



File Code: 5430

Date: May 1, 2007

Dear Interested Members of the Public and Forest Users:

Enclosed is a copy of the Environmental Assessment (EA) for the proposed Land Exchange between Grace Tabernacle Baptist Church (GTBC) and the United States of America. The purpose of the proposed exchange is for the Forest Service to acquire an inholding that is completely surrounded by Forest Service land making management of National Forest lands more efficient. GTBC would acquire land that they currently border on three sides for a desired expansion of their facilities. Two alternatives were fully evaluated and analyzed in detail in the EA and Alternative B has been identified as the preferred alternative. Although a preferred alternative has been identified the final decision on which alternative to implement has not been made. I am seeking your input on this EA before I reach a decision.

The Federal tract proposed for exchange, N-1151, is approximately 5 acres and lies on either side of US Highway 129 and is located in the Highlands Gap Area of Graham County. The Non-Federal tract, N-1150, is a parcel of land near Barker Branch in the vicinity of the Snowbird Area of Graham County containing approximately 9 acres. Both the Federal and Non-Federal tracts are located on the Cheoah Ranger District of the Nantahala National Forest.

The Forest Service proposes to reserve a road right-of-way being a portion of the Cateye Road (FDR #2629) described as an existing gravel road that traverses east and west across the federal tract for the purposes of ingress, egress and regress to other Forest Service lands located adjacent to Santeetlah Lake. Tract N-1151 is subject to outstanding rights for Highway 129 and public utilities. The Non-Federal tract also includes rights of access by means of a Forest Service Private Road easement issued to GTBC.

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 comments (215.2) on the proposed action, along with supporting reasons that the Responsible Official should consider in reaching a decision; and 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.

In accordance with 36 CFR 215.6(2)(4), comments must be postmarked or received within 30 days beginning the day after publication of a legal ad in the *Asheville Citizen Times*. Written comments should be sent to, National Forests in North Carolina; Attn: Karen Compton; 160 Zillicoa Street Ste. A; Asheville, NC 28801-1082, or faxed to (828) 259-0567. Oral or hand-delivered comments must be received within our normal business hours of 8:00 a.m. to 4:30 p.m. Monday through Friday at our offices at 160 Zillicoa Street, Asheville, North Carolina or at 1133 Massey Branch Road, Robbinsville, North Carolina. Comments may be mailed electronically in a common digital format to: [comments-southern-north-carolina@fs.fed.us](mailto:comments-southern-north-carolina@fs.fed.us). Additional information and copies of the Environmental Assessment may be obtained by contacting Frank Findley at (828) 479-6431 or Karen Compton at (828) 257-4230.

Sincerely,

/s/ Marisue Hilliard  
MARISUE HILLIARD  
Forest Supervisor

Enclosure





United States  
Department of  
Agriculture

Southern Region  
Forest Service

May 2007



# Environmental Assessment

## **Grace Tabernacle Baptist Church Land Exchange**

**Cheoah Ranger District, Nantahala National Forest  
Graham County, North Carolina**

**Grace Tabernacle Baptist Church**  
**Land Exchange**  
Environmental Assessment

Location of Action: Cheoah Ranger District  
Nantahala National Forest  
Graham County, North Carolina

Lead Agency: USDA Forest Service

Responsible Official: Marisue Hilliard  
Forest Supervisor  
National Forests in North Carolina  
160 Zillicoa Street, Ste. A  
Asheville, NC 28801  
(828) 257-4268

For More Information: Karen Compton  
Environmental Coordinator  
(828) 257-4230 or  
Dan Belanger  
Lands Specialist  
(828) 257-4242

Send electronic comments to: [comments-southern-north-carolina@fs.fed.us](mailto:comments-southern-north-carolina@fs.fed.us)  
Fax comments to: (828) 259-0567

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's Target Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14<sup>th</sup> and Independence Avenue SW, Washington DC 20250-9510 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

# TABLE OF CONTENTS

<b>INTRODUCTION.....</b>	<b>1</b>
<b>1 PURPOSE AND NEED FOR ACTION.....</b>	<b>1</b>
1.1 PROPOSED ACTION .....	1
1.2 PURPOSE AND NEED FOR ACTION .....	2
1.3 PROJECT OBJECTIVES.....	2
1.4 DECISION FRAMEWORK .....	3
1.5 PUBLIC INVOLVEMENT.....	3
1.6 KEY ISSUES CONSIDERED AND DISCUSSED THROUGHOUT THIS ANALYSIS .....	4
1.6.1 <i>Issue 1: Impacts to Scenery Resources</i> .....	4
1.7 NON-KEY ISSUES CONSIDERED.....	4
1.7.1 <i>Non-Key Issue A: Protection of Threatened, Endangered, Sensitive, and Forest Concern Botanical Resources</i> .....	4
1.7.2 <i>Non-Key Issue B: Protection of Threatened, Endangered and Sensitive Wildlife Species</i> .....	6
1.7.3 <i>Non Key Issue C: Protection of Threatened, Endangered, Sensitive, and Forest Concern Aquatic Species</i> .....	7
1.7.4 <i>Non Key Issue D: Management Indicator Species</i> .....	8
1.7.5 <i>Non Key Issue E: Protection of Heritage Resources</i> .....	8
1.7.6 <i>Non-Key Issue F: Continued Forest Service Road Access</i> .....	8
1.7.7 <i>Non-Key Issue G: Health and Safety</i> .....	9
1.7.8 <i>Non-Key Issue H: Special Geographic Areas</i> .....	9
1.8 PROJECT RECORD .....	9
<b>2 ALTERNATIVES.....</b>	<b>10</b>
2.1 INTRODUCTION .....	10
2.2 ALTERNATIVES CONSIDERED.....	10
2.2.1 <i>Alternative A: No Action</i> .....	10
2.2.2 <i>Alternative B: Proposed Action</i> .....	10
2.3 ALTERNATIVES CONSIDERED BUT NOT IN DETAIL .....	10
2.4 SUMMARY COMPARISON OF ACTIONS.....	11
2.5 SUMMARY COMPARISON OF ENVIRONMENTAL EFFECTS.....	11
<b>3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS.....</b>	<b>12</b>
3.1 INTRODUCTION .....	12
3.2 IMPACTS TO SCENERY RESOURCES .....	12
3.2.1 <i>Existing Conditions (Scenery Resources)</i> .....	12
3.2.2 <i>Environmental Effects of Alternative A on Scenery Resources</i> .....	14
3.2.3 <i>Environmental Effects of Alternative B on Scenery Resources</i> .....	14
<b>4 PREPARERS AND PUBLIC INVOLVEMENT .....</b>	<b>16</b>

## **APPENDICES**

- A. MAP OF THE PROPOSED EXCHANGE TRACTS
- B. BIOLOGICAL EVALUATION
- C. MANAGEMENT INDICATOR SPECIES REPORT
- D. REFERENCES

# INTRODUCTION

This environmental assessment (EA) documents the results of site-specific analysis concerning the proposal to exchange tracts of land between the United States of America and the Grace Tabernacle Baptist Church. The EA discusses why the project is needed, the issues of concern, the existing condition of the project area, and the expected consequences of the alternatives, including a “no action” alternative.

This land exchange is being pursued under the authority of the Weeks Act of March 1, 1911 as amended (16 U.S.C. 512), the Federal Land Policy and Management Act of October 21, 1976 (43 U.S.C. 1716) and the Federal Land Exchange Facilitation Act of 1988.

## 1 PURPOSE AND NEED FOR ACTION

### 1.1 Proposed Action

The Forest Service proposes to exchange approximately 5 acres more or less (m/l) of National Forest Land, Federal Tract N-1151, for approximately 9 acres m/l of land with Grace Tabernacle Baptist Church (GTBC), Non-Federal Tract N-1150. Both the Federal and Non-Federal tracts are located on the Cheoah Ranger District of the Nantahala National Forest. A map is included as Appendix A to show the location of the Federal and Non-Federal Tracts.

The Forest Service proposes to reserve a road right-of-way being a portion of the Cateye Road (FSR #2629) described as an existing gravel road that traverses east and west across the federal tract for the purposes of ingress, egress and regress to other Forest Service lands located adjacent to Santeetlah Lake. Tract N-1151 is subject to outstanding rights for Highway 129 and public utilities. The Non-Federal tract also includes rights of access by means of a Forest Service Private Road easement issued to GTBC.

The Federal Tract is located within Management Area (MA) 2A and the Non-Federal Tract is completely surrounded by Forest Service land that is located within MA 2A. Management area direction describes MA 2A as providing visually pleasing scenery for forest visitors with roads that are generally open with the adjacent forest land managed to provide that pleasing visual experience. Timber production is permitted in MA 2A but modified to meet visual quality objectives.

All actions contribute to achieving the goals, objectives, and desired future conditions identified in the Land and Resource Management Plan for the Nantahala and Pisgah National Forests

issued in April 1987 and as amended (here after referred to as the Forest Plan). This EA is tiered to the Forest Plan and its Final Environmental Impact Statement (FEIS) and the Roads Analysis Process Report for the Nantahala and Pisgah National Forests (NP RAP) issued in January 2003.

## 1.2 Purpose and Need for Action

The purpose for the proposed exchange is for the Forest Service to acquire an inholding that is completely surrounded by Forest Service land making management of National Forest lands more efficient. GTBC would acquire land that they currently border on three sides for a desired expansion of their facilities. This proposal will implement direction in the Forest Plan to acquire or exchange lands within the proclamation boundaries to improve efficiency of management.

## 1.3 Project Objectives

The Forest Plan directs the Pisgah and Nantahala National Forest to “acquire or exchange lands within the proclamation boundaries to provide or improve: ...recreation management opportunities; wildlife and fish management opportunities; [and for] efficiency of management...”.

The National Forests in North Carolina (NFsNC) has identified which tracts of privately owned and federally owned land would meet the established goals of acquiring and disposing of land respectively. These tracts have been identified in the draft Land Ownership Adjustment Plan for the NFsNC. The acquisition of the Non-Federal land and the disposal of the Federal land as proposed, are in compliance with the draft Land Ownership Adjustment Plan. Non-Federal Tract N-1150 is listed as a priority tract for acquisition and the Federal Tract has been identified as available for disposal.

The Federal tract proposed for exchange, N-1151, is approximately 5 acres and lies on either side of US Highway 129 and is located in the Highlands Gap Area of Graham County. This Federal tract is a part of the southeastern most portion of the larger 35 acre Federal tract N-1047p that was acquired in 1936 from Carolina Aluminum Company, et al and is more fully described in a deed recorded in Deed Book 43, Page 48 and filed in the Graham County Register of Deeds Office, Robbinsville, North Carolina.

The Non-Federal tract, N-1150, is an entire parcel of land near Barker Branch in the vicinity of the Snowbird Area of Graham County containing approximately 9 acres. The Non-Federal Tract is more fully described in a General Warranty Deed from Carl O. Brown Jr. and wife Gayle Bondy Brown to Grace Tabernacle Baptist Church on June 14, 2002 and recorded in the Graham County Register of Deeds Office in Deed Book 218, Page 379. The Non-Federal tract also includes rights of access to GTBC by means of a Forest Service Private Road Easement (Authorization ID CHE565701) that traverses Federal Tract N-1047.

As the Non-Federal tract is a private inholding completely surrounded by Forest Service lands, there are associated costs and risks in the management around this tract. Acquisition of this tract

would eliminate about 2,100 feet of landline and three property corners that must currently be maintained. In addition, acquisition by the federal government would remove the encumbrance created by the private road easement (CHE565701) currently issued to GTBC for access to the Non-Federal tract. Without federal acquisition, further encumbrances are possible on the Non-Federal tract if the current or future private landowners requested rights-of-way for public utilities to serve any future development on the property. Disposition of the Federal tract would result in elimination of approximately 600 feet of landline. Elimination of landlines and property corners that need to be maintained and of current or future encumbrances on federal land would meet the goal of improving efficiency of management of National Forest system lands as outlined in the Forest Plan.

The Non-Federal tract offers potential public benefits from scenery protection, dispersed recreation, wildlife habitat, and timber management.

## **1.4 Decision Framework**

The Forest Supervisor will use the information in this analysis to decide whether or not the Forest Service will proceed with the proposed land exchange, and if so, under what terms and conditions. Other government agencies, groups, individuals, and Forest Service personnel interested and concerned about the potential outcome of this project will also use this publication as a basis for critiquing the various courses of action. If an action alternative is chosen, Forest Service personnel will use this document to guide in implementation and monitoring.

## **1.5 Public Involvement**

A letter of information and notification was sent to the United States Senators and Representatives whose constituents are located in the area of the proposed land exchange on August 25, 2006. A legal notice of the proposed land exchange appeared in the *The Graham Star* on September 14, 21, 28 and October 5, 2006.

A letter describing the proposed action and requesting comments on the proposed land exchange was mailed to 128 individuals, groups, and organizations on January 12, 2007. The letter sent by Forest Supervisor Marisue Hilliard requested comments by February 12, 2007. We received responses to the proposal from seven individuals, groups, and organizations.

This project has appeared in the Schedule of Proposed Actions for the National Forests in North Carolina, which is published quarterly beginning in January of 2007.

## 1.6 Key Issues Considered and Discussed Throughout this Analysis

The key issues associated with this proposed project were identified through a public participation process, which included input from Forest Service natural resource specialists, other government agencies, private groups and individuals. A Forest Service Interdisciplinary Team (IDT) identified that the following issues are relevant to the decisions to be made concerning the Grace Tabernacle Baptist Church Land Exchange. Issue 1 directly influenced the initiation, development, and technical design of the project.

### 1.6.1 Issue 1: Impacts to Scenery Resources

- The proposed land exchange may impact scenery resources in the project area.

**Indicators:**            **Visual Quality Impacts**  
                                 **Probable Development of Tracts (Yes/No)**

## 1.7 Non-Key Issues Considered

The Grace Tabernacle Church Exchange IDT evaluated and addressed the following issues (resources) and eliminated them from further study in this Environmental Assessment as directed by CEQ Regulation 1500.1(b), 1500.2(b) and other sections because the project would cause only inconsequential effects to each issue or resource.

### 1.7.1 Non-Key Issue A: Protection of Threatened, Endangered, Sensitive, and Forest Concern Botanical Resources

The proposed action may negatively affect threatened and endangered, sensitive, and Forest Concern plant populations.

Because plants are rooted species that must be present in the activity areas to undergo effects, the analysis area for endangered, threatened, sensitive, and forest concern species was confined to the expected impact zone surrounding the activity areas of the project. Because each plant species has a unique life history, the temporal response to management activities must be evaluated on a species-by-species basis.

#### Species Evaluated and Rationale

All endangered and threatened plant species listed by the U. S. Fish and Wildlife Service for the Nantahala National Forest were considered for this analysis (Botanical Report, Attachment B1). No federal candidate plant species occur on the Nantahala National Forest, and therefore were not considered further. All sensitive species listed by the Regional Forester (USFS, 2001) were also considered for this analysis. All forest concern species listed by the National Forests in North Carolina for the Nantahala and Pisgah National Forests were considered for this analysis (USFS, 2002; Botanical Report, Attachment 2). Only forest concern species located inside the

activity areas during the field surveys, or with previous collection data inside the activity areas, were analyzed in detail.

The Biotics Database was queried for endangered, threatened, sensitive, and forest concern plant species growing in the activity areas. It contained no records for any endangered, threatened, sensitive, or forest concern plant species in the activity areas.

### Surveys or Inventories Conducted

The federal tract lands were previously surveyed for endangered, threatened, sensitive and forest concern plant species by Wilson Rankin, Botanist for the Nantahala National Forest, in 2004. No endangered, threatened, sensitive or forest concern plant species were located during the survey (Table 1-1).

**Table 1-1:** Summary of endangered, threatened, sensitive and forest concern plant species undergoing effects analysis for the Grace Tabernacle Land Exchange Project (see Botanical Report, Attachments B1 and 2 for a complete list of species evaluated).

Status	Species	Habitat	Reason for Effects Analysis
Endangered	None	Not applicable	Not applicable
Threatened	None	Not applicable	Not applicable
Sensitive	None	Not applicable	Not applicable
Forest Concern	None	Not applicable	Not applicable

### Effects of Alternatives on Botanical Species

Because no endangered, threatened, sensitive or forest concern plant species were located in the activity areas, there will be no direct, indirect or cumulative effects to any endangered, threatened, sensitive or forest concern plant species. Consultation with the U. S. Fish and Wildlife Service is not necessary for botanical resources.

### Botanical Communities and Special Habitat Components

Only botanical resources within, or adjacent to, the activity areas were analyzed in detail. The exchange lands contained xeric oak and oak-pine communities. As a result, no tracked biological communities or special habitat components were located in the activity areas, and therefore no botanical resources will be analyzed for effects.

### Invasive Plant Species

In the activity areas, the most invasive species were *Microstegium vimineum*, *Lonicera japonica* and *Rosa multiflora*. These species also grew on roadsides adjacent to the proposed activity areas, a total of less than one acre in the botanical analysis area.

### **Direct and Indirect Effects**

Ground disturbance and the increased light conditions resulting from road construction may increase the amount of acreage suitable for invasive exotic species (Trombulak and Frissell 2000). Historically, each mile of USFS road reconstruction can be correlated with 0.1 acres of invasive plants. Since the Grace Tabernacle Land Exchange project proposes no road construction or reconstruction, the project should produce either no direct or indirect effects for non-native, invasive plant species.

### **Effects of Past, Ongoing and Future Projects**

Because non-native invasive species cannot be directly associated with former projects, past effects must be estimated using the current condition. The analysis area contains less than one acre of non-native, invasive plant species. The activity areas contain no ongoing or foreseeable USFS or private projects that would potentially create habitat for invasive plant species.

### **Cumulative Effects**

In the absence of measurable direct and indirect effects, there should be no cumulative effects to non-native, invasive plant species as a result of the land exchange.

## **1.7.2 Non-Key Issue B: Protection of Threatened, Endangered and Sensitive Wildlife Species**

The proposed action may negatively affect threatened and endangered or sensitive wildlife populations.

Doreen Miller, Forest Service Wildlife Biologist, reviewed the proposed actions and conducted a wildlife analysis on the project area. Proposed, endangered, threatened, and sensitive (PETS) species considered in this analysis are those included on the Regional Forester's PETS species list (January, 2002). All 30 PETS terrestrial animal species that might occur on the Nantahala National Forest were considered (see Wildlife Analysis, attachment). Potentially affected species were identified from information on habitat relationships, element occurrence records of PETS animals as maintained by the North Carolina Natural Heritage Program and field data on the project area.

There are no known proposed or listed Federally Threatened or Endangered wildlife species or habitat within the project area. The project will have no effect on the Indiana bat (*Myotis sodalis*) because the stands proposed for exchange are not suitable habitat for the Indiana bat. This project will have no effect on any proposed or federally listed wildlife species.

There are no sensitive wildlife species that are known to occur in the project area. There are four species listed on the Regional Forester's sensitive species that may occur in the project area. The four sensitive species are: the northern bush katydid (*Scudderia septentrionalis*), Diana fritillary butterfly (*Speyeria Diana*), Tellico salamander (*Plethodon aureolus*), and southern Appalachian salamander (*Plethodon teyahalee*).

If the katydid, butterfly, and two salamanders occur in the project area there may be direct mortality of these species. This may directly affect individuals of these species if they are present, but will not affect the availability of suitable habitat in the analysis area. The net result of this project is potentially a net increase in acres of suitable habitat for these species on federally owned land. This project may directly affect individuals, but will not affect the viability of these species across the Forest.

### **Effects of Alternatives on Wildlife Species**

This project will have no effect on any federally proposed or listed terrestrial animal species. The project may impact individuals of the northern bush katydid (*Scudderia septentrionalis*), Diana fritillary butterfly (*Speyeria diana*), Tellico salamander (*Plethodon aureolus*) and southern Appalachian salamander (*Plethodon teyahalee*), but will not affect the viability of these species across the Forest. The project will have no impact on any other sensitive species. No cumulative effects on species viability across the Forest will result. Consultation with the U.S. Fish and Wildlife Service is not required.

### **1.7.3 Non Key Issue C: Protection of Threatened, Endangered, Sensitive, and Forest Concern Aquatic Species**

#### **Proposed, Endangered, Threatened, and Sensitive Aquatic Species**

Fifteen aquatic proposed, endangered, threatened, and sensitive (PETS) species are either known to occur or may occur on the Nantahala National Forest (Aquatic Analysis, Attachment 1). The North Carolina Natural Heritage Database was queried for occurrences of PETS species in Graham County. One PETS species remained after this initial filter. This species was then filtered using its habitat information and the availability of these habitats within the aquatic analysis area (Aquatic Analysis, Attachment 2). Based upon the results of this filtering process no proposed, endangered, threatened, or sensitive aquatic species were evaluated for this analysis (Aquatic Analysis, Attachment 2). Species that do not have suitable habitat within the analysis area were eliminated from further analysis.

#### **Effects of Alternatives on PETS Aquatic Species**

There are no known proposed, threatened, or endangered species in the aquatic analysis area. This project would have no direct, indirect, or cumulative effect on any federally proposed, endangered, or threatened species because the proposed land to be exchanged is far enough from any water source to prevent visible sediment from affecting any water source. Consultation with the U.S. Fish and Wildlife Service is not required. This project would have no direct, indirect, or cumulative effect on any sensitive aquatic species because none occur within the analysis area.

#### **Forest Concern Aquatic Species**

Forty-one aquatic forest concern species are either known to occur or may occur on the Nantahala National Forest (Aquatic Analysis, Attachment 1). The North Carolina Natural Heritage Database was queried for occurrences of forest concern species in Graham County. Three aquatic forest concern species remained after this initial filter. These species were then filtered using their habitat information and the availability of these habitats within the aquatic analysis area (Aquatic Analysis, Attachment 2). Based upon the results of this filtering process

no aquatic forest concern species were evaluated for this analysis (Aquatic Analysis, Attachment 2). Species that do not have suitable habitat within the analysis area were eliminated from further analysis.

#### **Effects of Alternatives on Forest Concern Aquatic Species**

There would be no direct, indirect, or cumulative effect to any forest concern aquatic species by implementing this project because none occur within the aquatic analysis area.

#### **1.7.4 Non Key Issue D: Management Indicator Species**

The proposed Grace Tabernacle Baptist Church Land Exchange may affect Management Indicator Species (MIS).

Implementation of the proposed project is not expected to have any direct, indirect, or cumulative impacts on any MIS. See the MIS report in Appendix C for the detailed analysis of the impacts of the proposed actions to MIS.

#### **1.7.5 Non Key Issue E: Protection of Heritage Resources**

This project may adversely affect heritage or cultural resources in the project area.

An archeologist reviewed the maps of the proposed parcel to be exchanged to determine the need for archeological survey and Section 106 compliance. There are no known sites and no known National Register of Historic Places sites on the parcel or in its vicinity. The southwest portion of the federal tract was surveyed in 1991 for the proposed Bear Trap Timber Sale and no heritage resources were located. Previous archeological surveys adjacent to this parcel only recorded sites inundated by and along Santeelah Lake (closer to the original stream channels) and in the higher and flatter landforms. A cursory field reconnaissance by an archeologist confirmed the federal tract proposed for exchange is relatively steep and eroded. The tract was considered to have a low probability of heritage resources and did not require further survey or subsurface testing. The State Historic Preservation Office concurred with this rating and finding on January 10, 2007.

#### **1.7.6 Non-Key Issue F: Continued Forest Service Road Access**

Currently Federal Tract N-1151 provides road access to other federal lands adjoining Santeelah Lake. It is important for efficiency of management to maintain this access if tract N-1151 leaves federal ownership. Therefore, the proposed action includes reserving a right-of-way along the portion of the Cateye Road (FSR #2629) that crosses N-1151 for the purposes of ingress, egress, and regress.

### **1.7.7 Non-Key Issue G: Health and Safety**

The project must be evaluated for its effects on health and safety.

Environment Site Assessments were conducted on both the Federal Tract (N-1151) and the non-Federal Tract (N-1150). Copies of these reports are located in the project file. No recognized environmental conditions were identified on or adjacent to the properties that are likely to impact the subject properties.

### **1.7.8 Non-Key Issue H: Special Geographic Areas**

This project must be evaluated for its effects on unique characteristics of the geographic area in the project area.

There are no park lands, prime farmland, wetlands, wild and scenic rivers, or ecologically critical areas that will be affected by the proposed exchange. A wetlands and floodplains report was prepared for the proposed land exchange and is located in the project file.

## **1.8 Project Record**

This EA incorporates by reference the project record (40 CFR 1502.21). The project record contains specialists reports and other technical documentation used to support the analyses and conclusions in this EA. The specialists reports provide additional detailed analysis. This EA incorporates by reference the Nantahala and Pisgah Management Indicator Species (MIS) Report. The MIS Report along with Monitoring and Evaluation Reports for the National Forests in North Carolina contain the most current information about forest population trends for MIS.

## **2 ALTERNATIVES**

### **2.1 Introduction**

The Alternatives Chapter is the heart of the Environmental Assessment. This chapter briefly describes two alternatives in detail. Alternative A: No Action and Alternative B: Proposed Action (Conduct Land Exchange with Grace Tabernacle Baptist Church).

### **2.2 Alternatives Considered**

#### **2.2.1 Alternative A: No Action**

This alternative serves as the no action alternative. No management activities would be initiated under this alternative. The exchange would not occur under this alternative. Analysis of this alternative provides a baseline for comparing the effects of the other alternatives, providing the decision maker with a clearer basis for a reasoned choice among the alternatives studied in detail.

#### **2.2.2 Alternative B: Proposed Action**

This alternative was developed to meet the Forest Service objective of consolidation of land holdings for the purpose of making management of National Forest lands more efficient as described in Section 1.3. This alternative would provide for the protection of scenic resources. Alternative B proposes to exchange approximately 5 acres m/l of National Forest Land, Federal Tract N-1151, for approximately 9 acres m/l of land with Grace Tabernacle Baptist Church (GTBC), Non-Federal Tract N-1150. In addition, The Forest Service under Alternative B proposes to reserve a road right-of-way being a portion of the Cateye Road (FSR #2629) described as an existing gravel road that traverses east and west across the federal tract for the purposes of ingress, egress and regress to other Forest Service lands located adjacent to Santeetlah Lake.

### **2.3 Alternatives Considered But Not in Detail**

The Forest Service looked at an alternative to purchase the non-federal tract outright. This alternative was eliminated from detailed study because the landowner was not willing to sell the property.

## 2.4 Summary Comparison of Actions

**Table 2-1 SUMMARY OF ACTIONS**

Actions	Alternative A	Alternative B
Conduct Land Exchange	No	Yes
Net Change in Forest Service Acres	None	+4 acres more or less (m/l)
Forest Service Access Retained Along Cateye Road	Yes	Yes

## 2.5 Summary Comparison of Environmental Effects

**Table 2-2 SUMMARY OF EFFECTS**

Issues	Indicators	Alternative A	Alternative B
<p><b>ISSUE 1: IMPACTS TO SCENERY RESOURCES</b></p>	<p>Visual Quality Impacts</p>	<p>No change from current conditions</p>	<p>Both tracts are located in areas managed for high scenic quality by the Nantahala National Forest. Neither the Federal tract or non-federal tract possess extraordinary scenic qualities</p> <p>An additional 4 acres m/l would be added to the federal land base in the Partial Retention Visual Quality Objective</p>
	<p>Probable Development of Tracts</p>	<p><u>Federal Tract N-1151</u> No</p> <p><u>Non-Federal Tract N-1150</u> Unknown</p>	<p><u>Federal Tract N-1151</u> Yes</p> <p><u>Non-Federal Tract N-1150</u> No</p>

## **3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS**

### **3.1 Introduction**

This section describes the existing environment in and around the project area and forms the scientific and analytical basis for the comparison of alternatives as required by the National Environmental Policy Act (NEPA). This chapter presents the predicted effects of the two alternatives listed in section 2.2, focusing on the project objectives listed in section 1.3 and the issue listed in section 1.6.

### **3.2 Impacts to Scenery Resources**

#### **3.2.1 Existing Conditions (Scenery Resources)**

##### **Federal Tract N-1151**

National Forest Tract N-1151 is located on the Cheoah Ranger District of the Nantahala National Forest near the intersection of US129 and SR1140. The tract lies between US129 and Lake Santeetlah, and has a Management Area 2A designation in the Forest Plan. Management Area 2A is managed with an emphasis on providing pleasant scenery for people who experience the forest by driving (or boating) through it (Forest Plan, p. III-63).

A field survey and computer simulation were used to determine that the federal tract is visible from the following locations Lake Santeetlah, west of the federal tract and from US 129, east of the federal tract. The tract is visible in the Foreground from both viewpoints.

The Nantahala National Forest Visual Management System inventory identifies the federal tract as Foreground (FG) / Sensitivity Level 1 (SL1). The tract is visible in the Foreground from both viewpoints. Management Area 2A has an assigned Visual Quality Objective (VQO) of Retention (R) in FG/SL1 areas (Forest Plan, p. III-64). Retention VQO provides for management activities which are not visually evident. Activities may only repeat form, line, color, and texture which are frequently found in the characteristic landscape. Changes in size, amount, intensity, direction, pattern, etc., should not be evident. Retention VQO must be met within one growing season (Forest Plan, pp. G-1 & 2).

Views from Lake Santeetlah are predominately natural-appearing forest, though there is commercial and residential development seen in some areas. From several locations on the lake, power transmission lines and their steel lattice towers are visible. A corridor approximately 300 feet wide is cleared below the power lines, only low-growing vegetation remains in these areas.

United States Highway 129 is used by local residents, recreation users, sight-seers and commercial traffic. The route is designated as part of Indian Lakes Scenic Byway by the North Carolina Department of Transportation, and is identified as such in scenic driving guides, maps and atlases.

Landscape modifications exist in the area which deviate from the naturally established landscape character. On National Forest Land, there is an access road from US129, which enters the highway at grade and has re-vegetated to the point where visual impacts are minimal. Adjacent private lands along US129 have a moderate level of development, with a pasture, a ½ acre clearing (bare soil), and three visible structures in the immediate area. The structures include a motorcycle shop, church and dilapidated barn.

**Non-Federal Tract N-1150**

Non-Federal tract N-1150 is located 300 feet north of NC143, and west of the Snowbird Creek arm of Lake Santeetlah. The tract is completely surrounded by Nantahala National Forest, and is currently accessed by an easement across Federal land. Tract N-1150 is visible in the foreground from NC143, but is not visible from any part of Lake Santeetlah.

As with US129, characteristic landscapes along NC143 are that of mixed use; including residential, agricultural, and commercial development interspersed with heavily forested Federal lands. Highway 143 has no scenic designation, but is used as a connector between Robbinsville and the Cherohala Skyway.

National Forest lands surrounding tract N-1150 are in Management Area 2A. This area is managed to maintain high quality scenery in a motorized recreation setting. Though these lands have the same Management Area designation as tract N-1151, NC143 would be considered visual Sensitivity Level 2; therefore National Forest lands seen in the foreground along this section of highway are required to meet Partial Retention Visual Quality Objective.

**Comparison of the Federal and Non-Federal Tract**

Table 3-1 below compares the key scenic values of the two tracts in the proposed exchange.

**Table 3-1 Comparison of Key Scenic Values for Tracts N-1151 and N-1150**

	<b>National Forest Tract N-1151</b>	<b>Non-Federal Tract N-1150</b>
Visible from NC Scenic Byway	Yes	No
Visible from NC or US Highway	Yes	Yes
Visible from Lake Santeetlah	Yes	No
Visible from multiple locations	Yes	No
Associated Visual Sensitivity Level	1 – High	2 - Moderate
Associated Visual Quality Objective	Retention	Partial Retention
Viewing Distance	Immediate Foreground	Immediate Foreground
Landscape Variety Class	B - Average	B - Average
Surrounding Landscape Character	Mixed Use, Rural	Mixed Use, Rural
Private Development Probable if Exchanged	Yes	No
Private Development Probable if <b>NOT</b> Exchanged	No	Unknown

Although both tracts are located in areas managed for high scenic quality by the Nantahala National Forest, neither of these tracts possess extraordinary scenic qualities. Regardless of National Forest Management Area allocation, the landscape surrounding both tracts would be considered “Class B” average landscapes under the Forest Service Visual Management System. The primary scenic value of these areas is as a natural-appearing “backdrop” for motorized recreation use on the scenic byway, state highway, and reservoir. These tracts are by no means a scenic focal point in the landscape.

### **3.2.2 Environmental Effects of Alternative A on Scenery Resources**

#### **Direct and Indirect Effects**

Implementation of the no action alternative would perpetuate the existing conditions described above.

#### **Cumulative Effects**

The NC143 corridor is used by travelers accessing Cherohala Skyway from Robbinsville. This route passes through public and private lands with varying degrees of residential, agricultural, and commercial development mixed with scenic forest, and lake views. Though no private development of N-1150 is currently proposed, development of the tract would be visible from NC143 in conjunction with other landscape modifications in the area.

North Carolina Department of Transportation (NCDOT) has proposed realignment of NC143; three alternatives have been discussed:

- 1) Increase road width and straighten curves on existing route.
- 2) Construct a new route north of the existing route, and build a bridge across Lake Santeetlah at Snowbird Creek.
- 3) Construct a new route north of Alt. 2 location, and build a bridge across Lake Santeetlah at Snowbird Creek.

Alternatives 2 & 3 pass directly through tract N-1150; though any of these alternatives are likely to create large cut/fill slopes which will negatively impact scenic quality along NC143. Whether tract N-1150 is acquired by the Forest Service or not, construction of NCDOT Alt. 2 or 3 could compromise any scenic value the tract possesses.

Maintaining Tract N-1150 in private ownership leaves it vulnerable to development in the future. Though no private development of tract N-1150 is currently proposed, any future development would be visible in conjunction with other landscape modifications in the area.

### **3.2.3 Environmental Effects of Alternative B on Scenery Resources**

#### **Direct and Indirect Effects**

Computer simulations show that the proposed church building and parking lot on tract N-1151 would be visible from some locations on the lake; however, it would not be visible from any public areas such as boat ramps or developed recreation areas.

Modifications to the characteristic landscape which would be evident to the average viewer after one growing season, would not meet Retention Visual Quality Objective(VQO). Where seen from identified viewpoints, long-term or permanent modifications to the landscape such as land-form alteration, construction of structures or parking lots would not be consistent with Retention VQO.

The acquisition of tract N-1150 would prevent possible future development, or other unsightly land management activities. Though acquisition would allow a degree of scenic protection under National Forest management, scenic value of this tract does not exceed that of tract N-1151.

### **Cumulative Effects**

Though no private development of tract N-1150 is currently proposed, any future development would be visible in conjunction with other landscape modifications in the area. National Forest ownership of tract N-1150 would secure it against residential or commercial development, and maintain scenic conditions in their current state.

North Carolina DOT has proposed realignment of NC143, and development of alternatives is underway. The Cumulative Effects discussed for Alternative A on Scenery Resources due to the proposed improvements to NC 143 in Graham County also apply to Alternative B.

As seen from Lake Santeetlah, tract N-1151 is adjacent to the aforementioned power transmission corridor, and is actually viewed through or under the power lines. In addition to the power corridor clearing, towers, and lines, there is a small structure visible near one of the towers. Where seen from US129, the tract is adjacent to the previously mentioned clearings and structures. However, the tract itself has a natural-appearing forest cover from both viewpoints. Any visible activities such as vegetation removal, grading, paving or a building on the subject tract would be seen in conjunction with existing alterations on adjacent non-Forest Service lands. Cumulatively, such modifications of tract N-1151 would increase impacts to scenic quality, and therefore reduce opportunities to experience “pleasant scenery” from Lake Santeetlah and Indian Lakes Scenic Byway (US129).

## 4 PREPARERS AND PUBLIC INVOLVEMENT

### Core ID Team Members

Name	Title	Project Role
Karen Compton	Environmental Coordinator	Team Leader, Documentation
Wilson Rankin	Botanist	Botanical Resources
Doreen Miller	Wildlife Biologist	Wildlife Resources
Jason Farmer	Fisheries Biologist	Aquatic Resources
Horace Mitchell	Archeologist	Heritage Resources

### Other Forest Service Personnel Providing Input

Name	Title
Joe Bonnette	District Ranger
Frank Findley	Assistant District Ranger
Erik Crews	Landscape Architect
Rodney Snedeker	Forest Archeologist
Dan Belanger	Lands Specialist

### State and Federal Agencies Providing Input

Affiliation	Name
Eastern Band of Cherokee Indians	Michael Bolt
North Carolina Department of Cultural Resources State Historic Preservation Office	Peter Sandbeck
North Carolina Wildlife Resources Commission	David McHenry
Tennessee Valley Authority	Kathryn Jackson
United States Department of Interior Fish and Wildlife Service	Brian Cole

### Other Groups, Organizations, and Individuals Providing Input

Affiliation	Name
Smoky Mountain Hiking Club	Ray Payne
	Mr and Mrs Jesse Ralph Jenkins
	Joan Robley

**APPENDIX A**

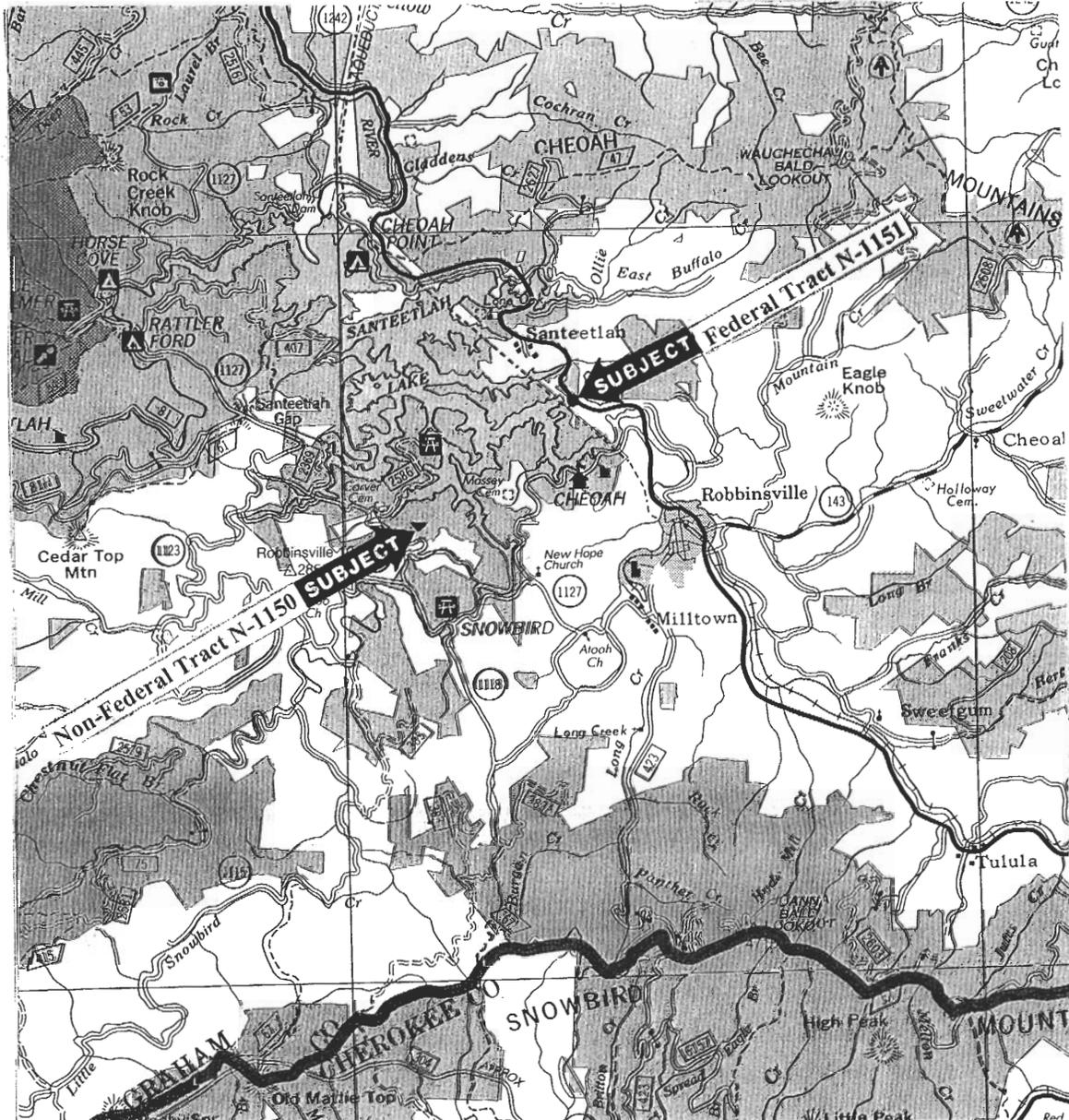
**Grace Tabernacle Baptist Church  
Land Exchange**

**Vicinity Map  
Map of the Proposed Exchange Tracts**

# VICINITY MAP

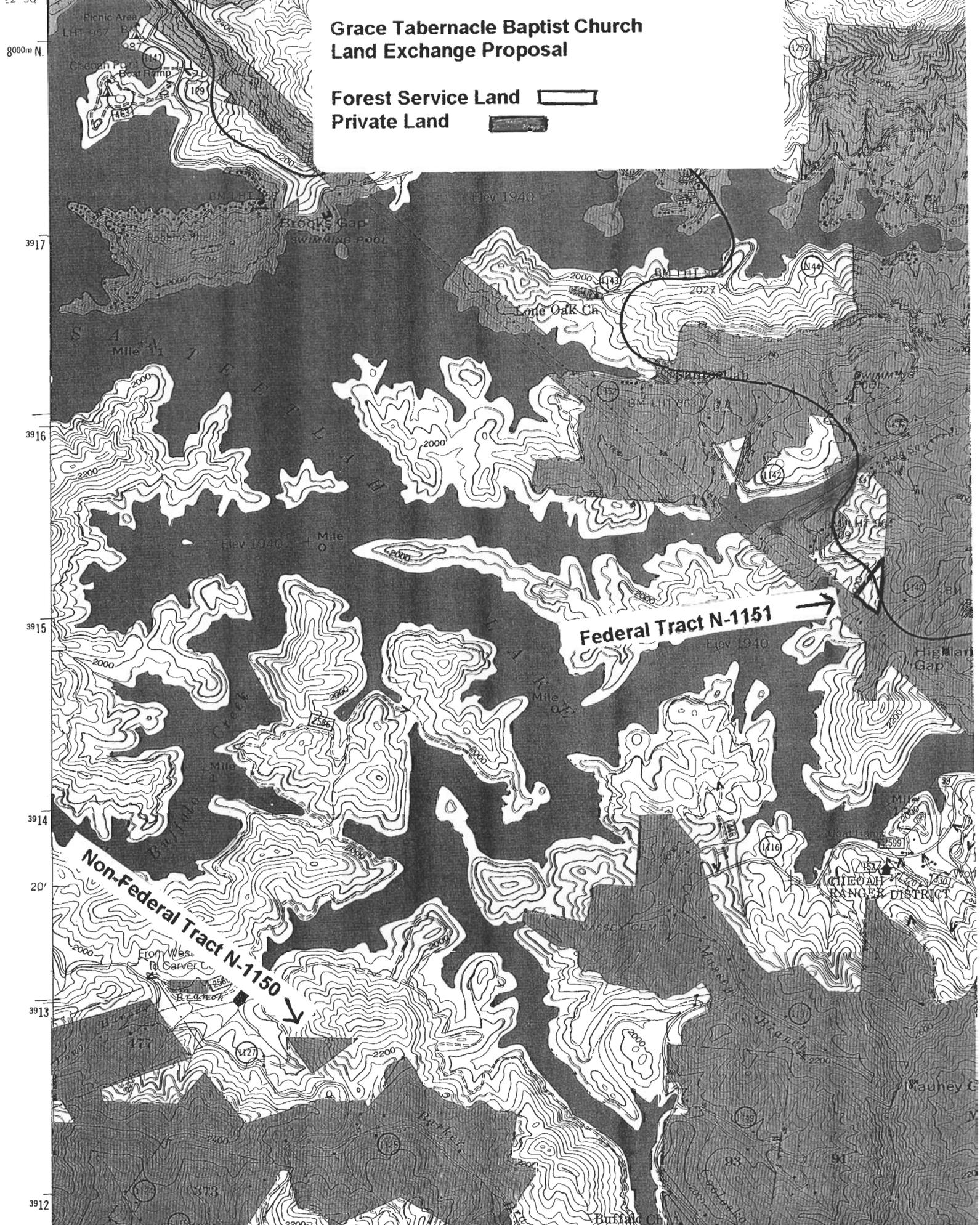
## GRACE TABERNACLE BAPTIST CHURCH LAND EXCHANGE

Federal Tract N-1151  
Non-Federal Tract N-1150



### SCALE

1/2" = 1 Mile



# Grace Tabernacle Baptist Church Land Exchange Proposal

Forest Service Land   
Private Land 

Federal Tract N-1151 →

Non-Federal Tract N-1150 ↘

8000m N.  
3917  
3916  
3915  
3914  
20'  
3913  
3912

**APPENDIX B**

**Grace Tabernacle Baptist Church  
Land Exchange**

**Biological Evaluation**

BIOLOGICAL EVALUATION  
GRACE TABERNACLE LAND EXCHANGE  
CHEOAH RANGER DISTRICT  
NANTAHALA NATIONAL FOREST

The Cheoah Ranger District is proposing to exchange approximately 5 acres of National Forest for approximately 9 acres of private land currently surrounded by National Forest.

Potential Effects

Wilson Rankin, Botanist for the Nantahala National Forest, concluded the project would have no effect on any federally proposed or listed plant species. The project would have no impact on any forest sensitive plant species, and would not result in any cumulative effects on species viability across the national forest. Consultation with the USDI Fish and Wildlife Service **is not required** (see Botanical Analysis).

Doreen Miller, wildlife biologist for the Nantahala National Forest, concluded that this project would have no effect on the Indiana bat because the stands proposed for exchange are not suitable habitat for the Indiana bat.

This project **will have no effect on** the Indiana bat. This project will have no effect on any other federally proposed or listed terrestrial animal species. The project may impact individuals of the northern bush katydid (*Scudderia septentrionalis*), Diana fritillary butterfly (*Speyeria diana*), Tellico salamander (*Plethodon aureolus*) and southern Appalachian salamander (*Plethodon teyahalee*), but will not affect the viability of these species across the Forest. The project will have no impact on any other sensitive species. No cumulative effects on species viability across the Forest will result. Consultation with the U.S. Fish and Wildlife Service **is not required** (see Wildlife Analysis).

Jason Farmer, fisheries biologist for the Nantahala National Forest, concluded the project would have **no effect** on any federally listed or proposed aquatic species. The project will have no impact on any sensitive species. No cumulative effects on species viability across the Forest will result. Consultation with the USDI Fish and Wildlife Service **is not required** (see Aquatic Analysis).

Determination of Effect

This project **will have no effect on** the Indiana bat. This project will have no effect on any federally proposed or listed species. The project may impact individuals of the northern bush katydid (*Scudderia septentrionalis*), Diana fritillary butterfly (*Speyeria diana*), Tellico salamander (*Plethodon aureolus*) and southern Appalachian salamander (*Plethodon teyahalee*), but will not affect the viability of these species across the Forest.

The project will have no impact on any other sensitive species. No cumulative effects on species viability across the forest would result. Consultation with the U.S. Fish and Wildlife Service **is not required**.

Prepared by:

/s/ Jason Farmer  
Fisheries Biologist  
Nantahala National Forest

November 7, 2006  
Date

**APPENDIX C**

**Grace Tabernacle Baptist Church  
Land Exchange**

**Management Indicator Species Report**

# Management Indicator Species Report

---

## Introduction

An assessment of habitat changes linked to management indicator species (MIS) and habitat components is documented in this report based on the species list that became effective Forest-wide on October 1, 2005. The assessment provides a checkpoint of project level activities, the anticipated change in habitat used by MIS, and the likely contribution to Forest-wide trends.

## Process

The Forest-wide list of MIS was considered as it relates to this project analysis area. Only those MIS that occur or have habitat within the project analysis area and may be affected by any of the alternatives were carried through a site-specific analysis. The documentation below shows which MIS were and were not analyzed along with the reasons.

Consistent with the Forest Plan and its associated FEIS (Volumes I and II), the effects analyses focus on changes to MIS habitat. These project-level effects are then put into context with the Forest-wide trends for populations and habitats.

To process and document the information efficiently, a series of tables are used as follows:

- 1) **Table 1:** This table displays the MIS species and the associated biological community or special habitats they are indicating along with estimated population trend.
- 2) **Table 2:** This table displays biological communities and associated MIS, and reasons species were, or were not selected for analysis in the project. The source of these tables is Amendment 17 to the Nantahala and Pisgah Land and Resource Management Plan effective October 1, 2005, and associated environmental assessment (EA) and project record.
- 3) **Table 3:** This table displays the habitat components and associated MIS, and reasons species were, or were not selected for analysis in the project.
- 4) **Table 4:** This table displays by MIS the Forest-wide population trend along with the associated biological community or special habitat. The information in this table is taken from the MIS Report for the Nantahala and Pisgah National Forests.
- 5) **Table 5:** This table compares the effects (expressed as changes in habitat) by alternative to the Forest-wide estimates of habitats for each habitat component considered in the project-level analysis. This table explains how the project's effects to habitats affect Forest-wide population cumulative trends for the species considered.

Following these tables is a discussion of the direct, indirect, and cumulative effects for the selected species and habitats.

**Table 1: Management Indicator Species (MIS), Estimated Population Trend, and Associated Biological Community or Special Habitat Component**

<b>MIS</b>	<b>Estimate</b>	<b>Associated Biological Community or Special Habitat Component</b>		
Black Bear	Increase	Old Forest Communities	Hard mast-producing species	Contiguous areas with low disturbance
White Tailed Deer	Stable	Early-successional (0-10)	Hard mast- producing species	
Pileated Woodpecker	Increase	Old Forest Communities	Snags and dens (>22 dbh)	Downed woody debris – all sizes
Ovenbird	Decrease	Large Contiguous Forest Areas		
Rufous-Sided (Eastern) Towhee	Decrease	Early-successional (0-10)	Early successional (11-20)	
Pine Warbler	Stable	Yellow pine mid-successional forests		
Ruffed Grouse	Stable	Early successional (0-10)	Early successional (11-20)	Downed woody debris
Acadian flycatcher	Increase	Riparian		
Brook, Brown and Rainbow Trout	Stable	Coldwater streams		
Largemouth Bass	Stable	Reservoirs		
Blacknose Dace	Stable	Coldwater streams		
Smallmouth Bass	Stable	Warmwater streams	Coolwater streams	
Fraser Fir	Decrease	Fraser Fir Forests		
Carolina Hemlock	Increase	Carolina hemlock bluff forests		
Ginseng	Decrease	Rich cove forests		
Ramps	Stable	Northern hardwoods		

**Table 2: Biological Communities, associated MIS, and why Species were Chosen or Eliminated from Analysis**

Biological Community	MIS	Analyzed Further/ Evaluation Criteria*
Fir dominated high elevation forests	Fraser fir	No/1
Northern hardwood forests	Ramps	No/1
Carolina hemlock bluff forests	Carolina hemlock	No/1
Rich Cove forests	Ginseng	No/1
<b>Xeric yellow pine forests</b>	<b>Pine warbler</b>	<b>Yes</b>
<b>Reservoirs</b>	<b>Largemouth bass</b>	<b>Yes/2</b>
<b>Riparian forests</b>	<b>Acadian flycatcher</b>	<b>Yes</b>
Coldwater streams	Brook, brown, and rainbow trout; blacknose dace	No/1
Coolwater streams	Smallmouth bass	No/1
Warmwater streams	Smallmouth bass	No/1

- \*1 Biological Community and its represented species do not occur within the activity areas; therefore, this biological community would not be affected by any of the alternatives. Given no effects to the community, the alternatives in this project would not cause changes to forest-wide trends or changes in population trends of species associated with this community.
- 2 Biological Community and its represented species would be protected in accordance with LRMP standards and guidelines. Populations would not be affected by management activities because the associated habitat would not be entered by the proposed activities, pursuant to forest plan direction; therefore, there would be no change to forest-wide population trends.

**Table 3: Habitat Components Associated MIS and why Species were Chosen or Eliminated from Analysis**

Habitat Components	MIS	Analyzed Further/ Evaluation Criteria*
Old Forest Communities (100+ years old)	Black bear	No/1
Early successional (0-10 years old)	Rufous-sided (eastern) towhee	No/1
Early successional (11-20)	Ruffed grouse	No/1
Soft mast producing species	Ruffed grouse	No/1
Hard mast-producing species (>40 yrs)	Black bear	No/1
Large contiguous areas with low levels of human disturbance	Black bear	No/1
Large contiguous areas of mature deciduous forest	Ovenbird	No/1
Permanent grass/forb openings	White-tailed deer	No/1
Downed woody debris	*Ruffed Grouse	No/1
<b>Snags</b>	<b>Pileated woodpecker</b>	<b>Yes</b>

- \*1 Habitat and its represented species do not occur within the project area; therefore, this special habitat would not be affected by any of the alternatives. Given no effects to the habitat, the alternatives in this project would not cause changes to forest-wide trends or changes in population trends of species associated with this habitat.
- 2 Habitat and its represented species would be protected in accordance with LRMP standards and guidelines. Populations would not be affected by management activities; therefore, there would be no change to forest-wide population trends.
- \* Although there are considerable large, woody debris (LWD) within the stream corridor, this is not the habitat utilized by ruffed grouse.

Acadian Flycatcher

The Acadian flycatcher occurs in riparian forests, but not in the forest types or elevation of the tracts involved in this land exchange. There will be no effect to suitable habitat for the Acadian flycatcher.

Pine Warbler

The pine warbler occurs in xeric yellow pine forests. The land exchange will result in a net increase of approximately four acres of suitable habitat for this species.

Pileated Woodpecker

The pileated woodpecker utilizes snags in a variety of forest types. The land exchange will result in a net increase of approximately four acres of suitable habitat for this species.

Reservoirs

The 5 acre tract to be exchanged does not contain any aquatic resources. Santeetlah Lake is approximately 300 feet from the proposed boundary line; therefore, there would be no effects to the aquatic resources from this exchange because any effects would dissipate prior to reaching the lake.

Previous actions within the aquatic analysis areas include timber harvest and road construction. These effects have dissipated since the actions occurred and the current existing condition of the aquatic habitat is representative of the effects of all past actions. No other effects from previous actions on public or private lands are known to have occurred. There are no effects to the aquatic resources due to any ongoing actions on federal or private lands in the aquatic analysis area. No effects are anticipated from any future actions because no known actions are planned on federal or private lands in aquatic analysis area.

The 300 feet of National Forest between the 5 acres to be exchanged and Santeetlah Lake would prevent erosion and sedimentation. There would be no direct or indirect effects to the reservoir community, or to the aquatic MIS. In the absence of direct/indirect effects and effects from previous, ongoing, and future actions, there would be no cumulative effects to the reservoir community, or the MIS. The current forest-wide trend for the MIS is static and implementation of this project would not change the trend.

**Table 4: MIS Estimated Population Trend and Biological Community or Habitat Component**

<b>Species</b>	<b>Estimated Population Trend</b>	<b>Biological Community and/or Habitat Component</b>
Acadian Flycatcher	Increasing	Riparian Community
Pine warbler	Stable	Xeric Yellow Pine Forests
Largemouth bass	Stable	Reservoirs
Pileated woodpecker	Increasing	Snags

**Table 5: Biological Community and Special Habitat Components, Effects by Alternative**

<b>Biological Community</b>	<b>Alternative A</b>	<b>Alternative B</b>
Fraser fir forests	None affected.	None affected.
Northern hardwood forests	None affected.	None affected.
Carolina hemlock bluff forests	None affected.	None affected.
Rich cove forests	None affected.	None affected.
Yellow pine forests	None affected.	Increase of ~4 acres
Reservoirs	None affected.	None affected.
Riparian forests	None affected.	No suitable habitat for MIS affected.
Cold water streams	None affected.	None affected.
Coolwater streams	None affected.	None affected.
Warm water streams	None affected.	None affected.
<b>Special Habitat Components</b>	<b>Alternative A</b>	<b>Alternative B</b>
Old forest communities (100+ years old)	None affected.	None affected.
Early successional communities (0-10 yr)	None affected.	None affected.
Early successional communities (11-20 yr)	None affected.	None affected.
Soft mast-producing species (<40 yr)	None affected.	None affected.
Hard mast-producing species (>40 yr)	None affected.	None affected.
Contiguous areas/low disturbance (< 1 mi. open road / 4 sq. miles)	None affected.	None affected.
Large contiguous forest	None affected.	None affected.
Permanent grass/forb openings	None affected.	None affected.
Snags and dens (>22" dbh)	None affected.	Increase of ~4 acres
Down woody material	None affected.	None affected.

**APPENDIX D**

**Grace Tabernacle Baptist Church  
Land Exchange**

**References**

## REFERENCES

- Abrams, M. D. 1992. Fire and the development of oak forest. *Bioscience* **42**: 454-353.
- Amoroso, J. L. 1999. Natural Heritage Program List of the Rare Plant Species of North Carolina. North Carolina Natural Heritage Program, Raleigh, North Carolina. 85 pp.
- Barden, L. S., F. W. Woods. 1974. Characteristics of lightning fires in southern Appalachian forests. *Proc. Ann. Tall Timbers Fire Ecol. Conf.* **13**: 345-361.
- Delcourt, P. A., H. R. Delcourt. 1998. The influence of prehistoric human-set fires of oak-chestnut forests in the southern Appalachians. *Castanea* **63**: 337-345.
- Dodson, Stanley I., Timothy F. H. Allen, Stephen R. Carpenter, Anthony R. Ives, Robert L. Jeanne, James F. Kitchell, Nancy E. Langston, and Monica G. Turner. 1998. *Ecology*. Oxford University Press, New York. 434 pp.
- Elliot, K. J., L. R. Boring, W. T. Swank, B. R. Haines. 1997. Successional changes in plant species diversity and composition after clearcutting a Southern Appalachian watershed. *Forest Ecol. Manage.* **92**:67-85.
- Elliot, K. J., W. T. Swank. 1994. Changes in tree species diversity after successive clearcuts in the Southern Appalachians. *Vegetatio* **115**: 11-18.
- Godfrey, R. K., J. W. Wooten. 1979. Aquatic and wetland plants of southeastern United States: Monocotyledons. University of Georgia Press, Athens, GA. 712 pp.
- Goff, F. G., G. A. Dawson, J. J. Rochow. 1982. Site examination for threatened and endangered plant species. *Environ. Manage.* **6**: 307-316.
- Harmon, M. E. 1982. Fire history of the westernmost portion of the Great Smoky Mountains National Park. *Bull. Torrey Bot. Club* **109**: 74-79.
- Harmon, M. E. 1984. Survival of trees after low-intensity surface fires in Great Smoky Mountains National Park. *Ecology* **65**: 796-802.
- Harrelson, S. M., G. R. Matlack. 2006. Influence of stand age and physical environment on the herb composition of second-growth forest, Strouds Run, Ohio, USA. *Journal of Biogeography*. *In press*.
- Harrod, J., P. S. White, M. E. Harmon. 1998. Changes in xeric forests in western Great Smoky Mountains National Park, 1936-1995. *Castanea* **63**: 454-360.
- Hicks, M. L. 1992. Guide to the Liverworts of North Carolina. Duke University Press, Durham, NC. 239 pp.

- Lorimer, C. G. 1985. The role of fire in the perpetuation of oak forests. *Challenges in Oak Management and Utilization* (ed. J.E. Johnson), pp 8-25. Cooperative Extension Service, University of Wisconsin, Madison.
- Martin, W. H. 1991. The role and history of fire in the Daniel Boone National Forest. Unpublished report to Daniel Boone National Forest, Winchester, Ky. 131 p.
- Meier, A. J., S. P. Bratton. 1996. Disturbance Dynamics in the Chattooga Watershed. Unpublished report submitted to the United States Forest Service, Atlanta, Ga.
- Miller, J. H. 2003. Nonnative invasive plants of southern forests: a field guide for identification and control. Gen. Tech. Rep. SRS-62. Asheville, NC: USDA, Forest Service, Southern Research Station. 93 pp.
- NatureServe: An online encyclopedia of life. 2006. Version 1.2. Arlington, Virginia, USA: Association for Biodiversity Information. Available: <http://www.natureserve.org/>.
- Odum, E. P. 1971. *Fundamentals of Ecology* (Third Edition). Saunders, New York, NY.
- Peet, R. K., N. L. Christensen. 1987. Competition and tree death. *BioScience* **37**: 586-594.
- Radford, A. E., H. E. Ahles, C. R. Bell. 1968. *Manual of the Vascular Flora of the Carolinas*. University of North Carolina Press, Chapel Hill, North Carolina.
- Rankin, W. T., Elliot J. Tramer. 2002. Understory succession and the gap regeneration cycle in a *Tsuga canadensis* forest. *Canadian Journ. Forest Research*. **32**: 16-23.
- Schafale, M. P, A. S. Weakley. 1990. *Classification of the Natural Communities of North Carolina: Third Approximation*. North Carolina Natural Heritage Program, Raleigh, NC.
- Trombulak, S. C, C. A. Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. *Conservation Biology* **14**: 18-30.
- United States Forest Service. 1994. Final Supplement to Final Environmental Impact Statement for the Land and Resource Management Plan Amendment 5, Nantahala and Pisgah National Forests, North Carolina, Southern Region.
- United States Forest Service. 2001. Management Indicator Species Habitat and Population Trends, Nantahala and Pisgah National Forests. Draft Internal Document, National Forests in North Carolina, Asheville, NC.
- United States Forest Service. 2001. Biotics Database. Internal Database, National Forests in North Carolina, Asheville, NC. (Accessed March, 2006)
- United States Forest Service. 2002. Endangered, Threatened, Proposed, Sensitive and Forest Concern Species. Internal Document, National Forests in North Carolina, Asheville, NC.

- United States Forest Service. 2003. Roads Analysis Process Report for the Nantahala and Pisgah National Forests. National Forests in North Carolina, Asheville, NC>
- United States Forest Service. 2004. Management Indicator Species Habitat and Population Trends, Nantahala and Pisgah National Forests. Draft Internal Document, National Forests in North Carolina, Asheville, NC.
- Vose, J. M., W. T. Swank, B. D. Clinton, J. D. Knoepp. 1997. Restoring southern Appalachian pine/hardwood ecosystems with fire: a comparison of two techniques. North American Forest Ecology Workshop, Raleigh, North Carolina.
- Waldrop, T A., N. T. Welch, P. H. Brose, K. J. Elliott, H. H. Mohr, E. A Gray, F. H. Tainter, L. E. Ellis. 2000. Current Research on Restoring Ridgetop Pine Communities with Stand Replacement Fire. *In* Proceedings of Workshop on Fire, People, and the Central Hardwoods Landscape. Richmond, KY.
- Weakley, A. S. 2000. *Flora of the Carolinas and Virginia*. Unpublished draft. The Nature Conservancy, Southern Conservation Science Department, Southern Regional Office, Chapel Hill, NC.
- Williams, C. E. 1998. History and Status of Table Mountain Pine-Pitch Pine Forests of the Southern Appalachian Mountains (USA). *Natural Areas Journal* **18**: 81-90.
- Williamson, M. 1996. *Biological Invasions*. Chapman & Hall, London.