



United States  
Department of  
Agriculture

Forest  
Service

August 2004



# Environmental Assessment

## Facilities Co-Location

### Amendment #1 Land and Resource Management Plan Chattahoochee-Oconee National Forests

Tallulah Ranger District, Chattahoochee National Forest  
Rabun County, Georgia

For Information Contact: Steve Cole  
U.S. Forest Service  
Tallulah Ranger District  
809 Highway 441 South  
Clayton, GA 30525  
(706) 782-3320 ext. 105  
e-mail: [sncole@fs.fed.us](mailto:sncole@fs.fed.us)



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, or marital or family 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, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

# Table of Contents

	Page
List of Figures .....	iv
List of Tables .....	iv
Summary .....	v
Introduction.....	1
Document Structure .....	1
Background.....	2
Purpose and Need for Action.....	2
Proposed Action – Amendment #1 to Forest Plan.....	5
Decision Framework.....	5
Public Involvement .....	5
Issues.....	6
Alternatives, including the Proposed Action .....	8
Proposed Action and Alternatives .....	8
The Proposed Action - Wiley site.....	8
Alternative 1 - No Action .....	10
Alternative 2 - Boggs-Boen site.....	10
Mitigation Common to the Proposed Action and All Alternatives.....	13
Comparison of the Proposed Action and Alternatives.....	14
Alternatives Considered and Eliminated from Detailed Consideration.....	15
Environmental Consequences.....	18
Bounds of Analysis.....	18
Geomorphology, Topography, and Soils.....	19
Potential Soil Effects.....	21
Soil erosion .....	21
Soil Compaction.....	21
Effects of Roads on Soils.....	21
Effects of Alternative 1 (No Action) .....	22
Effects of the Proposed Action .....	22
Effects of Alternative 2.....	24
Noise .....	25
Effects of Alternative 1 (No Action) .....	25
Effects of the Proposed Action .....	26
Effects of Alternative 2.....	27
Water Resources .....	28
Potential Effects on Water Resources.....	29
Effects of Alternative 1 (No Action) .....	29
Effects of the Proposed Action .....	30
Effects of Alternative 2.....	31
Floodplains and Wetlands.....	33

Effects of Alternative 1 (No Action) ..... 34

Effects of the Proposed Action ..... 35

Effects of Alternative 2 ..... 36

Vegetation ..... 37

    Effects of Alternative 1 (No Action) ..... 38

    Effects of the Proposed Action ..... 39

    Effects of Alternative 2 ..... 39

Wildlife ..... 40

    Effects of Alternative 1 (No Action) ..... 41

    Effects of the Proposed Action ..... 41

    Effects of Alternative 2 ..... 42

Proposed, Endangered, Threatened, and Forest Sensitive (PETS) Species ..... 42

    Effects of Alternative 1 (No Action) ..... 43

    Effects of the Proposed Action ..... 43

    Effects of Alternative 2 ..... 45

Cultural Resources ..... 46

    Effects of Alternative 1 (No Action) ..... 48

    Effects of the Proposed Action ..... 48

    Effects of Alternative 2 ..... 48

Socioeconomic Factors ..... 49

    Local Economy ..... 49

        Effects of Alternative 1 (No Action) ..... 49

        Effects of the Proposed Action ..... 49

        Effects of Alternative 2 ..... 50

    Recreational Use ..... 50

        Effects of Alternative 1 (No Action) ..... 50

        Effects of the Proposed Action ..... 51

        Effects of Alternative 2 ..... 51

    Scenic Resources ..... 51

        Effects of Alternative 1 (No Action) ..... 52

        Effects of the Proposed Action ..... 52

        Effects of Alternative 2 ..... 53

Costs ..... 54

Other Considerations ..... 54

    Minority Groups, Women, Civil Rights, and Consumers ..... 54

    Prime Farmland, Rangeland, and Forestland ..... 56

    Short-Term Use Versus Long-Term Productivity ..... 56

    Irreversible and Irrecoverable Effects ..... 57

Consultation and Coordination ..... 58

    ID Team Members: ..... 58

    Agencies and Individuals Providing Consultation: ..... 58

    Agencies and Organizations Providing Input: ..... 59

    Persons and Organizations Notified of the Proposed Action: ..... 59

Literature Cited ..... 62

---

## List of Figures

	Page
Figure 1. Project Area Location Map. ....	3
Figure 2. Proposed Action: Co-Location of Facilities at the Wiley site.....	9
Figure 3. Alternative 1 (No Action): Existing Locations of Office, work center, and Helibase.....	11
Figure 4. Alternative 2. Co-Location of Facilities at the Boggs-Boen site.....	12

## List of Tables

	Page
Table 1. Comparison of Environmental Consequences by Alternative. ....	14
Table 2. PETS Species Potentially Occurring in the Project Area. ....	44
Table 3. Facilities Costs for the Tallulah Ranger District Facilities Relocation Project. ....	55

## **SUMMARY**

The Chattahoochee-Oconee National Forests have proposed the co-location of the Tallulah Ranger District office, work center, and helibase to a common location on National Forest Land in Rabun County, Georgia. Currently, the Tallulah Ranger District office is located on the south side of Clayton, Georgia; the work center is located approximately two miles north of the office on the north side of Clayton; and the helibase is located approximately 12 road miles west of Clayton on Glassy Mountain. The Proposed Action would co-locate all three facilities on approximately 20 acres of National Forest System Land located approximately six miles south of the existing District office on the south side of Boen Creek. This action is needed to increase the efficiency of District operations, alleviate safety concerns related to the current helibase site, eliminate environmental concerns associated with the current work center site, and eliminate the high annual leasing cost associated with the office.

Significant issues associated with the Proposed Action are related to steep terrain and the potential for erosion and sedimentation during construction. Topography of the Proposed Action project area would require steep road grades, which could make supply deliveries (including deliveries by tractor trailers and aviation fuel tankers) difficult and possibly cause impassable conditions during severe winter weather. In addition, excavation on the terrain at the Proposed Action project area could be extensive and may cause sedimentation into Boen Creek; possibly decreasing water quality by increasing turbidity, imbeddedness, and nutrient content. Alternatives to the Proposed Action that were considered by the Forest Service included taking No Action and co-location of facilities at an alternative site on the north side of Boen Creek. This Environmental Assessment evaluates the environmental effects of the Proposed Action and alternatives.



# INTRODUCTION

## Document Structure

---

The Forest Service (FS) has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the Proposed Action and alternatives. The document is organized into five parts:

- *Introduction:* This section includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the FS informed the public of the proposal and how the public responded.
- *Comparison of Alternatives, Including the Proposed Action:* This section provides a more detailed description of the agency's Proposed Action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by an Interdisciplinary (ID) Team of FS personnel, the public, and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.
- *Affected Environment and Environmental Consequences:* This section describes the environmental effects of implementing the Proposed Action and other alternatives. This analysis is organized by environmental resource category (i.e. soils, water resources, threatened and endangered species, etc.). Within each section, the affected environment is described first, followed by the effects of the No Action Alternative that provides a baseline for evaluation and comparison of the other alternatives that follow.
- *Consultation and Coordination:* This section provides a list of preparers and agencies consulted during the development of the environmental assessment.

Additional documentation, including more detailed analyses of project-area resources and a Road Analysis, may be found in the project planning record located at the Tallulah Ranger District office in Clayton.

## Background

---

The Tallulah Ranger District of the Chattahoochee-Oconee National Forests encompasses approximately 155,000 acres in Towns and Rabun Counties in northeastern Georgia (Figure 1). Currently, the District office is located on the south side of Clayton in Rabun County, Georgia; the work center is located approximately two miles north of the office on the north side of Clayton; and the helibase is located approximately 12 road miles west of Clayton on Glassy Mountain. The Chattahoochee-Oconee National Forests have proposed to amend the Land and Resource Management Plan (Forest Plan) for the Chattahoochee-Oconee National Forests (signed in January, 2004) by re-allocating approximately 20 acres of land in Management Prescription 9.H (Management, Maintenance, and Restoration of Plant Associations to Their Ecological Potential) to Management Prescription 5.A (Administrative Sites) and relocating the office, work center, and helibase to a common location on National Forest System Land in Rabun County, Georgia. The Proposed Action would co-locate all three facilities on approximately 20 acres of National Forest System Land located approximately six miles south of the existing District office.

## Purpose and Need for Action

---

The Forest Plan gives direction to “maintain structures in a safe, serviceable, and attractive condition suitable for the intended use” (Goal 80, pages 2-67). One objective to meet this goal is to periodically inspect buildings and other improvements. Over the course of the past several years, inspections and reviews of the office, work center, and helibase have identified numerous limitations that are impairing the safe, efficient, and/or cost-effective operation of these facilities. These limitations are detailed below.

The location of the present helibase is confronted with unique problems associated with the weather. While the present site is exceptional for operations in good weather, its location on the top of the mountain, at over 3,400 feet in elevation, makes it more vulnerable than other lower-elevation sites to high winds, hail, lightening, and fog or low clouds. Lightening strikes and/or storm damage frequently interrupt phone and base radio communications, and the helicopter must be moved prior to storms that may contain hail. Fog or low clouds cause assignments to be delayed several times per year.

In a recent review by the Regional Aviation Officer, the current helibase site was noted as having inadequate emergency landing areas surrounding it. This means that there are no reasonably level open areas (e.g. fields or road right-of-ways) that could be used for an emergency landing near the helibase. This same review noted that crew quarters are not adequate. Occasionally, water quality at the helibase is low and availability is lacking because of an inadequate water system. The current system utilizes an intake from a small spring. The spring dries up in the summer and the intake may become clogged. In the winter, it may malfunction because of freezing weather or from a build up of algae or other organic matter.

**Figure 1. Project Area Location Map.**

As stated earlier, the District office, the work center, and the helibase are all in different locations. The District office and the work center are separated by two miles and are on opposite sides of Clayton. The Glassy Mountain helibase is located approximately 12 road miles from Clayton. Efficiency in operations would be improved if all facilities could function out of one location. Time spent in transit from one facility to another would be nearly eliminated.

Currently, the parking lot and the buildings at the work center are not compliant with the requirements of the Americans with Disabilities Act (ADA). Steps, narrow hallways, inadequate restrooms, and a sloping parking lot are examples of the ADA violations.

The general location of each of the facilities causes access problems for FS personnel and for the public. For example, the District office is located at the edge of a commercial business district in Clayton and is not easily distinguished by the public as a FS facility, causing the public some difficulty in finding the office. Also, departing the parking lot southbound from the District office has become both difficult and dangerous because of continuous high volumes of traffic moving in both directions on U.S. Highway 441. Access to the work center is hampered by the narrowness of the only access road that leads to the center and by commercial vehicles that sometimes block the road. Remoteness of the present helibase causes problems with ground access for fuel trucks, emergency response vehicles, and hazardous materials response vehicles. In addition, the steepness of the grade on the road that leads to the helibase, and the fact that the road is one-lane (with turn-outs), also causes access concerns.

There also is an issue of cost with the present facilities. The District office is located in a leased building, costing approximately \$60,000 in rent each year. The lease would end on 31 May 2004, with no renewal option. It is expected that if a new lease is secured in Clayton, there would be a substantial increase in the cost, estimated at approximately \$110,000. Buildings at both the Glassy Mountain helibase and the work center are old and need major modifications. These costs are estimated at approximately \$742,000.

In addition, there are security concerns associated with the existing facilities. The existing work center is not gated or fenced, and consequently, is susceptible to vandalism and/or equipment theft. The access road to the Glassy Mountain helibase is gated, but the helibase itself is not fenced. Since the helibase is not continuously staffed, the helicopter is susceptible to vandalism or sabotage. Additional security measures are needed to alleviate these potential security problems.

In summary, co-location of the administrative facilities on the Tallulah District is needed to alleviate a variety of concerns. Co-location to National Forest System lands is needed in order to reduce the annual lease cost. Co-location within Rabun County is desired by the FS, Rabun County, City of Clayton, and business leaders, in order to continue to serve the county and provide swift initial attack response to wildland fires. Since much of the recreational traffic approaches from the Atlanta area, a co-located site on the east side of U.S. Highway 441 would be most easily accessible, and therefore is highly desirable over sites on the west side or located away from this main thoroughfare.

## **Proposed Action – Amendment #1 to Forest Plan\_\_\_\_\_**

The Proposed Action includes the following:

1. Amend the Land and Resource Management Plan (Forest Plan), Chattahoochee-Oconee National Forests, by reallocating approximately 20 acres from Management Prescription 9.H to Management Prescription 5.A. Specifically, reduce Management Prescription 9.H (management, maintenance, and restoration of plant associations to their ecological potential) (USDA FS 2004a) by 20 acres, and increase Management Prescription 5.A (administrative sites) (USDA FS 2004a) by 20 acres.
2. Co-locate the Tallulah Ranger District office, work center, and helibase to a common location (Wiley site) on National Forest System Land in Rabun County, Georgia.

Currently, the District office is located on the south side of Clayton, Georgia; the work center is located approximately two miles north of the office on the north side of Clayton; and the helibase is located approximately 12 road miles west of Clayton on Glassy Mountain. The Proposed Action would co-locate all three facilities on approximately 20 acres of National Forest System Land located approximately six miles south of the existing District office.

## **Decision Framework\_\_\_\_\_**

Given the purpose and need for the project, the Forest Supervisor must decide whether or not to co-locate the Tallulah Ranger District office, work center and helibase (Glassy Mountain) to the Wiley site or another site on National Forest System land located on U.S. Highway 441.

## **Public Involvement\_\_\_\_\_**

On 23 November 2001, the Tallulah Ranger District mailed a scoping letter to 64 individuals and organizations that are known to be interested in forest management decisions. The proposal has also been listed in the quarterly Schedule of Proposed Actions on the forest-wide website ([www.fs.fed.us/conf](http://www.fs.fed.us/conf)) since October 2001. Utilizing comments from the public and other agencies, the ID team of FS personnel developed a list of issues to address.

## Issues

---

An ID team was appointed to analyze the issues that were received from the public and from within the agency. Significant issues (listed below) were recommended to the Forest Supervisor by the ID team. These issues were approved by the Forest Supervisor, who is the responsible official for this project. The FS separated the issues into two groups: significant and non-significant issues. Significant issues were defined as those directly or indirectly caused by implementing the Proposed Action. Non-significant issues were identified as those: 1) outside the scope of the Proposed Action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; 4) conjectural and not supported by scientific or factual evidence, or 5) not in conflict with the proposal and/or the purpose and need. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)...".

### **SIGNIFICANT ISSUES:**

1. Topography on the proposed Wiley site would require relatively high road grades, especially between the office and the work center, potentially making supply deliveries (including deliveries by tractor trailers and aviation fuel tankers) difficult and possibly causing impassable conditions during severe winter weather. Measure: Track average percent slope and upper range of percent slope through the NEPA effects analysis.
2. Excavation on the terrain at the proposed Wiley site would be extensive and may cause sedimentation into Boen Creek, thus decreasing water quality by increasing turbidity, imbeddedness, and nutrient content. Measure: Track average percent slope and upper range of percent slope through the NEPA effects analysis.

### **NON-SIGNIFICANT ISSUES:**

1. The distance to the office and visitor's center from the U.S. Highway 76 – U.S. Highway 441 intersection would increase by five miles.

### **Reason for Non-significance:**

Despite the move south of Clayton, impacts to visitors and others who travel to the office (for tourist materials, firewood permits, directions, etc.) would be minimal, and visitation is actually likely to increase due to a more visible presence in a less urban environment. In addition, most visitors to the area arrive from the south via U.S. Highway 441, and consequently, would pass by the new office location. By all accounts, this issue is not supported by any evidence, and therefore is not considered significant.

2. Excessive cost of the earthwork at the proposed Wiley site.

Reason for Non-Significance:

Earthwork would constitute less than 10 percent of the total cost of the project, or approximately \$100,000 to \$200,000. The total cost of the project would be approximately \$3.5 million. Within the context of the overall project, an increase of 10 percent is not considered significant.

3. Steepness of the access roads into the complex may cause unsafe conditions on the site. In addition, the entry and exit points onto U.S. Highway 441 may be dangerous.

Reason for Non-Significance:

Mitigation measures would include guardrails, increased road width, lighting, etc. Georgia Department of Transportation alterations to U.S. Highway 441 would alleviate the dangers at the entry and exit points. Due to this mitigation, this issue is not considered significant.

4. The proposed Wiley site would have a recently harvested entry area and the facilities would be located in a 15-year-old pine plantation with a large area of excavation. This creates an unattractive setting for a ranger station office.

Reason for Non-Significance:

The judgment of attractiveness is subjective, and given the amount of earthwork and disturbance across the site, it is unlikely that any existing trees would be able to be reserved regardless of the size, age, and species of the trees in the area. This issue is speculative, and would be further mitigated with vegetative landscaping work that would be part of the construction costs. This issue has been determined to be non-significant within the context of the overall project.

# ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the Proposed Action and the alternatives considered for the Tallulah Ranger District facilities co-location project. It includes a description and map of each site considered. This section also presents the Proposed Action and the alternatives in comparative form, sharply defining the differences between them and providing a clear basis of choice for the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative, and some of the information is based upon the environmental, social, and economic effects of implementing each alternative.

## Proposed Action and Alternatives

---

### The Proposed Action - Wiley site

The Chattahoochee-Oconee National Forests propose the relocation of the Tallulah Ranger District office, work center, and helibase to a common location (Wiley site) on National Forest System Land in Rabun County, Georgia. This proposal would amend the 2004 Forest Plan (Amendment #1) by removing approximately 20 acres from Management Prescription 9.H and placing those acres into Management Prescription 5.A – Administrative Sites. Currently, the District office is located on the south side of Clayton, Georgia; the work center is located approximately two miles north of the office on the north side of Clayton; and the helibase is located approximately 12 road miles west of Clayton on Glassy Mountain. The Proposed Action (Wiley Site) would co-locate all three facilities on approximately 20 acres of National Forest System Land located approximately six miles south of the existing Ranger District office (Figure 2). The proposed project location is adjacent to U.S. Highway 441 on the south side of Boen Creek, just north of the community of Wiley in Rabun County, Georgia. The Proposed Action (Wiley Site) would include clearing areas within this 20-acre area by removing or disposing of trees and brush, earthwork to prepare the areas for building construction, and the actual construction of the structures themselves. Connected to this action would be the installation of pipes, overhead or underground wires, and/or the drilling of a well to provide water and electricity and the proper disposal of solid waste. Consolidation of the District facilities would increase the efficiency of District operations, alleviate safety concerns related to the current helibase site, eliminate environmental concerns associated with the work center, and eliminate the annual leasing cost associated with the office.

Security features would include a series of gates restricting access to the facilities and fencing around the work center and helibase facilities. In addition, the office facility would include a fenced area for government vehicles. In all cases, fencing would consist of a six-foot chain link fence topped with razor wire. Entry to the complex would be provided by a single access road. The office would be the first facility along the access road, followed by the work center and helibase, respectively. Gates would be constructed

**Figure 2. Proposed Action: Co-Location of Facilities at the Wiley site.**

along the access road prior to the office facility, in between the office and work center, and in between the work center and helibase. The series of gates would allow the office to be open on weekends for tourist traffic without allowing access to the work center or helibase, and would allow the office and work center to be open on weekdays without allowing access to the helibase.

### **Alternative 1 - No Action**

Under the No Action Alternative, current Management Prescriptions would continue to guide management of the project area. No co-location of facilities would be implemented to accomplish project goals. The existing Tallulah Ranger District office, work center, and helibase would continue to be utilized at their current locations (Figure 3).

### **Alternative 2 - Boggs-Boen site**

The Alternative 2 (Boggs-Boen Site) project location is adjacent to U.S. Highway 441 on the north side of Boen Creek, just north of the town of Wiley in Rabun County, Georgia (Figure 4). This alternative responds to both significant issues by co-locating all administrative facilities at the Boggs-Boen site. The terrain on this site is more gentle than the Wiley site, and road grades from the office to the work center and to the helibase would be less, making supply deliveries and aviation fuel tanker access easier (Issue 1). The more gentle terrain would also require much less excavation, making potential sedimentation into Boen Creek or Boggs Branch much less likely (Issue 2). The access road from the office/work center compound to the helibase would be constructed partially on Rabun County property. An agreement has already been discussed with Rabun County officials, and they are amenable to it. This agreement would require approval by both Rabun County and the FS. This alternative would collocate all three facilities on approximately 15 acres of National Forest System Land located approximately five miles south of the existing Ranger District office. Under this alternative the helibase would be separated from the office/work center compound by approximately a half-mile, with a road connecting the two sites. Security features associated with Alternative 2 (Boggs-Boen Site) would be the same as those described above for the Proposed Action (Wiley Site).

This alternative would amend the 2004 Forest Plan (Amendment #1) by reducing Management Prescription 9.H by approximately 48 acres and increasing Management Prescription 5.A by this same acreage. The 48-acre amount is used for the amendment to make a logically manageable unit of land, including all three administrative facilities and the land in between. Although the actual impact area for the complex is approximately 15 acres, the 48 acres creates a logical unit of land for administration. Consolidation of the Ranger District facilities would increase the efficiency of District operations, alleviate safety concerns related to the current helibase site, eliminate environmental concerns associated with the work center, and eliminate the annual leasing cost associated with the office. This alternative would address the significant issues by locating the facilities and

**Figure 3. Alternative 1 (No Action): Existing Locations of Office, work center, and Helibase.**

**Figure 4. Alternative 2. Co-Location of Facilities at the Boggs-Boen site.**

access roads in an area with more favorable topography. Consequently, the steeper road grades and potential erosion and sedimentation issues would be alleviated.

## Mitigation Common to the Proposed Action and All Alternatives

---

The following mitigation measures would reduce possible adverse effects from either of the action alternatives:

1. Potential erosion and sedimentation would be mitigated by the use of Best Management Practices (BMPs) during clearing operations (Georgia Forestry Commission 1999), construction designs based on watershed management standards set forth in the Forest Plan (USDA FS 2004a), and the implementation of standard erosion and sedimentation control measures in accordance with the *Georgia Manual for Erosion and Sedimentation Control* (Georgia Soil and Water Conservation Commission 2000). Erosion control measures would include the establishment of silt fences, hay bales, and/or brush barriers around construction areas to prevent sediment from moving off-site. In addition, exposed soils would be promptly disked, fertilized, and seeded to prevent soil erosion. Paved parking areas and paved or gravel roads would provide long-term protection against erosion. Monitoring and timely maintenance procedures conducted in accordance with Access/Road Management standards set forth in the Forest Plan would also minimize erosion from roads and parking areas after completion of the project.
2. Potential impacts to area streams would be mitigated through the implementation of Management Prescription # 11, *Riparian Corridors* (USDA FS 2004a). In accordance with the standards set forth in this prescription, a minimum 100-foot riparian buffer would be maintained along all streams in the vicinity of the project, and road crossings would be designed and constructed to minimize effects on streams.
3. Potential impacts to scenic resources would be mitigated by the implementation of ecological treatment standards for urban and naturally appearing landscape areas. Ecological treatment standards for the site would include 1) enhancement of fall color species through practices such as selective tree removal and the retention of visually attractive trees and shrubs; 2) creation of a park-like effect within the existing pine or pine-hardwood stands; 3) featuring flowering trees, character trees, and shrub species; and 4) maintenance of trees to enhance visual quality (e.g. limbing up trees, removal of leaning/bent over trees, variable density feathering, etc.). Additional ecological treatment standards would be applied to tree maintenance, road construction, and road maintenance. A natural vegetative buffer would be maintained between the project area and U.S. Highway 441. The vegetative buffer combined with the existing topography of the site would minimize visibility from the highway.

## Comparison of the Proposed Action and Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

**Table 1. Comparison of Environmental Consequences by Alternative.**

Resource Category	Environmental Consequence		
	Alternative 1 No Action	Proposed action	Alternative 2
Topography (Significant Issue #1)	No effect.	Steep topography would require high road grades (~10 percent between the office and work center), resulting in potential adverse effects on safety during adverse weather conditions. Additionally, the curve radius going from the road into the work center area is estimated at 50 feet, which would be "less easily navigated" by vehicles, especially larger delivery vehicles.	Moderate topography would alleviate road safety issues. The access road would follow the 1800-foot contour, and would have grades of less than five percent.
Erosion and Sedimentation (Significant Issue #2)	No effect.	Steep slopes between the project area and Boen Creek (upper range of ~40 percent) and extensive excavation requirements would constitute a potential erosion and sedimentation hazard.	Moderate slopes between the office/work center and Boggs Branch (upper range of ~15 percent) would reduce the potential for erosion and sedimentation. Steep slopes between the helibase site and Boen Creek (upper range of ~40 percent) would constitute a potential erosion and sedimentation hazard.
Water Resources	The work center would remain in a floodplain. Storage and use of hazardous materials (e.g. paint, solvents, gasoline) at the work center would continue. The potential for spills and resulting adverse effects on water resources would continue.	The potential for erosion and sedimentation would increase the potential for adverse effects on Boen Creek. Hazardous materials would be removed from existing work center, thus eliminating the potential for spills.	Moderate topography would reduce the potential for adverse effects on area streams. Hazardous materials would be removed from existing work center, thus eliminating the potential for spills.
Vegetation	No effect.	Approximately 20 acres of 10- to 12-year-old loblolly pine plantation would be cleared.	Approximately 15 acres of mature pine-hardwood forest would be cleared. Most of the mature pines at the site have already been killed by a southern pine beetle infestation.

## Alternatives Considered and Eliminated from Detailed Consideration

In addition to the project alternatives described above, the following alternatives were considered during the initial phases of the development of alternatives in response to the issues. The ID Team considered these alternatives but did not bring them forward for detailed study. Reasons for not considering them in detail are given.

Locate all facilities to the Tiger site. The Tiger site is located on “old” U.S. Highway 441 south of Tiger, Georgia. This alternative would not meet the Purpose and Need of the project, which includes providing ready access to the “new” U.S. Highway 441. Consequently, this alternative was eliminated from detailed consideration.

Locate all facilities to the Bogg’s Mountain Site. This alternative site is located just north of the Boggs – Boen site across Boggs Branch on land currently owned by Lamar Edwards. This alternative would require acquisition by purchase or exchange of an expensive tract of land and, given the current levels of funding for this type of acquisition, has a remote possibility of actually getting done in the next decade. Consequently, this alternative is hereby eliminated from detailed consideration.

Locate the office at the present work center, continue using the present work center, and locate the helibase at the Wiley site. This would require building in a floodplain and moving or demolishing existing buildings at the work center site. Consequently, this alternative is considered clearly unreasonable and is hereby eliminated from detailed consideration.

Locate the helibase at Heaven’s Landing, a private airport located in the vicinity of the Germany community about five miles northwest of Clayton, and keep the office and work center at their present locations. This alternative would not achieve full co-location, and so it does not fully meet the purpose and need for the project. In addition, there would be conflict with light aircraft traffic at Heaven’s Landing, and there is no communication tower at Heaven’s Landing. Consequently, there is the potential for damage to the helicopters, as well as other safety issues. Due to these unsafe conditions, this alternative is hereby eliminated from detailed consideration.

Locate the helibase at the Habersham County Airport, and keep the office and work center at their present locations. This alternative would not achieve full co-location, and so it does not fully meet the purpose and need for the project. It also would place part of the wildland fire protection force outside of Rabun County, causing delays in initial attack responses. In addition, there would be a conflict with light aircraft traffic at the airport, and there is no communication tower at the airport. Consequently, there is the potential for damage to the helicopters, as well as other safety issues. For all of these reasons, this alternative is hereby eliminated from detailed consideration.

Locate all facilities to Tallulah Falls, across U.S. Highway 441 from Victory Home. Tallulah Falls is outside of Rabun County, and therefore, is not centrally located to serve the public adequately. Locating the facilities at this location would increase the response time for initial attack by both ground and air forces, and would leave Rabun County with no centrally located wildland fire suppression crew. In addition, locating the facilities at this location would risk alienating the Rabun County Chamber of Commerce, as well as the City of Clayton and Rabun County officials. Letters from all three of these entities oppose movement of the office outside of the county (see project file). The new facilities must be centrally located to serve the local community and the visiting public. This alternative is clearly unreasonable and is hereby eliminated from detailed consideration.

Locate all facilities for both the Tallulah and Chattooga Ranger Districts in Tallulah Falls, across Highway 441 from Victory Home, except for the visitor's center, which would remain at the present location. This alternative would involve consolidation with the Chattooga Ranger District, currently located in Clarkesville. Consolidation is clearly outside the scope of this decision, and recent analysis indicates that co-location of the two Ranger Districts would not meet the needs of both communities (see project file). In addition, this alternative does not meet the main purpose and need for co-location of facilities. Consequently, this alternative is hereby eliminated from detailed consideration.

Locate the office and helibase at the Wiley site, and keep the work center at the present location. The work center is in a floodplain. Continuing to use this facility is not consistent with NEPA or Executive Order 11988 (*Floodplain Management*). In addition, this alternative does not meet the main purpose and need for co-location of facilities. Consequently, this alternative is hereby eliminated from detailed consideration.

Locate the office and helibase at Bogg's Mountain, and keep the work center at the present location. The work center is in a floodplain. Continuing to use this facility is not consistent with NEPA or Executive Order 11988 (*Floodplain Management*). In addition, this alternative does not meet the main purpose and need for co-location of facilities. Consequently, this alternative is hereby eliminated from detailed consideration.

Purchase or acquire land through an exchange for the office and work center, and locate the helibase at the Wiley site. Due to its speculative and non-specific nature, this alternative is hereby eliminated from detailed consideration.

Purchase the existing office building, and locate the work center and helibase at the Wiley site. Recent communications with the landlord indicate that they are not willing to sell the existing office building. In addition, this alternative does not meet the main purpose and need for co-location of facilities. Consequently, this alternative is hereby eliminated from detailed consideration.

Purchase the existing office building, continue to use the present work center, and locate the helibase to the Wiley site. Recent communications with the landlord indicate that they are not willing to sell the present office building. Also, the work center would continue to be located partially in a floodplain. In addition, this alternative does not meet

the main purpose and need for co-location of facilities. Consequently, this alternative is hereby eliminated from detailed consideration.

In addition, two other sites were examined for acreage availability and feasibility. These included an area just north of Clayton on the west side of U.S. Highway 441 and a site located near Eastman Mountain on Boggs Mountain Road. Both of these locations were found to not meet the purpose and need of being on or close to the east side of U.S. Highway 441 and were dropped from detailed consideration

## ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social, and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

### Bounds of Analysis

---

#### Geographic Bounds of Analysis

The geographic bounds of analysis vary depending on the particular resource that is being evaluated (e.g. soil, water, vegetation, cultural resources, socioeconomic resources, etc.) and the type of impact being evaluated (e.g. direct, indirect, or cumulative impact).

The geographic bounds of analysis for direct impacts on topography, soils, water resources, floodplains, wetlands, vegetation, wildlife, endangered species, cultural resources, and recreational resources are limited to the specific project areas (i.e. the actual area where construction and associated earthwork and vegetation clearing would occur). The bounds of analysis for direct noise impacts include the specific project areas, as well as the surrounding areas that contain residences and businesses where project-related noise could potentially be heard. The bounds of analysis for direct aesthetic impacts include all areas from which the project areas are visible.

The geographic bounds of analysis for indirect impacts on topography, soils, water resources, floodplains, wetlands, vegetation, wildlife, endangered species, cultural resources, and recreational resources include the specific project areas, as well as the surrounding areas that could potentially be affected by indirect effects associated with runoff, erosion, and sedimentation. The geographic bounds of analysis for potential indirect effects associated with runoff, erosion, and sedimentation include the portions of the Boen Creek and Boggs Branch watersheds that are adjacent to and downstream of the project areas.

The geographic bounds of analysis for cumulative effects on topography, soils, water resources, floodplains, wetlands, vegetation, wildlife, endangered species, cultural resources, and recreational resources include the specific project areas, as well as the surrounding areas that could potentially be affected by a combination of project-related effects and effects associated with other past, present, and reasonably foreseeable future actions. The bounds of analysis for cumulative effects on these resources includes the portions of the Boen Creek and Boggs Branch watersheds that are adjacent to and downstream of the project areas. The potential effects of the action alternatives on these

watersheds were evaluated in combination with the potential effects of the proposed Rabun County complex and the proposed expansion/relocation of U.S. Highway 441.

### Temporal Bounds of Analysis

Direct effects on biological and physical resources within the specific project areas would be long-term. Direct effects on aesthetics would also be long-term. The temporal bounds of analysis for indirect effects on physical and biological resources within the Boen Creek and Boggs Branch watersheds include the period of time when ground disturbing activities are occurring up to the time when potential effects on these resources associated with soil disturbance, runoff, erosion, and sedimentation would cease to exist (five years or less).

## **Geomorphology, Topography, and Soils**

The Proposed Action (Wiley Site) and action alternative project areas are located in the Blue Ridge geomorphic province. Classification based on the FS National Hierarchical Framework of Ecological Units places the Proposed Action (Wiley Site) and action alternative project areas in the Blue Ridge Mountains Section (M221D), the Southern Blue Ridge Mountains Subsection (M221Dc), and the Tallulah Foothills Landtype Association (LTA) (M221Dc28). The Blue Ridge Mountains Section was formed by tectonic faulting and uplift of resistant, crystalline bedrock into a relatively narrow band of highly metamorphosed, parallel mountain ranges. The Southern Blue Ridge Mountains subsection is defined by low mountains (2,000 to 5,000 feet in elevation) underlain by crystalline rocks (USDA FS 2004b). Bedrock of the Tallulah Foothills LTA is composed of metagraywacke/mica schist, with numerous veins of aluminous schist. Geomorphology of the area was formed by varying degrees of metamorphosis of Precambrian-age rocks; followed by complex faulting, folding, and uplift; and subsequent massive erosion and weathering of exposed stone. Bedrock is overlain by a veneer of residuum on the ridges and mountaintops, colluvium on the slopes, and alluvial materials on the valleys. Surficial geological materials of the area are comprised of micaceous clayey and sandy saprolite, undifferentiated. Topography is characterized by broad ridges with generally moderate side slopes, gently sloping toe slopes, and flat terraces on larger streams. Slope gradients range from a low of five percent to a high of approximately 40 percent, with the majority of the LTA occurring in the 25 to 35 percent range. Elevations range from 1,800 to 2,600 feet, with average relief of approximately 500 feet (Rightmyer and Stephens 1996).

Soils occurring within the two action project areas include Saluda association, steep soils, Saluda association, moderately steep soils, and Hayesville fine sandy loam, 10 to 25 percent slopes (Carson 1981). The Saluda association consists of shallow, well-drained moderately permeable soils that formed in weathered granite, gneiss, or schist. This association occurs on narrow crests and steep slopes of mountains that range in elevation from 1,800 to 3,500 feet. Soils of the moderately steep Saluda association typically have slopes that range from 10 to 25 percent; and the steep Saluda association has slopes that

typically range from 25 to 50 percent. Steep slopes and the hazard of erosion are the primary land use limitations associated with the Saluda series. Hayesville fine sandy loam consists of very deep, well-drained soils that formed in residuum weathered from igneous and high-grade metamorphic rocks such as granite, granodiorite, mica gneiss, and schist. This series occurs on broad ridge tops and side slopes of mountains. Slopes for this series typically range from 10 to 25 percent. Slope and severe erosion hazard are the primary land use limitations associated with Hayesville fine sandy loam.

The Proposed Action (Wiley Site) project area occurs on the western slope of Wiley Mountain. Soils of the Wiley site are comprised of Saluda association, steep soils and Hayesville fine sandy loam, 10 to 25 percent slopes. The upper range of actual slopes between the project area and Boen Creek are approximately 40 percent for the Saluda association and 12 percent for Hayesville fine sandy loam. Topography in the vicinity of the Proposed Action (Wiley Site) area is characterized by a series of narrow to broad ridges, steep to moderately steep slopes, and narrow floodplains. The Proposed Action (Wiley Site) project area is located on a ridge adjacent to the southern side of Boen Creek. Project area elevations range from 1,800 to 1,960 feet, with the bed of Boen Creek occurring below the project area at an elevation of approximately 1,700 feet. The proposed access road would originate at an elevation of 1,720 feet adjacent to U.S. Highway 441, with elevations along the proposed route increasing steadily to a maximum elevation of 1,960 feet at the helibase site.

The Alternative 2 (Boggs-Boen Site) project area is located on the western slope of Boggs Mountain between Boen Creek and Boggs Branch. Elevations at this site range from approximately 1,880 to 1,960 feet. Soils of the Boggs-Boen site are comprised of Saluda association, steep and Saluda association, moderately steep soils. Topography in the vicinity of the Alternative 2 (Boggs-Boen Site) project area is characterized by a series of narrow to broad ridges, steep to moderately steep slopes, and narrow floodplains. The upper range of the slopes on the site is approximately 40 percent between the helibase site and Boen Creek, and approximately 15 percent between the office/work center site and Boggs Branch. The office/work center site is located on a ridge adjacent to the southern side of Boggs Branch. Elevations at the office/work center site range from approximately 1,880 to 1,960 feet, with the bed of Boggs Branch occurring below the site at an elevation of approximately 1,800 feet. The helibase site is located on a ridge adjacent to the northern side of Boen Creek. The helibase site occurs at an elevation of approximately 1,920 feet, with the bed of Boen Creek occurring below the site at an elevation of approximately 1,700 feet. The access road between the office/work center and helibase would follow the 1,880-foot contour between the two sites.

## Potential Soil Effects

### ***Soil erosion***

Soil erosion, or soil loss, is the removal of surface soil through mechanical means (e.g. equipment use) or erosion. It is the origin of most of the sediment delivered to streams. The primary cause of soil erosion is overland flow from runoff or high intensity storms. An undisturbed soil with soil layers intact and growing vegetation cover has a low susceptibility to erosion. When soils are disturbed to expose bare mineral soil, then soils on slopes become susceptible to raindrop impact, displacement and overland flow of water. These forces combine to move soil down slope, sometimes into stream channels where it impacts water quality. Surface erosion rates depend on factors such as soil erodibility, steepness of slope, and amount of bare ground. Vegetation plays a major role in the complex interactions of slope stability and the control of erosion. It acts to intercept and store significant amounts of precipitation, thereby buffering the effects of storm events. The roots of vegetation physically bind soil particles together; the strength of roots adds strength to the soil; and the roots may grow to bedrock, forming an effective anchor system. Once precipitation enters the soil, it becomes available for the vegetation to remove it through evapotranspiration, which decreases the amount of destabilizing groundwater (USDA FS 2004b).

### ***Soil Compaction***

Soil compaction can significantly reduce long-term soil productivity in terms of the amount of vegetation the land can produce. Compaction alters the physical arrangement of the soil matrix, compresses the soil mass, breaks down surface aggregates, and decreases the macropore volume. Compaction in forestry operations most often occurs during the use of ground-based equipment such as skidders or tractors. Use of all-terrain vehicles and horses can also result in compaction of soils when conditions such as wetness exist during use. Each trip across the same location causes some compaction. The effects are cumulative, with each succeeding trip increasing the compaction (USDA FS 2004b).

### ***Effects of Roads on Soils***

Access routes are associated with most management activities on the Forests including recreation, timber, prescribed fire, and wildlife management. Road construction and reconstruction require vegetation removal, soil disturbance, and slope re-contouring. Soils must be compacted, hardened and generally surfaced with stone. Roads often become impervious surfaces, collect surface runoff, concentrate overland flow, and divert or reroute water from paths it would otherwise take if the road were not present. Roads can disrupt normal flow patterns and create new connections for sediment or other pollutants to enter the stream system. Sediment from erosion often affects water quality and aquatic habitat. Road cuts can also undermine unstable slopes and lead to landslides, especially in steep terrain. Proper design and maintenance can mitigate these impacts;

however, some localized impacts still occur, particularly when maintenance is not kept current (USDA FS 2004b).

## Effects of Alternative 1 (No Action)

### Direct and Indirect Effects

The No Action Alternative would not involve any construction or soil disturbance, and therefore, would not have any direct or indirect effects on soils in the vicinity of the existing facilities. However, runoff from the pavement at the existing work center would continue to enter the perennial watercourse on the north side of the work center.

### Cumulative Effects

The No Action Alternative would not have any effect on soils, and therefore, would not contribute to any cumulative effects on soils in the vicinity of the existing facilities.

## Effects of the Proposed Action

### Direct and Indirect Effects

Topography on the proposed Wiley site would require relatively high road grades, especially between the office and the work center where the grade would be approximately 10 percent. The steep grade would make supply deliveries (including deliveries by tractor trailers and aviation fuel tankers) difficult and could possibly cause impassable conditions during severe winter weather. The Forest Service conducted a detailed Roads Analysis in accordance with *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (USDA Forest Service 1999). The Roads Analysis document may be found in the project planning record located at the Tallulah Ranger District office in Clayton. Construction of the buildings, parking areas, and access road would affect approximately 20 acres of land. Construction within these areas would include vegetation clearing, excavation, and grading. Due to the relatively steep terrain of the Wiley site, the project would require extensive excavation, thus increasing the potential for sedimentation into Boen Creek. Soils would be disturbed and exposed during the construction process. Some erosion would be likely during the construction process. Soil erosion would be mitigated by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), standards set forth in the Forest Plan (USDA FS 2004a), and the implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000). Standards set forth in the Forest Plan have been found effective in minimizing impacts to soil resources. Pavement or gravel placed on the parking areas and roads would provide long-term protection against erosion. Any additional exposed soils would be promptly disked,

fertilized, and seeded to prevent soil erosion. Monitoring and timely maintenance procedures would also minimize erosion after completion of the project. Soils within the project area would be compacted by heavy machinery during the construction process. Since the area occupied by the proposed facilities would be dedicated to a non-productive use, soil compaction would have little effect on soil productivity. Compaction and the addition of impervious surface area may increase overland flow.

### Cumulative Effects

The County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities to the north of the Proposed Action (Wiley Site) project area on the opposite side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on water resources that are similar to those described above for the Proposed Action (Wiley Site). Sedimentation from the jail/animal shelter construction has already occurred in a small tributary to the north of Boen Creek. The potential for cumulative effects on soils would be minimized by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), construction designs based on standards set forth in the Forest Land Management Plan (USDA FS 2004a), and the implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000). In addition, the FS periodically evaluates Forest Plan management practices to determine how fully objectives have been met and how closely management standards have been applied. This monitoring and evaluation program contains several items designed to evaluate the implementation and effectiveness of water quality standards and guidelines, which help prevent soil erosion and protect water resources from sedimentation. These items include water quality, riparian area management, and erosion control compliance. In the Annual Monitoring and Evaluation Reports for 1994 through 1999, the items listed above were all found to be in compliance with the goals, objectives, management area direction and standards and guidelines of the Forest Plan. This illustrates that the water quality standards and guidelines that are being implemented are effective in protecting existing water resources. These Forest-wide water quality standards and guidelines as well as Georgia BMPs would be followed on all future projects on National Forest System lands in the area to maintain water quality and prevent adverse impacts from soil erosion and sedimentation. Therefore, the cumulative effects from past, present, and reasonably foreseeable future actions would not impact soils.

## Effects of Alternative 2

### Direct and Indirect Effects

Construction of the buildings, parking areas, and access road would affect approximately 15 acres of land. Construction within these areas would include vegetation clearing, excavation, and grading. A stream crossing would be constructed where the road crosses a perennial tributary of Tiger Creek. Construction of the stream crossing would include culvert installation and the placement of fill material to support the road prism. The Forest Service conducted a detailed Roads Analysis in accordance with *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (USDA Forest Service 1999). The Roads Analysis document may be found in the project planning record located at the Tallulah Ranger District office in Clayton. Soils would be disturbed and exposed during the construction process. Some erosion is likely during the construction process. Soil erosion would be mitigated by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), construction designs based on standards set forth in the Forest Plan (USDA FS 2004a), and the implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000). The standards set forth in the Forest Land Management Plan have been found effective in minimizing impacts to soil resources. Pavement or gravel placed on the parking areas and roads would provide long-term protection against erosion. Monitoring and timely maintenance procedures would also minimize erosion after completion of the project. Soils within the project area would be compacted by heavy machinery during the construction process. Since the area occupied by the proposed facilities would be dedicated to a non-productive use, soil compaction would have little effect on soil productivity. Compaction and the addition of impervious surface area may increase overland flow.

### Cumulative Effects

The County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities east of the Alternative 2 (Boggs-Boen Site) project area on the north side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on water resources that are similar to those described above for Alternative 2 (Boggs-Boen Site). Sedimentation from the jail/animal shelter construction has already occurred in the stream to the south of the proposed office/work center location. The potential for cumulative effects on soils would be minimized by the use of BMPs during clearing activities (Georgia Forestry

Commission 1999), construction designs based on standards set forth in the Forest Plan (USDA FS 2004a), and the implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000). In addition, the FS periodically evaluates Forest Plan management practices to determine how fully objectives have been met and how closely management standards have been applied. This monitoring and evaluation program contains several items designed to evaluate the implementation and effectiveness of water quality standards and guidelines, which help prevent soil erosion and protect water resources from sedimentation. These items include water quality, riparian area management, and erosion control compliance. In the Annual Monitoring and Evaluation Reports for 1994 through 1999, the items listed above were all found to be in compliance with the goals, objectives, management area direction and standards and guidelines of the Forest Plan. This illustrates that the water quality standards and guidelines that are being implemented are effective in protecting existing water resources. These Forest-wide water quality standards and guidelines as well as Georgia BMPs would be followed on all future projects on National Forest System lands in the area to maintain water quality and prevent adverse impacts from soil erosion and sedimentation. Therefore, the cumulative effects from past, present, and reasonably foreseeable future actions would not impact soils.

## Noise

---

There have been no known studies of ambient noise levels within either of the two action alternative project areas. Existing sources of noise include vehicular traffic from U.S. Highway 441, activities associated with construction of County facilities on the adjacent Rabun County property, and occasional aircraft overflights. The two action alternative project areas are located in a rural setting, and consequently, are not exposed to any known loud noises. However, both action alternative project areas are in close proximity to U.S. Highway 441 and the Rabun County property, and vehicular and construction noise are noticeable from both locations.

## Effects of Alternative 1 (No Action)

### Direct and Indirect Effects

Under the No Action Alternative, the work center and office would continue to be located close to several residences and businesses. Noise from the facilities is expected to be minimal. Wildland fire suppression activities and other emergency operations may occur at the office and work center during nighttime hours; however, the noise from these operations is unlikely to be abnormally loud, and would likely be less than the noise associated with traffic along U.S. Highway 441. Some residents may hear low-level noises (vehicle doors, loading tools, air compressors, etc.); however, no abnormally loud noises would be expected during the night. Daytime noises would be

similar to normal business sounds associated with commercial development in the vicinity of the existing facilities, with occasional loud noises generated by normal operations. Based on the location of the existing facilities within the City of Clayton, noise levels would not be expected to exceed typical levels associated with commercial and residential development in the area.

Nighttime helicopter operations are prohibited, and consequently, there would be no generation of nighttime noise at either the helispot located across “old” U.S. Highway 441 from the work center or the Glassy Mountain helibase. Daytime operations may include occasional use of the helispot located across “old” U.S. Highway 441 from the work center. However, due to the distance between the helispot and existing residential and commercial development, residents and businesses should not be adversely affected by the noise associated with helicopter operations at this location. The Glassy Mountain helibase is remote from any residences or businesses, and consequently, it is unlikely that loud noises associated with daytime helicopter operations from this site would be noticed by the public.

#### Cumulative Effects

The No Action Alternative would not increase noise levels in the vicinity of the existing facilities. Operations at the existing office and work center would continue to generate low-level noise that would be similar to normal business sounds associated with commercial development in the vicinity of these facilities. When combined with U.S. Highway 441 traffic noise and other noise associated with relatively dense commercial and residential development, operations would continue to have a minor cumulative effect on noise levels within the Town of Clayton.

## **Effects of the Proposed Action**

#### Direct and Indirect Effects

Construction activities such as earthwork, grading, and building construction may produce noise that could be heard from nearby residences and businesses. This work is likely to be staggered, with construction of the individual buildings and the road being spread apart such that there would not be a concentration of activity for any extended period of time. Operational noise associated with the facilities is expected to be minimal. Wildland fire suppression activities as well as other emergency operations could occur at the office and work center during night time hours; however, the noise from these operations is unlikely to be abnormally loud, and would likely be less than the noise associated with traffic along U.S. Highway 441.

Nighttime helicopter operations are prohibited, and consequently, there would be no generation of nighttime noise at the helibase. Daytime helicopter operations may generate noise that would be heard at adjacent residences and businesses; however,

detectable noise levels would likely be minimal due to the ascent of the helicopter from the helibase pads. The distance between the helibase and nearby residences and businesses would allow the helicopter to ascend to altitudes at which noise levels detectable at these locations would be minor. The Rabun County Recreation area is located approximately one mile north from the proposed helibase site, and the middle school/high school and new elementary school (under construction) are located 1.4 to 1.5 miles to the north of the proposed helibase site. Noise associated with helicopter operations may be heard occasionally at the recreation area and schools, but would not reach levels considered loud.

### Cumulative Effects

The County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities to the north of the Proposed Action (Wiley Site) project area on the opposite side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have noise effects that are similar to the potential construction effects described above the Proposed Action (Wiley Site). However, both projects would involve minor impacts that would be temporary and staggered. Consequently, the Proposed Action (Wiley Site) would not contribute to any sustained cumulative noise effects.

## **Effects of Alternative 2**

### Direct and Indirect Effects

The effects of Alternative 2 (Boggs-Boen Site) would be similar to those described above for the Proposed Action (Wiley Site). Compared to the Proposed Action (Wiley Site) location, the Alternative 2 (Boggs-Boen Site) helibase site would be located closer to U.S. Highway 441 and closer to at least one residence and several businesses. As described under the Proposed Action (Wiley Site), and taking into account the closer proximity of adjacent private development, daytime helicopter operations may generate noise that would be heard occasionally by adjacent residents and businesses; however, noise would not reach levels considered loud. The distance between the helibase and nearby residences and businesses would allow the helicopter to ascend to altitudes at which noise levels detectable at these locations would be minor.

### Cumulative Effects

The County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities east of the Alternative 2 (Boggs-Boen Site) project area on the north side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have noise effects that are similar to the potential construction effects described above for the Proposed Action (Wiley Site). However, both projects would involve minor impacts that would be temporary and staggered. Consequently, Alternative 2 (Boggs-Boen Site) would not contribute to any sustained cumulative noise effects.

## **Water Resources**

The Proposed Action (Wiley Site) and action alternative project areas are located in the Tallulah River watershed management area (HUC # 030601207). The Tallulah River Basin drains parts of Towns and Rabun Counties in northeastern Georgia and Clay County in western North Carolina. Land in the basin is entirely within the boundaries of the Chattahoochee and Nantahala National Forests, of which 32 percent is within the Southern Nantahala Wilderness and 19 percent is privately owned (Mast and Turk 1999). The Proposed Action (Wiley Site) project area is located on a ridge adjacent to the southern side of Boen Creek, and the Alternative 2 (Boggs-Boen Site) project area is located between Boen Creek and Boggs Branch to the north. Boen Creek and Boggs Branch are both perennial tributaries of Tiger Creek. Tiger Creek flows from north to south along the western margin of U.S. 441. Boen Creek and Boggs Branch both flow west-southwest through the vicinity of the project areas before passing underneath U.S. 441 and subsequently conjoining with Tiger Creek. Additional drainageways include two intermittent tributaries of Tiger Creek that flow west-southwest between Boen Creek and Boggs Branch. These intermittent tributaries also flow beneath U.S. 441 before conjoining with Tiger Creek. Tiger Creek conjoins with the Tallulah River approximately one mile downstream of the Lake Rabun reservoir. Lake Rabun is a power-producing reservoir that is owned and managed by Georgia Power. Lake Rabun is also the source of the City of Clayton's municipal water supply. The Tallulah River joins with the Chattoogah River at the South Carolina state line to form the Tugaloo River, and further downstream, the Tugaloo River joins with the Seneca River to form the Savannah River.

Project area streams have a Georgia water use classification of fishing. There are no streams within the project area that are currently classified by the Georgia Department of Natural Resources (GDNR) as partially supporting or not supporting their designated

water use classification. Waters of the Tiger Creek watershed have a primary trout stream classification from the GDNR. Primary trout streams are defined as streams containing naturally-reproducing populations of brook trout, brown trout, and/or rainbow trout (GDNR 2001).

## **Potential Effects on Water Resources**

Indirect effects from typical land management activities include sedimentation and increased water yield. Sedimentation can alter channel morphology, reduce aquatic habitats, and impair water quality. Sediment is a product of soil erosion, and sedimentation is an indirect effect from ground or soil disturbing activities. Increased water yield is an indirect effect of vegetation removal or harvest. Road sediment is the principal non-point source of pollution from forestry activities. Other sediment sources include recreation trails [off-highway vehicle (OHV), horse, hiking etc.], skid trails, log landings, and constructed fire control lines. Only a portion of the eroded soil is passed through and out of a watershed during a storm event. Most sediment is deposited at the base of slopes, in floodplains following high flows or flood events, and within river channels. It can also enter a watercourse directly through road/trail crossings and onsite disturbance. Exposed soils immediately adjacent to stream channels generally result in increased sediment delivery to streams. As a result, an increase in stream sediment concentration is a potential effect from stream crossings. The road segments leading to and from crossings are also a factor in stream crossing function. If a large amount of road runoff (water volume) is transported directly to the crossing, then the crossing is at greater risk of failure and potentially delivers more sediment to the stream. Changes in sediment concentration or stream flow regime from management activities may cause channel aggradation or degradation in present time resulting in a change in the channel width/depth ratio. Shifts in dominant streambed particle size distribution may also occur. The most vulnerable areas for this effect are stream segments directly downstream of road and trail crossings (USDA FS 2004b).

## **Effects of Alternative 1 (No Action)**

### Direct and Indirect Effects

The No Action Alternative would not involve any construction, soil disturbance, or modification of existing stream morphology, and therefore, would not have any direct effect on surface water resources in the vicinity of the existing facilities. The existing work center is located within the floodplain of Needy Creek. The location of this facility in a floodplain increases the potential for indirect impacts resulting from pollutant transport from the facility into the adjacent stream; especially if hazardous materials such as paints, solvents, petroleum, oil, and lubricants are stored at the facility. The presence of an impervious surface area associated with the existing facility effectively reduces the area of floodplain that would otherwise be available to perform functions such as

sediment and pollutant removal. The potential for surface water impacts would continue under the No Action Alternative.

### Cumulative Effects

Needy Creek is a tributary of Stekoa Creek, which runs through the Town of Clayton. Stekoa Creek is classified as not supporting its designated use of fishing due to elevated fecal coliform levels (GDNR 2001). Although past actions involving construction of the existing work center may have contributed to cumulative impacts on water quality, the No Action Alternative would not result in any additional impacts. Therefore, the No Action Alternative would not contribute to cumulative impacts on water quality.

## **Effects of the Proposed Action**

### Direct and Indirect Effects

The Proposed Action (Wiley Site) would not involve any road crossings or modification of channel morphology, and therefore, the Proposed Action (Wiley Site) would have no direct effect on water resources. Upland soils would be disturbed and exposed during the construction process. Soils eroded from upland areas could potentially be transported into area streams during the construction process. However, soil erosion and sedimentation would be mitigated by the use of BMPs during construction. Pavement or gravel placed on the parking areas and roads would provide long-term protection against erosion and sedimentation. Monitoring and maintenance procedures for the roads and parking areas would minimize the potential for erosion and sedimentation after completion of the project.

### Cumulative Effects

Rabun County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities to the north of the Proposed Action (Wiley Site) project area on the opposite side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on water resources that are similar to those described above for the Tallulah Ranger District co-located facilities. Sedimentation from the jail/animal shelter construction has already occurred in a small tributary to the north of Boen Creek.

The potential for cumulative effects on water resources would be minimized by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), construction designs based on standards set forth in the Forest Plan (USDA FS 2004a), and the implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000). In addition, the FS periodically evaluates Forest Plan management practices to determine how fully objectives have been met and how closely management standards have been applied. This monitoring and evaluation program contains several items designed to evaluate the implementation and effectiveness of water quality standards and guidelines, which help protect water resources. These items include water quality, riparian area management, and erosion control compliance. In the Annual Monitoring and Evaluation Reports for 1994 through 1999, the items listed above were all found to be in compliance with the goals, objectives, management area direction and standards and guidelines of the Forest Plan. This illustrates that the water quality standards and guidelines that are being implemented are effective in protecting existing water resources. These Forest-wide water quality standards and guidelines as well as Georgia BMPs would be followed on all future projects in the area to maintain water quality and prevent adverse impacts to water resources. Therefore, the cumulative effects from past, present, and reasonably foreseeable future actions would not impact water resources.

## Effects of Alternative 2

### Direct and Indirect Effects

Alternative 2 (Boggs-Boen Site) would involve construction of an access road across a perennial tributary of Tiger Creek. Construction of the stream crossing would include culvert installation and the placement of fill material to support the road prism. The access road would cross the upper reaches of this tributary at an elevation of approximately 1,800 feet. The crossing is located approximately half way between the proposed office/work center and helibase. The Forest Service conducted a detailed Roads Analysis in accordance with *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (USDA Forest Service 1999). The Roads Analysis document may be found in the project planning record located at the Tallulah Ranger District office in Clayton. Construction would not alter channel morphology upstream or downstream of the crossing. Potential impacts to area streams would be mitigated through the implementation of Management Prescription #11, *Riparian Corridors* (USDA FS 2004a). In accordance with the standards set forth in this prescription, a minimum 100-foot riparian buffer would be maintained along all streams in the vicinity of the project, and road crossings would be designed and constructed to minimize effects on streams.

The potential for sedimentation would be mitigated by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), construction designs based on standards set forth in the Forest Plan (USDA FS 2004a), and the implementation of erosion and

sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000). The standards set forth in the Forest Plan have been found effective in minimizing impacts to soil resources (USDA FS2001b). Gravel placed on the parking areas and roads would provide long-term protection against erosion. Monitoring and timely maintenance procedures would also minimize erosion after completion of the project. Upland soils would be disturbed and exposed during the construction process. Soils eroded from upland areas could be transported into area streams during the construction process. Soil erosion and sedimentation would be mitigated by the use of BMPs during construction. Gravel placed on the parking areas and roads would provide long-term protection against erosion and sedimentation. Monitoring and maintenance procedures for the roads and parking areas would minimize the potential for erosion and sedimentation after completion of the project.

### Cumulative Effects

The County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities east of the Alternative 2 (Boggs-Boen Site) project area on the north side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on water resources that are similar to those described above for Alternative 2 (Boggs-Boen Site). Sedimentation from the jail construction has already occurred in the stream to the south of the proposed office/work center location.

The potential for cumulative effects on water resources would be minimized by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), construction designs based on standards set forth in the Forest Plan (USDA FS 2004a), implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000), and implementation of Management Prescription #11, *Riparian Corridors* (USDA FS 2004a). In addition, the FS periodically evaluates Forest Plan management practices to determine how fully objectives have been met and how closely management standards have been applied. This monitoring and evaluation program contains several items designed to evaluate the implementation and effectiveness of water quality standards and guidelines, which help protect water resources. These items include water quality, riparian area management, and erosion control compliance. In the Annual Monitoring and Evaluation Reports for 1994 through 1999, the items listed above were all found to be in compliance with the goals, objectives, management area direction and standards and guidelines of the Forest Plan. This

illustrates that the water quality standards and guidelines that are being implemented are effective in protecting existing water resources. These Forest-wide water quality standards and guidelines as well as Georgia BMPs would be followed on all future projects on National Forest System lands in the area to maintain water quality and prevent adverse impacts to water resources. Therefore, the cumulative effects from past, present, and reasonably foreseeable future actions would not impact water resources.

## Floodplains and Wetlands

---

Executive Order 11988 (*Floodplain Management*) requires each Federal agency to evaluate the effects of any actions it may conduct, support, or allow in floodplains. Floodplains are low-lying areas adjacent to rivers, lakes and oceans that are periodically inundated by floodwater. Floodplains provide numerous benefits such as flood and erosion control, water filtering processes, and important habitats for flora and fauna. These areas also serve as a buffer to the nearby streams to trap overland flows that may carry damaging sediment or other pollutants. Within the Chattahoochee National Forest, floodplains are most often confined to a narrow strip of land within the valley originating at the edge of the stream channel and ending as the upland slopes begin to rise up from the landscape. These features create long, narrow floodplains that may occur on one or both sides of a stream. Forest Plan direction for floodplain management is included in the forest-wide standards (USDA FS 2004a). Emphasis is placed on maintaining normal function, minimizing obstructions to flood flow levels, and avoiding the placement of permanent structures or facilities within the 100-year floodplain zone.

Wetlands are defined by the U.S. Army Corps of Engineers (USACE) as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3). In accordance with this definition, wetlands must possess the following three diagnostic characters: 1) a predominance of hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology. Wetlands provide many beneficial ecological functions such as sediment and pollutant removal, flood control, erosion control, groundwater recharge, maintenance of stream flow, and provision of fish and wildlife habitat.

Activities that involve the discharge of dredged or fill material into jurisdictional wetlands and open waters are regulated under Section 404 of the Clean Water Act of 1977, as amended. The USACE is responsible for the administration of Section 404 and the issuance of permits for the discharge of dredged and fill material into wetlands. Impacts exceeding 0.5 acre require an Individual Permit from the USACE. Individual permits are generally reserved for projects with a potential for substantial environmental impacts. This permit requires a full public interest review, including public notices and coordination with involved agencies, interested parties, and the general public. Nationwide Permits (NWPs) are general permits issued on a nationwide basis to authorize minor activities with minimal evaluation time. Some activities authorized by

NWPs require pre-construction notification to the USACE District Engineer before commencing with the work. This notification requirement to the District Engineer is necessitated to ensure that activities authorized by these NWPs have minimal individual and cumulative adverse impacts on the aquatic environment. NWPs require USACE notification and mitigation for wetland impacts exceeding one-tenth of an acre. The maximum allowable wetland impact under a NWP is 0.5 acre.

Wetlands in the Forest are generally in natural, normal functioning conditions. Exceptions exist where the impacts of road and trail crossings, dispersed recreation use or other ground disturbing activities cause entry of pollutants to wetlands (USDA FS 2004b). Implementation of BMPs, forest-wide standards and applicable State or Federal wetland regulations provide protection. Section 404 of the Clean Water Act regulates activities that fill or dredge jurisdictional wetlands or waters of the United States. Waters of the United States include most of the perennial water system found on the National Forests. Activities occurring within jurisdictional wetlands are required to comply with the permit requirements of Section 404, and the protection requirements of Executive Order 11990, Protection of Wetlands.

## **Effects of Alternative 1 (No Action)**

### Direct and Indirect Effects

The No Action Alternative would not involve any construction, soil disturbance, or modification of existing floodplains or wetlands, and consequently, would not have any direct effect on floodplains or wetlands in the vicinity of the existing facilities. The existing work center is located within the floodplain of Needy Creek. The work center facilities are at risk of damage or total loss during flooding. In addition, the location of this facility in a floodplain increases the potential for indirect impacts resulting from pollutant transport from the facility into the adjacent stream; especially if hazardous materials such as paint, solvents, petroleum, oil, and lubricants are stored at the facility. The presence of an impervious surface area associated with the existing facility effectively reduces the area of floodplain that would otherwise be available to perform functions such as sediment and pollutant removal. The potential for surface water impacts would continue under the No Action Alternative.

### Cumulative Effects

Needy Creek is a tributary of Stekoa Creek, which runs through the Town of Clayton. Stekoa Creek is classified as not supporting its designated use of fishing due to elevated fecal coliform levels (GDNR 2001). Although past actions involving construction of the work center may have contributed to cumulative impacts on floodplains and water quality, the No Action Alternative would not result in any additional impacts. Therefore, the No Action Alternative would not contribute to cumulative impacts on floodplains or water quality.

## Effects of the Proposed Action

### Direct and Indirect Effects

The Proposed Action (Wiley Site) would not involve any construction within floodplains or wetlands, and therefore, the Proposed Action (Wiley Site) would have no direct effect on floodplains or wetlands. There are no known wetlands in the immediate vicinity of the project area; however, there is a floodplain associated with the portion of Boen Creek near U.S Highway 441. Upland soils would be disturbed and exposed during the construction process. During the construction process, soils eroded from upland areas could be transported into the Boen Creek floodplain. However, soil erosion and sedimentation would be mitigated by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), construction designs based on standards set forth in the Forest Plan (USDA FS 2004a), implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000), and implementation of Management Prescription #11, *Riparian Corridors* (USDA FS 2004a). The Forest Service conducted a detailed Roads Analysis in accordance with *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (USDA Forest Service 1999). The Roads Analysis document may be found in the project planning record located at the Tallulah Ranger District office in Clayton. Surfacing (asphalt/cement) of the roads would provide long-term protection against erosion and sedimentation. Monitoring and maintenance procedures for the roads and parking areas would minimize the potential for erosion and sedimentation after completion of the project.

### Cumulative Effects

Rabun County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities to the north of the Proposed Action (Wiley Site) project area on the opposite side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on wetlands and floodplains that are similar to those described above for the Proposed Action (Wiley Site). The potential for cumulative effects on wetlands and floodplains would be minimized by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), construction designs based on standards set forth in the Forest Plan (USDA FS 2004a), implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000), and implementation of Management Prescription #11,

*Riparian Corridors* (USDA FS 2004a). In addition, the FS periodically evaluates Forest Plan management practices to determine how fully objectives have been met and how closely management standards have been applied. This monitoring and evaluation program contains several items designed to evaluate the implementation and effectiveness of water quality standards and guidelines, which help protect floodplains and wetlands. These items include water quality, riparian area management, and erosion control compliance. In the Annual Monitoring and Evaluation Reports for 1994 through 1999, the items listed above were all found to be in compliance with the goals, objectives, management area direction and standards and guidelines of the Forest Plan. This illustrates that the water quality standards and guidelines that are being implemented are effective in protecting existing water resources. These Forest-wide water quality standards and guidelines as well as Georgia BMPs would be followed on all future projects on National Forest System lands in the area to maintain water quality and prevent adverse impacts to wetlands and floodplains. Therefore, the cumulative effects from past, present, and reasonably foreseeable future actions would not impact floodplains or wetlands.

## Effects of Alternative 2

### Direct and Indirect Effects

Alternative 2 (Boggs-Boen Site) would involve construction of a stream crossing where the access road route crosses a perennial tributary of Tiger Creek. The crossing is located approximately half-way between the proposed office/work center and helibase. The access road would cross the upper reaches of the tributary at an elevation of approximately 1,800 feet. Construction of the stream crossing would include culvert installation and the placement of fill material to support the road prism. Alternative 2 (Boggs-Boen Site) would not involve any construction within known floodplains or wetlands. Upland soils would be disturbed and exposed during the construction process. Soils eroded from upland areas could be deposited in the Boen Creek floodplain during the construction process. Soil erosion and sedimentation would be mitigated by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), construction designs based on standards set forth in the Forest Plan (USDA FS 2004a), implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000), and implementation of Management Prescription #11, *Riparian Corridors* (USDA FS 2004a). The Forest Service conducted a detailed Roads Analysis in accordance with *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (USDA Forest Service 1999). The Roads Analysis document may be found in the project planning record located at the Tallulah Ranger District office in Clayton. Gravel placed on the parking areas and roads would provide long-term protection against erosion and sedimentation. Monitoring and maintenance procedures for the roads and parking areas would minimize the potential for erosion and sedimentation after completion of the project.

### Cumulative Effects

Rabun County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities east of the Alternative 2 (Boggs-Boen Site) project area on the north side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on water resources that are similar to those described above for Alternative 2 (Boggs-Boen Site). Sedimentation from the jail/animal shelter construction has already occurred in the stream to the south of the proposed office/work center location.

The potential for cumulative effects on wetlands and floodplains would be minimized by the use of BMPs during clearing activities (Georgia Forestry Commission 1999), construction designs based on standards set forth in the Forest Plan (USDA FS 2004a), implementation of erosion and sedimentation control measures in accordance with the Manual for Erosion and Sedimentation Control in Georgia (Georgia Soil and Water Conservation Commission 2000), and implementation of Management Prescription #11, *Riparian Corridors* (USDA FS 2004a). In addition, the FS periodically evaluates Forest Plan management practices to determine how fully objectives have been met and how closely management standards have been applied. This monitoring and evaluation program contains several items designed to evaluate the implementation and effectiveness of water quality standards and guidelines, which help protect wetlands and floodplains. These items include water quality, riparian area management, and erosion control compliance. In the Annual Monitoring and Evaluation Reports for 1994 through 1999, the items listed above were all found to be in compliance with the goals, objectives, management area direction and standards and guidelines of the Forest Plan. This illustrates that the water quality standards and guidelines that are being implemented are effective in protecting existing water resources. These Forest-wide water quality standards and guidelines as well as Georgia BMPs would be followed on all future projects on National Forest System lands in the area to maintain water quality and prevent adverse impacts to floodplains and wetlands. Therefore, the cumulative effects from past, present, and reasonably foreseeable future actions would not impact floodplains or wetlands.

## **Vegetation**

---

The Wiley site is located in compartment 65, stand 38. Overstory vegetation in the project area is dominated by a dense, 10- to 12-year-old loblolly pine (*Pinus taeda*) plantation. Additional overstory species of similar age to the pine plantation include

Virginia pine (*Pinus virginiana*), white pine (*P. strobus*), red maple (*Acer rubrum*), southern red oak (*Quercus falcata*), blackjack oak (*Q. marilandica*), chestnut oak (*Q. prinus*), and yellow poplar (*Liriodendron tulipifera*). The midstory and shrub strata include flowering dogwood (*Cornus florida*), persimmon (*Diospyros virginiana*), sassafras (*Sassafras albidum*), American holly (*Ilex opaca*), sourwood (*Oxydendrum arboreum*), and blueberry (*Vaccinium* sp.). The very sparse groundcover stratum includes species such as galax (*Galax aphylla*), poison ivy (*Toxicodendron radicans*), pipsissewa (*Chimaphila maculata*), Christmas fern (*Polystichum acrosticoides*), and clubmoss (*Lycopodium* sp.).

The Boggs-Boen site is located in compartment 65; stands 21, 22, and 24. Overstory vegetation in the site is dominated by dense, mature white pines with additional overstory species that include Virginia pine, shortleaf pine (*Pinus echinata*), red maple, southern red oak, chestnut oak, post oak (*Quercus stellata*), northern red oak (*Q. rubra*), black oak (*Q. velutina*), and yellow poplar. The midstory and shrub strata include flowering dogwood, persimmon, American holly, sourwood, hemlock (*Tsuga canadensis*), mountain laurel (*Kalmia latifolia*), rhododendron (*Rhododendron* sp.), and blueberry. The sparse groundcover stratum includes species such as galax, pipsissewa, Christmas fern, and clubmoss. Mature white pines and shortleaf pines at the Boggs-Boen site have experienced heavy mortality from a southern pine beetle infestation, with mortality ranging from 80 to 90 percent at the proposed office/work center location.

The project area lies within a sixth-order watershed called the Tiger Creek Hydrologic Unit. Approximately 5% of the National Forest System acres within this watershed have been identified as small blocks of old growth and will be managed to protect their old growth characteristics (see analysis in project file). This analysis complies with Forest Plan goals and objectives (Goal 20, Objective 20.1 on page 2-16) as well as Standard FW-044 (page 2-17). None of the stands within the project area (Proposed Action or alternatives) have been identified for reservation as small blocks of old growth.

## Effects of Alternative 1 (No Action)

### Direct and Indirect Effects

The No Action Alternative would not involve any construction or vegetation disturbance, and therefore, would not have any direct or indirect effects on vegetation in the vicinity of the existing facilities.

### Cumulative Effects

The No Action Alternative would not have any effect on vegetation, and therefore, would not contribute to any cumulative effects on vegetation in the vicinity of the existing facilities.

## Effects of the Proposed Action

### Direct and Indirect Effects

The Proposed Action (Wiley Site) would result in the loss of approximately 20 acres of a 10- to 12-year-old loblolly pine plantation. This acreage would be permanently removed from growing trees and dedicated to another use. Construction would include removal of the standing timber except for selected reserve trees; grubbing and excavation of the area for building construction and parking areas; and landscaping of the area with native and non-native plants. These impacts would affect 20 acres of the approximately 148,000 acres of forested lands within the Rabun County portion of the National Forest. Given the overwhelming predominance of forested land within Rabun County and the disturbed nature of the project area (i.e. dense loblolly pine plantation), the Proposed Action (Wiley Site) would not have an adverse effect on Forest vegetation.

### Cumulative Effects

Rabun County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities to the north of the Proposed Action (Wiley Site) project area on the opposite side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on vegetation that are similar to those described above for the Proposed Action (Wiley Site), with the combined impacts totaling approximately 65 acres. The Rabun County property contains an additional 65-acre cleared area occupied by the former landfill. The cumulative impacts of past, present, and future development on County and National Forest lands represent a total of approximately 150 acres. Given the overwhelming predominance of forested land within the Rabun County portion of the National Forest (approximately 148,000 acres), and the minimal past and planned future development within the Forest, the losses of these forested areas would not have an adverse cumulative effect on Forest vegetation.

## Effects of Alternative 2

### Direct and Indirect Effects

Alternative 2 (Boggs-Boen Site) would result in the loss of approximately 15 acres of white pine-mixed hardwood forest in an area where a large number of the mature white and shortleaf pines have been killed by a southern pine beetle infestation. This acreage

would be permanently removed from growing trees and dedicated to another use. Construction would include removal of the standing timber except for selected reserve trees; grubbing and excavation of the area for building construction and parking areas; and landscaping of the area with native and non-native plants. These impacts would affect 48 acres of the approximately 148,000 acres of forested lands within the Rabun County portion of the National Forest. Given the overwhelming predominance of forested land within Rabun County, the Alternative 2 (Boggs-Boen site) would not have an adverse effect on Forest vegetation.

### Cumulative Effects

The County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities east of the Alternative 2 (Boggs-Boen Site) project area on the north side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on vegetation that are similar to those described above for the Proposed Action (Wiley Site), with the combined impacts totaling approximately 65 acres. The Rabun County property contains an additional 65-acre cleared area occupied by the former landfill. The cumulative impacts of past, present, and future development on County and National Forest lands represent a total of approximately 145 acres. Given the overwhelming predominance of forested land within the Rabun County portion of the National Forest (approximately 148,000 acres), and the minimal past and planned future development within the Forest, the losses of these forested areas would not have an adverse cumulative effect on Forest vegetation.

## **Wildlife**

---

Representative mammals of the Tallulah Foothills LTA include white-tailed deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), raccoon (*Procyon lotor*), eastern gray squirrel (*Sciurus carolinensis*), and eastern cottontail (*Sylvilagus floridanus*). Game birds found in this LTA include the ruffed grouse (*Bonasa umbellus*), northern bobwhite (*Colinus virginianus*), wild turkey (*Meleagris gallopavo*), and mourning dove (*Zenaida macroura*). Representative neotropical migratory and resident landbirds include summer tanager (*Piranga rubra*), northern cardinal (*Cardinalis cardinalis*), tufted titmouse (*Baeolophus bicolor*), wood thrush (*Hylocichla mustelina*), red-eyed vireo (*Vireo olivaceus*), Carolina wren (*Thryothorus ludovicianus*), blue-gray gnatcatcher (*Polioptila caerulea*), Carolina chickadee (*Poecile carolinensis*), dark-eyed junco (*Junco hyemalis*), red-tailed hawk (*Buteo jamaicensis*), yellow-rumped warbler (*Dendroica coronata*), and Canada warbler (*Wilsonia canadensis*). Reptiles and amphibians of the

area include the eastern box turtle (*Terrapene carolina carolina*), eastern garter snake (*Thamnophis sirtalis sirtalis*), pygmy rattlesnake (*Sistrurus miliarius miliarius*), timber rattlesnake (*Crotalis horridus*), green anole (*Anolis carolinensis*), Blue Ridge two-lined salamander (*Eurycea wilderae*), and wood frog (*Rana sylvatica*) (Rightmyer and Stephens 1996).

## Effects of Alternative 1 (No Action)

### Direct and Indirect Effects

The No Action Alternative would not involve any construction or disturbance of wildlife habitat, and therefore, would not have any direct or indirect effects on wildlife in the vicinity of the existing facilities.

### Cumulative Effects

The No Action Alternative would not have any effect on wildlife habitat, and therefore, would not contribute to any cumulative effects on wildlife or wildlife habitat in the vicinity of the existing facilities.

## Effects of the Proposed Action

### Direct and Indirect Effects

The Proposed Action (Wiley Site) would result in the loss of approximately 20 acres of a 10- to 12-year-old loblolly pine plantation. Given the overwhelming predominance of forested land within the Forest, and the presence of abundant similar habitat in the vicinity of the project area, impacts on wildlife and wildlife habitat would be minor.

### Cumulative Effects

Rabun County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities to the north of the Proposed Action (Wiley Site) project area on the opposite side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on wildlife that are similar

to those described above for the Proposed Action (Wiley Site). Given the minimal past and planned future development within the National Forest, the loss of these forested areas would not have an adverse cumulative effect on wildlife.

## Effects of Alternative 2

### Direct and Indirect Effects

Alternative 2 (Boggs-Boen Site) would result in the loss of approximately 15 acres of white pine-mixed hardwood forest habitat in an area where most of the mature white pines have been recently killed by a southern pine beetle infestation. Some additional dead or dying pines adjacent to the project area may require removal for safety purposes. Given the overwhelming predominance of forested land within the Forest, and the presence of abundant similar habitat in the vicinity of the project area, impacts on wildlife and wildlife habitat would be minor.

### Cumulative Effects

The County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities east of the Alternative 2 (Boggs-Boen Site) project area on the north side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have effects on wildlife that are similar to those described above for Alternative 2 (Boggs-Boen Site). Given the minimal past and planned future development within the Forest, the loss of these forested areas would not have an adverse cumulative effect on wildlife.

## **Proposed, Endangered, Threatened, and Forest Sensitive (PETS) Species**

---

Species listed by the Federal Government as threatened and endangered are protected under the Endangered Species Act (ESA) of 1973, as amended (16 U. S. C. 1531-1543), which requires Federal agencies to ensure that any actions they authorize, fund, or carry out do not jeopardize the “continued existence” of listed species or result in the destruction or adverse modification of habitat designated as critical to their existence. The U.S. Fish and Wildlife Service (USFWS) reviews Federal actions that may result in a

negative impact on federally listed plants or animals. In addition to federally listed threatened and endangered species, the Federal Government maintains lists of candidate species and Federal species of concern. Candidate species are those under consideration for which there is sufficient information to support listing as threatened or endangered. Federal species of concern are species that may or may not be listed in the future (formerly C2 candidate species or species under consideration for listing for which there is insufficient information to support listing). Candidate species and Federal species of concern are not afforded protection under the ESA until they are formally proposed for listing. The FS also maintains lists of Regional Forest Sensitive species. These lists include USFWS and National Marine Fisheries Service candidates for listing as threatened or endangered, species delisted by the Federal Government in the last five years, and species ranked by The Nature Conservancy as G1-G3, T1-T3, and N1-N3. In addition, State threatened and endangered, Natural Heritage Program S1 and S2 species, and species at risk on National Forests are screened using a Risk Evaluation addressing abundance, distribution, population trends, habitat integrity and population vulnerability. Endangered, threatened, and sensitive species receive specific biological evaluations for the effects of management activities on National Forest system land. Conservation measures are incorporated for endangered, threatened, and sensitive species; and the adverse effects of management activities are either eliminated or mitigated. There are 122 species, (33 federally listed and 89 forest sensitive) on the Chattahoochee-Oconee PETS list.

## **Effects of Alternative 1 (No Action)**

### Direct and Indirect Effects

The No Action Alternative would not involve any construction or habitat disturbance, and therefore, would not have any direct or indirect effects on PETS in the vicinity of the existing facilities.

### Cumulative Effects

The No Action Alternative would not have any effect on PETS or their habitats, and therefore, would not contribute to any cumulative effects on PETS or their habitats in the vicinity of the existing facilities.

## **Effects of the Proposed Action**

### Direct and Indirect Effects

A biological evaluation (BE) was conducted to document any potential effects of the proposed facilities relocation project on PETS species. The BE document may be found in the project planning record located at the Tallulah Ranger District office in Clayton.

The Wiley site was surveyed for PETS plants by botanical contractor Tom Govus in July 2001. No PETS plants were found, and no known locations of PETS species within the project area were identified in FS files or in the Georgia Natural Heritage Program (GNHP) database. The project site was surveyed for the presence of PETS vertebrates and invertebrates habitat by East Zone Wildlife Biologist Andy Gaston in September 2003. The project site contains no habitat for federally listed vertebrates or invertebrates whose range would include this area, and none of these species are known to occur in the vicinity of the project area. No federally listed species are present within the proposed project area, and therefore, there would be no effect on any federally listed species as a result of implementation of the proposed project.

No known locations of forest sensitive vertebrates or invertebrates within the project area were identified in FS files or in the GNHP database; however, an evaluation of occurrence records, species distributions, and habitat preferences indicates that six forest sensitive species have the potential to occur in the vicinity of the two action project areas (Table 2). No forest sensitive plants are present in the stands, and the proposed project would not impact any sensitive plants. No nectar plants and no breeding habitat or larval host plants are present for the forest sensitive species Diana fritillary (*Speyeria diana*). Therefore, there would be no impact to the butterfly. Habitat for the forest sensitive species Margarita river skimmer (*Macromia margarita*), Appalachian snaketail (*Ophiogomphus incurvatus*), Edmunds snaketail (*Ophiogomphus edmundo*), Oconee stream crayfish (*Cambarus chaugaensis*), and Rafinesque's big-eared bat (*Corynorhinus rafinesquii*) may be present in the project area. However, these species would be protected by Forest standards and guidelines and by leaving the hardwoods and snags in the pine plantations, and therefore, there would be no impact to these species.

**Table 2. PETS Species Potentially Occurring in the Project Area.**

Common Name	Scientific Name	Species Status P/E/T/S	Inventory Status
Diana fritillary	<i>Speyeria diana</i>	S	3
Margarita river skimmer	<i>Macromia margarita</i>	S	2
Appalachian snaketail	<i>Ophiogomphus incurvatus</i>	S	2
Edmund's snaketail	<i>Ophiogomphus edmundo</i>	S	2
Oconee stream crayfish	<i>Cambarus chaugaensis</i>	S	2
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	S	1

Inventory Status:

X = Project-level inventories were conducted.

1 = Presence of the species is presumed; surveys would have low likelihood of detecting the species.

2 = Presence of the species is presumed; protection measures already in place and part of the Proposed Action.

3 = Presence of the species is presumed; proposed actions would have beneficial or no effects to the sp. or any expected adverse effects would not likely cause a trend to federal listing or a loss of viability.

### Cumulative Effects

No PETS plants were found during the botanical inventories of the Proposed Action (Wiley Site) project area. Botanical inventories would be conducted for any future activities in the area having potential to impact PETS plants. Effects on federally listed species would be avoided and sensitive plant species would be protected where necessary to protect their viability. Therefore, the Proposed Action (Wiley Site) would not result in adverse cumulative effects to any federally listed or forest sensitive plant species.

No nectar plants are present for the Diana fritillary butterfly in the proposed project area, and no larval host plants (violets) were found. Nectar and larval host plants are common throughout the 749,549 acres of the Chattahoochee National Forest. Maternity and hibernation habitat for the Rafinesque's big-eared bat is not present in the project area. Hollow roosting trees for the bats may be present in the stands. Roosting trees are also present across the entire Forest. Future projects would be analyzed using any new information available on the Diana fritillary, Rafinesque's big-eared bat, and other terrestrial PETS invertebrate and vertebrate species. Adverse effects on federally listed terrestrial species would be avoided, and mitigating measures would be implemented to ensure viability of all forest sensitive species. Therefore, there would be no cumulative effects on terrestrial PETS invertebrates and vertebrates.

Forest-wide water quality standards and guidelines as well as Georgia BMPs would be followed on all future projects in the area to maintain water quality and prevent adverse impacts to aquatic species. Therefore, the cumulative effects from past, present, and reasonably foreseeable future actions would not impact any aquatic PETS species.

## **Effects of Alternative 2**

### Direct and Indirect Effects

A BE was conducted to document any potential effects of Alternative 2 (Boggs-Boen Site) on PETS species. The BE document may be found in the project planning record located at the Tallulah Ranger District office in Clayton. The Boggs-Boen site was surveyed for PETS vertebrates and invertebrates habitat and PETS plants by East Zone Wildlife Biologist Andy Gaston in September 2003. No PETS plants were found, and no known locations of PETS species within the project area were identified in FS files or in the GNHP database. The project site contains no habitat for federally listed vertebrates or invertebrates whose range would include this area, and none of these species are known to occur in the vicinity of the project area. No federally listed species are present in the project area, and therefore, there would be no effect on any federally listed species as a result of implementation of Alternative 2 (Boggs-Boen Site).

No known locations of forest sensitive vertebrates or invertebrates within the project area were identified in FS files or in the GNHP database; however, an evaluation of occurrence records, species distributions, and habitat preferences indicates that six forest

sensitive species have the potential to occur in the vicinity of the project area (Table 2). Based on the rationale provided in Table 2, project level surveys for these species were not deemed necessary. No forest sensitive plants are present in the stands, and therefore, Alternative 2 (Boggs-Boen Site) would not impact any sensitive plants. No nectar plants and no breeding habitat or larval host plants are present for the forest sensitive species Diana fritillary. Therefore, there would be no impact to the butterfly. Habitat for the forest sensitive species Margarita river skimmer, Appalachian snaketail, Edmunds snaketail, Oconee stream crayfish, and Rafinesque's big-eared bat may be present in the project sites. However, these species would be protected by Forest standards and guidelines and by leaving the hardwoods and snags in the pine plantations, and therefore, there would be no impact to these species.

### Cumulative Effects

No PETS plants were found during the botanical inventories of the project area. Botanical inventories would be conducted for any future activities in the area having potential to impact PETS plants. Effects on federally listed species would be avoided and sensitive plant species would be protected where necessary to protect their viability. Therefore, Alternative 2 (Boggs-Boen Site) would not result in adverse cumulative effects to any federally listed or forest sensitive plant species.

No nectar plants are present for the Diana fritillary butterfly in the project area, and no larval host plants (violets) were found. Nectar and larval host plants are common throughout the 749,549 acres of the Chattahoochee National Forest. Maternity and hibernation habitat for the Rafinesque's big-eared bat is not present in the project area. Hollow roosting trees for the bats may be present in the stands. Roosting trees are also present across the entire Forest. Future projects would be analyzed using any new information available on the Diana fritillary, Rafinesque's big-eared bat, and other terrestrial PETS invertebrate and vertebrate species. Adverse effects to federally listed terrestrial species would be avoided, and mitigating measures would be implemented to ensure viability of all forest sensitive species. Therefore, there would be no cumulative effects on terrestrial PETS invertebrates and vertebrates.

Forest-wide water quality standards and guidelines as well as Georgia BMPs would be followed on all future projects in the area to maintain water quality and prevent adverse impacts to aquatic species. Therefore, the cumulative effects from past, present, and reasonably foreseeable future actions would not impact any aquatic PETS species.

## **Cultural Resources**

---

The following cultural resources background information was adapted from *Cultural Resource Surveys of Three Exchange Tracts, Rabun County, Georgia* (Willingham 1982). The rough terrain and narrow floodplains that are characteristic of the Rabun County area limit the types and quantities of archaeological sites that might be expected. Although

there is little archaeological data for the area, evidence does indicate that prehistoric aboriginal populations inhabited the area on a limited basis. Recorded prehistoric habitation records for the area consist primarily of shallow quartz and chert lithic scatters in upland areas. The general area has a cultural history dating from European contact in the mid-16<sup>th</sup> century. The Desoto expedition of the 1540s may have passed through the general area; however, there is substantial debate as to the routes the expedition may have followed. Some researchers believe that the expedition followed the Savannah River and crossed the mountain passes of Rabun County on their journey westward. The Rabun County area was inhabited by aboriginal populations until the removal of the Cherokees in the 1830s. Bartram reported an uninhabited, historic Cherokee village in Rabun County. A historical map of the Cherokee Country locates the Cherokee town of Stecoee in Rabun County near Stekoa Creek, and the Cherokee village of Talullah in southwestern Rabun County near the Tallulah River. The Cherokee gradually lost control of their lands as they were pushed further westward by Euro-American settlers. As specified by treaty, the Cherokee relinquished all lands in northeastern Georgia by 1785.

The identities and arrival dates of the first European settlers in Rabun County are unknown; however, it is likely that the area experienced significant migration near the end of the French and Indian War in 1763. British military expeditions that originated in Charleston passed through Warwoman Valley in 1760 and 1761. These expeditions were sent to relieve Fort Loudon, a British fort on the Little Tennessee River that was besieged by the French and Cherokee during the French and Indian War. The first expedition of 1760 was attacked and defeated in Warwoman Valley. The second expedition of 1761 repelled an attack in the same location, but failed to reach Fort Loudon before its fall to the French and Cherokee. Warwoman Dell was the site of one of the first roads in Rabun County. This road followed a route from Charleston, South Carolina, across the Chattooga River to Clayton, where it turned south across Tiger Tail Creek. Plans for the abandoned Blueridge Railway project carried the railway through Warwoman Dell, and although never completed, the railroad grade is still visible south of the Dell. Rabun County was created by legislative Act in 1819, and in 1820 a census reported a County population of 524 persons.

Preservation and management planning of historic structures on the Chattahoochee-Oconee National Forests are guided by a number of federal laws. Most notable of the historic preservation laws is the National Historic Preservation Act (NHPA). Sections 106 and 110 of the NHPA require federal agencies to record, evaluate, preserve, and plan for management of historic structures. The NHPA further requires federal agencies to consult with the Georgia State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) before modifying, removing, or demolishing any historic structure potentially eligible, eligible, or listed in the National Register of Historic Places (NRHP). The existing work center site includes four Civilian Conservation Corps (CCC) buildings (the old office, the Ranger dwelling, the Ranger dwelling garage, and the work center shop) that were constructed in 1941 and may be eligible for listing in the NRHP.

## Effects of Alternative 1 (No Action)

### Direct and Indirect Effects

The existing work center CCC buildings that were constructed in 1941 would continue to be maintained under the No Action Alternative. The No Action Alternative would not have any effect on these buildings or any other known cultural resources.

### Cumulative Effects

The No Action Alternative would not have any effect on cultural resources, and consequently, would not contribute to any cumulative effects on cultural resources.

## Effects of the Proposed Action

### Direct and Indirect Effects

The FS conducted a cultural heritage resources survey on the Proposed Action (Wiley Site) project area in 2001. Surveys included shovel testing on the flat areas and surface examinations of the roads and landings. The surveys revealed no cultural resources within the project area, and therefore, the Proposed Action (Wiley Site) would not affect cultural resources. A letter of concurrence from the SHPO is provided in the project planning record located at the Tallulah Ranger District office in Clayton.

### Cumulative Effects

The Proposed Action (Wiley Site) would not have any effect on cultural resources, and consequently, would not contribute to any cumulative effects on cultural resources.

## Effects of Alternative 2

### Direct and Indirect Effects

The Boggs-Boen site was acquired by the FS from the Heimmelberger-Harrison Lumber Company in 1918. A cultural heritage resources survey was conducted on the Alternative 2 (Boggs-Boen Site) project area in 1982 (Willingham 1982). Surveys included shovel testing on the flat areas and surface examinations of the roads and landings. The surveys revealed no cultural resources within the project area, and therefore, Alternative 2 (Boggs-Boen Site) would not affect cultural resources. A letter of concurrence from the SHPO is provided in the project planning record located at the Tallulah Ranger District office in Clayton.

### Cumulative Effects

Alternative 2 (Boggs-Boen Site) would not have any effect on cultural resources, and consequently, would not contribute to any cumulative effects on cultural resources.

## **Socioeconomic Factors** \_\_\_\_\_

### **Local Economy**

The Tallulah Ranger District provides a wide range of recreational opportunities such as camping, hiking, hunting, fishing, horseback riding, mountain bike riding, and sightseeing. Recreational users provide an economic benefit to the local community through the purchase of local goods and services. The presence of the Tallulah Ranger District office has a particular benefit for the Town of Clayton, in that it draws recreational users to the Town for purposes of obtaining permits, maps, and other information related to recreational activities.

#### ***Effects of Alternative 1 (No Action)***

##### Direct and Indirect Effects

The No Action Alternative would not have any effect on the number of visitors to the Tallulah Ranger District, and therefore, would have no effect on existing economic conditions.

##### Cumulative Effects

The No Action Alternative would not have any effect on existing economic conditions, and therefore, would not contribute to any cumulative effects on the local economy.

#### ***Effects of the Proposed Action***

##### Direct and Indirect Effects

A more visible presence in a forested setting is expected to increase the number of visitors to the Tallulah Ranger District office. Since the proposed location is only six miles south of Clayton, the Proposed Action (Wiley Site) would still be expected to have a beneficial effect on the local economy.

### Cumulative Effects

A more visible presence combined with regional population growth would be expected to increase the number of visitors, and consequently, would be expected to have a greater beneficial effect on the local economy.

## ***Effects of Alternative 2***

### Direct and Indirect Effects

A more visible presence in a forested setting is expected to increase the number of visitors to the Tallulah Ranger District office. Since the Alternative 2 (Boggs-Boen Site) location is only five miles south of Clayton, Alternative 2 (Boggs-Boen Site) would still be expected to have a beneficial effect on the local economy.

### Cumulative Effects

A more visible presence combined with regional population growth would be expected to increase the number of visitors, and consequently, would be expected to have a greater beneficial effect on the local economy.

## **Recreational Use**

The Tallulah Ranger District provides a wide range of recreational opportunities such as camping, hiking, hunting, fishing, horseback riding, mountain bike riding, and sightseeing. The Proposed Action (Wiley Site) and alternative project areas do not contain any existing roads, designated trails, or recreational facilities on National Forest System lands. However, the two project areas are easily accessible from U.S. Highway 441 and may support minor amounts of dispersed recreational activities such as hunting and hiking by local residents.

## ***Effects of Alternative 1 (No Action)***

### Direct and Indirect Effects

The No Action Alternative would not affect any recreational sites or have any effect on the number of visitors to the Tallulah Ranger District, and therefore, would have no effect on existing recreational use.

### Cumulative Effects

The No Action Alternative would not have any effect on recreational resources, and therefore, would not contribute to any cumulative effects on recreational use.

## ***Effects of the Proposed Action***

### Direct and Indirect Effects

No designated recreational areas or facilities would be affected by the Proposed Action (Wiley Site). Approximately 20 acres of forest would be cleared for the project; however, given the abundance of forested lands available for dispersed public recreation, recreational opportunities for the public would not be adversely affected by the Proposed Action (Wiley Site).

### Cumulative Effects

A more visible presence at the Wiley site combined with regional population growth would be expected to increase the number of visitors, and consequently, recreational use would be expected to increase.

## ***Effects of Alternative 2***

### Direct and Indirect Effects

No designated recreational areas or facilities would be affected by Alternative 2 (Boggs-Boen Site). Approximately 15 acres of forest would be cleared for the project; however, given the abundance of forested lands available for dispersed public recreation, recreational opportunities for the public would not be adversely affected by Alternative 2 (Boggs-Boen Site).

### Cumulative Effects

A more visible presence at the Boggs-Boen site combined with regional population growth would be expected to increase the number of visitors, and consequently, recreation use would be expected to increase across the District.

## **Scenic Resources**

Scenic resources on National Forest System lands are managed in accordance with the Scenery Management System (SMS) (USDA FS 1995). Landscape areas are assigned a landscape character goal that determines how they will be managed for visual quality. Landscape areas are also assigned to scenic classes based on inherent scenic attractiveness, distance zones, and viewer concern levels. The scenic classes are used to develop scenic integrity objectives for the particular area. Based on the landscape character goal and scenic integrity objective of a particular area, various scenery treatment standards are applied to forest management activities to mitigate adverse scenic impacts within that particular area.

The two action alternative project areas are currently allocated to Management Prescription 9.H, which emphasizes management, maintenance, and restoration of plant associations to their ecological potential (USDA FS 2004a). The two action alternative project areas have a landscape character goal of “natural appearing” and are classified as scenic class 1, with a “high” scenic integrity objective.

### ***Effects of Alternative 1 (No Action)***

#### Direct and Indirect Effects

The No Action Alternative would not alter the existing scenic character of the area.

#### Cumulative Effects

The No Action Alternative would not have any effect on scenic resources, and therefore, would not contribute to any cumulative effects on scenic resources.

### ***Effects of the Proposed Action***

#### Direct and Indirect Effects

The Proposed Action (Wiley Site) would reallocate approximately 20 acres from Management Prescription 9.H to Management Prescription 5.A. The landscape character goal for the majority of the project area would become “urban”, although peripheral portions of the project area may retain a goal of natural appearing. Due to the high visibility of the site (i.e. along U.S. Highway 441), the site would remain in scenic class 1 and would retain its “high” scenic integrity objective. Based on the “high” scenic integrity objective, the site would be subject to the highest level of ecological treatment standards for urban and naturally appearing landscape areas. Ecological treatment standards for the site would include 1) enhancement of fall color species through practices such as selective tree removal and the retention of visually attractive trees and shrubs; 2) creation of a park-like effect within the existing pine or pine-hardwood stands; 3) featuring flowering trees, character trees, and shrub species; and 4) maintenance of trees to enhance visual quality (e.g. limbing up trees, removal of leaning/bent over trees, variable density feathering, etc.). Additional ecological treatment standards would be applied to tree maintenance, road construction, and road maintenance. A natural vegetative buffer would be maintained between the project area and U.S. Highway 441. The vegetative buffer combined with the existing topography of the site would minimize visibility from the highway. The Forest Service conducted a detailed Roads Analysis in accordance with *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (USDA Forest Service 1999). The Roads Analysis document may be found in the project planning record located at the Tallulah Ranger District office in Clayton.

### Cumulative Effects

The County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities to the north of the Proposed Action (Wiley Site) project area on the opposite side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have impacts on scenic resources that are similar to those described above for the Proposed Action (Wiley Site). Given the distance between the County complex and the project area, and the distance of the County complex from U.S. Highway 441, cumulative effects on scenic resources would be minor.

## **Effects of Alternative 2**

### Direct and Indirect Effects

Alternative 2 (Boggs-Boen Site) would reallocate approximately 48 acres from Management Prescription 9.H to Management Prescription 5.A. The landscape character goal for the majority of the project area would become “urban”, although peripheral portions of the project area may retain a goal of natural appearing. Due to the high visibility of the site (i.e. along U.S. Highway 441), the site would remain in scenic class 1 and would retain its “high” scenic integrity objective. Based on the “high” scenic integrity objective, the site would be subject to the highest level of ecological treatment standards for urban and naturally appearing landscape areas. Ecological treatment standards for the site would include 1) enhancement of fall color species through practices such as selective tree removal and the retention of visually attractive trees and shrubs, 2) creation of a park-like effect within the existing pine or pine-hardwood stands, 3) featuring flowering trees, character trees, and shrub species, and 4) maintenance of trees to enhance visual quality (e.g. limbing up trees, removal of leaning/bent over trees, variable density feathering, etc.). Additional ecological treatment standards would be applied to tree maintenance, road construction, and road maintenance. A natural vegetative buffer would be maintained between the project area and U.S. Highway 441. The vegetative buffer combined with the existing topography of the site would minimize visibility from the highway. The Forest Service conducted a detailed Roads Analysis in accordance with *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (USDA Forest Service 1999). The Roads Analysis document may be found in the project planning record located at the Tallulah Ranger District office in Clayton.

## Cumulative Effects

The County plans to construct a business park, jail, animal shelter, elementary school, and recreational facilities east of the Alternative 2 (Boggs-Boen Site) project area on the north side of Boen Creek. Construction is underway on the jail, animal shelter, and an access road to these facilities, with an anticipated completion date of fall 2004. The elementary school, four new ball fields, and a double gymnasium should also be completed by the fall of 2004. Additional construction would occur intermittently as the business park buildings and access roads are constructed. In addition, U.S. Highway 441 will be widened to a four-lane divided highway beginning in late 2004 or early 2005. Widening would occur along the eastern side of the existing road in the vicinity of the project area, and a turnout lane would be created for the new office complex. Construction of these additional facilities would have impacts on scenic resources that are similar to those described above for Alternative 2 (Boggs-Boen Site). Given the distance between the County complex and the project area, and the distance of the County complex from U.S. Highway 441, cumulative effects on scenic resources would be minor.

## **Costs**

The FS currently pays annual leasing fees of \$60,000 for the Tallulah District office facility. This cost is expected to increase to \$110,000 per year when the lease expires in 2005. Since either of the action alternatives would be located on National Forest System land, there would be no land acquisition costs under either alternative. Estimated costs for each of the three project alternatives are provided in Table 3. The estimated costs for the facilities relocation project under the Proposed Action (Wiley Site) alternative is \$3,236,230. This cost for construction under Alternative 2 (Boggs-Boen Site) is expected to be lower due to reduced earthwork and grading costs. The estimated costs for the facilities relocation project under Alternative 2 (Boggs-Boen Site) is \$2,863,563. Annual maintenance costs would be expected to decrease by \$12,000 under either of the action alternatives, and an additional \$742,150 in deferred maintenance costs would be eliminated under either of the action alternatives.

## **Other Considerations**

### ***Minority Groups, Women, Civil Rights, and Consumers***

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations*, requires Federal agencies to identify and address disproportionately high and adverse human health and environmental effects on minority and low-income populations. The project areas do not contain any residences or

**Table 3. Facilities Costs for the Tallulah Ranger District Facilities Relocation Project.**

Description of Cost or Revenue	Proposed Action (Wiley site)	Alternative 1 (no action)	Alternative 2 (Boggs-Boen site)
Planning and compliance with the National Environmental Policy Act (NEPA)	(\$31,500) <sup>1</sup>	(\$31,500) <sup>1</sup>	(\$31,500) <sup>1</sup>
Annual rent revenue form ranger house (quarters)	\$0	\$3,692 <sup>2</sup>	\$0
Construction costs:			
Site work	(\$592,700) <sup>3</sup>	\$0	(\$204,866) <sup>3</sup>
Buildings	(\$2,071,855) <sup>4</sup>	\$0	(\$2,071,855) <sup>4</sup>
Utilities connection	(\$133,600) <sup>5</sup>	\$0	(\$133,600) <sup>5</sup>
Design, Contingency, & COR	(\$583,744) <sup>6</sup>	\$0	(\$520,651) <sup>6</sup>
Annual Maintenance	(\$30,000) <sup>7</sup>	(\$18,000) <sup>7</sup>	(\$30,000) <sup>7</sup>
Deferred Maintenance			
Work Center	\$0	(\$691,450) <sup>8</sup>	\$0
Glassy Helibase	\$0	(\$50,700) <sup>8</sup>	\$0
Lease or Rent (2005 est.)	\$0	(\$110,000) <sup>9</sup>	\$0
Present Net Value at 4% for next 20 years	(\$3,736,415) <sup>10</sup>	(\$2,223,985) <sup>10</sup>	(\$3,319,507) <sup>10</sup>
Present Net Value at 10% for next 20 years	(\$3,236,230) <sup>10</sup>	(\$1,402,862) <sup>10</sup>	(\$2,863,563) <sup>10</sup>

\* This table is for comparison purposes only. Actual costs incurred at the time of contract execution may vary widely due to market fluctuations (raw material costs, transportation, etc.) and changes in inflation rates.

<sup>1</sup> Includes \$21,500 contract for NEPA compliance work and an estimated \$10,000 in personnel, equipment and supplies.

<sup>2</sup> Historically, the ranger house has been occupied approximately 75% of the time over the last 10 years, or about eight months out of the year. The current charge for rent is \$461.50 per month, or \$3,692 per year for eight-month occupancy.

<sup>3</sup> Includes grading, retaining wall construction, road construction, road paving, erosion control, signage, fencing and gates. The major difference in costs under this category is due to the steeper slopes on the Wiley site (Proposed Action) relative to the Boggs-Boen site (Alternative 2). See project file for details on cost estimate.

<sup>4</sup> Includes construction of buildings and landscaping. See project file for details on cost estimate.

<sup>5</sup> Includes connecting to utilities including sewer/septic, power, water, and communications. See project file for details on cost estimate.

<sup>6</sup> Includes design, contract administration and contingency cost estimates. See project file for details on cost estimate.

<sup>7</sup> Includes annual maintenance such as mowing, painting, replacing roofs periodically, etc. Currently, the district is financed at approximately \$18,000 per year for maintenance of these facilities. Costs for the two co-location sites were estimated to increase \$12,000 for maintenance of the office and surrounding landscaping, fencing, parking area, etc.

<sup>8</sup> Estimates are from the INFRA database, Buildings Cost Detail Report (6/4/04).

<sup>9</sup> Estimated lease cost derived from local quotes and personal communication with realtors in the area.

<sup>10</sup> Present Net Values for the costs involved were figured for a 4% and 10% discount rate. Assumptions made for the purposes of comparison is that all costs for the construction of each campus would be incurred in one year. Deferred maintenance on the work center and the Glassy Mountain Helibase were spread equally across a 20-year period and the lease rate for the office (no action alternative) was estimated to be approximately \$110,000 per year after the current lease is up in 2005.

businesses, and all activities associated with the two action alternatives would occur on National Forest System lands. Neither of the action alternatives would cause the displacement of any residents or the elimination of any jobs, low-wage or otherwise. Therefore, neither of the action alternatives would have a direct impact on low-income or minority communities. There is no indication that either of the action alternatives would have any indirect or cumulative impact on minority or low-income populations. Based on the social, economic and environmental impacts of this project it has been determined that none of the alternatives considered in this analysis would have a disproportionate impact on any minority or low-income populations.

Women would not be disproportionately affected under either of the action alternatives. Impacts under either of the action alternatives would occur entirely within undeveloped National Forest System lands that lack any businesses, residences, or designated recreational areas.

The civil rights of individuals would not be affected by either of the action alternatives. Impacts under either of the action alternatives would occur entirely within undeveloped National Forest System lands that lack any businesses, residences, or designated recreational areas.

Although the two action alternative project areas may support limited dispersed recreational activities by consumers, no designated recreational areas or facilities would be affected by either of the action alternatives. Given the abundance of forested lands available for dispersed public recreation, consumers or potential recreational users would not be adversely affected by either of the action alternatives.

### ***Prime Farmland, Rangeland, and Forestland***

Neither of the two action alternatives would have any affect on prime farmland, rangeland, or forestland.

### ***Short-Term Use Versus Long-Term Productivity***

Short-term impacts associated with construction of the facilities would include increases in noise, dust and vehicle emissions. Minor erosion and sedimentation could also occur while soils are exposed during the construction process. Either of the action alternatives would commit lands to a use that would not allow the production of renewable resources. Consequently, there would be a long-term decrease in biological productivity under either action alternative. Either of the action alternatives would affect a relatively small area [20 acres under the Proposed Action (Wiley Site) or 48 acres under Alternative 2 (Boggs-Boen Site)] out of the approximately 148,000 acres of forested lands within the Rabun County portion of the National Forest. Given the overwhelming predominance of forested land within Rabun County, effects on overall productivity would be minor.

### ***Irreversible and Irretrievable Effects***

Either of the action alternatives would commit lands to a use that would not allow the production of renewable resources. The losses of timber that would have been produced without development would be irretrievable. Either of the action alternatives would affect a relatively small area [20 acres under the Proposed Action (Wiley Site) or 48 acres under Alternative 2 (Boggs-Boen Site)] out of the approximately 148,000 acres of forested lands within the Rabun County portion of the National Forest. Given the overwhelming predominance of forested land within Rabun County, irretrievable losses would be minor.

Any land that would be developed under either of the action alternatives could potentially be converted back to forest. Consequently, there are no irreversible commitments of resources in this project.

## **CONSULTATION AND COORDINATION**

The FS consulted the following individuals, Federal, State, and local agencies, tribes and non-FS persons during the development of this environmental assessment:

### **ID Team Members:**

Steve Cole, NEPA Coordinator, Tallulah Ranger District

Mike Ferguson, Forest Engineer, Chattahoochee-Oconee National Forests

Pete LaShoto, Forest Engineer, Chattahoochee-Oconee National Forests

Andy Gaston, East Zone Wildlife Biologist, Chattooga and Tallulah Ranger Districts

Allen Smith, Other Resources Assistant, Tallulah Ranger District

Dave Jensen, District Ranger, Tallulah Ranger District

Tommy Anderson, Forest Fire Management Officer, Chattahoochee-Oconee National Forests

Lea Wofford, East Zone Fire Management Officer, Chattooga and Tallulah Ranger Districts

Carolyn Hoffmann, Landscape Architect, Chattahoochee-Oconee National Forests

Charlene Breeden, Forest Hydrologist, Chattahoochee-Oconee National Forests,

Dick Rightmyer, Forest Soil Scientist, Chattahoochee-Oconee National Forests

Debbie Burton, Support Services Supervisor, Tallulah Ranger District

### **Agencies and Individuals Providing Consultation:**

Rabun County

Georgia Department of Transportation

Georgia State Historic Preservation Office

Georgia Department of Natural Resources

City of Clayton

Century 21 Poss Realty

Rabun County Chamber of Commerce

Lamar Edwards & Associates

Chairman, Rabun County Commissioners, Clayton, GA

John Petrick, Chattahoochee/Oconee Supervisor's Office, Planning, Gainesville, GA

Randy Warbington, Facilities Engineer, Southern Region

Bill Speer, Regional Architect, Southern Region

Jack Finley, Helicopter Management Specialist, Southern Region

Dave Broadnax, Aviation Management Officer, Southern Region

Jim Kozik, Highway Engineer, Southern Region

Bill McMillan, Airplane Pilot, Southern Region

Mitchell Hardy, Engineering Technician, Chattooga Ranger District

## **Agencies and Organizations Providing Input:**

Joseph Gatins, Clayton, GA

Katherine Groves, Georgia Forest Watch

Patrick Hopton, Clayton, GA

Gloria Cochran

Tom Southern

David Lomenick

## **Persons and Organizations Notified of the Proposed Action:**

Southern Appalachian Biodiversity Project, Asheville, NC

Soque River Watershed Association, Clarkesville, GA

Doug Adams, Rabun Gap, GA

Robert Alexander, Rabun County Coalition, Clayton, GA

Hewett Beasley, Cleveland, GA  
Whit Benson, Georgia Appalachian Trail Club, Kennesaw, GA  
Kevin Berger, Roswell, GA  
Sam Booher, Augusta, GA  
Edward F. Boze, Atlanta, GA  
Gary Breece, Georgia Power Company, Environmental Affairs, Atlanta, GA  
Don Bundrick, Friends of the Mountains, Tallulah Falls, GA  
Russell Burken, Rabun Chapter President, Trout Unlimited, Toccoa, GA  
Jon Caime, Seneca, SC  
David Carlock, Toccoa, GA  
Debbi Clark, Clayton, GA  
John Cothran, Mountain Rest, SC  
Frank Crane, Kennesaw, GA  
Dan Dessecker, Biologist, The Ruffed Grouse Society, Rice Lake, WI  
Erme Dixon, Dunwoody, GA  
Harold Draper, SAMAB, Knoxville, TN  
Prescott Eaton, Cumming, GA  
Henry Edwards, Alexandria, VA  
Bill Fletcher, Georgia Department of Natural Resources, Gainesville, GA  
David Giles, Clayton, GA  
Laurie Gurley, Long Creek, SC  
Bruce A. Hare, Long Creek, SC  
Gordon Hight, Rome, GA  
R. F. Kibler, Atlanta, GA  
Francis Marion Sumter National Forest, District Ranger, Mountain Rest, SC  
Brent Martin, Georgia Forest Watch, Ellijay, GA  
Mort Meadors, Georgia Forest Watch, Rabun Gap, GA  
Richard Minor and Linda Chapley, Duluth, GA  
E. S. Mitchell, Valdosta, GA  
Steve Moorman, Atlanta, GA  
Betty W. Murray, Dahlonega, GA  
Ed Nicholson, Tucker, GA  
Director of Operations, NC Outward Bound School, Asheville, NC

Shirl Parsons, The Wilderness Society, Atlanta, GA

J. Carlton Patterson, Avondale Estates, GA

James Powell, Powell Industries, Inc., Waynesville, NC

President, South Carolina Forest Watch, Clemson, SC

District, Ranger, Highlands Ranger District, Highlands, NC

Jeff Ranson, Covington, GA

Jim Robbins, Clayton, GA

Jerry Seabolt, Georgia Appalachian Trail Club, Roswell, GA

Roy A. Shore, Kennesaw, GA

Tomy Short, The Ruffed Grouse Society, Clayton, GA

Bill Tanner, Site Manager, Tallulah Gorge State Park, Tallulah Falls, GA

Kimberly Templin, Acworth, GA

Charles Thurmond, Georgia Tribe of Eastern Cherokee, Clayton, GA

Georgia Tribe, Eastern Cherokee, Dahlonega, GA

Rene Voss, John Muir Project, Takoma Park, MD

Bob Westbrook, Nantahala Outdoor Center, Bryson City, NC

## Literature Cited

- Carson, W.S. 1981. Soil Survey of Rabun and Towns Counties, Georgia. United States Department of Agriculture, Soil Conservation Service, in Cooperation with the University of Georgia, College of Agricultural Experiment Stations.
- Georgia Department of Natural Resources. 2001. Savannah River Basin Plan. Georgia Department of Natural Resources, Environmental Protection Division, Atlanta, Georgia.
- Georgia Forestry Commission. 1999. Georgia's Best Management Practices for Forestry. Georgia Forestry Commission, Macon, Georgia.
- Georgia Soil and Water Commission. 2000. Manual for Erosion and Sediment Control, fifth edition. Georgia Soil and Water Commission, Athens, Georgia.
- Mast, M.A., and Turk, J.T., 1999, Environmental characteristics and water quality of Hydrologic Benchmark Network stations in the Eastern United States, 1963-95: U.S. Geological Survey Circular 1173 A, 158 p.
- Rightmyer, R.D., and Stephens, R.B. 1996. Landtype Associations of the Chattahoochee National Forest, Georgia. Gainesville, GA: U.S. Department of Agriculture, Forest Service. Unpublished report.
- USDA, Forest Service. 1995. Landscape Aesthetics: A Handbook for Scenery Management. USDA Handbook #701. USDA, Washington, D.C.
- USDA, Forest Service, 1999 Roads Analysis: Informing Decisions about Managing the National Forest Transportation System. Misc. Rep FS643 Washington, D.C.
- USDA, Forest Service. 2004a. Land and Resource Management Plan, Chattahoochee-Oconee National Forests. USDA, Forest Service, Southern Region, Atlanta, Georgia.
- USDA, Forest Service. 2004b. Final Environmental Impact Statement for the Land and Resource Management Plan, Chattahoochee-Oconee National Forests. USDA, Forest Service, Southern Region, Atlanta, Georgia.
- Willingham, C.G. 1982. Cultural Resources Surveys of Three Exchange Tracts in Rabun County, Georgia. Forest Service Report 82GAO5E04.