occur when used at prescribed rates with appropriate application methods.

Appendix A

Interdisciplinary Team Members, Internal Scoping, and Agencies and Individuals Consulted



Homochitto National Forest
National Forests in Mississippi

Appendix A

Interdisciplinary Team Members, Internal Scoping, and Agencies and Individuals Consulted

Interdisciplinary Team

Charlie Price, Planning Team Leader
Steve Goodson, Prescription Forester
April Hargis, Wildlife Biologist
Jay Pittman, Silviculturist
Ken Gordon, Botanist
Will Frymire, Soil/Water/Air Specialist

Internal Scoping

Internal scoping within the Interdisciplinary Team identified a number of issues. The primary interest was the protection of the public health and safety in the use of herbicides. This was considered an ongoing public interest and addressed in the analysis as a relevant issue.

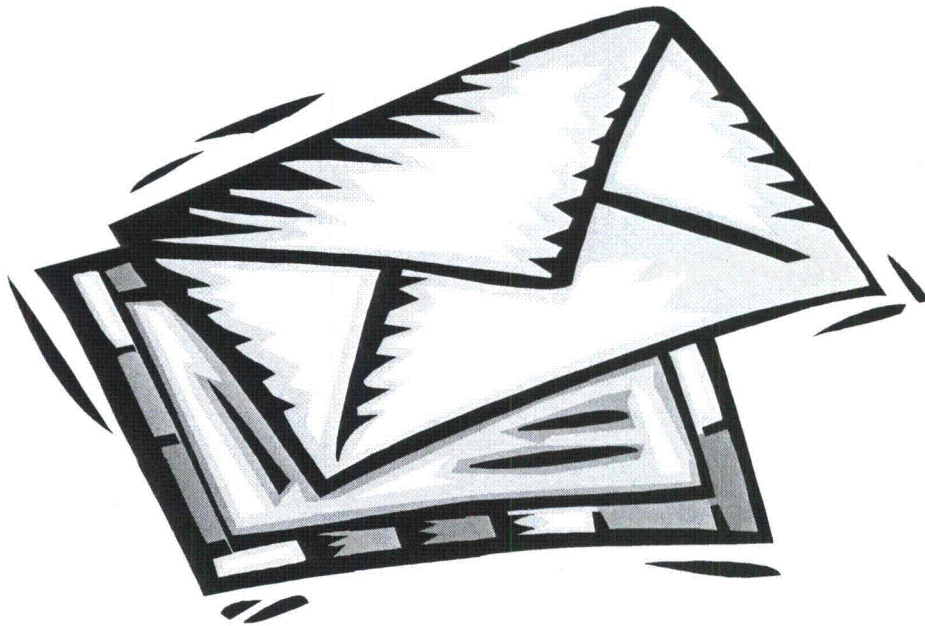
Other issues, such as the protection sensitive plant habitat and the historical record, were generated in response to internal guidelines and commitment to agreements with or interests of cooperating agencies. Internal issues such as protection of red-cockaded woodpecker habitat were in response to legal requirements and desired future conditions. To insure that all potential concerns are addressed, the Interdisciplinary Team incorporated these issues into alternatives along with those concerns developed through the public scoping response.

Other Agency Personnel and Individuals Consulted

Curtis James, Senior Field Biologist, U.S. Fish and Wildlife Service
Jeff Long, Planning Staff Officer, Jackson, MS

Appendix B

Public Involvement



Appendix B

Public Involvement

The district made contact with members of the general public by sending a scoping letter to parties that have expressed interest in herbicides, rights-of-way, or the general management of the Homochitto National Forest. The scoping letter is attached.

Individuals and organizations contacted were:

Dr. Wes Burger, Dept. of Wildlife and Fisheries, Mississippi State University
Mr. Milton Burris, State Chapter President, Quail Unlimited
Mr. Nelson Causey
Mr. Charles Chapman
Mr. Paul Damlouji, Mississippi State Representative, IMBA
Mr. & Mrs. Edward Flowers
Mr. Gary Forman
Mr. Floyd Freeman, Quail Unlimited
Miss Linda Godbold
Mr. Ernest Herndon, Enterprise Journal
Mr. Jack Holloway
Dr. Cathy Shropshire, Mississippi Wildlife Federation
Mr. Jimmy Jones, Chancery Clerk, Franklin County
Mr. Carl Ray Lehman, President, Franklin County Supervisor
Mr. Robert Lofton
Mr. Ricky Long, Supervisor, District 5 Management Areas, MS Dept. of Wildlife, Fisheries and Parks
Mr. Sam Mabry, Mabry Lumber Company
Mr. Mike Murphy, Louisiana Backpackers
Mr. Gary Pickering
Mr. Chris Alonzo, Environmental Coordinator, MDWFP
Mr. Devin M. Scherubel, Heartwood, Missouri Office
Mr. Gene A. Sirmon, Mississippi Public Lands Council
Mr. A. J. Smith, Caston Creek Area Manager, MS Dept. of Wildlife, Fisheries and Parks
Mr. David Southerland, Sandy Creek Area Manager, MS Dept. of Wildlife, Fisheries and Parks
Ms. Genevieve T. Tharp
Mr. Jackie Whittington, Supervisor, District 3, Amite County
Mr. Jeff Long, U. S. Forest Service
Ms. Mary B. Lunsford, U. S. Forest Service
Mr. Ray Vaughn, Wildlaw
Mr. Davis Mounger, Friends of Mississippi Public Lands



United States
Department of
Agriculture

Forest
Service

National Forests
In Mississippi

1200 Hwy 184 East
Meadville, MS 39653
601/384-5876/TTY601/384-8056

File Code: 1950
Date: March 19, 2003

«Mr_or_Mrs» «FirstName» «MI» «LastName»
«Title»
«Company»
«Address»
«City» «State» «Zip»

Dear «Mr_or_Mrs» «LastName»:

The Homochitto Ranger District is proposing to permit maintenance on power, oil, and gas utility corridors through the use of herbicides to control woody vegetation that interferes with access to and wildlife use of these sites. This maintenance option will be added to current maintenance options, which include clearing with hand tools, tractor mowing, and equipment such as powerline cutters.

The proposed herbicides to be used are Garlon 4 and Arsenal. These herbicides have very low toxicity and a short half-life, and are effective against most woody vegetation. They are licensed for use in seasonally wet areas and have no adverse affect to water quality and fish at the low concentrations required to control undesirable vegetation.

The use of herbicides will be selective and generally confined to areas with a heavy briar or woody component. Herbicides have substantial advantage over other methods under these circumstances. The current methods have resulted in the perpetuity of woody brush on the site, which is an unnatural condition that is less beneficial to management indicator species than an open, grassy site. Hand tools expose workers to briars, poison ivy, yellow jackets, and other hazards. The incidence of cutting injuries and allergic reaction to bites and stings are much higher than the health risks associated with herbicide use. Mechanical equipment can cause damage to soils.

In general, utility corridor maintenance is categorically excluded from documentation. The use of labeled pesticides for uses such as insect and weed control in administrative and recreation areas is also excluded from documentation. However, in his 1989 decision related to Vegetation Management in the Coastal Plain/Piedmont, the Regional Forester directed that the minimum level of analysis for projects proposing the use of herbicides in the general forest would be an Environmental Assessment. Utility corridors fall under that category.



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All utility corridors on the District are being considered under this project proposal. I want to use the best information available and consider all comments and concerns in analyzing this project. Therefore, if you wish to comment or need additional information, I ask that you write me at the address shown above or contact the Project Leader, Steve Goodson, by phone at the Homochitto Ranger District office in Meadville. Please have your comments to us by April 18th, 2003.

Sincerely,

GARY W. BENNETT
District Ranger

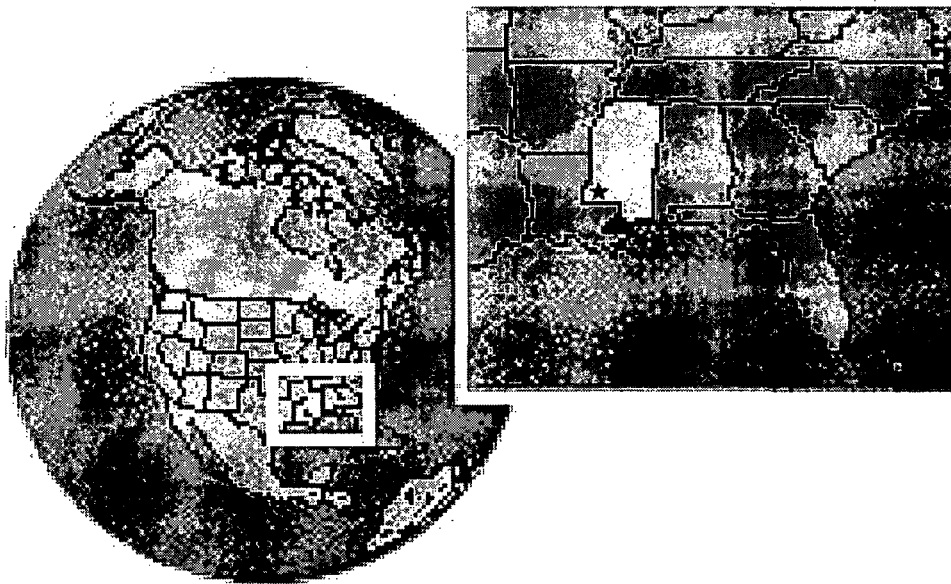


Caring for the Land and Serving People

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Appendix C

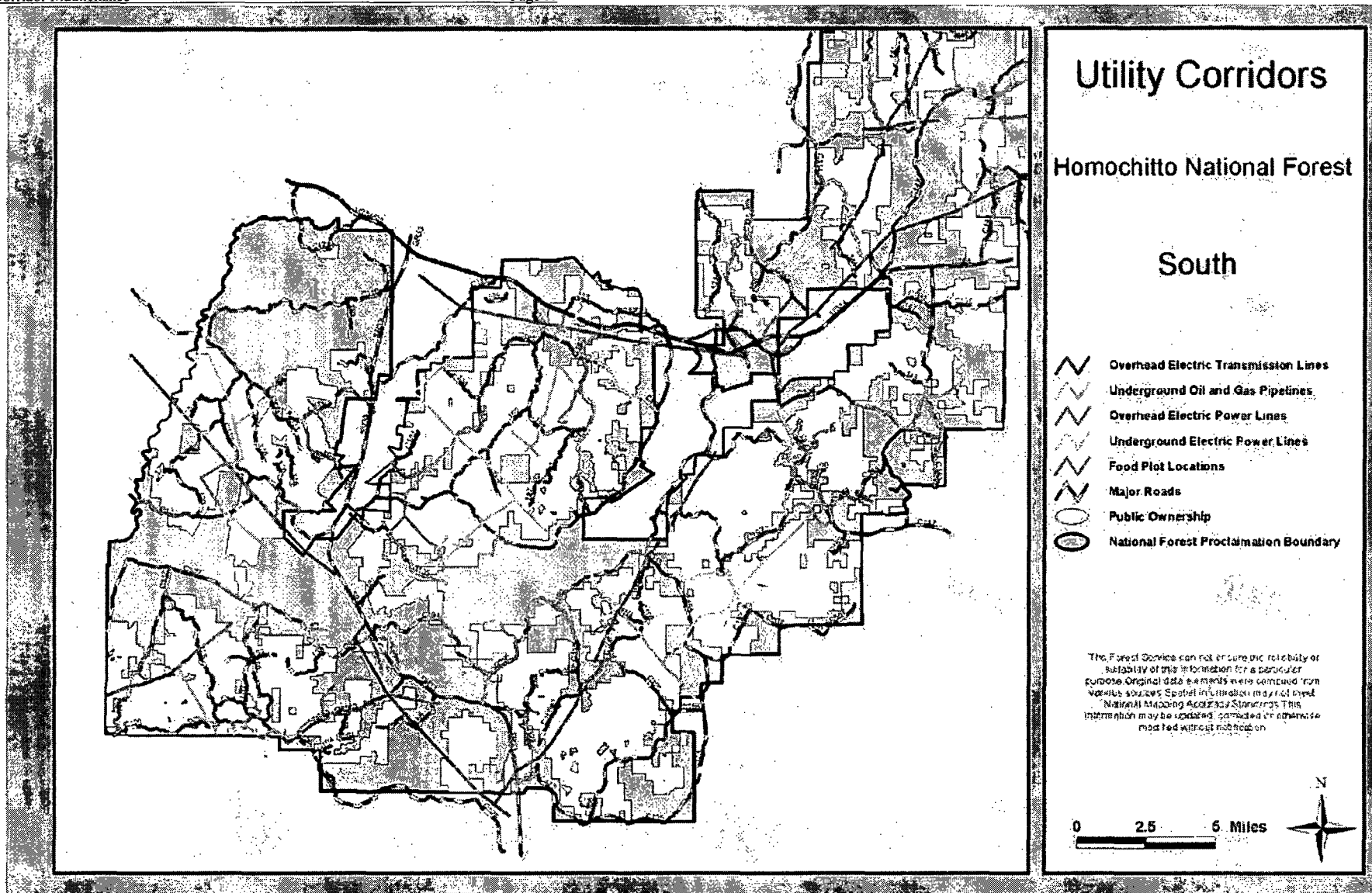
Project Maps



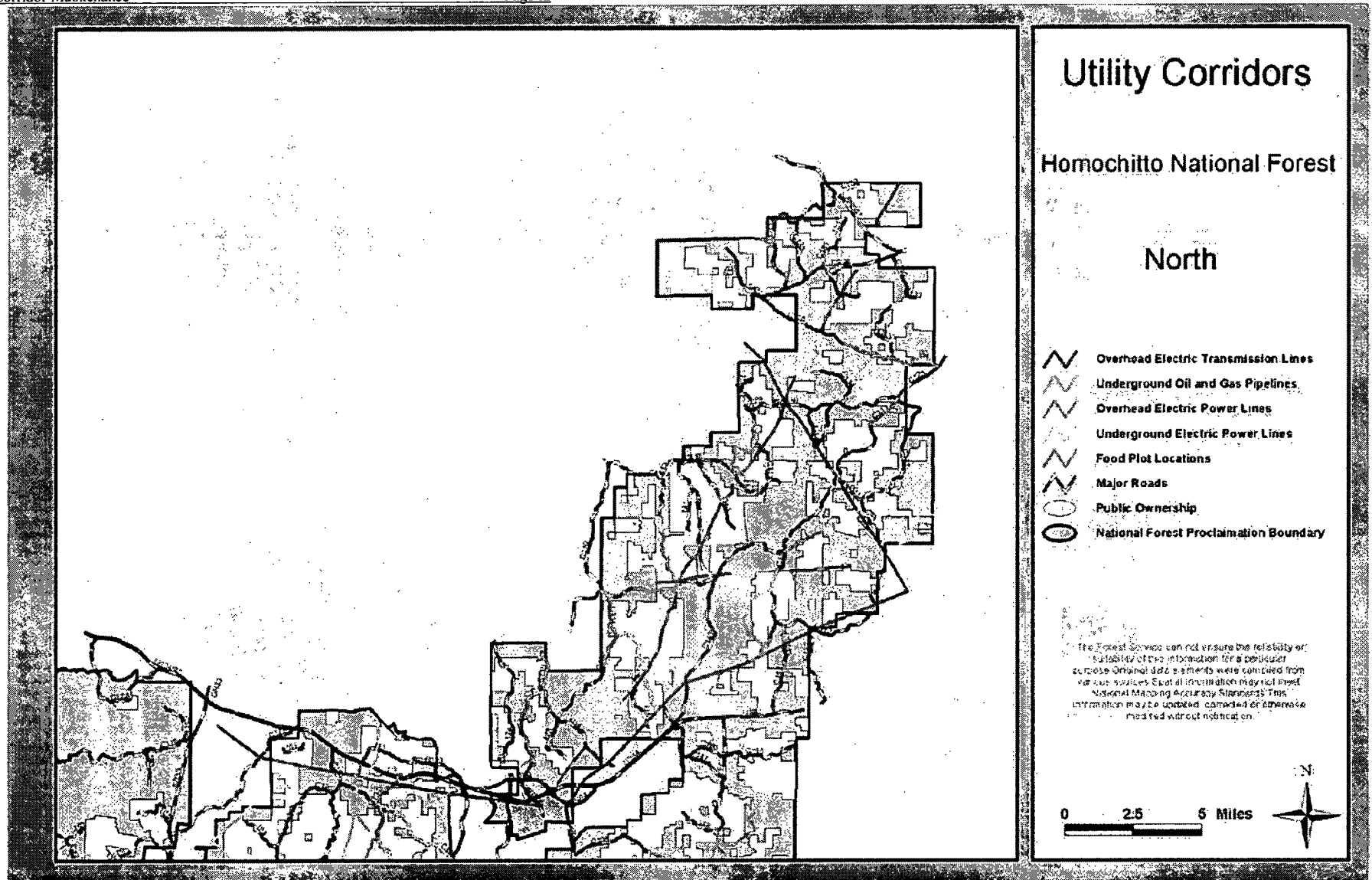
Homochitto National Forest
National Forests in Mississippi

Appendix C Project Maps

Maps included in this Appendix were generated through the District geographic information system database and were used to examine alternatives, impacts, and opportunities.



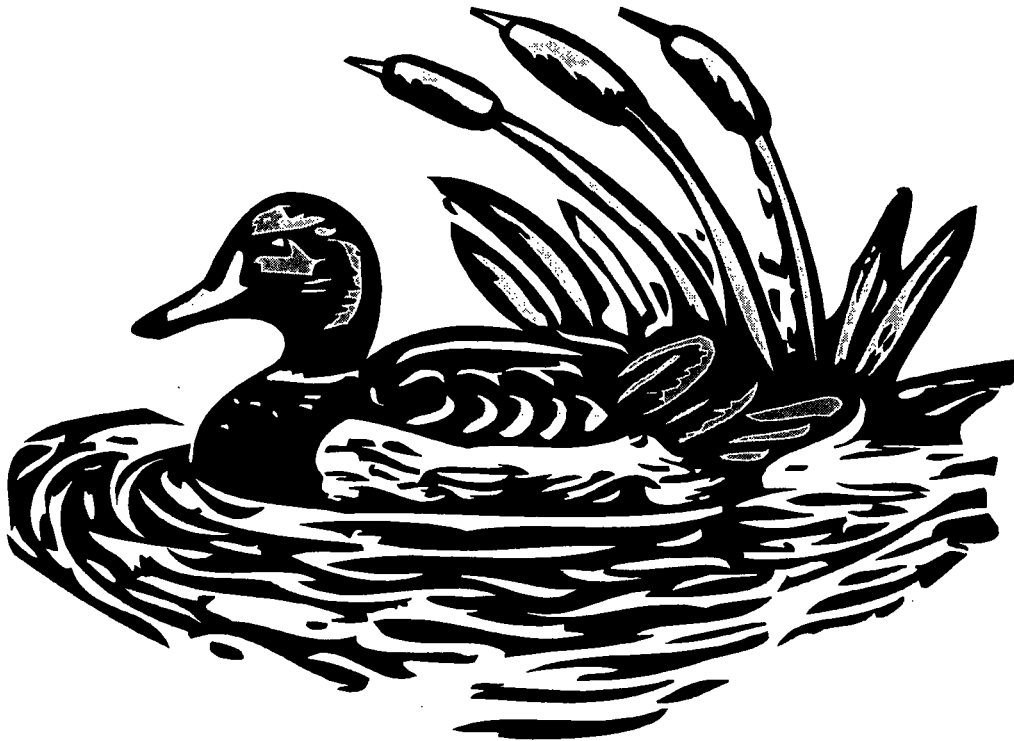
Homochitto National Forest
National Forests in Mississippi



HOMOCHITTO NATIONAL FOREST
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Appendix D

Biological Evaluation



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Appendix D Biological Evaluation

The Biological Evaluation for this project is attached.

Biological Evaluation
Of
Utility Corridor Maintenance Project

Prepared by:

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Concurred by:
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Introduction

This Biological Evaluation (BE) documents the likely impacts on proposed, endangered, threatened, and sensitive (PETS) species from management activities proposed from southern pine beetle (SPB) suppression activities and associated regeneration on the Homochitto Ranger District.

This BE is in accordance with direction given in Forest Service Manual (FSM) 2672.41 and 2673.42. As part of the NEPA decision making process, the BE provides a review of Forest Service (FS) activities in sufficient detail to determine how an action or proposed action will affect any PETS species. PETS species, taken from both state and federal lists, are species whose viability is most likely to be put at risk from management actions.

The BE has three primary objectives: 1) Ensure FS actions do not contribute to loss of viability of any native or desired non-native plant or animal species. 2) Incorporate concerns for sensitive species throughout the planning process, reducing negative impacts to species and enhancing opportunities for mitigation. 3) Ensure that activities will not cause a species to move toward federal listing. Consideration by decision makers of the information contained in this BE will ensure that no species is placed in jeopardy by management actions.

The Regional Forester's list of "sensitive" species for the National Forests in Mississippi (USDA 2001) and National Forests in Mississippi Threatened and Endangered Species List (USDA 2002) were reviewed to devise a target list of PETS species for the Homochitto Ranger District, Homochitto National Forest. Three federally listed and 16 sensitive species are confirmed, likely to occur, or have the potential to occur on the Homochitto National Forest.

Table 1. PETS taxa recorded from or likely to occur on the Homochitto Ranger District

Common Name	Scientific Name	Status*			Occurrence
		USFWS	FS	State	
Louisiana black bear	<i>Ursus americana luteolus</i>	T		S3	Potential 1
Bald eagle	<i>Haliaeetus leucocephalus</i>	T		S1	Potential
Red-cockaded woodpecker	<i>Picoides borealis</i>	E		S1	Confirmed
Webster's salamander	<i>Plethodon websteri</i>		S	S3	Possible
Bachman's sparrow	<i>Aimophila aestivalis</i>		S		Confirmed
		S3			
Pearl blackwater crayfish	<i>Procambarus penni</i>		S		Confirmed
		S3			
Alabama shad	<i>Alosa alabamae</i>		S	S1	Unlikely
Crystal darter	<i>Ammocrypta asprella</i>		S		Unlikely
		S2			
Broadstripe topminnow	<i>Fundulus euryzonus</i>		S		Unlikely
		S2			
Natchez stonefly	<i>Alloperla natchez</i>		S	S2	Confirmed
Chukcho stonefly	<i>Haploperla chukcho</i>		S	S2	Confirmed
Rayed Creekshell	<i>Anodontoides radiatus</i>		S	S2	Unlikely

Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	S	S3?	Confirmed
Arogos skipper	<i>Atrytone arogos arogos</i>	S		Possible?
		S2S3		
A moss	<i>Trachyxiphium heteroica</i>	S		Confirmed
		S1?		
Cypress-knee sedge	<i>Carex decomposita</i>	S	S3?	Confirmed
Small's woodfern	<i>Dryopteris X australis</i>	S	S1	Confirmed
Bay starvine	<i>Schisandra glabra</i>	S	S3?	Confirmed
Fetid trillium	<i>Trillium foetidissimum</i>	S	S3	Confirmed

* See Appendix 3 for explanation of codes.

This list is based on documented occurrences, habitat presence/suitability within or near the National Forest boundaries, and the geographic range of PETS species gathered from the records of the Mississippi Natural Heritage Program and other credible sources (i.e., literature reviews, conversations with knowledgeable biologists, etc.). See Appendices 1 and 2. Table 1 depicts the 19 PETS taxa considered in this Biological Evaluation.

Potential risks resulting from management actions were assessed by referring to available occurrence records and to information on the general biology of these species obtained from survey reports, the Mississippi Natural Heritage Program and the scientific literature.

Affected Area and Proposed Actions

The purpose of the project is to allow removal and or control of woody sprouts, briars, vines and other vegetation that interferes with access for maintenance purposes and wildlife use of utility corridors. This removal and or control of unwanted vegetation within the utility corridor or right-of-way (ROW) will be done in the safest, most cost effective, and least environmentally disturbing manner.

Utility corridors travel through all counties within the Homochitto National Forest. The project plan area includes all areas within the right-of-ways of the utility corridors on the Homochitto National Forest. Because these corridors pass through a majority of the National Forest, Township, Range and Sections are not given. Counties include Adams, Amite, Copiah, Franklin, Jefferson, Lincoln, and Wilkinson. Quadrangles include: Barlow, Caseville, Union Church, McCall Creek, Eddiceton, Kirby, Roxie, Jeannette, Knoxville, Meadville, Bude, Little Springs, Busy Corner, Homochitto, Crosby, Garden City, and Bewelcome. For locations see attached map.

Right-of-way vegetation management is necessary for providing utility transmission and distribution services and safety for utility workers. Trees and other vegetation can cause disruption of electric utilities when they grow into power line rights-of-way. Overgrown utility corridors inhibit access for maintenance and repair of utilities.

The utility corridors located on the Homochitto National Forest collectively comprise roughly 340 miles of linear wildlife habitat corridors. The existing maintenance policy for these areas has promoted the growth of woody vegetation that re-grows quickly and interferes with maintenance. These sites are unchanging, in that they continually remain as dense woody thickets dominated by species such as sweetgum, and are created by current maintenance.

Right-of-way maintenance usually involves manual/mechanical cutting and/or the use of herbicides to control vegetation. The existing maintenance strategy for utility corridors on the Homochitto Ranger District utilizes hand tools and mowing/cutting equipment as the primary means of removal or control of undesirable vegetation. While these methods may at first seem to be more favorable than the use of herbicides, they involve certain risks and disadvantages. These methods are time-consuming and costly, may cause damage to the soil, and pose inherent health and safety risks to workers involved in utility corridor maintenance operations. Due to resprouting, hand tool or mechanical control of undesirable vegetation often requires repeated and more frequent entries for control. Repeated mechanical treatments most often result in dense thickets that are low in diversity and food for wildlife.

In contrast, herbicides can be used in a controlled manner to concentrate control on undesirable vegetation (Final Environmental Impact Statement Vegetation Management In Coastal Plain/Piedmont Volume I, II, III and the Record of Decision for the Final EIS Vegetation Management In Coastal Plain/Piedmont). Herbicides used for vegetation control generally have low human and animal toxicity. The inclusion of herbicide methods also can result in desirable wildlife habitats such as an easily maintained habitat comprised of mainly native grasses and forbs.

Before work can be started, permittees of the right-of-way, must submit a Pesticide Use Proposal to the Forest Service. This proposal must contain information such as where, when and how the work will be accomplished. This is especially important in areas that are adjacent to active red-cockaded woodpecker clusters/groups.

Herbicides will be applied to briars, vines, woody sprouts, and other vegetation that inhibits access and wildlife use of these utility corridors. Application will be by hand methods of directed foliar spray, cut surface spray, or streamline basal spray utilizing backpack sprayers, or by selective mechanical methods using specialized application equipment. This herbicide maintenance option will be added to current maintenance options, which include clearing with hand tools, tractor mowing, and cutting equipment such as powerline cutters.

The use of herbicides will be selective and generally confined to areas with a heavy briar or woody component. Mechanical applications would be utilized on areas where slopes, soil types, and vegetation allow. Mechanical methods will be limited to the use of specialized selective equipment which utilizes a mowing deck with an herbicide application chamber in which only the cut stubble is treated – for general maintenance or tractor/truck-mounted low volume directed spray for side trimming. Side trimming is selective in that the operator controls rate of application, direction of spray, timing of operation, and system on/off. Hand application methods would be used in areas not accessible to equipment. Directed foliar spray would be applied to shrubs, vines, and other low/leafy vegetation during the growing season. Where taller, woodier vegetation develops, the streamline treatment would be used, primarily in the

dormant season. Cut surface or stump treatments would be used when larger woody material (≥ 3 inches diameter) is present.

The proposed herbicides to be used are Garlon 4 (triclopyr ester), Garlon 3A (triclopyr amine), Arsenal (imazapyr), Accord (glyphosate) and Drenite S (fosamine ammonium). Specific herbicides or combinations of these herbicides would be applied depending upon vegetation and site conditions.

For further enhancement of wildlife habitat, selected areas, marked green on the map and not more than a total of 80 acres, will be tractor disked and revegetated in accordance with the "Erosion Control and Wildlife Planting Guides for the National Forests in Mississippi". Mitigation efforts for food plots would include efforts to minimize the potential for erosion and transport of sediment to streams. Mitigations considered in the design and implementation of wildlife food plots include:

- Prohibit plots in wetlands
- Prohibit plots on high clay content soils where ridge tops converge with side slopes
- Prohibit plots on slopes greater than 20%
- Avoid areas where ridge tops converge with side slopes
- Minimize plot size where possible, break larger plots with areas of undisturbed native cover, and decrease disturbed area as slope increases
- Use multiple strips of intact native cover between disturbed areas on slopes over 12% and longer than 50 feet
- Tillage practices should follow landform contours
- Consider "No-Till" planting techniques where applicable
- Planting of wildlife crops will be done in accordance with the Mississippi Erosion control and Wildlife Planting Guide.

The basis for these management activities is the National Forest Management Act and the Forest Plan. In addition, the Final Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont provides technical information and parameters for herbicide use. All of these documents are available to the public and can be reviewed at the District Ranger's or Forest Supervisor's Office.

Utility corridor maintenance using herbicides would result in the positive implementation of the following goals set forth in the Forest Plan. (4-1)

1. Provide for safe public use and enjoyment of forest resources.
2. Provide a visually acceptable landscape by maintaining or upgrading the existing visual condition.
3. Provide a spectrum of dispersed and developed recreational opportunities reflective of the demands of the public.
4. Manage the land in a manner that is sensitive to economic efficiency.

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 along streams.
- 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.
- Mitigations associated with project design and management prescriptions. These include Forest Plan or legal direction, and locally developed enhancements in excess of Forest Plan standards. Mitigations 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. For this project, sensitive plants will be protected if found in the project area.

This 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, mitigations that apply to this project are described in Appendix F for those unfamiliar with the Forest Plan. These standards meet environmental protection requirements found in the State of Mississippi Best Management Practices.

Herbicide usage in this project follows all mitigating guidelines as stated in the Final Environmental Impact Statement: Vegetation Management in the Coastal Plain/Piedmont, Volumes I and II. Examples of mitigating activities include:

- No herbicide is aerially applied within 100 horizontal feet, nor ground-applied within 30 horizontal feet, of lakes, wetlands, or perennial or intermittent springs and streams.
- No herbicide is applied within 100 horizontal feet of any public or domestic water source.
- Herbicide mixing, loading, or cleaning areas in the field are not located within 200 feet of private land, open water or wells, or other sensitive areas.

Additional standards and guidelines can be found in the Final Environmental Impact Statement: Vegetation Management in the Coastal Plain/Piedmont, Vols. I & II (VMCP/P).

Inventories

The Mississippi Natural Heritage Program database was consulted for Threatened, Endangered and Sensitive species' locations within the National Forest (Mississippi Natural Heritage Program, 2003). The Mississippi Natural Heritage Program maintains the single most comprehensive database on the location, numbers, and status of rare and endangered plants, animals, and communities of Mississippi. The District PETS database and distribution maps were reviewed to disclose areas of known populations of PETS species within the forest. The federally listed red-cockaded woodpecker is surveyed over the ranger district in 10 year sequential surveys of suitable pine and pine-hardwood habitats for new occurrences. In addition, active clusters of red-cockaded woodpeckers are surveyed annually and nest checks done during the nesting season (late April to early June). Breeding bird surveys have been conducted at over 200 permanently established points in 1994, 1995, 1999, 2000 and 2001. A comparison across years of Management Indicator Species (MIS) breeding bird abundance on the Homochitto National Forest is in

preparation (Mabey, S.E., 2000, *in. prep.*). Although final analysis is not complete, there is no statistically significant change in abundance noted as yet for any bird Management Indicator Species. Numerous fish samples have been taken from various streams across the forest (Ebert, D.J., R.M. Weill, and P.D. Hartfield, 1985; Ebert, D.J. and P.D. Hartfield, 1981; Johnston, C.E. and J.G. McWhirter, 1996; Douglas, N.H., 1975, Warren, M.L., S. Adams, W. Haag, J.G. McWhirter, and L.G. Henderson, 2001). Monitoring of the fish population is being conducted at the present time. When examining fluctuations within the fish data, changes in numbers cannot be tied to forest management activities (Management Indicator Species Supplement: Lotic Fish Data (1980-2002) Homochitto National Forest.

The Mississippi Natural Heritage Program conducted a rare plant inventory of the Homochitto National Forest (Gordon, K.L. and J.A. Smith, 1992) as well as an overall rare/sensitive plant and animal survey of four proposed lake sites on the Homochitto NF (Gordon, K.L., *et. al.*, 1992). A study of the vascular flora of Amite County was completed by Mac Alford (1999) and reported on sensitive and rare plants collected on and near the Homochitto NF. Two additional studies have been completed that are particularly applicable: a study of the effects of red-cockaded woodpecker management on breeding native songbirds (Burger, L.W., Jr., C. Hardy, and J. Bein. , 1998). A preliminary survey to document the floral changes due to prescribed burning and hardwood midstory removal was begun in 2000 (Doffitt, C.H., 2000). Surveys of two stoneflies, once federal candidates for listing, have been conducted on the Homochitto NF (Hardy, C.L., *et. al.*, 1994, Hargis, A.E. and M.D. Meriwether, 2002 unpublished data).

Potential risks resulting from management actions were assessed by referring to available occurrence records and to information on the general biology of these species obtained from survey reports, the Mississippi Natural Heritage Program, and the scientific literature.

Determination of Effects

Cumulative Effects

Changes in land use on surrounding private land cannot be predicted with any certainty but could include re-forestation of abandoned farmland, clearing of forest for pasture or cropland, building of homes and other structures, construction and improvement to county and private roads and others. Future activities on private lands are estimated based upon current use or condition of the existing timber. Since this management project described in the EA implements events that are temporary and mitigated for, these actions should not add to the cumulative effects of private land action.

Effects on water quality are another potential cumulative effect, which could potentially impact aquatic PETS species. Water quality modeling developed specifically for the National Forest in Mississippi is generally applied to specific areas within designated watersheds. The estimated disturbance for an analysis area is typically more than 1000% under the threshold that would be expected to adversely impact or have a cumulative effect on water quality and aquatic habitats. The estimated disturbance for this analysis should be non-existent, due to mitigation measures explained previously and because herbicides will not be applied on or near water. Therefore, this project should not add to the negative cumulative effects to water quality.

Threatened and Endangered Species

Louisiana black bear

In 1992, it was estimated that only 25 to 50 black bears still remained in the state. Black bears eat a wide variety of foods, including vegetable matter such as grasses, fruits, seeds, nuts and roots. Insects, fish, carrion, and small rodents are also eaten. Blackberry thickets, hardwood forests producing acorns and other mast and containing shrubs, fallen logs, and brush-piles are typical habitat for black bears (Mississippi Department of Wildlife Fisheries and Parks, 1995a).

A pattern of repeated sightings over time suggests a single black bear may occur on and in the vicinity of the Sandy Creek Wildlife Management Area (Adams County) of the Homochitto National Forest. Louisiana black bears are not confirmed elsewhere on this National Forest. There is a confirmed population of at least 3 bears in the general area of southern Wilkinson County. Two of these bears are radio-collared and no sightings of these tagged bears have yet been observed on the Homochitto NF.

Black bears exist primarily in bottomland hardwood and floodplain forest, although use of upland hardwood, mixed pine/hardwood and coastal flatwoods and marshes has been documented. Black bears are adaptable and opportunistic, and can survive in the proximity of humans if afforded areas of retreat that ensure little chance of close contact with humans. Other Forest management practices, in general, have much less impact on black bear than the density of roads with unrestricted traffic. Black bears could appear in any large block of forest on the Homochitto NF with limited road access but the most likely areas to anticipate new population growth would be in the southwestern quadrant of the forest (Wilkinson and Adams counties).

Direct Effects – The application of herbicide and cutting of brushy vegetation should not directly affect any bears in the area. Human activity could result in the temporary displacement of any bears within the areas. However, these effects would be temporary and minimal. The “no action” alternative will have no direct effects on the black bear.

Indirect – The application of herbicide is not likely to affect habitat suitability. Mature trees that could be used for denning will not be impacted and road density will not be increased. Therefore the “proposed action” and the “no action” should have no indirect negative effects on the black bear and their habitat.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

There is no documented observation of black bears in the analysis area, however black bears are known to move large distances and there is a possibility of a bear using the analysis area. Because the proposed actions are should have little or no impact on the black bear, it is my determination that the proposed

action is not likely to adversely affect the Louisiana black bear. The "No Action" Alternative would have no effect of the black bear.

Bald eagle

Bald eagles are generally limited to winter occupancy in Mississippi. The bald eagle is a large bird that generally occurs in the vicinity of lakes, rivers, and marshes and along seacoasts. Nesting usually occurs in areas with mature trees near large bodies of water. The diet of southeastern bald eagles is primarily fish, supplemented with reptiles, waterfowl, small mammals, and carrion. (Mississippi Department of Wildlife, Fisheries and Parks, 1995c). Bald eagles winter and breed on St. Catherine's Creek National Wildlife Refuge (approx. 30 miles to the West adjacent to the Mississippi River). Although bald eagles winter and breed on St. Catherine's Creek National Wildlife Refuge, no suitable habitat is known to occur in the forest, and this area is considered generally unsuitable habitat for the bald eagle.

Direct Effects – Because the application of herbicide and continued maintenance will not remove any mature trees and will not be sprayed near water there should be no direct effects to the bald eagle or its habitat.

Indirect Effects – Suitable nesting and feeding habitat has not been documented in the project vicinity. Consequently, the proposed activity should have no indirect effects on bald eagles.

Cumulative Effects – The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

Based on the lack of suitable habitat in the Homochitto National Forest, it is my determination that the proposed action and the no action will have "no effect" on the Bald Eagle.

Red-cockaded woodpeckers

In general, because application of herbicide will not be sprayed on any red-cockaded (RCW) cavity trees or any mature trees; the proposed project should have little if no effects on the RCW. Before work can be preformed, the permit holder (of the right-of-way special use permit) must submit a Pesticide Use Proposal to the USDA Forest Service. If activities specified are adjacent to an active RCW cluster/group, work will not be allowed until after nesting and fledging season.

Direct Effects – Again, there should be no negative direct effects. The herbicide will not be sprayed on RCW cavity or nesting trees or any mature tree.

Indirect Effects – Because herbicide will be directed mainly in open areas (i.e. bug spots) that have briars and vines hanging into the trails, suitable foraging habitat should not be impacted.

Cumulative Effects – These negative impacts created by the application of herbicide should be minimal or non-existent and therefore should not add to the cumulative effects of other activities in the area.

Therefore the proposed action and the no action alternative should have a “no effect” determination on the red-cockaded woodpecker.

Forest Service Sensitive Species

Webster's salamanders

Webster's salamanders are strongly associated with moist, north-facing, mixed-hardwood slopes with rock outcrops on or near the surface (Wilson 1995). These animals are normally above ground for only a few months during the year (winter) and then underground for the remainder (Tom Mann, pers. comm. 2001). Distribution across their range is very disjunct and they have not been documented on the Homochitto National Forest. A herptile survey of four potential lake impoundment sites on the Homochitto Ranger District was conducted for 29 field days between 21 April and 18 November 1992. Utilizing past field experience with this species the surveyor searched under logs and leaf litter above streams in hilly terrain and found no specimens. The surveyor concluded that while Webster's salamander occurs in southwest Mississippi in a disjunct range pattern, its occurrence on the Homochitto Ranger District might be expected (Vandeventer, T.L., 1992). On February 3, 1998, two potentially suitable sites in Compartment 43 (north eastern portion of the district that contains rock outcrops and therefore presumably more suitable habitat) were surveyed for Webster's salamanders, but none were located. There are very few areas on the district that have rock outcrops. Therefore, very little of the district contains suitable habitat for the Webster's salamander.

Direct Effects – There are no known occurrences of Webster's salamander on the Homochitto Ranger District. However, if the salamander was to occur there is a possibility that this herbicide could impact the Webster's salamander. These impacts would occur if herbicide was sprayed directly on the salamander. Due to the herbicide application and the salamander's habitat and activity patterns (usually this salamander is above ground or near the surface in February) it is highly unlikely the salamander would be impacted. However, although slight, there could be direct effects on individuals.

Indirect Effects – As stated in the FEIS Vegetation Management In the Coastal Plain/Piedmont Vol 1 pg xii 1989, under Environmental Consequences: All herbicides and additives evaluated (including Garlon 4) meet acceptable risk standards for terrestrial and aquatic wildlife when applied using typical rates and methods. Webster's salamander habitat is most likely not going to be within areas to be sprayed. Therefore, it is unlikely that the Webster's salamander's habitat would be impacted and unlikely that there will be indirect effects to the Webster's salamander.

Cumulative Effects - Herbicide application and treatment of brushy vegetation on the right-of-ways will likely not be areas that would have potential salamander habitat, unacceptable levels of negative cumulative effects should not be created.

If the Webster's salamander were to be found present, the no action alternative would have “no impact” on this species. The proposed action, “may impact individuals but is not likely to cause a trend to federal listing or loss of viability”.

Bachman's sparrow

Bachman's sparrow is a habitat specialist. Historically, it was found in mature to old growth southern pine woodland subject to frequent growing-season fires. It is a fugitive species, breeding wherever fire creates suitable conditions. It requires a well-developed grass and herb layer with limited shrub and hardwood midstory. Ideal habitat was originally the extensive longleaf pine woodlands of the South. In the southeastern U.S. on the Coastal Plain breeding habitat usually is open pinewoods with thick cover of grasses or saw palmetto. Bachman's sparrow is able to colonize recent clearcuts and early seral stages of old field succession, but such habitat remains suitable only for a short time. These habitat conditions are nearly synonymous to the habitat associated with red-cockaded woodpecker restoration. On the Homochitto National Forest, Bachman's sparrow populations have been observed in active red-cockaded woodpecker clusters and adjacent suitable red-cockaded woodpecker habitat where thinning of the hardwood component and regular prescribed fire has taken place. Continued management in open pine stands for red-cockaded woodpeckers and improvement of more dense stands by midstory removal techniques and aggressive prescribed fire regimes will provide beneficial habitat for the Bachman's sparrow.

Direct Effects – There should be no direct effect upon the Bachman sparrow by application of herbicide and maintenance of rights-of-way.

Indirect Effects – Because rights-of-way will be maintained in a state of early successional species (i.e. grass and forb), foraging habitat should increase. As stated in the FEIS Vegetation Mangement pg xii, all herbicides and additives evaluated (including Garlon 4) meet acceptable risk standards for terrestrial and aquatic wildlife when applied using typical rates and methods. Birds also appear to be no more sensitive than mammals, which have a high tolerance to Garlon 4 (Syracuse Environmental Research Associates, Inc. 1996). And because typical rates and methods are being used there should be no indirect effects on the Bachman's sparrow or on its habitat.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

The proposed action and the no action alternative will not impact the Bachman's sparrow nesting and may increase suitable foraging habitat. Therefore there should be "no impact" on the Bachman's sparrow.

Pearl blackwater crayfish

The Pearl blackwater crayfish inhabits permanent –or nearly so—streams with clear sandy bottoms. The species occupies a limited range which is confined to drainages associated with the west bank of the Pearl River and streams associated with the north shore of Lake Ponchatrain. Recent records from the Homochitto National Forest in Amite and Franklin Counties are the first records from the Homochitto River drainage (J.F. Fitzpatrick, in press). The Homochitto National Forest collections were made from water under exposed tree roots in streambanks in Tanyard Creek, Richardson Creek, Porter Creek, and

Dry Creek (in the McGehee Creek drainage). (Tom Mann, Pers. Comm. 2000). An additional collection from Brushy Creek was made in 1980 (Collections Records, Mississippi Museum of Natural Science). Collection records confirm the presence of the Pearl blackwater crayfish within the Homochitto NF and it is likely that other undocumented occurrences occur on the Homochitto NF.

Direct Effects – Because the herbicide will not be sprayed in or near any water source and machinery to clear right-of-way not impact drainages there should be no direct effects on the crayfish.

Indirect Effects – Again, because the herbicide will not be sprayed in or near water, Pearl River crayfish habitat will not be impacted.

Cumulative Effects - The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

Therefore, the proposed action and no action alternative would have “no impact” on the crayfish or its habitat.

Alabama shad

The Alabama shad is an anadromous species that spawns in large flowing rivers from the Mississippi River to the Suwannee River of Florida (Office of Protected Resources, 2001). The largest existing population occurs in the Apalachicola River of Florida (Office of Protected Resources, 2001). Other notable populations persist in the Pascagoula River drainage of Mississippi and the Mobile River drainage of Alabama. The fish enter freshwater during the spawning season (January to April) when water temperature reaches 19 to 22 degrees Celsius. Spawning is known to occur over sand, gravel, and rock substrates in a moderate current (Office of Protected Resources, 2001).

The decline of the Alabama shad in Alabama has been blamed on the construction of a series of high lift navigating dams in the Alabama and Tombigbee Rivers, which block spawning migration (Office of Protected Resources, 2001). Other threats to the shad include poor water quality and commercial and navigational dredging of sand and gravel from river bars used for spawning (Office of Protected Resources, 2001).

Currently the closest known population of Alabama shad was collected from the Amite River in Amite County, Mississippi (Mississippi Museum of Natural Science, Pers. Comm. 8/13/01). It is possible, but highly unlikely, for the Alabama shad to be in the Homochitto River drainage (Mississippi Museum of Natural Science, and Southern Research Station, Pers. Comm. 8/13/01). If the shad were utilizing the Homochitto River, it would be restricted to the main stem.

Direct Effects – Because the proposed actions are not within the Amite River drainage or on the main stem of the Homochitto River, no direct effect on the Alabama shad will be possible.

Indirect Effects -- Because the proposed actions are not within the Amite River drainage and the herbicide will not be sprayed near water and machinery used to clear right-of-way will not impact drainages, no indirect effect on the habitat of the Alabama shad will be possible.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

Because the proposed actions (and the no action alternative) are well away from both the Amite and Homochitto Rivers (main stems), there will be "no impact" on the Alabama shad.

Crystal darter

The crystal darter is known from the Pascagoula, Pearl, and Tombigbee drainages in the Gulf of Mexico basin and from the Bayou Pierre and Homochitto River systems in the Lower Mississippi drainage. It is represented in the Homochitto River drainage by a single collection in 1973 at the Highway 98 Bridge south of Bude (Ross, Stephen T. Pers. Comm.). Since that time, no other collections of this species have been made from the Homochitto drainage. Crystal darters inhabit clean sand and gravel beds with swiftly flowing water in large rivers. The streams within the forest are too small to be inhabited by this species and therefore are not classified as suitable habitat for this species.

Direct Effects -- Because the proposed action would be well away from the main stem of the Homochitto River, and the herbicide will not be sprayed on or near water, no direct effect on the crystal darter will be possible.

Indirect Effects -- Again, because the herbicide will not be sprayed on or near water and machinery used to clear right-of-way will not impact drainages there will be no indirect effects to the darter.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions to create unacceptable levels of negative cumulative impacts.

Therefore the proposed action will have "no impact" on populations of this species.

Broadstripe topminnow

The broadstripe topminnow is found only in the Lake Pontchartrain Drainage and in the Amite and Tangipahoa River systems. Dr. Stephen Ross, fisheries biologist at the University of Southern Mississippi, confirmed that broadstripe topminnows are not considered potential residents of the Homochitto River drainage. Only a very small portion of the Amite watershed is located on the Homochitto National Forest. Based on this, the analysis area does not contain suitable habitat for this species.

Direct Effects -- None

Indirect Effects -- None

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

Therefore the proposed action will have “no impact” on populations of this species.

Natchez and chukcho stoneflies

Nymphs and adults of both the Natchez and chukcho stoneflies are associated with small, clear, cold, and unpolluted streams. These streams are usually 1-4 meters in width, with full overstory canopy and sandy gravel substrate (Hartfield 1993). They are weak fliers and will usually remain near the water from which they emerge as nymphs. Present surveys seem supportive of Brown and Stark's (1995) suggestion that both species are endemic to southwest Mississippi. Surveys for Natchez and chukcho stoneflies have been conducted in streams of the Homochitto Ranger District. Sixty-six stream sites in the Homochitto National Forest were sampled for adult stoneflies. Natchez stoneflies were found at 23 sites and the Chukcho found at 9 sites.

During the Spring of 2002, selected streams in Analysis Units 16 and 17 were sampled for these stoneflies using both black light traps and sweep nets. These surveys were conducted between April 15 and April 19 and involved 8 sample sites in Analysis Unit 17 and 3 in Analysis Unit 16. Analysis Unit 17 had recent (FY2000) timber sale activity and Analysis Unit 16 had no recent timber sale activity. One station (157) in Analysis Unit 17 had neither Natchez nor chukcho stoneflies collected. One station in Analysis Unit 16 (153B) and two in Analysis Unit 17 (107L & 155A) had only Natchez stoneflies collected. These four stations were in the upper ends of their respective watersheds and were not considered representative stonefly habitat. Seven stations (2 in Analysis Unit 16 and 5 in analysis Unit 17) had both species collected (Hargis, A.E. and W.D. Meriwether, unpublished data 2002).

Direct Effects – Because the herbicide will not be sprayed on or near water and machinery used to clear right-of-ways will not impact drainages there will not be any direct effects to the larval stoneflies.

Indirect Effects – If the hardwood canopy over the creeks were to be removed, stream degradation through heating of the water column and desiccation of the streamside zone could indirectly affect the stoneflies. However, the herbicide will not be sprayed on or near water, therefore there should be no indirect effects to the stonefly habitat.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

Because the herbicide will not be sprayed on or near water or vegetation adjacent to water the proposed action and no action alternative would have “no impact” on the Natchez and chukcho stoneflies.

Rayed creekshell

Although the range of the rayed creekshell covers portions of five southeastern states (Alabama, Florida, Georgia, Louisiana, and Mississippi) its occurrence is sporadic. Museum records suggest that historically it was seldom collected in large numbers, and today it is unusual to find more than a few individuals at a

site. Now this mussel is considered to be of special concern due to reductions in both the number of sites where it historically occurred as well as a decline in the number of individuals found per occurrence (NatureServe Explorer, 2002). Threats to this species include sedimentation as a result of bank destabilization, runoff from agriculture and roads and overall stream modifications. This species is known from large rivers, however, most collections are from small to medium-sized creeks where it occurs in mud, sand, or gravel substrates in slow to medium currents (NatureServe Explorer, 2002). The immature form is parasitic, however species of host fishes are not known.

This species of mussel has not been found on the Homochitto National Forest and it is not known from the Homochitto River, into which most drainages on the Homochitto National Forest flow. However, this species is known to occur in the Amite River watershed, which overlaps a very small portion of the Homochitto National Forest.

Direct Effects – No direct effects are expected because only small portions of this drainage are located on National Forest land and herbicide will not be sprayed in or near water.

Indirect Effects – No indirect effects are expected. Again, this is expected because only small portions of this drainage are located on National Forest land and the herbicide will not be sprayed on or near water.

Cumulative Effects – Cumulative effects derived from all action and no action alternatives will not affect this species habitat. Therefore, our effects will not be adding to the cumulative effects occurring in the Amite River watershed.

This project will have “no impact” on the rayed creekshell.

Rafinesque's big-eared bats

While Rafinesque's big-eared bats may use a variety of habitats for foraging, their distribution is most likely tied to suitable roosting habitat such as abandoned buildings, abandoned mines and wells, beneath concrete road bridges, trees with loose bark, and trees with cavities extending upward from the opening. In general, the high densities of insects found around bodies of water (such as streams and ponds) are very important foraging habitat for this bat species.

In 1991, a colony of Rafinesque's big-eared bats was observed roosting in an abandoned house on a small private inholding of land within the Homochitto National Forest (J.A. Smith, Pers. Comm., 1992b). On June 7, 2000, one male Rafinesque's big-eared bat was found under a concrete bridge out of 15 bridges surveyed (Trousdale, A.W. and D.C. Beckett, 2000). Because current inventory methods for the Rafinesque's big-eared bat are neither feasible nor effective for determining definitive information on the number and location of individuals, and because the project is expected to have insignificant effects, site-specific inventory was deemed to not be necessary. It was assumed that Rafinesque's big-eared bats were or could be present in the study area and the effects of management on the species were analyzed.

Direct Effects – Because the clearing of the right-of-way has no nesting or roosting habitat and because herbicide will only be used to spot spray individual plants and according to the Risk Assessment Report

(Syracuse Environmental Research Associates, Inc. 1996), mammals have a high tolerance to Garlon 4 there should be no direct effects to the bat.

Indirect Effects – Because no mature trees will be sprayed and water will not be sprayed, roosting and foraging habitat should not be affected. Therefore, this project should have no indirect effects on the Rafinesque's big-eared bat.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

Because herbicide will not impact roost trees and because mammals have a high tolerance to Garlon 4 the no action and proposed action will have "no impact" on populations of the species.

Arogos skipper

The Arogos skipper is a small butterfly with a wingspan about 1 to 1 1/4 inches. This species is found only in native grasslands, including prairies, savannahs, and bogs. The butterfly is rare and local in distribution. The larval foodplant is bluestem grasses in the Midwest and northern New Jersey, lopsided indiagrass in Florida, toothache grass along the Gulf Coast, and Pine Barrens reedgrass in the Carolinas and southern New Jersey. The adults feed on nectar from flowers such as blazing star, purple vetch, dogbane, stiff Coreopsis, purple coneflower, green milkweed, and ox-eye daisy among others.

There has been a recent concern about the survival of this species and a status survey has been commissioned by the U.S. Fish and Wildlife Service to determine if listing, as an endangered species is appropriate. In the vicinity of the Homochitto, historical collections exist for both Hinds and Copiah counties. Forest Service personnel spent over seven person-days collecting all species of skippers in seemingly suitable habitat on the Homochitto Ranger District in grassy portions of nineteen sections scattered throughout the forest (between August 22 and September 6, 2001). None of the specimens collected were the Arogos skipper (Marc Minno, Pers. Comm., 2001).

Direct Effects – The greatest threat to the survival of the Arogos skipper, if indeed it is part of the District's fauna, is the burning of large contiguous blocks of grassland for which no refugia are retained, not timber harvest (Minno, M., Pers. Comm., 2001). The herbicide will not be used on grasses, as they are desirable along the utility corridors. Therefore the insect should not be sprayed.

Indirect Effects – Because Garlon 4 does not kill monocots (i.e. grasses), butterfly foraging habitat will not be impacted. Therefore, there should be no indirect effects to the butterfly.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the Homochitto National Forest to create unacceptable levels of negative cumulative impacts.

Because the Arogos skipper is not confirmed to occur on the Homochitto Ranger District, and because the management proposed is anticipated have no impacts to the skipper, the proposed action and no action alternatives will have "no impact" on the butterfly.

Trachyphium heteroicum

Trachyphium moss is a slender, green, flaccid, rather shiny moss growing in mats with an interesting, if confusing, distribution. This small moss was for many years considered to be endemic to wet forests on soil and logs at moderate elevations (up to 5500 feet) in the Puebla and Veracruz states of Mexico. It was not known to occur outside of Mexico until August, 1969 when it was collected growing on a wet, rotted log in a spring seep at Clear Springs Recreation Area, Homochitto National Forest. Between 1969 and 2000, it had been collected only two other times in the United States: both from Washington Parish, Louisiana. All currently known collections from the southern United States come from man-made habitats: an artificial lake in Mississippi; and concrete culverts around springs in Louisiana (Crum and Anderson, 1981). In September 2000, a concentrated effort was undertaken to confirm this species continued occurrence on the Homochitto. The original collector was contacted in order to develop a refined search image. Dr. Reese provided valuable information on the specific microhabitat required by this species and a better verbal description of the site of the first collection. It was re-collected from the original location in September 2000. Its current status on the Homochitto is being investigated. Although at least six other spring seeps seemingly suitable have been investigated, the moss has been collected only one other time on the Homochitto. Based on research to date, it seems that this moss is associated with decaying wood in springs and spring seeps. The specific type of seep seems to be of a type that has water flowing year-round. Current flow is obvious and mosses dominate the lowest level of the ground cover, although there are patches of bare sand and gravel present. There have been no spring seeps of this type located during field surveys between 1998 and 2001. Collections of mosses were made in 2001 but this moss was not collected.

Direct Effects – Because the herbicide will not be sprayed on or near water (the moss requires permanent water source) and because machinery to clear right-of-way will not impact any drainages or wet areas the moss should not be directly affected.

Indirect Effects – Because spring seeps and other wetland types are avoided, there should be no indirect effects on *Trachyphium heteroicum*.

Cumulative Effects -- Because the impacts to streamside management zones should be minimal and the project should not contribute to other unconnected actions within the Homochitto National Forest, there will not be unacceptable levels of negative cumulative impacts.

Therefore, the proposed action and no action alternative will have “no impact” on the discussed species.

Cypress-knee sedge

The cypress-knee sedge is an aquatic sedge that is usually associated with cypress trees, logs, or knees. It occurs in areas of permanently flooded cypress timber. Frequently the cypress-knee sedge may occur on

floating or partially submerged rotting logs or stumps and may form dense tussocks. It has been found in all light conditions from full sun to dense canopy. Associated species may include: baldcypress (*Taxodium distichum*), swamp black gum (*Nyssa biflora*), red maple (*Acer rubrum*), possum haw (*Viburnum nudum*), buttonbush (*Cephalanthus occidentalis*), bogmoss (*Mayaca fluviatilis*), marsh St.-John's-wort (*Triadenum walteri*), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis* ssp. *spectabilis*), and netted chain-fern (*Woodwardia areolata*). The present distribution of cypress-knee sedge is poorly understood partially because of the inaccessible nature of the habitat and the generally inhospitable nature of southern swamps in mid-summer (snakes and mosquitoes) (Bryson, Charles. 2001. pers comm.). The cypress-knee sedge has been collected from at least four sites on the Homochitto RD and with additional survey new sites will undoubtedly be added.

Direct Effects – Because the sedge will not be affected by the herbicide and its habitat will not be sprayed with herbicide or impacted with machinery used to cut right-of-way, there will be no direct effects to this species.

Indirect Effects – Because suitable will not be impacted by this project, no indirect impacts to the cypress-knee sedge is likely.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the Homochitto National Forest to create unacceptable levels of negative cumulative impacts.

The proposed action will avoid wetlands and all water sources; therefore, there will be “no impact” for the discussed species. The no action alternative will also have “no impact” on this species.

Small's wood fern

The Small's wood fern occurs in moist to wet woodlands (shaded seeps and bald cypress swamps) comprised of several species of deciduous hardwoods and sweetbay, sometimes with baldcypress and dwarf palm. Associates include: sweetgum, swamp black gum, tulip poplar, loblolly pine, cinnamon fern, royal fern, lizard's tail, poison sumac, American holly, red maple, switchcane, and netted chain fern. This species is known to occur on the Homochitto Ranger District, but only in a few locations. An extensive survey to locate additional populations in seemingly suitable habitat on the forest has been conducted without additional populations being located (J.A. Smith, 1995). No populations of this species were located during site surveys in 1998 and 2001. No management activities are planned for areas of seemingly suitable habitat.

Direct Effects – Because no management activities will take place within seemingly suitable habitat, no direct effects are expected.

Indirect Effects – Because suitable potential habitat is being protected, no indirect impact on the species is expected.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

The proposed action and all alternatives should have “no impact” for the discussed species.

Bay Starvine

The bay starvine is associated with deep, moist drainages with dense canopies near perennial and large intermittent streams. Based on existing forest a survey, bay starvine, appears fairly well distributed and habitat may be included in the areas to be sprayed. Therefore some individual plants may be negatively impacted by the herbicide.

The bay starvine may be locally abundant on steep slopes beneath deciduous hardwoods (beech-magnolia) and occasional pines, usually midslope or lower, and less commonly found on floodplains along the bases of mixed hardwood slopes. Associates: American beech, spruce pine, shortleaf pine, white oak, Darlington oak, hophornbeam, southern magnolia, bigleaf magnolia, pyramid magnolia, cucumber tree, sourwood, tulip poplar, sweetgum, horse-sugar, American holly, florida anise, sebastian-bush, Elliotts blueberry, sliky camelia, witch hazel, wild ginger, partridge-berry, melic grass, variable panic grass, narrow-leaf sedge, hirsute sedge, striate sedge, and christmas fern. Although bay starvine may be most abundant in small areas of the forest where more light than normal is hitting the forest floor due to windthrow or other mortality of single trees, the recommended management is to maintain a forest cover with as little disturbance as possible, avoid clear-cuts and thinnings, protect from fire, and minimize or restrict vehicular traffic.

Direct Effects – Individual plants could be lost if plant is sprayed with herbicide.

Indirect Effects – Habitat should not be impacted by selective spraying of herbicide, therefore there should be no negative indirect effects to this species.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

The no action alternative would have “no impact” on this species. The proposed action “may impact individuals but will not likely result in a trend towards federal listing or a loss of viability” for the discussed species.

Fetid trillium

The fetid trillium has a wide range of reported habitat preferences: ravines, floodplains, low ground, in rich woods, even on roadsides and shoulders, in silts, sandy-alluvium, and loess soils. It is often locally abundant in rich soils on steep slopes in the shade of mixed pine-hardwoods and less commonly on low ridges, in well drained soils. The fetid trillium also occurs in floodplains in mixed hardwood forests. Associates may include: short leaf pine, loblolly pine, longleaf pine, spruce pine, American beech, white oak, tulip poplar, bigleaf magnolia, pyramid magnolia, sourwood, flowering dogwood, witch hazel,

American holly, red maple, Florida anise, Elliotts blueberry, wild azalea, partridge-berry, long-leaf spikegrass, and yellow jessamine, green-dragon, jack-in-the-pulpit, wild sweet William.

The species seems tolerant of a wide range of soil moisture and soil types from low swampy woods to high, dry bluffs and ravine slopes. Fetid trillium was found by J. A. Smith "on all sites that I have covered during my endangered plant survey" (J.A. Smith, Pers. Comm., 1992a).

Direct Effects – Individual plants could be lost if plant is sprayed with herbicide.

Indirect Effects - Habitat should not be impacted by selective spraying of herbicide, therefore there should be no negative indirect effects to this species.

Cumulative Effects -- The proposed project does not contribute to other unconnected actions within the forest to create unacceptable levels of negative cumulative impacts.

Therefore, the proposed action "may impact individuals but will not likely result in a trend towards federal listing or a loss of viability" for the discussed species. The no action alternative would have "no impact" on this species.

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APPENDIX 1.

**Threatened and Endangered Species
National Forests in Mississippi
4 April 2002**

Group	Scientific Name	Common Name	Federal Status	TNC Global	TNC State	Possibility of Occurrence on Homochitto NF
Amphibian	<i>Rana capito sevosa</i>	Mississippi Gopher Frog	E	G1	S1	Outside known range/no suitable habitat
Bird	<i>Grus canadensis pulla</i>	Mississippi Sandhill Crane	E	G5T1	S1	Outside known range/no suitable habitat
Bird	<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	G4	S1B/S1N	Potential
Bird	<i>Picoides borealis</i>	Red-Cockaded Woodpecker	E	G3	S1	Confirmed
Fish	<i>Acipenser oxyrhynchus desotoi</i>	Gulf Sturgeon	T	G3T1T2	S1B/S1N	Outside known range/no suitable habitat
Fish	<i>Percina aurora</i>	Pearl Darter	C	G1	S1	Outside known range/no suitable habitat
Fish	<i>Scaphirhynchus albus</i>	Pallid Sturgeon	E	G1G2	S1	Outside known range
Invertebrate	<i>Fallicambarus gordonii</i>	Camp Shelby Burrowing Crawfish	C	G1	S1	Outside known range/no suitable habitat
Invertebrate	<i>Pleurobema decisum</i>	Southern Clubshell	E	G1G2	S1/S2	Outside known range
Mammal	<i>Ursus americanus luteolus</i>	Louisiana Black Bear	T	G5T2	S1	Potential
Plant	<i>Apios priceana</i>	Price's Potato Bean	T	G2	S1	Outside known range/no suitable habitat
Plant	<i>Isoetes louisianensis</i>	Louisiana Quillwort	E	G1	S1	Outside known range
Plant	<i>Lindera melissifolia</i>	Pondberry	E	G2	S2	Outside known range
Reptile	<i>Drymarchon corais couperi</i>	Eastern Indigo Snake	T	G4T3	S1	Outside known range/no suitable habitat
Reptile	<i>Gopherus polyphemus</i>	Gopher Tortoise	T	G3	S2	Outside known range/no suitable habitat
Reptile	<i>Pituophis melanoleucus lodingi</i>	Black Pine Snake	C	G4T3	S2	Outside known range/no suitable habitat

Appendix 2

**Forest Service Sensitive Species
National Forests in Mississippi
7 August 2001**

Group	Scientific Name	Common Name	TNC Global	TNC State	Possibility of occurrence on Homochitto NF
Amphibian	<i>Plethodon websteri</i>	Webster's salamander	G3	S3	Outside of known range / Suitable Habitat Present
Bird	<i>Aimophila aestivalis</i>	Bachman's sparrow	G3	S3?	Confirmed Present
Crustacean	<i>Fallicambarus danielae</i>	Speckled burrowing crayfish	G2	S2	Outside of known range / No Suitable Habitat
Crustacean	<i>Fallicambarus gordonii</i>	Camp Shelby burrowing crayfish	G1	S1	Outside of known range / No Suitable Habitat
Crustacean	<i>Hobbseus attenuatus</i>	Pearl rivulet crayfish	G2	S2	Outside of known range / No Suitable Habitat
Crustacean	<i>Procambarus barbiger</i>	Jackson Prairie crayfish	G2	S2	Outside of known range / No suitable Habitat
Crustacean	<i>Procambarus fitzpatricki</i>	Spiny-tailed crayfish	G2	S2	Outside of known range / No Suitable Habitat
Crustacean	<i>Procambarus penni</i>	Pearl blackwater crayfish	G3	S3	Confirmed Present
Fish	<i>Alosa alabamae</i>	Alabama shad	G3		Potential / At extreme periphery of range / No Suitable Habitat
Fish	<i>Crystallaria asprella</i>	Crystal Darter	G3	S2	Potential
Fish	<i>Etheostoma raneyi</i>	Yazoo darter	G2	S2?	Outside of known range / No Suitable Habitat
Fish	<i>Fundulus euryzonus</i>	Broadstripe topminnow	G2	S2	Not Present
Fish	<i>Notropis melanostomus</i>	Blackmouth shiner	G2	S2	Outside of known range / No Suitable Habitat
Fish	<i>Noturus munitus</i>	Frecklebelly madtom	G3	S2	Outside of known range
Fish	<i>Noturus stigmosus</i>	Northern madtom	G3	S1	Outside of known range
Fish	<i>Percina lenticula</i>	Freckled darter	G2	S2	Outside of known range / No Suitable Habitat
Insect	<i>Alloperla natchez</i>	Natchez stonefly	G2	S2	Confirmed Present
Insect	<i>Atrytone arogos arogos</i>	Arogos skipper	G3G4T1T2	S2S3	Possible / Habitat possibly suitable
Insect	<i>Haploperla chukcho</i>	Chukcho stonefly	G2	S2	Confirmed Present
Mammal	<i>Corynorhinus rafinesquii</i>	Rafinesque's big-eared bat	G3G4	S3?	Confirmed Present
Mollusk	<i>Anodontoides radiatus</i>	Rayed creekshell	G3	S2	Potential / At extreme periphery of range / Habitat possibly suitable
Mollusk	<i>Eliptio arca</i>	Alabama spike	G3Q	S3	Outside of known range

Group	Scientific Name	Common Name	TNC Global	TNC State	Possibility of occurrence on Homochitto NF
Mollusk	<i>Obovaria unicolor</i>	Alabama hickorynut	G3	S3	Outside of known range /
Mollusk	<i>Plethobasus cyphyus</i>	Sheepnose	G3	S1	Outside of known range /
Mollusk	<i>Pleurobema beadleianum</i>	Mississippi pigtoe	G2G3	S3?	Outside of known range /
Mollusk	<i>Pleurobema rubrum</i>	Pyramid pigtoe	G2	S1	Outside of known range /
Mollusk	<i>Quadrula cylindrica</i>	Rabbitsfoot	G3T3	S1	Outside of known range /
Mollusk	<i>Strophitus subvexus</i>	Southern Creek Mussel	G3	S2	Outside of known range /
Nonvasc. Plant	<i>Trachyxiphium heteroicum</i>	Trachyxiphium moss	G2G3	S1	Confirmed Present
Reptile	<i>Pituophis melanoleucus lodingi</i>	Black pine snake	G4T3	S2S3	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Agalinis pseudaphylla</i>	Shinner's false foxglove	G2?Q	S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Agrimonia incisa</i>	Incised agrimony	G3	S2/S3	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Amsonia ludoviciana</i>	Louisiana bluestar	G3	SH	Outside of known range
Vascular Plant	<i>Arabis patens</i>	Spreading rockcress	G3	S1	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Aristida simpliciflora</i>	Southern three-awn grass	G2	S1	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Botrychium jenmanii</i>	Dixie grapefern	G3G4	S1?	Outside of known range / Suitable Habitat Present
Vascular Plant	<i>Calopogon multiflorus</i>	Many-flower grass pink	G2G3	S1	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Carex baltzelli</i>	Baltzell's sedge	G3	S1	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Carex decomposita</i>	Cypress-knee sedge	G3	S3?	Confirmed Present
Vascular Plant	<i>Carex impressinervia</i>	Ravine sedge	G1G2	S1	Outside of known range / Suitable Habitat
Vascular Plant	<i>Cleistes bifaria</i>	Small spreading pogonia	G3G4	S3	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Coreopsis nudata</i>	Georgia tickseed	G3?	S1S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Crataegus ashei</i>	Ashe hawthorne	G1	S1	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Crataegus triflora</i>	Three-flower hawthorne	G2	S1	Outside of known range / No suitable Habitat
Vascular Plant	<i>Desmodium ochroleucum</i>	Cream tick-trefoil	G2G3	S1S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Dryopteris X australis</i>	Small's woodfern	HYB	S1	Confirmed Present
Vascular Plant	<i>Juglans cinerea</i>	Butternut	G3G4	S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Lachnocaulon digynum</i>	Pineland bogbutton	G3	S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Lindera subcoriacea</i>	Bog spicebush	G2	S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Linum macrocarpum</i>	Spring Hill flax	G2?	S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Macranthera flammea</i>	Flame flower	G3	S3?	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Marshallia trinervia</i>	Broadleaf Barbara's buttons	G3	S3	Outside of known range / No Suitable Habitat

Group	Scientific Name	Common Name	TNC Global	TNC State	Possibility of occurrence on Homochitto NF
Vascular Plant	<i>Myriophyllum laxum</i>	Loose watermilfoil	G3	S1	Outside of known range / Possible habitat
Vascular Plant	<i>Penstemon tenuiflorus</i>	White-flowered beardtongue	G3?	S2S3	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Pieris phillyreifolia</i>	Climbing fetterbush	G3	S1	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Pinguicula planifolia</i>	Chapman's butterwort	G3?	S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Pinguicula primuliflora</i>	Southern butterwort	G3G4	S3	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Platanthera integra</i>	Yellow fringeless orchid	G3G4	S3S4	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Polygala hookeri</i>	Hooker's milkwort	G3	S2S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Polygala leptostachys</i>	Slender spike milkwort			
Vascular Plant	<i>Pteroglossaspis ecristata</i> (=Eulophia ecristata)	Giant Orchid	G3G4	S1	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Quercus oglethorpensis</i>	Oglethorpe oak	G3	S2?	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Rhododendron austrinum</i>	Orange azalea	G3	S2S3	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Rhynchospora crinipes</i>	Hairy peduncled beakrush	G1	S1	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Rhynchospora macra</i>	Large beakrush	G3	S3	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Ruellia noctiflora</i>	Night flowering ruellia	G2	S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Sarracenia leucophylla</i>	Crimson pitcherplant	G3	S2S3	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Schisandra glabra</i>	Bay starvine	G3	S3?	Confirmed Present
Vascular Plant	<i>Silene ovata</i>	Blue Ridge catchfly	G2G3	S1S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Spiranthes longilabris</i>	Giant spiral ladies'-tresses	G3	S2S3	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Tridens carolinianus</i>	Carolina fluffgrass	G3		Outside of known range / No Suitable Habitat
Vascular Plant	<i>Trillium foetidissimum</i>	Fetid trillium	G3	S3	Confirmed Present
Vascular Plant	<i>Trillium pusillum</i>	Least trillium	G3	S1	Outside of known range / Suitable Habitat
Vascular Plant	<i>Uvularia floridana</i>	Florida bellwort	G3	S1	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Xyris chapmanii</i>	Chapman's yellow-eyed grass	G3	S2?	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Xyris drummondii</i>	Drummond's yelloweyed grass	G3	S2	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Xyris louisianica</i>	Louisiana yelloweyed grass	G3	S3?	Outside of known range / No Suitable Habitat
Vascular Plant	<i>Xyris scabrifolia</i>	Harper's yelloweyed grass	G3	S1S2	Outside of known range / No Suitable Habitat

Appendix 3

STATUS CODES

Federal Status

- E - Endangered
- T - Threatened
- S - Forest Service Sensitive

State Ranks

- S1 - Critically imperiled in state because of extreme rarity (very few individuals or acres) or because of some factors making it especially vulnerable to extinction.
- S2 - Imperiled in state because of rarity or because of some factor(s) making it especially vulnerable to extinction.
- S3 - Rare or uncommon within state.

Appendix E

Heritage Resource Form



Appendix E

Heritage Resource Form

The District Archaeologist has completed a No Heritage Resource Form for this project. A copy of that document is attached.

NO HERITAGE RESOURCE FORM
NATIONAL FORESTS IN MISSISSIPPI

Report Number: 2003-HO-14
Survey Date: 05 August 2003

Proposed Undertaking:

District: Homochitto

Location: Utility Corridors throughout Homochitto National Forest

Project Description:

Installation of food plots along utility corridors to enhance wildlife habitat

Survey Results:

A review of the Homochitto Cultural Resource Site and Survey Atlas on 05 August 2003 indicated that there were no previously recorded cultural resources in the areas of potential effect. The utility corridors where the food plots are to be installed are located throughout the Homochitto National Forest. Small areas along the utility corridors are scheduled to be disced in order to install food plots for wildlife enhancement. Some ground disturbance will occur as a result of the food plot installations.

A standard pedestrian survey of the proposed food plot installation areas located no new archaeological sites. Therefore, the proposed food plot installations will disturb no significant heritage resources. The Homochitto Heritage Resources Program has no objection to proceeding with the proposed project.

In the unlikely event that any heritage resources are encountered during the food plot installations, the District Archaeologist requests that she be contacted immediately.

Surveyor: Ascher 2003

Submitted and Certified

By

Shannon Ascher, District Archaeologist

Homochitto National Forest
National Forests in Mississippi

Appendix F

Mitigation and Monitoring



Homochitto National Forest
National Forests in Mississippi

Appendix F Mitigation and Monitoring

Mitigation Measures

A complete list of standard mitigation is provided in the Forest Plan and its amendments. For most activities, standard mitigations required in the Forest Plan maintain soil, water, visual and other standards. This appendix is intended to provide information on the implementation of management activities and mitigations.

1. Although this project is not a normal “forestry” practice, it complies with State-approved “Best Management Practices” during all activities in order to meet State water quality standards. Actual standards and guides as provided in the Forest Plan as amended exceed these standards. Protection within all streamside management zones is summarized in the specific areas of stream type as follows:

Perennial and Intermittent Streams Prohibitions

- Trees are not felled in stream except as necessary and prescribed for fisheries management.
- Slash is not allowed in streams.
- A filter strip is designated which is a minimum of 30 feet plus 1½ feet times the percent slope. Activities within the filter strip that result in more than 10% soil disturbance are prohibited.
- Rutting – a furrow, groove, or track made in the ground by the passage of a vehicle or vehicles – is not allowed within the filter strip. Wet weather and seasonal restrictions are provided and where damage occurs, rehabilitation is required.
- Mechanized equipment activities within ½ chain of stream bank are limited to designated stream crossings. Necessary crossings are built to standards in Forest service standard Specifications for Construction of Roads and Bridges.
- Filter zones are not prescribed burned. The forest plan does allow low intensity fires to back into these areas and extinguish to avoid unnecessary line construction.

Ephemeral Channels Prohibitions

- Rutting in the channel is prohibited as noted above. Wet weather and seasonal restrictions apply.

Additional Mitigations Associated with Soil and Water

The district may extend streamside management zone protection beyond standard mitigation required in the forest plan, and that shown to be effective in meeting soil and watershed protection standards. Lower impact management and different vegetative objectives may be instituted within approximately two chains (132') of intermittent streams and approximately 3 chains (198') of perennial streams. The primary purpose of this mitigation is to protect

riparian habitats, provide increased protection of special habitats (most sensitive plants on the Homochitto Ranger District are associated with shaded riparian zones), and to retain habitat for riparian dependent fauna. Additional watershed protection is derived as an associated benefit.

Implementation of this mitigation is by prescribing a separate management prescription for streamside zones. Management prescriptions are established prior to any commitment of resources within a project area. Streamside management zone boundaries are designated and are readily visible.

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

Mitigation efforts for food plots would include efforts to minimize the potential for erosion and transport of sediment to streams. Mitigations considered in the design and implementation of wildlife food plots include:

- Prohibit plots in wetlands
- Prohibit plots on high clay content soils where clay is near the surface
- Prohibit plots on slopes greater than 20%
- Avoid areas where ridge tops converge with side slopes
- Minimize plot size where possible, break larger plots with areas of undisturbed native cover, and decrease disturbed area as slope increases
- Use multiple strips of intact native cover between disturbed areas on slopes over 12% and longer than 50 feet
- Tillage practices should follow landform contours
- Consider "No-Till" planting techniques where applicable
- Planting of wildlife crops will be done in accordance with the Mississippi Erosion Control and Wildlife Planting Guide.

Herbicide usage follows all mitigating guidelines as stated in the Final Environmental Impact Statement: Vegetation Management in the Coastal Plain/Piedmont, Volumes I and II.

Examples of mitigating activities include:

- No herbicide is aerially applied within 100 horizontal feet, nor ground-applied within 30 horizontal feet, of lakes, wetlands, or perennial or intermittent springs and streams.
- No herbicide is applied within 100 horizontal feet of any public or domestic water source.
- Herbicide mixing, loading, or cleaning areas in the field are not located within 200 feet of private land, open water or wells, or other sensitive areas.

Implementation Monitoring of Soil and Water Mitigations

The above standards are met through a combination special use permit specifications and administration. Herbicide usage is documented in the project Pesticide-Use Proposal and Annual Pesticide Use Report. Specific language requiring mitigation measures is included in special use permits as needed. A site specific plan for implementation (prescription) is provided to the permit holder. These requirements are reviewed with the permittee during the required pre-entry meeting for each treatment area. Special use areas are checked annually to ensure that mitigations are correctly applied as part of the documented administration process. In the case of vegetative management other than harvesting, qualified technicians may perform this task.

2. Visually sensitive areas may require special care to reduce the visual impacts of vegetation removal. In most cases this would be accomplished by cutting vegetation to lie on the ground. All actions would adhere to the Visual Resource Management Coordination Requirements shown in Table 4-1 of the Forest Plan (Forest Plan 4-3).

Scenic resource assessment and recommendations are performed during site-specific analysis for proposed actions. The Scenic Resource Management Matrix is consulted for guidance during site-specific analysis for management actions that affect the visual resource.

The prescription contains specific language requiring measures as needed. These requirements are reviewed with the permittee during the required pre-entry meeting. Implementation monitoring is through special use administration to insure compliance, and documented on inspection reports.

3. Historic Resources: This project qualifies for pre-survey exclusion under the terms of the "Memorandum of Understanding" with the State Historic Preservation Officer (SHPO). The basis for this exclusion is the widely dispersed, low impact nature of the treatment. Sites to be treated may have documented surveys. Otherwise, surveys are conducted prior to soil disturbance activities. If sites are found the district archaeologist specifies the protection required. The "Memorandum of Understanding" allows post reporting at the end of the project.

If previously undocumented archaeological or historical resources are encountered during project activities, all work in that area should cease until the full nature and extent of the resources can be evaluated and consultation with SHPO can be completed. The special use permit prescription will contain a clause to this effect, and the special use permit administrator will ensure compliance.

4. Revegetation of disturbed sites is implemented as soon as possible after soil disturbing activities. The special use permit prescription will contain a clause to this effect, and the special use permit administrator will ensure compliance.

5. Roads, trails, ditches, and other improvements in the project area are maintained free of debris. Any damage is promptly repaired. Protection of improvement is provided under the special use permit. The special use permit administrator will ensure compliance
6. Concerns related to roads do not apply to this project.
7. Potential effects on threatened, endangered, and sensitive species are assessed in the Biological Evaluation. A Wildlife Biologist inspects all areas where mitigations concerning TES species may be required.

The Forest Service Wildlife Habitat Management Handbook (FSH 2609.23R) specifies mitigation for activities which occur in or near red-cockaded woodpecker colonies.

In or near active colonies, consultation with a Forest Service Wildlife Biologist is required prior to treatment. No herbicides will be used inside or within 60 feet of red-cockaded woodpecker colonies.

In accordance with the recovery plan, interim guidelines, and the RCW Environmental Impact Statement, there will be no mechanized activity within the clusters during the nesting season (the breeding period until the young are fledged).

This project has no effect on cavity trees, trees within the cluster, or forage trees. RCW populations are monitored by individual cluster, annually. Fledglings are banded and tracked to the extent possible. All potential habitat is inventoried on an approximately 10-year interval to determine if other undiscovered clusters are present.

8. The District Geographic Information System was employed to prepare maps that were utilized in the preparation of this Environmental Assessment. As a result, the estimated total acreage and locations over which activities will occur may not be completely accurate.

Several factors affect the accuracy of acreage and location estimates.

- **Mitigation acres:** Coordination such as streamside management zones is included within the total acres. Adjustments in treated acres could have a 5% error. Streamside zones are applied, not just based upon stream characteristics, but also on terrain and vegetative conditions. The final determination of acreage committed to streamside zones is established during project layout and is not a map exercise.
- **Topological displacement:** There is considerable displacement of features such as streams and ridges, when photos are compared to the base layer data from the United States Geological Survey topographical map. Until orthographic photos or other technology is available and implemented on the District, the base layers are the only means of passing information to personnel or the public. An example of the magnitude of this error is provided by analysis of a large lake currently under construction. The District Computed acreage of the lake using topographical elevations from our GIS layers (USGS Topography). The shoreline analysis indicated a lake acreage of

approximately 1200 acres. A controlled cadastral survey was performed to identify the exact shoreline location for clearing the lakebed. The acreage calculated from this controlled survey was just under 1000 acres. Therefore, an error of + or – 20% would be within the expected range.

- **Man made feature displacement:** When compared to photographs, there is considerable displacement of man-made or drawn features such as roads (and rights-of-way). The primary basis for this is that the topographical maps show roads down centers of ridges. Topographical line displacement as noted above adds error. Also, features with substantial on-the-ground curvature are relatively straight on the maps, and a pencil line width is approximately 66 feet or one chain.

The benefit of using topographical features is that even though there may be displacement between the map and ground, roads, streams, well-defined ridges, and drainages can all be easily and reliably be identified on the ground. Both managers and the public can use the maps to locate the actual treatment area.

9. Wildlife habitat will be enhanced through the following mitigations:

- Wildlife food plots will be revegetated in accordance with the “Erosion Control and Wildlife Planting Guides for the National Forests in Mississippi”.

10. Herbicides are applied according to labeling information and the site-specific analysis prescription done for projects. This labeling and analysis are used to choose the herbicide, rate, and application methods for the site. They are also used to select measures to protect human and wildlife health, non-target vegetation, water, soil, and threatened, endangered, proposed, and sensitive species. Site conditions may require stricter constraints than those on the label, but labeling standards are never relaxed.

Only herbicide formulations (active and inert ingredients) and additives registered by the Environmental Protection Agency and approved by the Forest Service are applied. Herbicides and application methods are chosen to minimize risk to human and wildlife health and the environment.

Herbicides are applied at the lowest rate effective in meeting project objectives and according to guidelines for protecting human (Nuclear Regulatory Commission, 1983) and wildlife health (Environmental Protection Agency, 1986a). Application rate and work time must not exceed typical levels (Appendix A, tables 4-4 to 4-6) unless a supplementary risk assessment shows that proposed rates do not increase risk to human or wildlife health or the environment beyond standards discussed in Chapter IV. Typical application rates (lb/ac) of active ingredient are displayed in the following table:

Table F.1: Typical Application Rates (lb/ac) of Active Ingredient

Chemical/ Treatment	AL	AG	ML	MG	HG	HF	HB	HS	HC
2,4-D/amine	2.0		2.55			2.0			2.0
2,4-D/ester	2.5		4.0			2.0			
2,4-DP	3.0		4.0			1.0	1.7		
Dicamba	6.0		2.0			2.0	1.2		1.5
Fosamine	1.5		7.8						
Glyphosate		4.0	1.5	4.0	4.0	1.0		4.0	1.3
Hexazinone	4.0		4.0			4.0			
Imazapyr	0.75		0.75			0.75			0.75
Triclopyr/amine	4.0		4.0			2.0			1.0
Triclopyr/ester	4.0		4.0			2.0	4.0		
Picloram	0.5		0.7			0.4			0.3
Sulfometuron methyl	0.13	1.0	0.17	1.0		0.06		4.0	
Tebuthiuron	1.0		1.0			4.0			
Fuel oil	0.5		2.0			1.5	1.0		
Limonene	0.9		0.9			0.9	0.9		

AL = aerial liquid treatment

AG = aerial granular treatment

ML = mechanical liquid treatment

MG = mechanical granular treatment

HG = manual (hand) granular treatment

HF = manual foliar broadcast treatment

HB = manual basal treatment

HS = manual soil-spot treatment

HC = manual cut-surface treatment

Method and timing of application are chosen to achieve project objectives while minimizing effects on non-target vegetation and other environmental elements. Selective treatment is preferred over broadcast treatment. Public safety during such uses as viewing, hiking, berry picking, and fuel wood gathering is a priority concern.

Application methods from most to least selective are:

- a. Cut surface treatments
- b. Basal stem treatments
- c. Directed foliar treatments
- d. Soil spot (spot around) treatments
- e. Soil spot (spot grid) treatments
- f. Manual granular treatments
- g. Manual/mechanical broadcast treatments
- h. Helicopter treatments

Areas are not prescribed burned for at least 3 days after herbicide treatment.

Weather is monitored, and the project is suspended if temperature, humidity, or wind becomes unfavorable as follows:

Table F.2: Weather Restrictions for Herbicidal Application

Ground Application Method	Temperature Higher Than	Humidity Less Than	Wind (At Target) Greater Than
Hand (cut surface)	Not Available	Not Available	Not Available
Hand (other)	98°F	20%	15 mph
Mechanical (liquid)	95°F	30%	10 mph
Mechanical (granular)	Not Available	Not Available	10 mph

A certified pesticide applicator supervises each application crew in personal safety, proper handling and application of herbicides, and proper disposal of empty containers. Forest Service inspectors are trained in herbicide use, handling, and application. Permittees ensure that their workers use proper protective clothing and safety equipment required by labeling for the herbicide and application method. Supervisors must ensure that monitoring is adequate to prevent adverse health effects.

Notice signs (FSH 7109.11) are clearly posted, with special care taken in areas of anticipated visitor use.

Monitoring Measures During and After Activities Proposed

A "Monitoring Plan" outlines the monitoring procedures, by resource area, for the incident. The plan is specific to implementation and effectiveness monitoring during the duration actions described in this project. The objective of this plan is to determine how well the forest is meeting project and Forest Plan objectives, and to identify any need to change practices.

Validation monitoring is not being identified for this project at this time. Should issues arise during review of the environmental assessment or if concerns arise at a later date that would be recognized as a need for long-term research, this type of monitoring may be considered.

Monitoring actions that will be developed within this project are to gauge the success of implementation actions and identify the effectiveness the actions and mitigation that is completed. Most activity will be documented during the administration of the special use by the special use administrator and inspectors.

Annually, the District Soil Scientist visits a large number of representative projects and reports on the condition of and impact to the soils. Observations include percent-soil disturbance and observed soil loss and siltation.

In 1999, a series of more intensive soil impact monitoring sites were established as an ongoing program. A small sub-watershed is identified, and a silt dam constructed across the outlet. Slope, aspect, dispersed disturbance, and compaction are measured and recorded before and after treatment. Soil leaving the site is caught in a silt dam and measured. This type of monitoring could be applied to wildlife food plots.

The District has a number of representative streams that have been sampled for biotic diversity and aquatic habitat health twice in the past decade. Additional sampling is being scheduled to determine if impacts from District activities, including southern pine beetle suppression and restoration, are impacting resource quality. Management intensity and activity have been similar or higher over the past 30 years. With the exception of one stream with high saline content, these streams typically have high biotic diversity and provide quality aquatic habitats, as indicated by the presence of multiple management indicator species. The high salinity of the single stream is not related to vegetation management or southern pine beetle activity, but to approved saltwater disposal methods which applied to oil production activities prior to 1960. These representative streams provide a broad-based barometer of the full range of district activities on the health of our aquatic systems. They demonstrate that standard best management practices and mitigations in the Forest Plan and related documents are appropriate to protect water quality.

Avian management indicator species are monitored annually through a series of breeding bird survey listening points. The total number of listening points is approximately 260 for the District. In a typical year, 160 to 180 points are surveyed. Points are representative of all habitat types and are well distributed across the District. The District conducts an annual turkey brood survey by recording employee sightings. Records are maintained on the district. Northern bobwhite and Eastern wild turkey research is ongoing on the District. Discussions related to bird indicator species and past and present research are summarized as a basis for the "Management Indicator Species" section in Chapter 3. Information is analyzed for trends that might lead to declines or listing. Annual surveys represent implementation monitoring. Substantial information is also available from breeding bird survey routes in the vicinity of the Homochitto National Forest.

A continuous monitoring record is maintained for each RCW cluster. This continuous monitoring program represents implementation monitoring. Annual monitoring records are maintained and the results reported in the annual Monitoring and Evaluation Report for the National Forests in Mississippi. This is a published document made available to the public upon request.

To effectively implement and track the mitigations listed above, most of which are associated with permit requirements, the permit contains specific language requiring protection as noted above as well as other measures as needed. These requirements are reviewed with the permittee during the required pre-entry meeting prior to treatment. Implementation monitoring is through special use administration to insure compliance, and documented on inspection reports.

Appendix G

Public Comments and Responses from Initial Scoping



Appendix G

Public Comments and Scoping Responses

General Discussion

The expressed purpose and need for this project is to permit control of woody sprouts and other vegetation that interferes wildlife use and other multiple resource values of utility corridors in the safest, most cost effective, and least environmentally disturbing manner. Utility corridors are currently maintained under the provisions existing special use permits. This project is an amendment to and enhancement of these special use permits that will result in added wildlife benefits.

Public Involvement

Three individuals presented telephone comments to initial scoping. Mr. Frank Buchanan and Mr. Nelson Causey supported our project and the appropriate use of herbicides in a utility corridor maintenance program. Mr. Causey is a local resident that telephoned on March 26, 2003 and expressed that he was fully in favor of the project. Mr. Buchanan telephoned on March 26, 2003. As a chemical sales representative, he is familiar with the use of herbicides, and stated that the proposed chemicals were effective and environmentally friendly. He did have concerns, however, that the Forest Service employ the most economically advantageous herbicides. Mr. Charles Chapman of Brookhaven, MS voiced several questions concerning the project in a telephone call on March 26, 2003.

These public comments were carefully examined by the Interdisciplinary Team. No issues or concerns relating to the project were identified from the comments received. All comments received were determined either to be outside the scope of this project or to have no relevant relationship to the Decision to be made. These inquiries were informational in nature and were not inherently considered to express opposition or concern for the project. As a result, appeal relationships are not known at this time. Even though the comments were not directly relevant to the purpose or implementation of the project, each is answered below in sufficient detail to clarify the relationships between the concern and this project. A transcribed copy of the comments presented by the public is also included in this Appendix.

Comments and Responses

Issue: There is concern that herbicides of least cost to the public be used in the project.

Current Conditions: Timber harvesting on Forest Service lands provides a 25% return to the counties directly related to the value of the timber sold. Additional revenues to local communities as a result of the Homochitto Ranger District comes in the form of support of local businesses through sale of food, fuel, and other personal needs of hunters, campers, hikers, mountain bikers, horse riders, and other recreationists. Trends in recreational use of the National Forest System reflect increased demand for both developed and dispersed recreation.

Response: Utility corridor maintenance using herbicides would allow for enhanced wildlife and public use of the utility corridors of the Homochitto Ranger District and would correspondingly provide continued support of local businesses through sale of food, fuel, and other items to hunters, hikers, and other recreationists.

This environmental assessment proposes to permit the use of herbicides for vegetative management of utility corridors on the Homochitto Ranger District. The Forest Service is not intending to perform or to contract any activities related to this project. Other than the cost of preparation of this environmental document, there would be no further direct monetary cost to the public, regardless of the herbicides or alternative chosen. This issue, therefore, is not relevant to the decision to be made.

Issue: Concern was expressed that wildlife species that would be affected by the project are identified.

Current Conditions: The repeated mechanical clearing of utility corridors has resulted in the creation of single species thickets on many areas of these rights-of-way. Large root systems and multiple stems allow these areas to re-grow after treatment at tremendous rates. These dense, monoculture stands can become nearly impenetrable for even large tractors. Such stands have low diversity and offer little wildlife food or nesting potential.

Response: Open, grassland-type habitats are limited on the Homochitto Ranger District. The use of herbicides for the reduction of the profuse woody monoculture conditions that prevail on many acres of the utility corridors of the Homochitto National Forest would increase diversity of plant species in these areas and produce a more open, grassy habitat. This would, in turn, benefit the bobwhite quail and other species associated with early seral and grassland habitats. Species representative of late seral habitats, such as the wild turkey and screech owl, may also benefit through increase in available foraging habitat. Any reduction in escape cover provided by the woody thickets would be more than offset through the creation of feeding habitat.

Wildlife food plots would directly benefit herbivores such as the whitetail deer, while providing feeding grounds for turkey and quail and hunting grounds for kestrels and screech owls, and with the additional provision of habitat for certain neotropical migrants and other species which utilize early seral habitats.

Any analysis of the effects of management on terrestrial wildlife species must recognize that actions benefiting species utilizing early seral stages will ultimately be done at the expense of those species utilizing older forest stands. On the same area, it is difficult, if not impossible, to satisfy the needs of all "wildlife" at the same time. The goal of the manager is to attempt to balance the needs of all, giving special consideration to those species most at risk of extinction/extirpation. The Biological Evaluation for this project identified no potential negative impacts to endangered, threatened, or sensitive species. This concern, therefore, is not relevant to the decision to be made.

Issue: Concern was expressed that site-specific areas to be treated are identified.

Current Conditions: There are roughly 340 miles (or approximately 1200 acres) of utility corridor on the Homochitto National Forest. These areas are important to wildlife as they present essential edge habitat and travel ways. Site-specific evaluation of these areas has been completed for special-use permitting and has been analyzed for this environmental assessment. These areas are documented in the discussion of project Location in Chapter 1 and on the maps in Appendix B.

Response: Site-specific evaluation is an integral part of National Environmental Policy Act compliance for site or condition specific projects. This project and environmental document, therefore, are inherently site specific and additional discussion of this issue is not required.

Issue: There was concern as to the determination of specific areas to be treated; specifically, pertaining to who determines these areas.

Current Conditions: The roughly 340 miles of utility corridor on the Homochitto National Forest are important to wildlife as they provide needed travel-ways and edge habitat for various wildlife species. Treatment areas were determined by the Interdisciplinary Team through field examination of selected sites and review of site-specific evaluations completed for special-use permitting.

Response: This environmental assessment proposes to permit the use of herbicides for vegetative management of utility corridors on the Homochitto Ranger District. The Forest Service is not intending to perform or to contract any activities related to this project. Other than specifying the allowable application rates and methods, detailing areas where mitigating measures are to be undertaken, defining areas requiring the various specific treatments, and delineating the specific treatment areas, this analysis does not specify the areas in which actual treatment will take place. The analysis assumes that treatments would be applied to all available areas, but does not infer any obligation for treatment of any area. In the case of herbicide treatment, the choice of whether or not to treat specific areas will be left to the right-of-way special-use permit holder. In the case of wildlife food plots, the choice will be made by those individuals, groups, or organizations willing to partner with the Forest Service for the promotion of quality wildlife habitat in the public domain. This concern, therefore, is beyond the scope of this analysis.

Issue: There was concern as to the need for the project; specifically, with regard to who requested that the project be undertaken.

Current Conditions: Utility corridors are valuable wildlife areas due to their placement in the landscape, providing needed travel-ways and edge habitat for various wildlife species. These areas are currently maintained through mechanical means only. Repeated mechanical treatments on right-of-ways on the District have resulted in many of these areas becoming heavily stocked with single-species "thickets" of woody sprouts.

Response: This project was initiated by the Forest Service to address the problem of species

diversity and wildlife use in utility corridors on the Homochitto National Forest where past management has resulted in areas of monoculture thickets. These areas of perpetual woody brush are not a natural component of the ecosystem and are less diverse and provide less wildlife food and nesting potential than would an open, grassy site. This project would alleviate these concerns to some degree by breaking the cut-sprout cycle by removing the rootstock from which these thickets develop. This issue, therefore, is not relevant to the decision to be made.

Comment Transcriptions

Mr. Charles Chapman voiced concerns with the Utility Corridor Maintenance project by telephone on 3/26/03.

His concerns were:

- What areas will be treated and who will decide these areas?
 - What wildlife will the project benefit?
 - Who requested this project?
-

Mr. Frank Buchanan of Helena Chemical responded to the Utility Easement Project on 3/26/03 and was in full support of the project. He stated that we had chosen good chemicals and that they were environmentally friendly. He had concerns that we were not employing the least cost chemicals.

Mr. Nelson Causey commented on the powerline maintenance project on 3/28/03. He was in favor of the project.

Appendix H

Water Quality



Homochitto National Forest
National Forests in Mississippi

Appendix H Water Quality

Water Quality Modeling:

Water quality modeling developed specifically for the National Forests in Mississippi has been applied to several analysis areas on the Homochitto National Forest. Implementation instructions for this evaluation are provided in Cumulative Effects Analysis for Water Quality and Associated Beneficial Uses, National Forests in Mississippi, November 1999. This document provides a model for analyzing potential cumulative effects on water quality based upon past, present and anticipated future activities. The model uses a spreadsheet to evaluate these activities in order to estimate the amount of siltation occurring in the watershed, and to estimate cumulative effects within the measurable impact area for this project.

The Council on Environmental Quality handbook, Considering Cumulative Effects Under the Environmental Policy Act sets the standard for analyzing cumulative effects of a project. The initial process (scoping) of determining how cumulative effects are to be analyzed is identified as a four step process. With respect to siltation and impacts on aquatic habitats, these steps are as follows:

- Step 1: Identify cumulative effects issues. -- Siltation and its impacts on aquatic habitats is identified as an issue in the Mississippi Land and Resource Management Plan (Forest Plan). This is also an internal issue monitored by the implementation and review of "Best Management Practices" and other stream protection mitigations. Therefore, it is identified as a cumulative effects issue.
- Step 2: Establish the geographic scope for the analysis. -- Council on Environmental Quality guidelines indicates the importance of establishing and limiting the geographic boundaries for the project. Limitation is based upon the "project impact zone". This zone will vary depending upon the resource area being considered. In general terms, this is the zone in which the impacts of a particular action can be measured or have a noticeable impact. Utility corridors stretch across almost all watersheds in the Forest boundary. However, such a large-scale analysis was deemed in excess of that required for a reasonable decision through this Environmental Assessment. For this project, two Analysis Units, AU-7 and AU-20, were chosen as representations of the Forest area. AU-7 consists of three separate watersheds, from their headwaters in AU-7 area to it's entry point at the Homochitto River. AU-20 is the Brushy Creek watershed from it's headwaters in AU-20 to it's entry point at the Homochitto River. AU-7 and AU-20 were chosen for the relatively recent modeling data compiled for these areas, as well as the respective small and large percentage of private lands associated with these blocks.

H3

The impact zone would not include the Homochitto or Mississippi Rivers. The Homochitto River carries a relatively heavy sediment load from ongoing headcutting. This headcutting is the result of stream canalization performed by the Corps of Engineers to the west of the National Forest Boundary, and dredging in the Mississippi River. The higher energy gradient created by these processes has resulted in headcutting and bank erosion as the Homochitto River watershed tries to reestablish equilibrium.

The basis for determining the impact zone for the effects related to siltation and the quality of aquatic habitat is whether or not the project, with mitigation, could reasonably result in measurable changes to the types and populations of species that use and are supported by a stream or river. While there is sufficient potential that this could occur in the creeks within the Forest, the effects of headcutting on stream structure and the sediment load currently present in the Homochitto River are the primary impacts affecting aquatic habitats in the drainage system. Limitations or effects on aquatic habitats and the types of habitat present in the Homochitto River are the result of that process. The type of aquatic habitat present in the Homochitto River is not the same type habitat present in the majority of the drainage system of the Forest.

All creeks carry a base level of silt resulting from natural geological processes such as mass wasting and bank erosion. Base load silt from drainage systems eventually flushes into the Homochitto River whether or not a project occurs in the drainage. Small additions to base load siltation from proposed actions in this project, along with other actions taking place within the Homochitto River watershed are unlikely to be measurable against the much higher impact of the headcutting. Withholding this project and other projects on the Homochitto National Forest might result in very slight reductions in sediment load in the Homochitto River, but the amount is not significant in light of the effects of headcutting and bank erosion. Therefore, the affected creeks entry into the Homochitto River is the appropriate limit of the project impact zone.

- Step 3: Establish the time frame for the analysis. -- Research and monitoring have indicated that 3 years is the reasonable time frame when siltation from vegetative management activities can occur. Most of the impact occurs within the first year, and sites return to base flow levels by the end of the third year. Therefore, to be considered in this cumulative effects analysis, events must have occurred within three years of the projects or must follow the projects within three years. Due to the duration of the Utility Corridor Maintenance Project, disturbances occurring in the first year would have already returned to "normal" by the last year of the project.
- Step 4. Identify other actions affecting the resources, ecosystems, and human communities of concern. -- The District used it's Geographic Information System database and stand records of Forest Service lands to identify other actions. Activity is ongoing in the analysis units included in this analysis. Activities not completed at this time are considered future activities.

H4

Aerial photographs and direct observation were used to determine past activities on private lands. There was no means to determine ongoing, incomplete activities. These were accounted for under estimated future actions on private lands.

Future activities on public lands within the 3-year time frame of overlapping impacts, are either currently planned or are in the planning process and can be readily estimated. There are no other analysis units scheduled for future entry within the selected watersheds within this impact period.

Future activities on private lands are estimated based upon current use or condition of the existing timber. Much of the private land in the upper portions of the watershed is managed for commercial forestry. These lands have been heavily cut and will not support harvests within the planning period. Mature forests are estimated on an area-by-area basis. Lands in non-forest are estimated to continue at their current use.

Regeneration as a result of southern pine beetle suppression is taken into account so that the total regeneration acres in a management block do not exceed the target during the project period.

Determining Model Parameters:

There were three model parameters which merit discussion. The model divided lands into those over 20% slope and those under 20% slope. Thinning activities were defined as light, medium, and heavy. Analysis of future activities outside the project area but within the impact zone was not clearly defined.

Slope:

Slope was analyzed by three means. USGS Digital Elevation Models were run using the ArcInfo Geographic Information System program. Resolution limitations and the relatively short stretches of steep slopes on the district resulted in no slopes over 20% being identified within the watershed. Topographical layers in the District's geographic information system database have every fifth line (100') labeled. The 20' contours are not attributed, limiting computer analysis. Using a hand scale was also evaluated. However, as with the digital elevation model information, side slopes tend to be steep but of relatively short length. Very few areas scaled to greater than 20% slope within a typical test area. Experience from observations and measurements on the district showed these methods to clearly underestimate slope effect.

Soil type descriptions on the district indicate where slopes of over 20% are present. More than 50% of the Federal land base fell within this category. However, this does not imply that all slopes within those type-mapped areas are 20% or greater. In fact a number of broad ridges with roads that have no slopes greater than 10 percent are included in these type-mapped areas. Using soil types grossly over estimates the percentage of slopes over 20%. Federal ownership tends to encompass more of the steep land than is found on private lands. Private lands generally occupy the wide ridges and wide flood plains. Therefore, two assumptions were made relative to slopes. On National Forest lands, 30% of the land base

was estimated to have slopes over 20%. It was the Interdisciplinary Team's estimate that this represented an upper limit estimate and probably over-estimated potential erosion. This was considered preferable to under-estimating this factor. Substantial private land was in agriculture, pasture, or was forested, but lay within the drainage system floodplain and had little or no slope. Ten percent appeared to be an appropriate figure for private lands with slopes over 20%.

Thinning Intensity:

Many of the thinnings within these watersheds were first thinnings. These thinnings remove substantial basal area but have very low impact on soils or siltation. Monitoring actions sited within the body of the Environmental Analysis indicates that less than 1% dispersed disturbance occurs as a result of first thinning. The equipment used in these thinning operations is lighter than that used for regeneration and intermediate thinning harvests. Therefore, all first thinnings were considered "light thinnings" based upon the actual on-the-ground impacts.

Intermediate thinnings are very light with respect to stem and basal area removal. Typically, because of the fertility of soils on the Homochitto, only 3 to 6 sawtimber trees and a dozen pulpwood trees are removed per acre. Dispersed disturbance remains below 1%. However, the equipment used is larger and skidding large logs results in some additional ground impact when compared to first thinnings. Therefore, intermediate thinnings were considered "medium impact thinnings", even though they might be considered light based upon the numbers of trees removed.

Selection of Future Activities:

The model is unclear as to input of activities planned beyond the same year as activities in the project area. However, thinnings anticipated within three years of the sale were added as future activities concurrent with the Analysis Units. This over estimated the intensity of overlapping impacts, but was considered preferable to under estimating these impacts. Estimating future activities on private lands which might occur in the next three years was more tenuous. Blocks of forest were individually evaluated. Much of the private forest land within the watershed has been harvested in the past 20 years. Stumpage prices dropped sharply in 1998 and there appears to be little incentive to harvest at this time. Estimates were based on the appearance of the tract and whether or not it appeared to need thinning, or whether it was 40 years or older. There is no history of immediate harvest as soon as sawtimber size is reached on private lands. Therefore, harvest estimates were prorated based on the best estimates of a forester using photographic analysis. As a general comment on potential changes in age class distributions, the number of acres available to grow from early seral to pulpwood size classes and from pulpwood into sawtimber outweighed harvest potential. Private forests in the area are likely to grow older on the average, over the next 10 years.

Discussion of Results: The analysis spreadsheets, resulting input, and computing analysis data can be found in the Environmental Assessments for the respective analysis units. The model is based on the best available "delivery ratio" information and determines the severity of impact

H6

based on the percentage increase in disturbance over "pre-European" levels. The model indicates that, based on current land usage, disturbance levels are 2% above present base-line levels in AU-7 and 588% above pre-European levels in AU-20. When present, planned, and anticipated activities were added, disturbance levels were calculated at, respectively, approximately 84% and 602% for all alternatives. The threshold at which adverse impacts are considered to occur is 1650% of "pre-European" levels. No alternative evaluated exceeded the threshold in either analysis unit. The model indicates that no adverse cumulative impacts will occur as a result of the projects or cumulatively with other activities occurring within the affected watersheds.

Conclusion: The estimated disturbance in Analysis Units 7 and 20 were demonstrated to be more than 1000% under the threshold that would be expected to adversely impact, or have a cumulative effect on, water quality and aquatic habitats. The total affected forest area for the Utility Corridor Maintenance Project is roughly 1,200 acres or a little more than ½ percent of the Forest. Average analysis unit size is roughly 4,300 acres of government ownership, and the two units considered in this analysis both contain over 5,000 acres of federal ownership. As stated above, disturbance in the analysis units equates to roughly 1 percent of analysis unit area. The dispersed activities and disturbance associated with utility maintenance can be equated to (but are probably far lower than) activities and disturbances within a single analysis unit. Therefore, the estimated disturbance is well under the threshold that would be expected to adversely impact, or have a cumulative effect on, water quality and aquatic habitats.

This conclusion is born out by two recent studies that evaluated the quality of the aquatic habitat on the Homochitto National Forest. In 1996 Johnson and McWhirter surveyed the streams of the Homochitto watershed. At that time all eight out of the management indicator species for southwestern Mississippi streams were found to be present. The study analyzed species richness and species diversity under Margalef's Index and the Shannon Weiner Index, respectively. The Index of Biotic Integrity (IBI) was also calculated. Aquatic habitat of Brushy Creek was rated as "good to excellent" as a result of this study. Data collected in three previous studies, Ebert and Hartfield (1981), Ebert, et al. (1985), and Seehorn (1975), and historical records available from the University of Southern Mississippi fish database (Ross) also record appropriate indicator species.

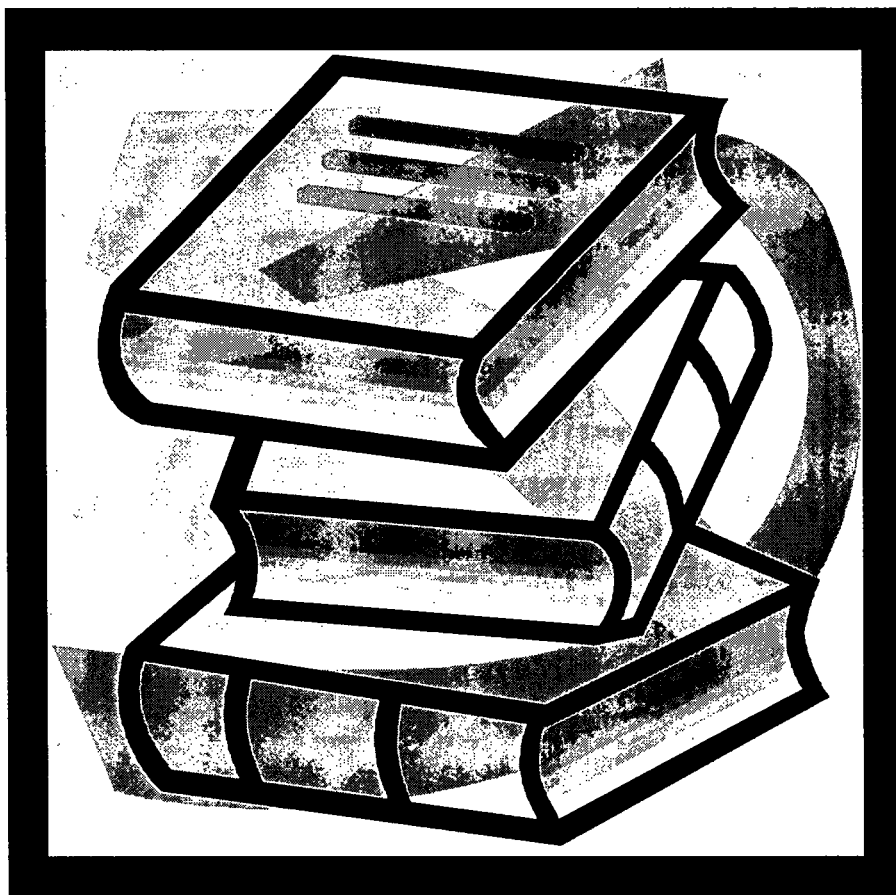
These studies occurred during and immediately after a period of elevated activity within the watershed. Due particularly to harvest activities on private commercial lands, tornados and other natural events, and somewhat more intensive activities on Forest Service lands from 1970 through the mid 1990s, these studies measured stream quality during a period of greater disturbance than is now present. The current level of activity is expected to be much lower than that over the last 2 1/2 decades. Therefore, baseline data that includes periods of more extensive activity shows that streams on the Homochitto have maintained high quality aquatic habitat throughout.

During surveys conducted by Mel Warren, Research Biologist with the Forest Service Southern Research Station (2000), many species of fish and crayfish were collected throughout the Homochitto National Forest stream systems. Of these species, all but one Fish Management Indicator Species was positively identified among samples taken: the southern brook lamprey. Lamprey were found in the streams, but could not be positively identified as to species. The continued presence of all but one aquatic MIS (possibly all MIS) would indicate that management on the Homochitto National Forest has not been detrimental to the health of aquatic organisms.

With respect to activities on Forest Service lands, implementation of standard Best Management Practices required by the Forest Plan and its amendments represents the mitigation applied. The conclusion that can be drawn from these baseline studies is that the validity of the model is verified, and that the implementation of standard mitigation, in the form of Best Management Practices and other Forest Plan mitigations are effective in reducing siltation and maintaining the quality of the aquatic habit. Neither direct nor cumulative impacts are likely to adversely affect the watershed within the project area.

Appendix I

References



Homochitto National Forest
National Forests in Mississippi

Appendix I References

The following is a list of references used in the preparation of this environmental assessment.

LAWS, REGULATIONS AND DIRECTION

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- a2 Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act, 40 CFR Parts 1500-1508, July 1, 1986.
- a3 The National Forest Management Act of 1976 as Amended.
- a4 FSH 1909-15, Environmental Policy and Procedures, 9/21/92, with Amendment No. 1909-15-93-1 dated 9/3/93.
- a5 Rescission Act (Public Law 104-19), 1995.
- a6 Endangered Species Act of 1973.
- a7 Clean Air Act.
- a8 Forest and Rangeland Renewable Resources Planning Act.
- a9 Executive Orders 11988, Floodplains.
- a10 Executive Orders 11990, Wetlands.
- a11 Council on Environmental Quality. Considering Cumulative Effects Under the National Environmental Policy Act, 1997.

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- b1 Land and Resource Management Plan, National Forest in Mississippi, and Final Environmental Impact statement, National Forests in Mississippi w/ amendments, USDA-Forest Service, National Forests in Mississippi, Jackson, MS Sep. 1985
- b2 Final Environmental Impact Statement and Record of Decision, Vegetation Management in the Coastal Plain/Piedmont., USDA-Forest Service, Southern Region, Atlanta, GA, February, 1989.

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b4 Implementation Guide, RCW Management During the Interim Period, Ronald E. F. Escano, T&E Species Program Manager, Fisheries, Wildlife and Range, USDA Forest Service, Southern Region, Sep. 4, 1990.

b5 Final Environmental Impact Statement for the Management of the Red-cockaded Woodpecker and Its Habitat on National Forests In the Southern Region, Southern Region Management Bulletin R8-MB 73, June, 1995.

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c2 Erosion Control and Wildlife Planting Guides for the National Forests in Mississippi.

c3 Management Guidelines to Streamside Areas, National Forests in Mississippi.

c4 USDA-Forest Service, National Forests in Mississippi Erosion Control and Wildlife Planting Guide.

c5 Kenneth J. Lull, James A. Tindall, and Donald Potts, Assessing Nonpoint-Source Pollution Risk (1995).

c6 Mississippi's Best Management Practices, Third Edition, Mississippi Forestry Commission Publication # 107, March 2000.

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VEGETATION

f1 Seeding and Fertilizer Guidelines, FSH 7709.11, Chapters 24 and 70.

f2 The Integrated Pest Management Decision Key for National Forest in Region 8 (Second Draft), USDA Forest Service (Circa 1990).

f3 Disturbance Processes and Ecosystem Management, Averill, Robert D., et al, USDA Forest Service, 1995.

f4 Forest Conditions of Mississippi. N. E. Lowe. Mississippi State Geological Survey Bulletin No. 11. November 1913, with Attachment: A Study of Forest Conditions of Southwestern Mississippi by the United States Forest Service, In Cooperation with the State Geological Survey. Holmes and Foster. 1909.

THREATENED ENDANGERED AND SENSITIVE SPECIES

g1 Endangered, Threatened and Unique Mammals of the Southern National Forests, USDA-Forest Service, Southern Region, 1975.

g2 Amendment 13, Chapter 400, Red-Cockaded Woodpecker, Wildlife Management Handbook, FSH 2609.23, USDA Forest Service, Southern Region, Mar., 1985.

g3 Natural Heritage program Operations Manual. The Nature Conservancy, Arlington VA. 1982.

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h2 White-tailed Deer Short Course Proceedings, Stewart, D. (Editor), Cooperative Extension Service, Mississippi Agriculture and Forestry Experiment Station, Division of Agriculture, Forestry and Veterinary Medicine, July 1994.

h3 P.B. Landres, J. Verner, and J.W. Thomas, Ecological Uses of Vertebrate Indicator Species: A Critique, Conservation Biology, Volume 2(4):316-328 (1988).

h4 R.S. Noss, From Plant Communities to Landscapes in Conservation Inventories: A Look at the Nature Conservancy (USA), Biological Conservation, 41:11-37, (1987).

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Appendix J

Public Comments and Responses from the Pre-Decisional Environmental Assessment



Appendix J

Public Comments and Responses from the Pre-Decisional Environmental Assessment

The Pre-Decisional Environmental Assessment was sent to those individuals that responded to scoping for the project. The transmittal letter that accompanied the Pre-Decisional Environmental Assessment is included in this appendix.

No comments were received in the 30-day pre-decisional comment period for the Utility Corridor Maintenance Project.

Two individuals presented supportive comments in initial scoping. A third individual, Mr. Charles Chapman, voiced inquiries during the scoping period that were informational in nature. Mr. Chapman contacted the District during the comment period with additional questions concerning the project. The District responded to his inquiries and explained to Mr. Chapman the new regulations concerning comments that would require him to submit comments during the 30-day comment period in order to establish appeal rights. At this point, Mr. Chapman officially withdrew any interest in the project that might have been implied by his questions. Notes documenting this conversation are included in this appendix.

Prior to Decision on this project, the National Wild Turkey Federation and Entergy petitioned the Forest Service to include Escort (metsulfuron methyl) herbicide in the environmental analysis. The herbicide was included and analyzed in the "Proposed Action" of the final environmental assessment. No substantial direct, indirect, or cumulative effects were revealed by the analysis as a result of the inclusion of this herbicide in the project.

This project, therefore, is not subject to appeal, pursuant to 36 CFR 215.12, because no substantive comments expressing concerns or only supportive comments were received during the comment period for this project.

September 3, 2003

Utility Corridor Maintenance EA

Charles Chapman called related to this project. He indicated he had reviewed the EA and felt satisfied he had no interest in the project. He wanted to officially withdraw any interest that might have been implied by his initial questions.

In our conversation, he did ask about food plot locations because they weren't obvious on the map. I got my copy and we reviewed the maps. I pointed out the symbol we had used for the plots and noted we had limited plots to the pipelines and Entergy transmission lines because that was where we thought we could develop our initial partnerships. I noted we had visited the prospective sites and he was satisfied that we had site-specific locations.

He also asked about spraying the large trees along the roadside because of his interest in visuals. He preferred to see them cut. I told him that we would let the companies do this based upon a pesticide use proposal, which had to be submitted by project and approved at the SO. However, we would likely only approve krenite which was a bud inhibitor typically applied in the fall and kept the limbs from leafing out the next year. It was not particularly noticeable. Also, I noted that utility company had to submit a pesticide use proposal for approval. Like site prep, where we likely to require cut limbs near roads, but would certainly consider herbicides through the forest.

Based upon this discussion, Mr. Chapman does not intend to comment for record on the project. He was the only one to respond to scoping, and his scoping questions were not "cause and effect". Under the new regulations, comments would have to be submitted during the 30-day comment period to establish appeal rights. Unless we receive comments from the legal notice or SOPA, it does not appear that this project will be appeal able under 36CFR 215.

/s/ Charles S. Price



United States
Department of
Agriculture

Forest
Service

Homochitto
Ranger
District

1200 Hwy 184 East
Meadville, MS 39653
601-384-5876

File Code: 1950
Date: August 21, 2003

«Mr_or_Mrs» «FirstName» «LastName»
«Company»
«Address»
«City» «State». «Zip»

Dear «Mr_or_Mrs» «LastName»

Thank you for participating in our scoping for the Utility Corridor Maintenance project. This project emphasizes wildlife habitat improvement through partnerships with the National Wild Turkey Federation and Entergy Corporation. It also offers opportunity for future habitat enhancement on all utility corridors on the District. Enclosed is a copy of our Environmental Assessment for this project, which analyzes the effects of proposed wildlife habitat management activities. In response to concerns related to document size, paper use, and over-all handling costs, we are providing electronic copies of our documents on Compact Disk in Adobe PDF format. To help assist navigation through our assessment, we have hyper-linked primary headings in the table of contents.

Although there was some interest expressed in the project, no issues were raised related to cause and effects relationships. Questions of interest are documented in Appendix G.

The Environmental Assessment for this project includes analysis of two alternatives (sets of actions) designed to meet the objectives, including a "No Action" alternative where there would be no change from current utility corridor maintenance activities. The District Ranger has identified the "Proposed Action" as the preferred alternative. This alternative proposes to permit herbicide use for vegetative maintenance on all power, oil, and gas utility corridors on the Homochitto National Forest, and to also permit wildlife habitat improvements (food plots) to be established in these areas.

This project would provide long-term wildlife habitat benefits through the following actions:

- Control of vegetation which interferes with wildlife use of utility corridors on the Homochitto Ranger District.
- Wildlife habitat enhancements in utility corridors on the Homochitto Ranger District.

We welcome your review of this proposal and encourage you to share any additional comments or information about this area during this final 30-day comment period. Comments received will be addressed in an appendix to the document, and will be considered in making the final decision. Pursuant to 36 CFR 215.5, comments must be postmarked or received within 30 days beginning the day following publication of the legal notice for this final comment period in the *Clarion Ledger* (paper of record).



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In accordance with 36 CFR 215.6(a)(3), individuals or organizations wishing to be eligible to appeal must provide the following information:

- 1) Your name and address.
- 2) Title of the Proposed Action.
- 3) Specific substantive comments (215.2) on the proposed action, along with supporting reasons that the Responsible Official should consider in reaching a decision.
- 4) Your signature or other means of identification verification. For organizations, a signature or other means of identification verification must be provided for the individual authorized to represent your organization.

Please address your comments in one of the following ways: written comments should be sent to: District Ranger, Homochitto Ranger District, 1200 Hwy 184 East, Meadville, MS 39653. Phone comments or requests for additional information should be directed to April Hargis, project leader, or to the Planning Team Leader, Charles Price, at 601-384-5876. Oral or hand-delivered comments must be received within our normal business hours of 8:00 a.m. to 4:30 p.m.

Sincerely,



GARY W. BENNETT

District Ranger
Enclosures

