

## **DRY CREEK TRAIL SYSTEM ENVIRONMENTAL ASSESSMENT**



Chattahoochee National Forest  
Conasauga Ranger District  
Chattooga and Walker County, Georgia

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**ENVIRONMENTAL ASSESSMENT  
 Dry Creek Trail System Project  
 Conasauga Ranger District  
 Chattahoochee National Forest, Georgia**

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## **CHAPTER 1. PURPOSE AND NEED FOR THE PROPOSED ACTION**

### **INTRODUCTION**

The Chattahoochee National Forest includes approximately 750,502 acres of National Forest system lands extended over three National Forest Ranger Districts and eighteen counties in northern Georgia. It is one of two national forests in the state of Georgia. The analysis area is located near the western boundary of the Conasauga Ranger District off County Road 329 in Walker and Chattooga County (See Appendix 1, Figure 1, Location Map). The Conasauga Ranger District manages about 173,000 acres and features the Ridge and Valley Scenic Byway, Cohutta Wilderness, John's Mountain and Cohutta Wildlife Management Areas (WMAs), and recreation opportunities including camping, scenic driving, hunting, fishing, off-highway vehicle (OHV) use, hiking, biking and horseback riding.

The U.S. Forest Service has a designated system of non-motorized trails totaling about 840 miles on the Chattahoochee-Oconee National Forest. Some of these trails are appropriate for only one type of use such as hiking while others provide for a mixture of uses such as horseback riding and mountain biking. There are some 228 miles of trails open to horses on the Chattahoochee-Oconee.

On the east side of the Conasauga Ranger District, there are about 50 miles of horse trails in the Cohutta Wilderness and 30 miles of loop trails outside wilderness open to horseback riding and biking. On the west side of the district, the Pinhoti Trail offers approximately 50 riding miles for equestrians and mountain bikers, but few loop opportunities.

### **BACKGROUND**

The Dry Creek area has been a popular site for horseback riding since the 1960s due to its easy access and gentle terrain. Several miles of old fire lines, woods roads and forest system roads exist that equestrians have developed into an undesignated social trail network. Once the Pinhoti Trail was completed in 1998 on the west side of the Conasauga Ranger District, previously the Armuchee Ranger District, the Dry Creek area was selected for Pinhoti Trailhead construction. In 2005, a trailhead parking facility was completed suitable for use by horse trailers.

### **PROJECT LOCATION**

The project is located about seven miles south of Villanow, Georgia within Walker and Chattooga County. The general boundaries of the area are Johns Mountain to the east, Forest Road 310 to the north, East Armuchee County Road (CR 329/705) to the west, and private land to the south. The major roads include East Armuchee County Road, and Forest Roads 216, 226, 226A, 226B, 226C, 270, and 310.

### **PURPOSE AND NEED FOR THE ACTION**

The Dry Creek area has been a popular destination for equestrians for many years due to its large network of social trails. However, significant portions of these existing undesignated trails violate accepted sound trail design principles resulting in soil erosion, stream siltation and trail deterioration. The purpose and need for this project is to:

- Address an increasing demand for non-motorized multi-use trail experiences that offers both short day-use and extended stay recreation opportunities.
- Reduce resource impacts by providing a network of low maintenance, environmentally sound trails to replace several miles of poorly located social trails.

## **SUMMARY OF PROPOSED ACTION**

1. Construct a series of non-motorized multi-use, interconnected loop trails, of varying lengths and difficulty levels totaling about 25 miles to provide a comprehensive experience for users.
2. Manage the trail system to provide linkage to the Pinhoti Trail using the existing Dry Creek Trailhead as a parking hub. Trail users would include hikers, mountain bikers and equestrians.
3. Close poorly located, undesignated, user-created trails in areas that are not incorporated into the new trail network proposal.
4. Construct a horse watering station and an ADA-compliant horse mounting platform at the Dry Creek Trailhead to improve accessibility.

## **FOREST PLAN DIRECTION**

The Chattahoochee-Oconee National Forests Land and Resource Management Plan (Forest Plan) was completed in January 2004. The Forest Plan, and accompanying Final Environmental Impact Statement (FEIS), and Record of Decision specify the overall direction for managing the natural resources for the Forest, and consists of both Forest-wide and area-specific goals, objectives and standards that provide for land uses with anticipated resource outputs. This EA documents the site-specific analysis of implementing the Forest Plan in the Dry Creek Trails Project Area.

The project is consistent with Forest Plan Goal 31 which provides direction to “Provide a spectrum of high quality, nature-based recreation settings and opportunities that reflect the unique or exceptional resources of the Forest and the interests of the public on an environmentally sustainable, financially sound, and operationally effective basis. Adapt management of recreation facilities and opportunities as needed to shift limited resources to those opportunities.”(Forest Plan, p 2-31).

The project is also consistent with Forest Plan Goal 34 which provides direction that, “Trails do not adversely affect soil and water resources.” (Forest Plan, p. 2-32).

The Forest Plan identifies Management Prescriptions (MP) for each piece of National Forest System lands across the Chattahoochee-Oconee National Forests. The proposed Dry Creek Trail System falls within the following Management Prescriptions:

- 7.A- Scenic Byway Corridor
- 7.E.1- Dispersed Recreation
- 9.H- Management, Maintenance and Restoration of Plan Associations
- 11- Riparian Corridors

Descriptions of these MPs can be found in Chapter 3 of the Forest Plan. The Dry Creek Trail System proposal is in compliance with the Forest Plan direction for these MPs.

## **SCOPE OF ENVIRONMENTAL ANALYSIS**

National forest planning takes place at several levels: national, regional, forest, and project levels. The Dry Creek Trail System EA is a project-level analysis; its scope is confined to addressing the purpose and need of the project, possible environmental consequences of the proposal, and alternatives. It does not attempt to address decisions made at higher levels. It does, however, implement direction provided at higher levels.

The Forest Plan embodies the provisions of the National Forest Management Act, its implementing regulations, and other guiding documents. The Forest Plan sets forth in detail the direction for managing the land and resources of the Chattahoochee-Oconee National Forests. Where appropriate, the Armuchee Ridges EA tiers to the Forest Plan Final Environmental Impact Statement (FEIS) (40 CFR 1502.20).

This EA evaluates and documents the effects caused by the proposed activities and various alternatives. The site-specific proposed action and alternatives to it are identified in Chapter 2. The administrative scope of this document can be defined as the laws and regulations that provide the framework for analysis.

## **RESPONSIBLE OFFICIAL AND DECISIONS TO BE MADE**

The responsible official for the decision will be the District Ranger for the Conasauga Ranger District, Chattahoochee-Oconee National Forests. The responsible official will answer the following three questions based on the environmental analysis:

1. Will the proposed action proceed as proposed, as modified by an alternative, or not at all?
2. If it proceeds, what mitigation measures and monitoring requirements will be implemented?
3. Will the project require an Environmental Impact Statement (EIS)?

## **PUBLIC INVOLVEMENT – ISSUE IDENTIFICATION**

A scoping letter detailing the proposed projects was sent to 81 individuals and groups on March 5, 2008. The project file includes a list of all agencies, persons and organizations contacted in the course of scoping and environmental analysis. In addition, the proposal appeared in the quarterly Schedule of Proposed Actions for the Chattahoochee-Oconee National Forests. The purpose of soliciting comments during the scoping period is to determine if there are any significant issues on the proposed action. Not all issues are significant issues.

An interdisciplinary team (IDT) was formed in April 2008 composed of the following Forest Service employees: Larry Thomas (Recreation & IDT Leader), Ruth Stokes (Wildlife), Charlene Breeden (Hydrology) and Becky Bruce (Heritage Resources).

## ISSUES

Issues are used to formulate alternatives, prescribe mitigation measures, and to define the scope of the environmental analysis. Each response from scoping was reviewed in order to identify issues. Issues that would drive the development of an alternative are referred to as a significant issue. No significant issues were identified for this project. The results of this process are displayed in Appendix 2.

## CHAPTER 2. ALTERNATIVES

This chapter describes and compares the alternatives considered for the Dry Creek Trail System project. No significant issues were identified through the scoping process. The only alternatives considered are the proposed action and the no action alternatives.

### ALTERNATIVE 1 – NO ACTION

The “no action” alternative is defined as a continuation of current management activities in the area. It serves as a comparison to the proposed action. The Proposed Action would not be implemented under this alternative. Management activities with prior approval under other environmental documents would continue to be implemented. Recreational activities such as hunting, camping, sightseeing, hiking, fishing, horseback riding and mountain biking would continue. Dispersed recreational sites, trails, trailheads and parking areas would continue to be used.

### ALTERNATIVE 2 – PROPOSED ACTION

This alternative would develop approximately 25.44 miles of interconnected loop trails of varying lengths and difficulty levels that support hiking, horseback riding and mountain biking use. The design of the proposed trail system incorporates existing roads and trails and new construction into a trail network that provides linkage to the Pinhoti Trail. About 18.94 miles of new trail construction and 6.5 miles of undesignated, user-created trail reconstruction would be needed. The trails would be developed following Pack and Saddle Design Parameters for either Trail Class 2 or 3, as shown in Appendix 3. Trail work would be accomplished using a narrow-track, trail machine and manual labor. Some 5.8 miles of undesignated trails that are poorly located would be closed and blocked to further use. See Appendix 1, Figure 2 for a map of Alternative 2 (proposed action).

The existing Dry Creek Trailhead would serve as a centralized parking area for the Dry Creek Trail System. This alternative calls for the construction of a horse watering station and an ADA-compliant horse mounting platform for improved accessibility at the trailhead.

The Forest Plan identifies Forest-wide goals, objectives and standards. Alternative 2 is designed to support the following goal identified in the Forest Plan:

- **Goal 31** provides direction to, “Provide a spectrum of high quality, nature-based recreation settings and opportunities that reflect the unique or exceptional resources of the Forest and the interests of the recreating public on an environmentally sustainable, financially sound, and operationally effective basis....” (Forest Plan, page 2-31).

Forest Plan standards addressed by Alternative 2 are summarized in Table 2-1.

**Table 2-1. Alternative 2 Forest Plan Standards**

<b>Forest Plan Standard</b>	<b>Reference</b>
<b>FW-131:</b> Ensure that trail approach sections are aligned at or near right angles as possible to the stream channel. Locate riparian corridor crossings to minimize the amount of fill material needed and minimize channel impacts.	Forest Plan, Chapter 2, Page 2-33
<b>FW-134:</b> New trails other than hiking trails will be located outside the riparian corridor except at designated crossings or where the trail location requires some encroachment.	Forest Plan, Chapter2, Page 2-34
<b>FW-136:</b> Where projects to expand the trail system are under consideration, give priority to (1) the re-use of existing travel ways that meet all applicable plan standards and all Forest Service trails handbook requirements, and (2) the re-use of existing travel ways that can be made to meet the standards more cost effectively than new construction.	Forest Plan, Chapter2, Page 2-34
<b>FW-137:</b> Trail reconstruction and relocation within the ephemeral stream zone is allowed when needed to reduce impacts to riparian and aquatic resources.	Forest Plan, Chapter2, Page 2-34
<b>FW-147:</b> Newly constructed horse trails will be a minimum of five miles in length except when linked with an existing system.	Forest Plan, Chapter2, Page 2-35
<b>FW-148:</b> New trail construction within the ephemeral stream zone is allowed when needed to replace existing trail configuration and improve access.	Forest Plan, Chapter2, Page 2-35

Trail construction would follow the trail design parameters set forth by Forest Service Trail Management Handbook FSH 2309.18. These design parameters provide guidance for the assessment, survey, design, construction, repair and maintenance of the trail. The proposed trail network would be designed to accommodate hiking, mountain biking and horseback riding using the design parameters identified for the expected primary use, pack and saddle (horse). See Appendix 3. Pack and Saddle Design Parameters. Proposed trails would be constructed to either Trail Class 2 (more difficult) or Trail Class 3 (less difficult) standards to provide for a range of user challenge and experience.

## **MITIGATION MEASURES FOR THE ACTION ALTERNATIVE**

All applicable mitigation measures will be carried out as detailed in the Forest Plan, and in Best Management Practices for Georgia. The following additional mitigation measures were developed for Alternative 2 – Proposed Action:

- Appropriate erosion control measures will be used to minimize potential impacts from the proposed activities. Examples may include the use of silt fences, hay bales, brush barriers, and prompt re-vegetation of exposed soils.
- Existing undesignated, user-created trails that contribute to the desired trail network mileage and density, and comply with the specified design parameters will be used where possible to avoid additional soil disturbance from new trail construction.
- Approaches to two trail stream crossings of East Armuchee Creek will be armored with gravel to minimize soil movement and stream sedimentation.
- The trail system has been designed to avoid a sink hole in the project area. Trails will be located at least 100 feet away from this perennial natural pond to minimize potential impacts.
- Existing user-created trails that are not used for the Dry Creek Trail System will be closed and blocked with a combination of earthen berms, guard rails, brush barriers, fallen trees, and/or other obstructions. Erosion control measures will be applied as needed to revegetate exposed soil and minimize the impacts of the closure activities.

## **MONITORING**

Field reviews will be conducted by District and Forest-level staff to ensure that the appropriate Forest Plan standards and mitigation measures are implemented and that these measures are effective in protecting soil productivity, water quality, and other resources as they were designed to do. Trail condition surveys will be accomplished on a recurring basis to determine maintenance needs.

## **COMPARISON OF ALTERNATIVES**

Table 2-2 provides a summary and comparison of the proposed alternatives. Chapter 3 contains a detailed discussion of the potential impacts by resource.

**TABLE 2-2. Comparison of Alternatives**

<b>Item</b>	<b>Alternative 1 No Action</b>	<b>Alternative 2 Proposed Action</b>
<b>Purpose and Need (Objectives)</b>		
Strive toward the desired condition(s) objectives as identified in the Forest Plan for Management Prescriptions 7.A, 7.E.1, 9.H, and 11.	MP 7.A: Yes MP 7.E.1: No MP 9.H: Yes MP 11: No	Yes
Reduce resource impacts by providing a network of low maintenance, environmentally sound trails to replace poorly located, undesignated trails	No	Yes
<b>Proposed Activities</b>		
Miles of undesignated trails in riparian areas	3.1	3.1
Miles of undesignated trails in riparian areas to be closed and obliterated	0	3.0
Total miles of undesignated trails	12.3	12.3
Miles of undesignated trails to be closed and obliterated	0	5.8
Miles of undesignated trails to be reconstructed	0	6.5
Miles of new trail to be constructed	0	18.94
Number of new trail stream crossings	0	2
Number of trailhead projects planned to improve accessibility	0	1

## **CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

### **INTRODUCTION**

This chapter has been organized according to environmental components, or resource areas. Each resource area contains information on the affected environment, direct and indirect environmental consequences of each alternative and cumulative impacts, including the effectiveness of mitigation measures.

### **PHYSICAL ENVIRONMENT**

#### **SOILS**

#### **CURRENT SITUATION**

The Dry Creek Trail System Project is located within the boundaries of the Armuchee portion of the Conasauga Ranger District. Ecologically this area is situated in the Southern Ridge and Valley Section (231D), and the Sandstone Ridge Subsection (231Dc). The Southern Ridge and Valley Section is characterized by a folded, faulted and uplifted belt of parallel valleys and ridges. Valleys are typically shale or limestone, separating the strongly dissected ridges underlain by sandstone and shale. Forests generally occupy the ridges with much of the valleys cleared for agriculture and other intensive land uses.

Within the Sandstone Ridge subsection are three land type associations (LTAs) that contain National Forest ownership. The Armuchee Ridges LTA is characterized by parallel ridges rising 600 to 700 feet above the valley floors and predominately forest covered. The ridges are oriented north-northeast to south-southwest with the east facing aspects described as having narrow “finger ridges” perpendicular to the main ridges, e.g. Johns Mountain. Geology is sandstone on the ridgecrests and upper sideslopes with interbedded shale and chert on the middle and lower slopes. Streams in this LTA generally have steep gradient, low sinuosity with entrenched channels. Flow is primarily from spring heads and water levels drop drastically during the summer months, often drying up completely. Average annual rainfall is about 55 inches with a growing season length of 210 days. Shale is the common rock type in the Shale Valley LTA, characterized by broad, “U” shaped valleys surrounded by prominent sandstone ridges. Land uses within this LTA are predominantly pastures, cropland and residential areas. Rainfall and growing season are similar to the Armuchee Ridges LTA. Streams of this LTA are larger in channel size with flow levels adequate to support aquatic species during the winter and spring months.

The East Armuchee Valley LTA contains the project area. It is located primarily along East Armuchee Creek to the west of Johns Mountain, and is generally characterized as broad valleys underlain by limestone rock. Much of the valley bottom is in private land ownership of non-forest land uses. Springs, streams disappearing underground and sinkholes can be found in this LTA. Slopes of this LTA are gentle, ranging from 2 to 20 percent.

Soil information used to complete an analysis of possible effects of management activities was based on a soil resource inventory completed on National Forest lands on the Armuchee Ranger District in 1986-1988. Table 3-1 shows which soil series are found in the project area along with their general characteristics.

**Table 3-1. Soil Series and Characteristics**

<b>Soil Series</b>	<b>Drainage Class</b>	<b>General Location</b>	<b>Slope (%)</b>	<b>Dominant Soil Texture</b>
Bodine	Deep, Excessively Drained	Ridgetops, Upper Ridge Sideslopes	10-25	Very Stony Silt Loam
Townley	Moderately Deep, Well Drained	Low Hills, Sideslopes	25-45	Silt Loam
Allen	Deep, Well Drained	Footslopes	10-15	Fine Sandy Loam
Nella	Well Drained	Upper Mountain and Ridge Sideslopes	15-45	Cobbly Clay Loam
Holston	Deep, Well Drained	Footslopes	10-25	Fine Sandy Loam
Subligna	Well Drained	Footslopes, Along Small Drainages	1-6	Gravelly Loam
Etowah	Well Drained	Broad Stream Terraces	2-6	Clay Loam
Fullerton	Deep, Well Drained	Ridgetops, Sideslopes	6-10	Cherty Silt Loam
Wax	Moderately Well Drained	Low Stream Terraces Near Narrow Drainages	2-6	Cherty Clay Loam
Rome	Deep, Well Drained	Low Stream Terraces	2-6	Fine Sandy Loam
Shack	Moderately Well Drained	Ridgetops, Sideslopes	10-15	Cherty Silt Loam
Chewacla	Deep, Somewhat Poorly Drained	Narrow Riparian Areas Along Major Streams	<2	Silt Loam

Soil disturbance refers to a change in the natural state of a soil caused by an artificially imposed force. Four basic steps can be analyzed to determine whether a proposed activity will cause adverse impacts to soil productivity:

- Determine what is detrimental disturbance caused by the activity
- Identify the best management practices to the site
- Minimize detrimental disturbance
- Ameliorate or rehabilitate detrimental disturbance where needed

With trail development and use, detrimental soil disturbance is commonly recognized in the form of compaction, displacement or erosion, and sedimentation. The amount of detrimental disturbance that occurs depends on soil moisture, slope steepness, complexity of topography, rock content of the soil, trail location and design, and the amount of use. Combinations of these factors affect the magnitude and extent of disturbance.

Compaction is the lowering of the air space in the soil by passage of heavy weight which packs more soil particles into the same amount of space. Air and water holding capacity is reduced, typically resulting in loss of vegetation growth. Initially, the landscape is stripped of surface vegetation, resulting in root abrasion and compaction of surface soil layers. Increase compaction results in lowered ability of the soil to absorb rainfall, causing an increase in surface runoff. Surface runoff then removes soil through erosion, with the potential to become sediment if it reaches a stream. In addition, soil compaction often leads to surface subsidence, which occurs when the trail becomes lower than the adjacent ground surface. This now lower surface drains water from adjacent surfaces and channels,

increasing the risk of soil erosion on sloped areas and pooling of water in low-lying areas. During times of saturated soil conditions, all soils are more susceptible to detrimental disturbance. Those soils with higher water tables and those that are subject to flooding will have longer periods of saturated soil conditions during which they will be more susceptible to disturbance. Soil compaction can be mitigated by locating trails on well drained soils outside of riparian areas and suspending use during periods of high rainfall. The majority of the soils in the project area have a slight to moderate compaction rating.

Soil erosion is recognized as potentially the most serious form of soil damage. Soil may be permanently lost and soil particles leaving the site may result in sediment in nearby streams which would impact water quality and possibly compromise aquatic habitats. Trail development can influence erosion principally because it removes vegetative ground cover and can concentrate and channel runoff water. A soil's susceptibility to erosion varies by soil type and position on the landscape. The steeper the slope, the greater susceptibility to erosion. A slight or moderate erosion hazard indicates that standard erosion control measures such as installing water bars or dips are sufficient to prevent excessive erosion. Soils with severe erosion hazard ratings require more intensive efforts to reduce the potential for accelerated erosion. Soils with an erosion hazard rating of severe are generally those with slope gradients exceeding 30 percent. Within the project area, only the Soil Mapping Unit BsF (Bovine) has a severe erosion hazard rating and it is found on less than 4 percent of the area.

Soil erosion can be mitigated by locating trails on grades less than half of the prevailing terrain sideslope (50% Rule) with the average grade not exceeding 10 percent, except for short runs of 100 feet or less where approaching 15 percent is acceptable (10% Rule). Other mitigation includes providing adequate drainage on trails, maintaining ground cover outside the trail tread, and minimizing use during wet periods. Most of the soils located in the project area have a moderate to high suitability rating for trails based on such restrictive soil features as flooding, wetness, slope, and texture of the surface layer.

## **EFFECTS OF ALTERNATIVE 1 (NO ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

The No Action alternative would result in a continuation of existing conditions within the analysis area. About 12.3 miles of unmaintained, user-created trails would continue to be used. About 5.8 miles of these undesignated trails are poorly located and do not meet Forest Service trail standards, Forest Plan standards, or Georgia BMPs by either being too steep, poorly drained, or running parallel to streams within riparian areas. Another 6.5 miles of user-created trails that could be reconstructed and used as designated trails would not be developed or maintained.

Direct effects of undesignated trail use include loss of vegetation and soil compaction. Compaction is expected to be more pronounced within the East Armuchee Creek riparian area as soils here are somewhat poorly drained. Over time, continued use of the compacted trails would indirectly contribute to erosion and gully formation or pooling in low-lying areas resulting in a loss of soil productivity. Surface runoff could cause stream sedimentation affecting water quality and aquatic resources.

### **CUMULATIVE EFFECTS**

Resource management activities including timber harvest, prescribed burning, road and trail maintenance, recreation site maintenance, and wildlife habitat improvement projects, in combination with the unmanaged undesignated trail use, could potentially result in increased surface runoff and erosion in the project area. These management activities have occurred in the past and will continue in the future. However, routine implementation of Forest Plan standards and Georgia BMPs as well as other specific mitigation measures are applied to these activities to minimize effects to the soil resources.

Implementation of Alternative 1 in combination with past, present or reasonably foreseeable actions would be expected to have no cumulative effects on long-term soil productivity.

## **EFFECTS OF ALTERNATIVE 2 (PROPOSED ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

This alternative proposes to develop 25.44 miles of system trail by reconstructing 6.5 miles of user-created trails, including two existing stream fords, and constructing 18.94 miles of new trail. The initial construction and reconstruction would disturb surface soils, but would be limited to the trail bed. Use of the newly developed system trails would result in soil compaction. These effects would be mitigated through proper trail design, by implementing Forest Plan standards as identified in Chapter 2, Page 9, Table 2-1, and by following site specific measures as provided in Chapter 2, Page 10, Mitigation Measures for the Action Alternative which would ensure that Georgia BMPs are met.

This alternative would be expected to reduce resource impacts by providing a network of low maintenance, environmentally sound trails to replace poorly located, undesignated trails. The proposed action would close 5.8 miles of poorly located, user-created trails including 2.5 miles in riparian areas. Existing user-created trails would be incorporated into the new trail system to the extent possible to reduce additional soil disturbance.

### **CUMULATIVE EFFECTS**

The effects to long-term soil productivity as a consequence of the proposed activities in combination with other past and present resource management activities relates to the cumulative effects from erosion, compaction, and displacement. By practicing a “light hand on the land” policy during all soil disturbance activities, by adhering to the identified mitigation measures, and following Forest Plan direction, long-term soil productivity would be maintained. Soil productivity should recover on those miles of user-created trails that are closed to further use and revegetated.

## **WATER**

### **CURRENT SITUATION**

The project area is located within the East Armuchee Valley Land Type Association (LTA). This LTA is characterized by broad, flat to gently rolling valley bottoms and resistant sandstone ridges. Slopes are gentle and range between approximately 2% to 20%. Streams within this LTA are frequently intermittent with reaches that disappear underground. Many smaller tributaries in the Ridge and Valley eco-region are ephemeral and intermittent stream types that do not flow in the summer months. Streams tend to be drier in this region because the area receives less precipitation than nearby areas,

soils are well-drained, and some streams tend to flow underground. There are also several springs within this LTA.

East Armuchee Creek is the primary stream system within the project area. It is a perennial stream with perennial and intermittent tributaries. Streambanks are mostly gentle sloping with occasional steep sections. The existing system of social trails traverses East Armuchee Creek and its tributaries as well as the headwaters of West Armuchee Creek.

Hydrologic Unit Codes (HUCs) are used by many agencies to consistently delineate, identify, and manage watersheds. The Dry Creek trail system lies within the fourth-level Oostanaula River watershed, HUC #03150103, which includes the fifth-level Armuchee Creek HUC #0315010305. More specifically, the Dry Creek trail system lies mostly within one unnamed, sixth-level HUC – 031501030504. A small portion of the trail system also lies within a second sixth-level HUC – 031501030502. See Tables 3.2 and 3.3 below.

**Table 3-2. 1<sup>st</sup>-3<sup>rd</sup> Level Hucs Encompassing the Project Area**

Region (1 <sup>st</sup> Level HUC)	Subregion (2 <sup>nd</sup> Level HUC)	Accounting Unit (3 <sup>rd</sup> Level HUC)
03 (South Atlantic-Gulf)	0315 (Alabama Basin)	031501 (Coosa-Tallapoosa)

Source: Seaber et. al., 1987

**Table 3-3. 4<sup>th</sup>-6<sup>th</sup> Level Hucs Encompassing the Project Area**

4th Level HUC	5th Level HUC	6th Level HUC (unnamed)
03150103 (Oostanaula)		
	0315010305 (Armuchee Creek)	031501030502 031501030504

Source: Land Management Plan (2004)

Most of the streams in the project area have an assigned water use classification, or beneficial use, of fishing. In the project area, West Armuchee Creek, Ruff Creek and their tributaries are classified as secondary trout streams by the Georgia Department of Natural Resources (GA DNR). East Armuchee Creek is considered a non-trout stream. In addition, no streams within the project area are currently identified as partially supporting or not supporting on the Georgia 305(b) listing maintained by the GA DNR Environmental Protection Division.

The riparian corridor management prescription (#11) in the revised Forest Plan includes a 100-foot riparian corridor for both sides of perennial and intermittent streams. This prescription includes standards for management activities within the corridor, which help achieve desired conditions and maintain water quality. The Forest Plan also includes several forest-wide standards that also help achieve desired conditions. Several of these standards are described in the section listing mitigation measures for the proposed action.

Sediment is the best measure to determine the effect of management activities on water quality and its associated beneficial uses on forested lands (Coats and Miller, 1981; cited by the USDA Forest Service, 1999). Sedimentation is the suspension and transfer of eroded, detached soil particles into a water body. Substrate or sediment in streams refers to different size particles (boulder, cobble, gravel, sand, and silt particles) found in the stream channel. The smaller size substrate (gravel, sand) can fill interstitial spaces between large boulders and cobbles, reducing fish habitat. Sediment can also adversely impact water quality by increasing turbidity, affecting the morphology and capacity of channels, changing streambed material size, and altering stream temperature resulting in a reduction of the overall quality of aquatic habitat. The primary mechanism for this transport is storm water runoff, moving particles from a source overland into a stream or other water body. Sediment often goes through a repeating sequence of transport and deposition. It may eventually reach a stream channel or be prevented from entering the stream by a vegetated filter strip or other Best Management Practice (BMP).

## **EFFECTS OF ALTERNATIVE 1 (NO ACTION)**

### **DIRECT, INDIRECT AND CUMULATIVE EFFECTS**

User-created trails are created by users for their own purposes or to reach their favorite destination. Because these trails are created by users, they are often poorly located, within close proximity to streams or streambanks, do not meet trail design specifications/standards, receive no maintenance, and do not meet erosion control specifications. User-created trails often lead off a designated trail and go down steep slopes to a major stream. Over time, continued use of these user-created trails contributes directly to compacted soils, development of entrenched areas, and results in areas of concentrated flow. Direct and indirect effects include erosion with sediment delivery to streams. System or designated trails can also cause erosion and sedimentation when they are poorly maintained and receive high use.

Under this alternative, the existing user-created trail system would continue to be used. User-created trails within the riparian corridor would not be obliterated, and existing crossings would not receive treatments. Existing sediment sources will continue to contribute to erosion and sedimentation.

## **EFFECTS OF ALTERNATIVE 2 (PROPOSED ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

Under this alternative, a new trail system will be established with 19 miles of new trail construction and 6.5 miles of existing trail reconstruction. Additionally, 5.8 miles of user created trails causing resource damage will be obliterated, including 2.5 miles within the riparian corridor. Existing trails incorporated into the new trail system will be enhanced to meet Forest Plan standards, which will include addressing aspects of proper location, trail surfacing and drainage control structures. Additionally, two existing stream crossings of East Armuchee Creek will be reshaped and armored to reduce erosion. Construction of new trail would disturb soils, but would be limited to the trail prism and this disturbance would be short in duration. Overall, erosion and sedimentation will decrease with implementation of this alternative. Erosion from the new trail system will be minimized through the use of Forest Plan standards and the FS trail handbook. The proposed trail system will have two permanent stream crossings. These crossings will be constructed with hardened approaches to prevent erosion. There are two additional crossings that utilize FS system roads.

### **CUMULATIVE EFFECTS**

Cumulative effects are being analyzed for the sixth level HUC that includes East Armuchee Creek (031501030504) and a portion of West Armuchee Creek. The East Armuchee Creek subwatershed being analyzed begins upstream of the project at the 6<sup>th</sup> level HUC boundary and ends where East Armuchee Creek leaves FS land (upstream of road 310 crossing). The analysis area also includes the headwaters of several West Armuchee Creek tributaries. The cumulative effects analysis assumes that baseline conditions are generally good. Foreseeable future activities on private land are assumed to be similar to those currently taking place in the 6<sup>th</sup> level HUCs.

Table 3-4 displays known past, present and reasonably foreseeable future actions on National Forest lands within the cumulative effects analysis area described above. These may contribute directly or indirectly to the proposed activities. These activities were implemented or will be implemented utilizing Forest Plan standards and Best Management Practices (BMPs). Beginning year is 2003.

**Table 3-4. Past, Present, and Reasonably Foreseeable Future Actions for Sixth Level HUC**

Activity	Year(s) Implemented	Acres/Miles Affected	Past	Present	Reasonably Foreseeable
Dry Creek Timber Sale	2006 – 2007	61	X		
Prescribed Fire – Mt. Joy #22	2006	750	X		
Prescribed Fire – Dry Creek	2006	74	X		
Prescribed Fire – East Armuchee Creek #25		321	X		
Armuchee Ridges Timber Sale	2012 – 2013	1299			X
Wildlife Opening Maintenance	annual	5	X		X
System Road Maintenance	annual	6.3 miles	X	X	X

The primary ground disturbing activity from the prescribed fires listed above would be the use of constructed fire lines. Prescribed fires typically use existing road and streams to minimize the amount of constructed fire line. When constructed fire lines are needed, they are implemented using Forest Plan standards and BMPs. The Dry Creek timber sale and future East Armuchee Ridges timber sales would also be implemented using standard mitigations and BMPs, over a period of at least two years. Exposed soils are minimized and then treated to reestablish ground cover and vegetation. The water quality impacts of skid trails, temporary roads, log landings, and constructed firelines are short in duration. The recovery period for logging activities is estimated to be 3 years, and the recovery period for prescribed burning is estimated at 2 years (Dissmeyer and Stump, 1978). The effects of these activities to water quality will be minimized through adherence to Georgia BMPs and Forest Plan standards. Georgia BMPs apply to forestry and forestry-related projects, such as prescribed burning. When all watershed impacts are considered within this analysis area, as well as associated mitigations, there would be no cumulative effects resulting from alternative 1.

## BIOLOGICAL ENVIRONMENT

### FOREST VEGETATION

**Measure:** Acres of forest vegetation by forest type and age class

**Bounds of analysis:** Spatial analysis bounds include a portion of the East Armuchee Creek Sixth Level Hydrologic Unit representing the immediate environs of the project area (Figure 2). This area is approximately 4800 acres of National Forest land. The temporal bounds will be over the next 10-15 years.

### CURRENT SITUATION

Forest types across the Dry Creek analysis area are listed below in Table 3-5. Large plantations of loblolly pine are located in the analysis area, but the major native vegetation communities consist of mixed hardwood types composed primarily of oaks and hickories. The overstory is relatively closed-canopied, multi-layered, and moderately to densely stocked. Midstory vegetation is also multi-layered, consisting of a diverse array of shrubs, vines, and saplings. Ground vegetation is also diverse, varying in species composition depending upon site characteristics.

**Table 3-5. Forest Types in the Dry Creek Analysis Area**

Description	Acres	% of area
Loblolly pine	1304	27
White oak-red oak-hickory	1227	26
Chestnut oak-scarlet oak-yellow pine	950	20
Chestnut oak	396	8
Shortleaf pine	259	5
Bottomland hardwood-yellow pine	180	4
Shortleaf pine-oak	128	3
Scarlet oak	85	2
Northern red oak-hickory-yellow pine	67	1
Virginia pine-oak	46	<1
White oak-black oak-yellow pine	43	<1
Chestnut oak-scarlet oak	43	<1
Loblolly pine-oak	42	<1
Virginia pine	8	<1
Total	4777	100%

Age class distribution in the analysis area is shown in Table 3-6. Although there is no early-successional forest habitat at this time (0-10 age class), there is considerable diversity in age classes, and a significant component of stands over 100 years of age. Areas which have been impacted by southern pine beetle are scattered throughout the analysis area. These areas are generally small pockets with sparse or open canopies dominated by hardwoods, although some are fairly large. Five acres within this analysis area are managed as permanent wildlife openings. Approximately 25% of the area has been designated as Management Prescription Area 6.B, Areas Managed to Restore/Maintain Old Growth Characteristics.

**Table 3-6. Age Class Distribution of Forest Vegetation in Dry Creek Area**

Age class	Acres	% of Area
Early Successional Habitats 0-10 years	0	<u>0</u> 0%
Mid Successional Habitats 11-20 21-30 years 31-40 41-50 51-60	393 539 423 54 566	8 11 9 1 <u>12</u> 41%
Late Successional Habitats 61-70 years 71-80 81-90 91-100 100+	164 68 399 133 2038	3 2 8 3 <u>43</u> 59%
Total acres	4777	100%

The Dry Creek area is popular with horseback riders who utilize the Pinhoti Trail, Forest Service roads, and many old woods roads and user-created trails. This area is conducive to riding due to the relatively flat topography. Several of the user-made trails are poorly located, such as those located with the floodplain and riparian corridor of East Armuchee Creek. Spot erosion exists on some of these trails due to bare ground created by horse traffic, and vegetation is affected on the trail and immediate vicinity by the invasion of various invasive exotic species, such as Chinese privet and Japanese honeysuckle, which in some instances have displaced native vegetation such as sedges (*Carex* sp.), river oats (*Chasmanthium latifolium*), and river cane (*Arundinaria gigantea*). (See section below on non-native invasive species (NNIS). Bare ground and impacts from horse traffic is limited to a trail width of about one to two meters.

### **EFFECTS OF ALTERNATIVE 1 (NO ACTION)**

#### **DIRECT AND INDIRECT EFFECTS**

Under this alternative, there would be no direct effects to forest vegetation. No trail construction, reconstruction, or obliteration would take place. Existing conditions and natural processes would persist. Indirect effects of this alternative would be the continuation of damage to forest vegetation on user-made trails, and the potential continuation of displacement of native vegetation within the riparian corridor and floodplain due to ground disturbance by horses.

## **CUMULATIVE EFFECTS**

Past, present, or reasonably foreseeable activities in the project area affecting forest vegetation include:

- Dry Creek timber sale: commercial thinning of 61 acres of loblolly pine in 2006-2007.
- Prescribed burning: 1017 acres were burned in 2006, 321 acres to be burned in next 5 years.
- Armuchee Ridges timber sale: Commercial thinning of 15 pine stands (1019 acres), oak restoration of 1 mixed pine stand (180 acres), planned for 2012.
- Annual maintenance of 5 acres of existing wildlife openings by bush-hogging or grain-drilling.

A map displaying these activities spatially is located in Appendix 1 (Figure 3).

Under Alternative 1, no action is planned which could cumulatively affect forest vegetation in combination with the above activities.

## **EFFECTS OF ALTERNATIVE 2 (PROPOSED ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

New trail construction would include clearing of woody vegetation on a 1-2 meter wide tread and minor excavation of the tread with a trail-building machine (a mini-excavator). Approximately 19 miles of new trail construction would be completed over a 12- to 18-month period of time. Trails would be laid out to avoid as many trees as possible, but some will be removed to accommodate the trail. An additional 6.5 miles of trail would be constructed on existing disturbed routes, such as old woods roads, user-made or social trails, or existing firebreaks. These routes would not require tree removal or ground disturbance other than for installation of erosion control dips in most cases. Widening the route by trimming vegetation would be necessary.

Approximately 2.5 miles of poorly-located user-made trails in the riparian corridor would be obliterated or closed by felling of trees and/or construction of berms.

After construction, the subsequent usage of the trail system by recreational horse riders would have several effects on forest vegetation, both positive and negative. Positive effects would be realized as a result of reducing cross-country travel and creation of user-made trails: horse travel would be more concentrated on a designated trail network which would be properly constructed, located correctly to minimize resource damage, and would receive maintenance and condition monitoring on a regular basis. Damage to vegetation such as cane, sedges, and river oats would be reduced within the riparian area and floodplain of East Armuchee Creek by the closure and obliteration of trails in those areas.

Negative effects to vegetation along the trails would be inevitable as a result of the trampling and compaction resulting from horse use. These effects are fairly limited, extending only about one meter from the trail's edge (Jordan 2001), and affecting types of plants differently, grasses and sedges being much more tolerant of trampling than other species such as vines (Campbell and Gibson 2001). Due to the routine disturbance, the number of NNIS is higher along trail corridors than in the forest interior (Campbell and Gibson 2001, Jordan 2001, Soehn 2001). Concentrating use on designated trails is preferable in order to control spread of NNIS.

## CUMULATIVE EFFECTS

No cumulative effects of this alternative in combination with the above listed past, present, or reasonably foreseeable activities are expected to negatively affect forest vegetation. The trail construction will take place within some of the stands to be thinned in the Armuchee Ridges project, as well as stands that have been prescribed burned recently, for example, but no cumulative negative effects are expected to forest vegetation because of the small scale of impacts within the trail corridor. The effect of these actions on forest vegetation would be minor when viewed at a landscape scale.

## NON-NATIVE INVASIVE SPECIES

**Measure:** Populations of non-native invasive plant species (NNIS), establishment and/or spread of NNIS

**Bounds of analysis:** Spatial analysis bounds include a portion of the East Armuchee Creek Sixth Level Hydrologic Unit representing the immediate environs of the project area (Figure 2). This area is approximately 4800 acres of National Forest land. The temporal bounds will be over the next 10-15 years.

## CURRENT SITUATION

NNIS have been identified by the Chief of the USDA Forest Service as one of the four significant threats to National Forest ecosystems. NNIS are a concern because infestations of these species, both plant and animal, threaten ecosystems by degrading natural habitats and decreasing biodiversity. NNIS plants displace the native plants normally present. Any animals dependent on those native plants may then also be displaced.

Infestations of non-native invasive species (NNIS) are common in the Dry Creek area as well as the Forest in general. Infestations in Dry Creek are similar to most others occurring Forest-wide: they are concentrated in areas of human disturbance or open condition, such as roadsides, fields, or old homesites, and in riparian habitats. Inventories of NNIS in the Dry Creek area were conducted during summer 2008. The following species were found (Table 3-7). These species are extremely common on the Chattahoochee National Forest and have persisted here for decades. None of them are considered to have a high I-rank (a score given invasive species regarding its degree of threat to native biodiversity).

**Table 3-7. Non-Native Invasive Plants Found in the Dry Creek Area**

Common Name	Scientific Name	Level of Occurrence
Bicolor lespedeza	<i>Lespedeza bicolor</i>	Low
Autumn olive	<i>Elaeagnus umbellate</i>	Low
Chinese privet	<i>Ligustrum sinense</i>	High
Mimosa	<i>Albizia julibrissin</i>	Low
Multiflora rose	<i>Rosa multiflora</i>	Moderate
Japanese honeysuckle	<i>Lonicera japonica</i>	High
Nepal grass	<i>Microstegium vimineum</i>	High
Chinese (sericea) lespedeza	<i>Lespedeza cuneata</i>	Moderate

Existing horse use in Dry Creek may have contributed to the introduction or spread of NNIS. In general, horse trails and areas used by horses are more likely to have disturbed habitat that is easily invaded by NNIS. Conversely, these same areas are continually being disturbed and compacted by horses, which hinders plant establishment. Various studies such as one from the Great Smoky Mountains National Park (Soehn 2001), five eastern states (Gower 2008), and from three state forests in southern Illinois (Campbell and Gibson 2001) have attempted to determine whether there is a relationship between the spread of NNIS into forest systems and recreational horse riding. Soehn, Gower, and Campbell and Gibson concluded that horse hay and manure does contain NNIS seed, but is a limited threat to plant communities, most likely due to the inability of many NNIS to germinate, become established, and persist in the harsh environmental conditions on a **forested** horse trail corridor (constant soil disturbance and compaction, and limited light).

The researchers speculate that hay itself, rather than manure, seems to be an important vector for NNIS seed. Certified weed-free hay and pelletized feed are required in many western natural areas, and their use is encouraged in the eastern US; unfortunately, certified weed-free hay is currently unavailable in this part of the country. Current regulations in the Great Smoky Mountains National Park prohibit the use of loose hay or grain in the backcountry, instead requiring pelletized or rolled feed or dehydrated alfalfa cubes. Similar feed types are recommended on the Nantahala National Forest in western North Carolina. The horse feed issue is largely limited to areas where **backcountry** horse use is occurring. Horse users in Dry Creek are much more likely to trailer-in their horses, ride for several hours, then return home the same day (day-trip) than camp with their horses in the forest on a multi-day trip, which would require packing in supplies such as horse feed (backcountry use). This is due in part to land ownership patterns of National Forest in the Ridge and Valley Eco-region, where private lands are interspersed with National Forest and vehicular access is good. Most Dry Creek horse users live within a few hours of the area. No designated Wilderness Areas or other large roadless blocks of land exist in this area, and backcountry horse use is much more limited. Cumulatively, these factors result in a lesser threat of a serious NNIS situation in Dry Creek.

Current methods for treating NNIS include manual, mechanical, and chemical (herbicides) described in a recent NEPA decision notice on the Blue Ridge and Conasauga Ranger Districts. Existing and future infestations may be treated with appropriate methods following site-specific evaluation.

## **EFFECTS OF ALTERNATIVE 1 (NO ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

This alternative will perpetuate the current conditions. The NNIS listed above will continue to grow and spread by means of natural mechanisms such as seed dispersal by hikers, horses, birds and other animals, wind, and water. Natural disturbances causing tree fall and resulting canopy gaps may provide additional habitat into which NNIS can become established, especially when adjacent to already infested sites. Unmanaged cross-country horse travel and user-made trails will continue and perhaps expand, providing vectors for NNIS to spread, especially in the riparian corridor. Species such as mimosa and Chinese privet will continue to expand and form vigorous colonies from root sprouts. However, with the no action alternative, there would be no soil disturbance, increase of sunlight into the understory, or operation of equipment across sites containing NNIS, all of which can be conducive to spread of invasive plants. Treatment of NNIS infestations would still occur, if needed.

### **CUMULATIVE EFFECTS**

Under Alternative 1, no action is planned which could cumulatively affect NNIS in combination with ongoing activities in the area (see forest vegetation section for past, present, and reasonably foreseeable activities). NNIS will continue to spread even in the absence of ground disturbance. Large populations of NNIS occur on nearby private land, and they are likely to spread to National Forest land regardless of Forest Service activities. Conversely, where disturbed private land is in close proximity to National Forest, seeds of NNIS could spread to private land by means of animals, water, wind, and human dispersal (i.e. seeds adhering to clothing and vehicles).

## **EFFECTS OF ALTERNATIVE 2 (PROPOSED ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

Trail construction and reconstruction would likely have minor effects on NNIS populations. NNIS could be spread within the 1-2 meter wide trail corridor by the machinery used to excavate the tread, if existing infestations are traversed by the machinery. Prompt seeding of disturbed soils with native or non-invasive non-native seed will help to mitigate the ground disturbance. Subsequent horse traffic could potentially result in the spread of NNIS as well. The potential for native vegetation displacement by NNIS exists, but the threat is limited by several factors: 1) the lack of sunlight in the forested trail environment, 2) the harsh environment of the trail due to horse trampling, 3) the likelihood that horse feed containing NNIS seed will not be packed in, and 4) the biology of the NNIS species present in the local area (lack of aggressive, invasive tendencies). NNIS currently exist in patchy distribution, and this situation would likely persist.

Obliteration of user-made trails in the riparian corridor and concentration of horse use on designated trails would potentially reduce the spread of NNIS in the area on a landscape scale. Reducing the amount of ground disturbance within the riparian corridor of East Armuchee Creek would be a benefit in maintaining native plants and lessening opportunity for spread of NNIS.

### **CUMULATIVE EFFECTS**

Several of the past, present, and reasonably foreseeable activities in the Dry Creek analysis area could potentially spread NNIS in the analysis areas. Timber harvest (thinning) involves ground disturbance due to the heavy equipment utilized; this activity as well as the increased light on the ground after thinning, in log landings, and along temporary roads creates conditions favorable for the spread of NNIS (Evans et al. 2006). Keys to preventing the establishment of NNIS include seeding bare soils to native or non-invasive non-native species as soon as possible after disturbance. The Equipment Cleaning Clause (BT6.35) is included in all timber sale contracts. This clause requires invasive species of concern to be indicated on the Sale Area Map, and gives specific requirements for cleaning of equipment when moving from NNIS-infested sites to non-infested sites. Monitoring of the sites will then be necessary to check for the presence of NNIS and beginning eradication measures if they are becoming established. Treatment (eradication) is permitted through a separate NEPA decision, signed in January 2009.

Dormant-season prescribed burning on approximately 1300 acres in the Dry Creek analysis area was addressed and approved in a separate district-wide NEPA decision. . Evans (2006) reports that many of the NNIS found in the project area recolonize or resprout after fire, but there is no indication that any of the species are promoted by prescribed burning. Fireline construction could potentially spread NNIS, but in this case, firelines have been constructed and re-utilized many times. Each time they are re-sown with non-invasive plant seed.

NNIS present in wildlife openings or along system roads are unlikely to be spread into the forest interior due to decreased sunlight.

This alternative is unlikely to result in cumulative effects regarding NNIS establishment or spread.

### **THREATENED, ENDANGERED, SENSITIVE, AND LOCALLY RARE PLANT SPECIES**

**Measure:** Effects on populations and habitat conditions for terrestrial TES/LR plants

**Bounds of analysis:** Spatial analysis bounds include a portion of the East Armuchee Creek Sixth Level Hydrologic Unit representing the immediate environs of the project area (Figure 2). This area is approximately 4800 acres of National Forest land. The temporal bounds will be over the next 10-15 years.

### **CURRENT SITUATION**

Occurring within the forest communities on the Chattahoochee-Oconee National Forest are unique habitats that support many sensitive and rare plant species. The Forest Service has compiled a list of 149 plant species, including Federally-listed endangered, and threatened, Regional Forester's listed sensitive (which are comprised of many state-listed species) and locally rare plant species that have the potential to occur within the Forest. Occurrences of TES/LR species within the analysis area was determined through the review of existing Forest Service records and botanical surveys of the proposed trail corridor during summer 2008. Species evaluated are listed in Table 3-8.

**Table 3-8. Rare Plants Which Occur in the Dry Creek Area**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>
Large-flowered skullcap	<i>Scutellaria montana</i>	Federally Listed – Threatened
Nuttall's hedge nettle	<i>Stachys nuttalli</i>	Locally rare
Yellow ladies' slipper	<i>Cypripedium parviflorum</i>	Locally rare

The following provides a brief description of preferred habitat and known distribution for each species known to occur in the project area.

- **Large-flowered skullcap.**

Large-flowered skullcap is federally listed as Threatened (Federal Register 2002). It is a member of the mint family, and is only known to occur in the Ridge and Valley and Cumberland Plateau physiographic provinces in Tennessee, and the Ridge and Valley province in Georgia (USDA 2004). Habitat is comprised of mid-to late-successional oak, hickory, and pine forests that are rocky and submesic to xeric (NatureServe 2008). Two populations of this species are located on National Forest on the Conasauga Ranger District. Both of these populations are considered nonviable due to their small sizes (less than 10 individuals). There are two additional populations located on the District which were rescued from areas slated for development and planted onto National Forest in 1992. One of these populations still exists but is also nonviable. Approximately 15 plants were visible when monitored in August 2008. This introduced population is within the Dry Creek analysis area. Existing horse use does not affect this population.

- **Nuttall's hedge-nettle**

Nuttall's hedge-nettle is currently listed as S2, imperiled in the state of Georgia due to the small number of populations in the state. This member of the mint family is uncommonly found in moist upland forests in middle and east Tennessee and northwest Georgia (NatureServe 2007). A small population of this species was found during botanical survey of the trail route during summer 2008. No damage by horse use was noted.

- **Yellow ladies' slipper**

Yellow ladies' slipper is currently listed as Rare in the state of Georgia. A member of the orchid family, this species is found in a variety of habitats but most often found in rich, moist, hardwood coves and forests in the foothills and mountains of Georgia and other parts of the southern Appalachians (Duncan and Foote 1975). A small population of this species was found during botanical survey of the trail route during summer 2008. No damage by horse use was noted.

## **EFFECTS OF ALTERNATIVE 1 (NO ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

Under this alternative, existing conditions and natural processes would persist. There would be the potential for damage to rare plants as a result of unmanaged recreational use, because user-made trails and cross-country travel currently exist and are likely to increase in the area if a designated trail system is not constructed. No obliteration of poorly-located social trails would take place, as well as no trail construction or reconstruction. However, direct or indirect effects on federally-listed species (large-flowered skullcap) are unlikely because there is only one small (introduced) population of this species in the area, no user-made trails are within the area, and the majority of the skullcaps are protected by wire cages. No sensitive plants have been found in the Dry Creek area. Both populations of locally rare plants are small and have not been damaged by past or current horse use.

### **CUMULATIVE EFFECTS**

No cumulative effects of this alternative in combination with the above listed past, present, or reasonably foreseeable activities are expected to affect rare plants. Several Forest Plan standards prevent adverse effects to federally listed and other rare species that occur on the Forest. Federally listed species are directly protected in the Forest Plan through Goal 15, objective 15.1, and forest-wide standards FW-029 through FW-032, which address protection from detrimental effects of management actions and potential threats to these rare species.

Surveys have been and continue to be conducted in portions of the Forest to determine presence and distribution of various small mammals, birds, amphibians and reptiles, aquatic species, and TES plants. The Georgia National Heritage Program records are checked for known occurrences of TES species in project areas, and close contact is maintained between the Heritage biologists and Forest Service biologists for sharing of new information. Forest Service and other records are also checked for occurrences. All of this information is used to assess impacts of proposed projects. Future management activities and project locations will be analyzed utilizing this information as well as any new information available on TES species. Effects on federally listed species will be avoided and sensitive species or locally rare species will be protected where necessary to protect their viability, to maintain habitat for these species on the Forest, and to prevent future listing under the Endangered Species Act.

Because they are carried out for all FS projects, all of these procedures and Forest Plan standards will assist in avoiding cumulative effects to TES/LR species and their habitats as a result of any current and any future proposals.

## **EFFECTS OF ALTERNATIVE 2 (PROPOSED ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

This alternative is unlikely to have direct or indirect effects on rare plants, because known populations will be avoided during trail construction. No trail construction, reconstruction, or obliteration of poorly-located social trails will be done in unique habitats. Trail layout includes rerouted segments to avoid rare plants discovered during botanical survey. No activities are planned in the vicinity of the introduced large-flowered skullcap population, and annual monitoring of this population will continue.

### **CUMULATIVE EFFECTS**

As with Alternative 1, no cumulative effects of this alternative in combination with past, present, or reasonably foreseeable activities are expected to affect rare plants. Future management activities and project locations will be analyzed utilizing the most current information available on TES/LR species. Effects on federally listed species will be avoided and sensitive species and locally rare species will be protected where necessary to protect their viability, to maintain habitat for these species on the Forest, and to prevent future listing under the Endangered Species Act.

### **TERRESTRIAL WILDLIFE**

#### **MANAGEMENT INDICATOR SPECIES (MIS)**

**Measure:** Effects on populations and habitat conditions for individual MIS

**Bounds of analysis:** Spatial analysis bounds include a portion of the East Armuchee Creek Sixth Level Hydrologic Unit representing the immediate environs of the project area. This area is approximately 4800 acres of National Forest land. The temporal bounds will be over the next 10-15 years.

#### **CURRENT SITUATION**

The Forest Plan identified certain species present in the Chattahoochee National Forest as MIS (USDA Forest Service 2004a). The Forest Service has collected population data for Management Indicator Species (MIS) for the Chattahoochee National Forest as part of the revised Forest Plan. Population trends for all Forest MIS are monitored at the Forest level and reported annually in the Forest's Monitoring and Evaluation Report (M&E Report). Annual forest-wide validation monitoring evaluates the cumulative effects of planned actions combined with past management actions on MIS population trends and provides a context for evaluating the effects of management on future MIS trends.

Fifteen wildlife species are listed in the Forest Plan as terrestrial management indicator species for habitats they represent. Of the 15 species listed, only eight potentially occur within the project area. The MIS that were evaluated for this project are presented in Table 3-8.

**Table 3-9. Terrestrial Management Indicator Species for the Dry Creek Analysis Area**

<b>Management Indicator Species</b>	<b>Habitat Represented</b>
Ovenbird	Forest Interior
Scarlet Tanager	Upland Oak Forests
Pine Warbler	Mid to Late Successional Pine or Pine/Oak Forests
Acadian Flycatcher	Riparian Forest
Pileated Woodpecker	Snags/Mature Forest
Prairie Warbler	Early Successional Forests
Hooded Warbler	Mature Deciduous Forest
White-tailed deer	Demand Species

The following summarizes habitat requirements and population trends for each MIS species:

- **Ovenbird.** The ovenbird was selected to represent species associated with interior forest habitats. Typically, this species forages for insects and other vertebrates in the leaf litter or soil within mature deciduous forest containing interior forest habitat. The ovenbird is also known to occur within mixed forests and occasionally within bottomland hardwoods with closed canopies. This bird is common on the Chattahoochee National Forest with relative abundance trends from bird point-count monitoring data showing a high number of occurrences for this species. This data indicates that the Forest has an abundance of mature forest interior habitat preferred by this species and populations are considered stable (M&E Report 2007).
- **Scarlet tanager.** The scarlet tanager represents those species associated with mature upland hardwood habitats. It is a tree-nesting, tree foliage-gleaning insectivore. The scarlet tanager prefers mature deciduous forests usually in the uplands with a relatively closed canopy (Hamel 1992). According to bird survey data, this species has a fairly high occurrence on the Forest and the population is considered stable (M&E Report 2007). The Dry Creek area provides an abundance of its preferred habitat and the Forest Plan standards would maintain this upland hardwood forest for the future.
- **Pine warbler.** The pine warbler represents species associated with pine and pine/hardwood forest types. This species is a tree-nesting insectivore-omnivore inhabiting open pine stands and dense pine plantations (Hamel 1992). Populations of this species on the Forest appear to be stable to increasing, according to population data collected since 1997. Statewide, the Breeding Bird Survey Data also suggest an increase in population trends. This could be attributed to a slight increase in the available mature pine stands on the forest have increase on the forest in the past few decades (M&E Report 2007).
- **Acadian flycatcher.** The Acadian flycatcher, a neotropical migrant, was selected to represent those species associated with mature riparian habitats. This species inhabits moist deciduous forests near streams during its breeding season on the forest (Hamel 1992). Population trends gathered from bird survey data indicates that this species is fairly stable with slight increases in the abundance trends over the last four years (M&E Report 2007). These slight increases in trends have also been shown in the annual Breeding Bird Surveys statewide. The forest contains an abundance of riparian habitat suitable for the Acadian flycatcher. Continued

protection of riparian habitats through the management standards provided in the revised Forest Plan will allow these acreages to remain stable in the future.

- **Pileated woodpecker.** The pileated woodpecker was selected to represent the primary excavators and secondary cavity users of mature forest habitats. This species utilizes large snags for nesting and forages on these snags as well as other fallen trees. The preferred habitat of the pileated woodpecker is mature extensive bottomland hardwood forest, swamps, dense river bottoms. It can also be found within open upland mixed forests (Hamel 1992). Survey data for the pileated woodpecker shows that this species is stable on the Forest and in the State. Recent infestations of southern pine beetle have resulted in more dead and dying trees, which benefit snag- and cavity-dependent species such as pileated woodpecker. With the standards and guidelines of the Forest Plan designed to maintain mature hardwood forest and snags within these habitats, the pileated woodpecker populations would continue to thrive and possibly increase in the future (M&E Report 2007).
- **Prairie Warbler.** The prairie warbler was selected to represent species associated with early successional shrub-land habitats. This species is a bush-gleaning insectivore inhabiting abandoned fields with scattered saplings, scrubby thickets, cutover or burned-over woods, woodland margins, and other sapling-shrub growth (Hamel 1992). It is a neotropical migrant, present only during breeding season. Survey data suggest that the population trends for prairie warblers on the forest are relatively stable, with some fluctuations over the years. A downward trend may be projected in the future due to the decrease in early successional habitat on the Forest (M&E Report 2007).
- **Hooded warbler.** The hooded warbler was selected to represent those species that utilize mature deciduous forest. This species inhabits mature mixed hardwood forests with a rich understory layer, sometimes in the deciduous understory of mature pine forests (Hamel 1992). Data collected annually indicates that hooded warbler numbers are increasing slightly on the Forest and within the state. This is due to an increase in the amount of older hardwood stands available on the Forest. Through implementation of the standards provided in the Forest Plan, mature hardwood stands and other late successional habitats will be maintained for the hooded warbler and other species preferring these habitat types (M&E Report 2007).
- **White-tailed deer.** The white-tailed deer was selected as a MIS to represent game species on the Chattahoochee National Forest. Deer populations in the Ridge and Valley Physiographic Province (northwest Georgia) range between 20 and 70 deer per square mile. Within the mountains of Georgia, the white-tailed deer densities range from 10 to 30 deer per square mile as opposed to 20 to 70 deer per square mile in the Piedmont. This is due to the reduced amount of early successional habitat, poorer soil fertility, and inconsistent mast production. According to deer harvest data, the white-tailed deer populations of Georgia are fairly stable, with harvest levels decreasing in the mountains (M&E Report 2007). The Dry Creek area is not within a Wildlife Management Area; statewide hunting seasons and regulations apply. Chattooga and Walker Counties are within the northern zone of Georgia for deer harvest; either sex may be harvested with a maximum of 10 antlerless deer and 2 antlered deer per year.

## EFFECTS OF ALTERNATIVE 1 (NO ACTION)

There would be no direct or indirect effects to MIS under this alternative. No trail construction, reconstruction, or obliteration would take place. Existing conditions and natural processes would persist.

## **CUMULATIVE EFFECTS**

Under Alternative 1, no action is planned which could cumulatively affect forest MIS in combination with ongoing activities in the area (see forest vegetation section for past, present, and reasonably foreseeable activities).

## **EFFECTS OF ALTERNATIVE 2 (PROPOSED ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

Direct effects of the trail construction on the MIS would be minor because all are very mobile and would retreat from the area during construction activities. Noise from the machinery and human presence would likely cause avoidance of the area for breeding, nesting, feeding, and other activities during construction. After construction, the potential exists for increased use of the area by recreational users, causing impacts to individual MIS, but again, these individuals would likely avoid the trail during high usage, minimizing encounters. Direct or indirect effects to MIS habitat would be extremely minor when viewed from a Forest-level perspective. Changes to forest vegetation, i.e. habitat components for the MIS, would be negligible.

### **CUMULATIVE EFFECTS**

Suitable habitat for the MIS is found throughout the Forest. Continued management of the Forest according to the Forest Plan will provide the necessary habitats to maintain MIS population goals. The relatively minor impacts to the trail corridor combined with other activities such as those affecting forest vegetation (see section above) are not expected to result in cumulative adverse impacts to any of the MIS.

## **THREATENED, ENDANGERED, SENSITIVE, AND LOCALLY RARE TERRESTRIAL WILDLIFE SPECIES**

**Measure:** Effects on populations and habitat conditions for terrestrial TES/LR species

**Bounds of analysis:** Spatial analysis bounds include a portion of the East Armuchee Creek Sixth Level Hydrologic Unit representing the immediate environs of the project area. This area is approximately 4800 acres of National Forest land. The temporal bounds will be over the next 10-15 years.

## **CURRENT SITUATION**

Several TES/LR terrestrial species are known to occur or could potentially occur within the Dry Creek project area. One federally listed species, two sensitive species, and two locally rare species are addressed in this analysis (Table 3-9). This was determined by: 1) consulting Forest Service plant inventory records, including site-specific inventories conducted for this project; 2) consulting Georgia Natural Heritage Program (GNHP) records and reviewing current lists per quarter-quad and county; 3) ongoing interactions with GNHP, Forest Service, and other agency biologists; and 4) various scientific

references such as technical manuals, bulletins, articles, herbarium records, NatureServe information, and others.

**Table 3-10. Rare Animals Which Could Occur in the Dry Creek Area**

Common Name	Scientific Name	Status
Gray bat (foraging habitat only)	<i>Myotis grisescens</i>	Federally Listed Endangered
Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	Sensitive
Diana fritillary butterfly	<i>Speyeria diana</i>	Sensitive
Southern Appalachian woodrat	<i>Neotoma floridana haematorea</i>	Locally rare
Northern pine snake	<i>Pituophis m. melanoleucus</i>	Locally rare

The following provides a brief description of preferred habitat and known distribution for each species known to occur or with potential to occur in the project area:

**Gray myotis or bat** is currently listed as Endangered (Federal Register 1976). They are year-round cave dwellers, roosting and hibernating exclusively in suitable caves in the southeastern U.S. No known hibernacula are known in Georgia, and no maternity or summer roost caves are known to occur on National Forest due to the limited amount of limestone (karst) substrate. A cave hosting one (summer) bachelor male colony is located on private land approximately 5 miles away from the Dry Creek area. Male gray bats forage along perennial streams and lakes near their roost location, and prefer large rivers and streams to small, narrow ones (Johnson 2002). East Armuchee Creek is apparently utilized for foraging; four male gray bats were captured at a low-water ford in summer 2001 when bat mist-netting was conducted across the Chattahoochee National Forest (Loeb 2001). Water quality, aquatic habitats, and aquatic species populations in East Armuchee Creek are currently good, according to IBI scores (Georgia Department of Natural Resources 2007). Existing sediment sources such as roads and trails (including user-created trails used by horses) are present, but the relatively flat topography, the lack of a dense network of perennial streams, and a completely forested riparian corridor prevents serious erosion and siltation problems. (See the section below on Aquatic Habitats for more information about East Armuchee Creek).

**Rafinesque's big-eared bat** - This rare and little known bat ranges widely throughout the southeastern U.S., but is abundant nowhere (Georgia Department of Natural Resources 1999). Its status in Georgia is R (rare). There are no historic records for this species in Walker or Chattooga County (i.e. the Dry Creek vicinity). It is associated with mature forests near permanent water (Harvey 1992). It hibernates in man-made structures, in caves, or mines either singly or in small colonies. No known hibernaculum or maternity habitat is present in the Dry Creek area. In 2001, bat mist-netting was conducted across the Chattahoochee National Forest (Loeb 2001). Some of the sites were within the Dry Creek analysis area. No big-eared bats were found during any of the mist netting. In the summer, male big-eared bats may roost in hollow trees (Harvey 1992). Hollow trees are associated with older forests, typically greater than 60 years of age. There are approximately 680,000 acres of these older Forests on the Chattahoochee-Oconee (roost trees are not limiting).

**Diana fritillary butterfly** occurs throughout the Southern Appalachians, inhabiting pine and deciduous forests near streams. Violets serve as the host plant for larvae (Scott 1986). Opler (1992) states that males use a variety of habitats, but primary habitat consists of openings in wet, rich woods. Roads and other openings in moist woods provide nectar plants for this butterfly (Broadwell 1992). At

the end of summer, Diana fritillary eggs are laid next to dried-up violets where they hatch in the fall. Diana larvae overwinter deep in the duff layer. Because it uses a variety of forest types including both pine and hardwood forests of varying successional stages, nearly the entire Forest (750,000 acres) provides suitable habitat. It has been observed in a variety of locations and habitat types throughout the Forest (Cindy Wentworth, personal observation). The Diana is a species of special concern in Georgia due to its relative rarity (S2 ranking) (Georgia Department of Natural Resources 2008).

**Southern Appalachian woodrat** - This mammal is known from Lumpkin, Rabun, Union, Murray, and Walker Counties, Georgia (GNHP, NatureServe 2007). It is apparently secure throughout its range, but is considered rare to uncommon in Georgia (S3 ranking) (Trani et al. 2007). This woodrat prefers deciduous forests with rocky outcrops, boulders, caves, and crevices. It constructs large houses of sticks and leaves, often with various shiny objects the rat may find (Webster et al. 1985). The woodrat is known to deposit its droppings in specific sites or “latrines” away from the nest (Webster et al. 1985). No signs of this species were observed during site visits or trail layout. This species could occur in rocky sites in the Dry Creek area.

**Northern pine snake** - This species is known from several counties in north and central Georgia (NatureServe 2008). Never abundant in Georgia, they are a species of special concern (an S2 ranking) because of their rarity (Georgia Department of Natural Resources 2008). This species is found in dry, upland pine forests where they spend much of their time underground. This species has potential to occur in the Dry Creek area but is hard to detect.

## **EFFECTS OF ALTERNATIVE 1 (NO ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

There would be no direct effects to terrestrial TES/LR under this alternative. No trail construction, reconstruction, or obliteration would take place. Existing conditions and natural processes would persist. The No action alternative would include the continued use of: 1) poorly-located user-made trails with spot erosion in the riparian corridor of East Armuchee Creek, and 2) two unimproved, user-made stream crossings on East Armuchee Creek by horseback riders. Ongoing utilization of these areas by horses could result in potential indirect effects on gray bat foraging habitat because of impacts to water quality and aquatic insects, the gray bat prey base. This alternative would have no direct or indirect effects to the other TES/LR species, if present, because their preferred habitats would be unaffected.

### **CUMULATIVE EFFECTS**

Under Alternative 1, no action is planned which could cumulatively affect terrestrial TES/LR in combination with ongoing activities in the area (see forest vegetation section for past, present, and reasonably foreseeable activities). All Forest Service activities include the protection of stream corridors, managed as Riparian Corridor Prescription (11) objectives and standards on National Forest. Corridor widths are a minimum of 100 feet on each side of all perennial and intermittent streams. The prescription will provide forest cover for foraging and protection from predation and ensure high water quality to support the aquatic insect base (Forest Service 2004a), important gray bat foraging habitat protection.

## **EFFECTS OF ALTERNATIVE 2 (PROPOSED ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

## **Effects Common to all Terrestrial TES/LR Animals**

Direct effects of the trail construction on the terrestrial TES/LR species, if present, would be minor because all are mobile and would retreat from the area during construction activities. Noise from the machinery and human presence would likely cause avoidance of the area for breeding, nesting, feeding, and other activities during construction. After construction, the potential exists for increased use of the area by recreational users, causing impacts to individual animals, but again, these individuals would likely avoid the trail during high usage, minimizing encounters. Direct or indirect effects to TES/LR animals' habitat would be extremely minor when viewed from a Forest-level perspective. Changes to forest vegetation, i.e. habitat components for the species, would be negligible.

## **Effects to Individual Terrestrial TES/LR Animals**

### **Gray bat**

There would be minimal, if any, effects of trail construction or reconstruction on potential gray bat foraging habitat (East Armuchee Creek) because all new construction would be located outside the riparian corridor (Forest Plan standard FW-134), except for designated stream crossings. The riparian corridors on the Forest are managed and protected through the Riparian Corridor Prescription (11) objectives and standards, which meet or exceed State Best Management Practices (BMPs).

Problem areas with spot erosion in the riparian corridor will be improved by obliterating poorly-located, user-created trails, and improving two user-made stream crossings by properly constructing the stream crossings and hardening approaches to the crossings with gravel. These activities would potentially have a positive effect on stream health and aquatic insects by reducing siltation to the stream. This project will not negatively affect gray bat foraging habitat.

### **Rafinesque's big-eared bat**

Some hollow trees could be damaged by the proposed action, but given their abundance on the Forest, the availability of summer roost trees will not be affected. Trail construction will necessitate the removal of some trees. If a hollow tree is damaged, roosting bats are quick to fly away when disturbed on the roost (Ozier 1999), and will promptly relocate. This project will have no impact to this species.

### **Diana fritillary butterfly**

Individual larval Dianas could be impacted by the ground disturbance associated with heavy equipment, but this is a remote possibility. This impact likely would be indirect, due to a reduction in larval host plants (violets) and nectar plants on the sites. However, given that this area contains no habitat specifically required by this species, that most of the Forest (750,000 acres) provides suitable habitat, and that only a small amount of ground disturbance is involved, the potential indirect impact to individuals by the proposed action is negligible. This project will have no impact to this species.

### **Southern Appalachian woodrat and northern pine snake**

Individuals of these species could be impacted by the ground disturbance associated with heavy equipment, but this is a remote possibility. However, given that this area contains no habitat specifically required by this species and that only a small amount of ground disturbance is involved,

the potential indirect impact to individuals by the proposed action is negligible. This project will have no impact to these species.

## CUMULATIVE EFFECTS

### Gray bat

All Forest Service activities include the protection of stream corridors, managed as Riparian Corridor Prescription (11) objectives and standards on National Forest. The prescription will provide forest cover for bat foraging, protection from predation, and ensure high water quality to support the aquatic insect base (Forest Service 2004a).

Activities potentially affecting gray bat foraging habitat would include activities affecting riparian corridors. Past, present, or reasonably foreseeable activities in the Dry Creek area which affect riparian corridors are:

- 1) Armuchee Ridges timber sale. Commercial thinning of 15 pine stands (1019 acres), oak restoration of 1 mixed pine stand (180 acres), planned for 2012. Eleven of the 15 pine thinning stands are proposed for riparian corridor treatment. This treatment will involve selective removal of loblolly pine from the riparian corridor in order to favor hardwoods. Natural riparian vegetation is extremely valuable because of the predominance of herbaceous and woody plants, particularly hardwoods, which provide mast, nesting, and denning cavities, diversity of habitat, high soil moisture, and travelways for wildlife. An average of 50 square feet of basal area per acre would be retained in the riparian areas in order to maintain shade and temperature control for the stream. This silvicultural treatment would not alter forest structure significantly or cause a riparian corridor to be suitable as foraging habitat (Bat Conservation International 2001). Research in the Piedmont region of the southeast indicates that treatments that reduce “clutter”, particularly thinning, actually increase the suitability of pine stands for bat foraging and commuting activity (Loeb and Waldrop 2007). The US Fish and Wildlife Service has concurred with the determination that the planned riparian corridor thinning is not likely to adversely affect gray bat foraging habitat.

- 2) Prescribed burning. 1017 acres were burned in 2006, 321 acres to be burned in next 5 years. A small percentage of some of the burn units is within a riparian corridor. Streams are used as firelines in some cases. Low intensity fire is allowed to burn into riparian areas where soil and fuel moistures are generally higher. This creates a mosaic of burned and unburned vegetation which increases plant and insect diversity. In other cases, fireline is constructed into riparian corridors with hand tools in order to minimize ground disturbance. Firelines are revegetated as soon after the fire is controlled as possible, using native plant seed or non-persistent non-native plant seed. Low intensity prescribed burning and associated fireline construction does not negatively affect riparian function or structure, water quality, or aquatic habitats (Elliot and Vose 2005).

No activities associated with this project are likely to cumulatively affect gray bat foraging habitat in combination with the above activities (thinning, burning) in the Dry Creek area.

## **Rafinesque's big-eared bat, Diana fritillary, Southern Appalachian woodrat, and northern pine snake**

This alternative is unlikely to cumulatively affect these species in combination with past, present, and reasonably foreseeable activities because the proposed disturbance is short-term and small in scale, and there are no unique habitats in the Dry Creek area specifically suited to these species.

## **AQUATIC AND RIPARIAN RESOURCES**

**Measure:** Effects on aquatic and riparian conditions and populations of associated aquatic species

**Bounds of analysis:** Spatial analysis bounds include streams within the Dry Creek analysis area, a portion of the East Armuchee Creek Sixth Level Hydrologic Unit representing the immediate environs of the project area. This area is approximately 4800 acres of National Forest land. The temporal bounds will be over the next 10-15 years.

## **CURRENT SITUATION**

The streams within the Dry Creek area are part of a unique aquatic region known as the upper Coosa River Basin, which refers to streams that combine to form the Coosa River. No other aquatic region in North America has a higher proportion of endemic species. Over 30 species of fish, mussels, snails, and crayfish are endemic to the region (CRBI 2007).

East Armuchee Creek is the major perennial stream in the analysis area. It is a low-gradient, high-order stream with a sandy, gravelly base, and cool to warm water temperatures. Fishes include the redeye or Coosa bass and brightly colored darters and minnows (Table 3-11). Minnows and darters represent over half the upper Coosa Basin fishes and all of the endemic and rare fishes (CRBI 2007). Several freshwater mussel species, which require clean, flowing water, occur there. Small, unnamed tributaries to East Armuchee Creek also occur within the Dry Creek analysis area. Most are ephemeral or intermittent in flow, as are the majority of streams in the Ridge and Valley Eco-region. The riparian corridors of these headwater streams are all completely forested.

Several rare aquatic species are known to occur or could potentially occur within the Dry Creek project area or immediately downstream. This was determined by: 1) consulting Forest Service records; 2) consulting Georgia Natural Heritage Program (GNHP) records and reviewing current lists per quarter-quad and county; 3) ongoing interactions with GNHP, Forest Service, and other agency biologists; and 4) various scientific references such as reports, technical manuals, bulletins, articles, NatureServe information, and others. Two sensitive and four locally rare aquatic species are known to occur or have the potential to occur in East Armuchee Creek, including fish such as **Coosa darter**, **greenbreast darter**, **burrhead shiner**, and **rainbow shiner**. These fish occur in many of the medium to large size streams in the upper Coosa River basin. Freshwater mollusk **Alabama rainbow** and aquatic insect **Cherokee clubtail dragonfly** occur in the area.

Stream health and aquatic communities are well documented in the area. Most states, including Georgia, utilize some version of the Index of Biotic Integrity (IBI) (Karr et al. 1986) to determine the quality of fish communities as biotic indicators of stream health. This index utilizes the numbers and types of fish species present in a stream to produce a stream score or rating for comparison across streams within a region or to the same stream over time. Physical and chemical parameters such as

habitat availability and water quality are sampled in order to explain why IBI scores are similar or differ among streams.

**Table 3-11. Aquatic Fauna Known from East Armuchee Creek (Including Rare Species in Bold Text. LR = Locally Rare, S = Sensitive)**

Common Name	Scientific Name	Status
<b>FISH</b>		
Redeye bass	<i>Micropterus coosae</i>	
Rainbow trout	<i>Salmo gairdneri</i>	
Rock bass	<i>Ambloplites rupestris</i>	
Redbreast sunfish	<i>Lepomis auritus</i>	
Longear sunfish	<i>Lepomis megalotis</i>	
Bluegill sunfish	<i>Lepomis macrochirus</i>	
Spotted sunfish	<i>Lepomis punctatus</i>	
Stoneroller	<i>Campostoma anomalum</i>	
Creek chub	<i>Semotilus atromaculatus</i>	
Hogsucker	<i>Hypentelium nigricans</i>	
Alabama hogsucker	<i>Hypentelium etowanum</i>	
Black redhorse sucker	<i>Moxostoma duquesnei</i>	
Logperch	<i>Percina caprodes</i>	
Blackbanded darter	<i>Percina nigrofasciata</i>	
<b>Coosa darter</b>	<b><i>Etheostoma coosae</i></b>	<b>LR</b>
<b>Greenbreast darter</b>	<b><i>Etheostoma jordani</i></b>	<b>LR</b>
Mountain shiner	<i>Lythrurus lirus</i>	
<b>Burrhead shiner</b>	<b><i>Notropis asperifrons</i></b>	<b>LR</b>
<b>Rainbow shiner</b>	<b><i>Notropis chrosomus</i></b>	<b>LR</b>
Coosa shiner	<i>Notropis xaenocephalus</i>	
Tricolor shiner	<i>Notropis trichroistius</i>	
Blacktail shiner	<i>Notropis venustus</i>	
Banded sculpin	<i>Cottus carolinae</i>	
<b>MUSSELS</b>		
<b>Alabama rainbow</b>	<b><i>Villosa nebulosa</i></b>	<b>S</b>
Coosa creekshell	<i>Villosa vanuxemensis umbrans</i>	
Southern rainbow	<i>Villosa vibex</i>	
Little spectaclecase	<i>Villosa lienosa</i>	
<b>INSECTS</b>		
<b>Cherokee clubtail dragonfly</b>	<b><i>Gomphus consanguis</i></b>	<b>S</b>

(Data sources: Georgia DNR 2008, Forest Service records, Johnson and Evans 2000, Mettee et al. 1996)

The Georgia DNR Stream Team has collected a total of 169 bio-monitoring samples from streams in the Ridge and Valley Eco-region since 2001. A total of 57 native fish species were collected from

Coosa Basin streams. In addition to the IBI, Georgia also utilizes a modified Index of Well-Being (Iwb) to confirm the results of the IBI regarding the health of the fish community. Several of the streams sampled during the recent Ridge and Valley Stream Team efforts are located at least partially on National Forest in this portion of the Conasauga Ranger District. Table 3-12 displays the IBI and Iwb scores and categories from East Armuchee Creek. Water quality, aquatic habitats, and aquatic species populations in East Armuchee Creek are currently rated as “good”, according to IBI scores (Georgia Department of Natural Resources 2007).

**Table 3-12. Stream Habitat Data from East Armuchee Creek (Georgia DNR Stream Team 2007)**

Stream Name	County	Year	DBA(sqmi)*	IBI category	Iwb Score	IwbCat
East Armuchee Creek	Walker	2002	11.3	Good	9.3	Good

\*DBA(sq mi) – drainage basin area in square miles

Nearly all examples of large river floodplain forest in the Ridge and Valley eco-region have been converted to other types of land cover, such as agriculture. The loss of natural riparian vegetation is a major factor negatively influencing biological integrity. The portion of East Armuchee Creek’s floodplain within National Forest is completely forested, except for small openings at stream crossings and in canopy gaps created by southern pine beetle-killed trees. Riparian vegetation along East Armuchee Creek is fairly intact, but spot erosion occurs in areas where horse traffic has been concentrated on user-created trails.

There are six existing stream crossings on East Armuchee Creek within the Dry Creek analysis area: 1) a system road crossing consisting of geo-web and gravel (FS 310), 2) a system road crossing consisting of concrete planks (FS 226A), 3) a system road crossing consisting of concrete blocks tied together with steel cables (FS 226B), 4) a gated ford located on private land, and 5 and 6) user-made fords utilized by horse riders. Stream crossings 1 through 4 are well-constructed, do not restrict stream passage for aquatic organisms or contribute sediment to the stream when vehicles or horses cross. The fords created and utilized by horse riders are unimproved (not hardened with any substrate or constructed with appropriate drainage structures) and contribute sediment to the stream, especially during rain events.

Existing sediment sources such as roads, trails, and stream crossings are present (including user-created trails used by horses), but the relatively flat topography, the lack of a dense network of perennial streams, and a completely forested riparian corridor prevents serious erosion and siltation problems to East Armuchee Creek.

## **TROUT STREAMS**

The Ridge and Valley Eco-region is comprised of mostly non-perennial streams of lower elevation, not typical cold water trout streams; no “primary” (self-sustaining) trout streams or “secondary” trout streams (trout populations sustained by seasonal stocking by the Georgia DNR) occur in the Dry Creek analysis area. The portion of East Armuchee Creek and its tributaries above Highway 136 has

“secondary” trout stream designation (Georgia Rules and Regulations for Water Quality Control, 2005). This area is approximately 5 miles north (upstream) of the Dry Creek area.

Riparian corridors on all Chattahoochee National Forest streams are managed under the Riparian Corridor Prescription (11). Corridor widths are a minimum of 100 feet on each side of all perennial and intermittent streams. The purpose of the prescription is to protect riparian area structural and functional integrity and associated aquatic systems (Forest Service 2004a p. 3-226).

## **EFFECTS OF ALTERNATIVE 1 (NO ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

There would be no direct effects to aquatic habitat under this alternative. No trail construction, reconstruction, or obliteration would take place. Existing conditions and natural processes would persist. The No action alternative would include the continuing use of: 1) poorly-located user-made trails with spot erosion in the riparian corridor of East Armuchee Creek, and 2) two unimproved, user-made stream crossings on East Armuchee Creek by horseback riders, which is contributing sediment to the stream. Ongoing utilization of these areas by horses could result in potential indirect effects on aquatic habitat in East Armuchee Creek because of impacts to water quality.

### **CUMULATIVE EFFECTS**

Under Alternative 1, no action is planned which could cumulatively affect aquatic species or habitats in combination with ongoing activities in the area (see forest vegetation section for past, present, and reasonably foreseeable activities). All Forest Service activities include the protection of stream corridors, managed as Riparian Corridor Prescription (11) objectives and standards on National Forest. Corridor widths are a minimum of 100 feet on each side of all perennial and intermittent streams. The prescription provides for riparian vegetation retention to ensure high water quality.

## **EFFECTS OF ALTERNATIVE 2 (PROPOSED ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

There would be minimal, if any, effects of trail construction or reconstruction on aquatic species and habitats in East Armuchee Creek and its tributaries because all new construction would be located outside the riparian corridor (Forest Plan standard FW-134), except for designated stream crossings. The riparian corridors on the Forest are managed and protected through the Riparian Corridor Prescription (11) objectives and standards, which meet or exceed State Best Management Practices (BMPs).

Problem areas with spot erosion in the riparian corridor will be improved by obliterating poorly-located, user-created trails, and improving two user-made stream crossings by properly constructing the stream crossings and hardening approaches to the crossings with gravel and geo-web. These activities would potentially have a positive effect on stream health and aquatic species and habitats by reducing siltation to the stream.

### **CUMULATIVE EFFECTS**

As under Alternative 1, no action is planned which could cumulatively affect aquatic species or habitats in combination with ongoing activities in the area (see forest vegetation section for past,

present, and reasonably foreseeable activities). All Forest Service activities include the protection of stream corridors, managed as Riparian Corridor Prescription (11) objectives and standards on National Forest. Low intensity prescribed burning and associated fireline construction does not negatively affect riparian function or structure, water quality, or aquatic habitats (Elliot and Vose 2005). No other negative cumulative effects to aquatic habitat and associated species are expected.

## **SOCIAL ENVIRONMENT**

### **HERITAGE RESOURCES**

#### **AFFECTED ENVIRONMENT**

The area analyzed for heritage resources includes all National Forest lands which may be affected by project activities associated with any of the alternatives considered (Area of Potential Effect). The Area of Potential Effect (APE) is the geographical boundaries within which there is reasonable and foreseeable potential for heritage resources or their setting to be directly or indirectly affected by the activities. To ensure that historic properties (resources eligible for inclusion on the National Register of Historic Places (NRHP)) are not affected, implementation of proposed actions are preceded by a routine cultural heritage resource survey of the proposed APE under the Programmatic Agreement (P) between the Southern Region, USDA Forest Service, the Advisory Council on Historic Preservation (ACHP), and the Georgia State Historic Preservation Officer (SHPO), and the Memorandum of Understanding (MOU) between the Chattahoochee-Oconee National Forests and the Georgia SHPO.

A Forest Archeologist completed a routine cultural resource survey of the project area. All trails were surveyed, walked, and shovel tested where needed, i.e. crossing gaps, flat ridges and other flat areas. During the course of the survey, no cultural resources (historic properties) were found within the APE, so there are no historic properties affected, and thus no effect on the cultural heritage of the National Forests. The proposed project is recommended to proceed as planned.

In the event that previously unknown historic properties were discovered at any time during project implementation, the activity would cease immediately and the Forest Archeologist would be notified. The activity in that location would be suspended until an evaluation of the resource had been made in consultation with the Georgia SHPO, the appropriate THPOs, and the ACHP (36CFR800.13).

#### **EFFECTS OF THE ALTERNATIVES**

##### **DIRECT AND INDIRECT EFFECTS**

Because no historic properties were found within the APE, direct and indirect effects to cultural resources would be negligible. Only naturally occurring effects such as erosion, natural weathering, wildfire, burrowing animals, etc would occur.

##### **CUMULATIVE EFFECTS**

Based upon the intensity of the surveys conducted and the mitigation measures applied, there is no reasonable expectation of adverse cumulative effects on cultural resources considered to be eligible for the NRHP. For a cumulative effect to occur, sufficient information would have to be lost over time and over the forest, such that understanding of prehistoric and historic settlement activities would be lost. The monitoring of known archeological resources would not only protect the resources against land disturbance from proposed management actions, but it would also allow for the protection of sites

against vandalism and unauthorized excavation, e.g. looting. Likewise, monitoring would allow measurement of the effects of natural disturbances such as erosion, natural weathering, wildfire, burrowing animals, or other ongoing processes on the resource.

## ECONOMIC ANALYSIS

This analysis focuses on the costs of implementing the proposed project on the approximate mileage described in Chapter 2. The analysis in Table 3-13 includes the estimated costs of initial trail system development (construction, reconstruction, user-created trail closure, signing, and trailhead stock water and mounting platform) and annual maintenance. Fixed costs such as general administration and program management are not included. Costs are based on past contract rates and professional estimates. Donated volunteer equipment and labor would reduce the costs for both initial development and annual maintenance and are reflected in the table. Several equestrian groups, the Southern Off-Road Bicycle Association, and the Conasauga District Trail Volunteers have all supplied letters of support pledging their commitment to the maintenance of this trail system. These groups have a well-documented history of volunteerism and maintaining trails across the Conasauga District.

**TABLE 3-13 ECONOMIC ANALYSIS**

<b>Proposed Actions</b>	<b>Approximate Cost/Mile</b>	<b>Approximate Number of Miles</b>	<b>Approximate Total Cost</b>
Alternative 1 – No Action	\$0	0	\$0
Alternative 2 – Proposed Action			
- Construction	\$6,000	18.94	\$113,640
- Reconstruction	\$1,500	6.50	\$ 9,750
- Signing	\$20	25.44	\$ 509
- Maintenance, Annual	\$100	25.44	\$ 2,544
- Trail Closure	\$500	5.80	\$ 2,900
- Trailhead Improvements	N/A	N/A	\$ 2,000
- Grand Total Costs	N/A	N/A	Initial Development = \$128,799 Annual Maintenance=\$2,544

## RECREATION

### AFFECTED ENVIRONMENT

The Dry Creek area has a high level of dispersed recreation use. The most popular activities include horseback riding and camping, followed by mountain biking, hiking, driving for pleasure, hunting and fishing. Many of these activities occur throughout the year.

The Ridge and Valley Scenic Byway, East Armuchee County Road 329/705, forms the western boundary of the proposed project area. System Roads 216, 226, 226A, 226B, 226C, 270, and 310 provide excellent recreational access. The Pinhoti Trail is a regionally significant, long distance, multi-use trail that passes through the northwest quarter of the proposed project area. The trail is managed for horseback riding, mountain biking, and hiking use. Pinhoti loop trail opportunities are limited to system roads in the Dry Creek area. The Pinhoti trailhead located on FS 226C is a large,

fee-based, day-use parking area constructed in 2005 that provides restrooms, picnic tables, trash service and horse trailer parking. The trailhead is underutilized.

Scenic Integrity is the degree to which a landscape is free from visible disturbances that detract from the natural or socially valued appearance. The Ridge and Valley Scenic Byway has a Scenic Integrity Objective (SIO) of High. Views from the Scenic Byway consider the foreground, middle ground and background. The SIO for the system roads in the project area is low except for those that double as the Pinhoti Trail. The SIO is high for foreground views from the Pinhoti Trail.

According to National Visitor Use Monitoring (NVUM) data collected from October 2002 through September 2003, the Chattahoochee-Oconee National Forests are visited by nearly 2.5 million recreationists per year. Of those visitors, about 44.6 percent participate in non-motorized trail activities including horseback riding, mountain biking and hiking. No site specific use data exists for the Dry Creek area. While revenue data for the Dry Creek Pinhoti Trailhead is available for 2007 and 2008, the correlation between the number of visitors and trailhead fee collections is not dependable, as several visitors to Dry Creek are either day-users parking away from the trailhead or campers parking at their dispersed campsite. Pinhoti Trailhead revenues totaled \$454 and \$774 for 2007 and 2008, respectively. While these numbers indicate an upward trend in visitor use, it could also mean that visitors are just discovering this fairly new parking area.

Horse use has been well-established in the Dry Creek area for decades due to ease of access and fairly gentle terrain. Over the years, equestrians have ridden old fire lines, non-system woods roads, and system roads developing a network of user-created trails. It continues to be a popular destination for equestrians who use the area primarily for single day and weekend use coupled with dispersed camping. As stated previously, several of the user-created trails do not meet Forest Plan standards or Forest Service trail design standards.

While uncommon, recreational user conflicts have occurred between horse riders and hunters in the area. One frequent user, an equestrian who often traveled with a pack of dogs, was the source for all reported conflicts with hunters. When this person was identified, they were issued a warning by district law enforcement for having unsecured dogs. No other user conflicts have been reported since then. There were several comments in response to the public scoping notice in regard to user conflicts.

## **EFFECTS OF ALTERNATIVE 1 (NO ACTION)**

### **DIRECT, INDIRECT AND CUMULATIVE EFFECTS**

Under the no action alternative, recreation opportunities and the amount of recreation use would remain unchanged. There would be no effect on the scenic quality of the area. This alternative would not address an increasing demand for non-motorized, multi-use, trail experiences that offers both short day-use and extended stay recreation opportunities. A network of low maintenance, environmentally sound trails to replace poorly located, undesignated trails would not be built. The desired condition(s) as identified in the Forest Plan for Management Prescriptions 7.E.1 would not be met. There would be no cumulative effect on other resource management projects planned for the future, e.g. vegetation management, prescribed burning.

## **EFFECTS OF ALTERNATIVE 2 (PROPOSED ACTION)**

### **DIRECT AND INDIRECT EFFECTS**

Alternative 2 actions would increase the trail opportunities for equestrians, mountain bikers, hikers and other non-motorized trail users thereby addressing an increasing demand for these activities. Correspondingly, the amount of recreational use of the area by both dispersed campers and trail users is expected to increase. Loop opportunities linked to the Pinhoti Trail would be available and the Pinhoti Dry Creek Trailhead would likely be better utilized, increasing fee revenues.

This alternative would cause no significant effects on the scenic quality of the project area. SIOs would be met. No trail development is proposed within the seen area of the Ridge and Valley Scenic Byway so no effects would ensue.

Alternative 2 would meet the purpose and need for the project proposal and comply with Forest Plan goals, objectives, and standards by developing a network of low maintenance, environmentally sound, sustainable trails to replace poorly located, undesignated trails. The proposed actions would meet or strive toward the desired condition(s) objectives as identified in the Forest Land and Resource Management Plan for Management Prescriptions 7.A, 7.E.1, 9.H, and 11.

Since more recreationists would likely be using the area, there would be more potential for user conflicts with this proposal. However, since this area is already a popular dispersed recreation site, recreation users expect to encounter other visitors. The amount of increased potential for user conflict is not expected to be significant.

## **CUMULATIVE EFFECTS**

This alternative would require a sizeable investment of time and money to develop and maintain a new network of system trails. The cumulative effect would be to increase the costs of other resource management projects in the Dry Creek area in order to protect the trails investment.

APPENDIX 1. MAPS

Figure 1. Location of the proposed Dry Creek Horse Trail System.

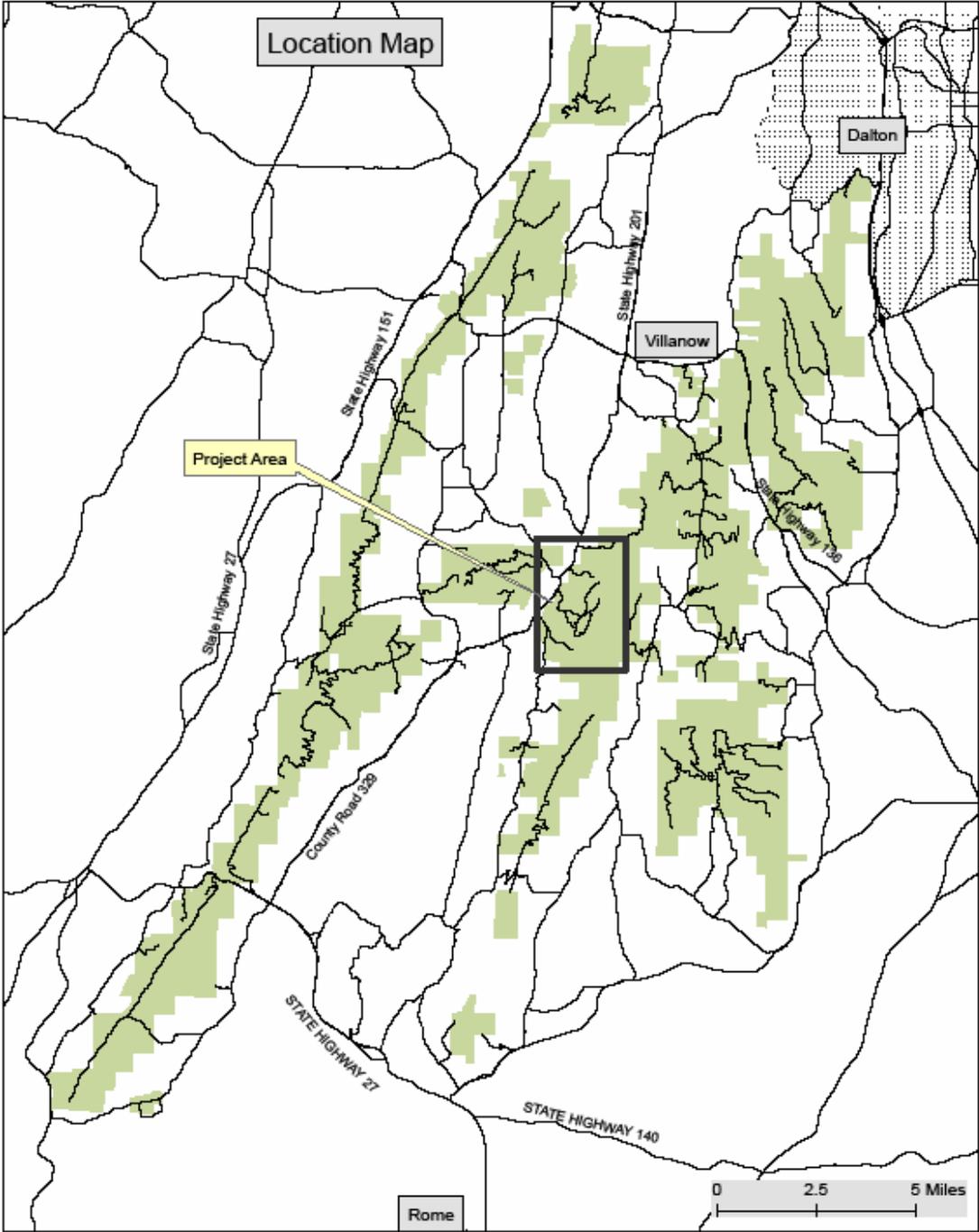
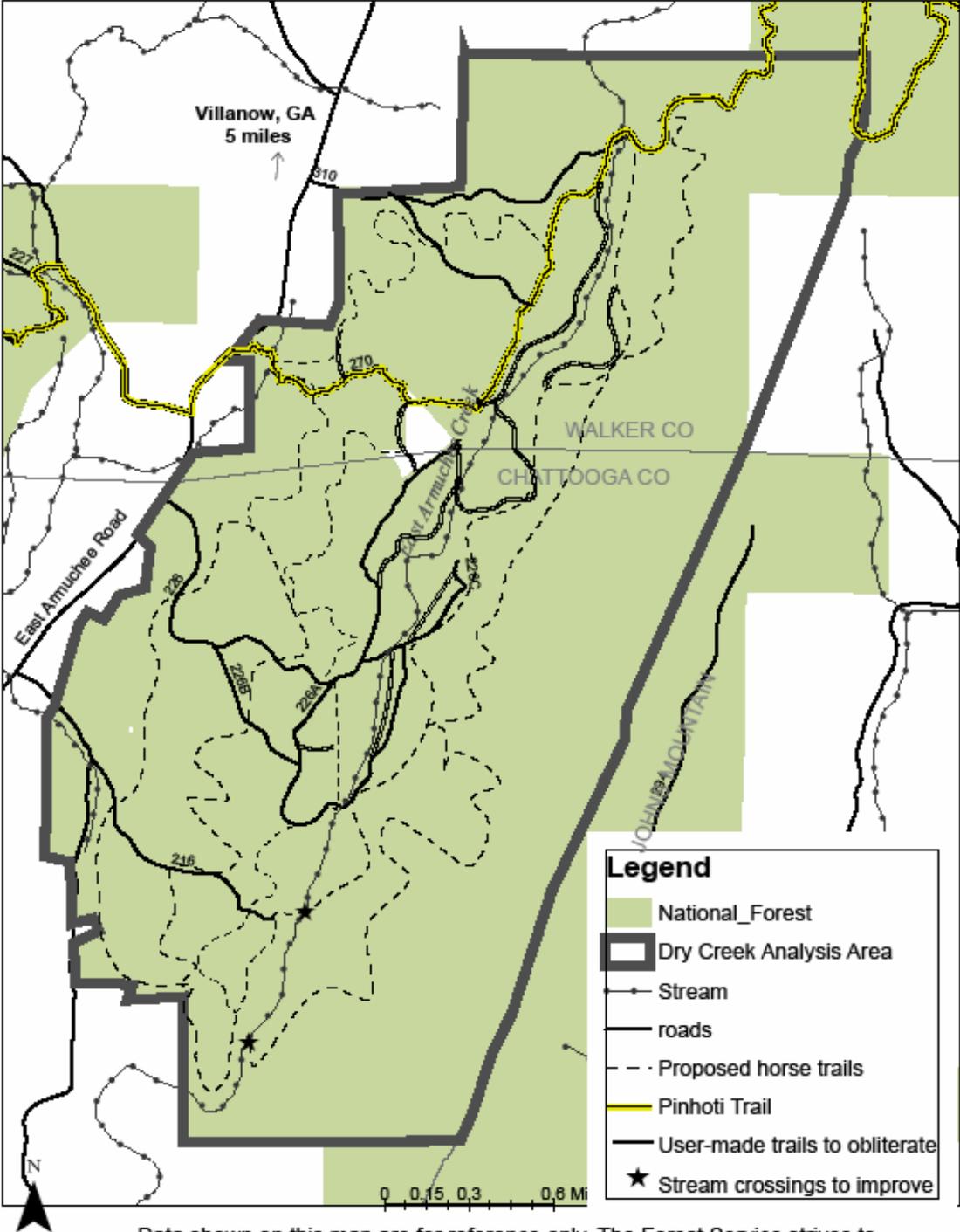
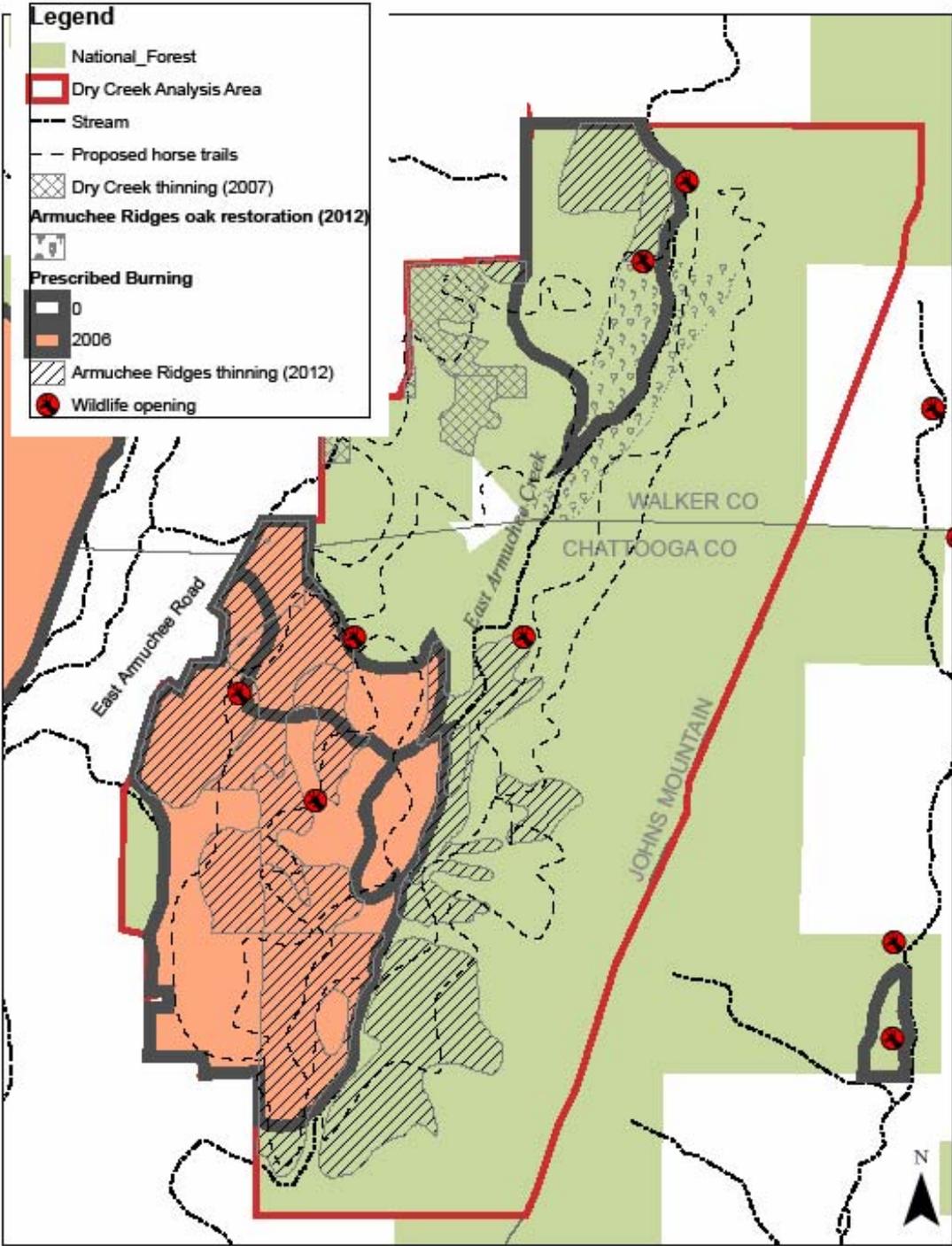


Figure 2. Map of the Dry Creek Analysis Area including the Proposed Action.



Data shown on this map are for reference only. The Forest Service strives to obtain accurate and precise data; however, there are likely some errors in these data. RBS 1/09

Figure 3. Past, present, and reasonably foreseeable activities in the Dry Creek analysis area.



0 0.15 0.3 0.6 Miles Data shown on this map are for reference only. The Forest Service strives to obtain accurate and precise data; however, there are likely some errors in these data. RBS 1/09

## APPENDIX 2. ISSUE SORTING INFORMATION TABLES

The Dry Creek Trail System proposal was presented to the public for scoping in March, 2008. The District received 13 responses. Table A-1: Responses to Scoping, displays information about the scoping comments that were received.

**Table A-1. Responses to Scoping**

<b>Comment Number</b>	<b>Commenter</b>	<b>Type</b>	<b>Date</b>	<b>Pages</b>
1	Rick Moon NW Georgia SORBA Board Member	e-mail	03/10/2008	1
2	Ken Bradshaw, Chair Cohutta Chapter of Trout Unlimited	e-mail	03/10/2008	1
3	Gail Milner and Charlie Crider	e-mail	03/11/2008	1
4	Cindy Young	e-mail	03/12/2008	1
5	Craig Bradley	e-mail	03/20/2008	1
6	Larry Wheat, President Backcountry Horsemen of North GA	e-mail	04/06/2008	1
7	David Govus and Wayne Jenkins, Georgia ForestWatch	Letter	04/10/2008	4
8	Robert and Sharon Goggins	e-mail	04/12/2008	1
9	Kathy Hansen	e-mail	05/01/2008	1
10	Marianne Pruitt	e-mail	05/02/2008	1
11	Ken Napierkowski	e-mail	05/02/2008	1
12	Rick Moon	e-mail	05/08/2008	1
13	Marcus Moore	e-mail	05/08/2008	1

Issues are used to formulate alternatives, prescribe mitigation measures, and to define the scope of the environmental analysis. Each letter or e-mail was reviewed in order to identify issues. Issues that would drive the development of an alternative are referred to as a significant issue. No significant issues were identified for this project. The results of this process are displayed in Table A-2: Issue Sorting Table.

The comments/potential issues were sorted into seven categories according to whether they are:

1. Beyond the scope of the project
2. Resolved by the Forest Plan or other laws and regulations
3. Addressed through Forest Plan standards and guidelines, or Best Management Practices (BMPs)
4. Addressed through mitigation measures or design features common to all alternatives
5. Addressed by disclosing environmental consequences
6. Addressed by developing alternatives to the proposed action (significant issue)
7. To be noted with no issue identified.

**Table A-2. Issue Sorting Table**

<b>Comment Number*</b>	<b>Scoping Comment</b>	<b>Issue Category</b>	<b>Additional Information</b>
1	“The Dry Creek proposal is a great addition to non-motorized recreational trails in the area.”	7	
2	“I support the proposed plans for trail and accessory road renovation and construction predicated on the condition that all necessary precautions are met for the preservation and protection of fish and riparian habitat and stream integrity. There are several obvious water crossings and location that might impact peripheral water quality.”	4, 5	The project is designed to improve watershed conditions. The analysis will display impacts to the water resources, including fisheries.
3	“We have read the materials regarding the Dry Creek Trail System Development and are in agreement with all the proposals. It appears that this has been thoroughly thought out and planned and is a very good plan for all users of the trails. Thank you for getting these trails approved for our use. We really need additional trails since we are losing so many throughout the Southeast. Let me know if we can be of any help.”	7	
4	“Thank you for considering this multi-use trail in system in the Dry Creek Area. It is much needed and will be enjoyed by all....I know I will use these new trails and do use the trails already in this area.”	7	
5	“I want to tell you that I wholeheartedly support the equestrian Dry Creek Trail System....”	7	
6	“...As President of the Back Country Horsemen of North Georgia (BCHNG), and individually, I strongly support this trail system. It connects to and complements the regional Pinhoti Trail and makes good use of the large equestrian parking lot and facilities already existing at the Dry Creek area. I am quite familiar with the local terrain and believe that users of all categories will thoroughly enjoy the trail system.”	7	
7	“The assumption that general increased demand for more trails can be met in this location without increasing damage to the watershed seems difficult to understand.”	4, 5	The purpose and need identifies why this proposal has been brought forward into the NEPA process. The environmental analysis will discuss the impacts the project would have on the water resources. The trail design has features to protect the water resources.
7	“The scoping indicates that illegal user created trails or “social” trails that are located improperly will be closed while other illegal trails will be incorporated into the new trail system. How exactly does the District propose to close the inappropriate trails and ensure that they stay closed? It seems probable that if history is any guide, in addition to the new trails proposed, some if not most of	3, 4	Methods that would be used to close social trails in the area will be described in the EA. Forest Plan standards provide guidance for protection of resources.

Comment Number*	Scoping Comment	Issue Category	Additional Information
	the old user created trails will continue to see use and deteriorate.”		
7	“The scoping notice refers to the user created trails as ‘social’ trails. This is a new term to us. They are in fact illegal user created trails which violates part 261.10 (a) of the code of federal regulations governing parks, forests and public property expressly prohibiting "constructing, placing or maintaining any kind of road, trail..." without authorization on Forest Service land. These trails were never authorized and as such are the result of illegal activity.”	1	Creating or constructing a trail by actually cutting vegetation or digging out a trail tread is illegal. It is not illegal to travel cross country by foot or on horse in the Chattahoochee-Oconee National Forest. Therefore, “social trails” that are created by people or horses by simply walking through the woods repeatedly along the same route are not considered illegal trails.
7	“The groups that placed these trails and violated the law are now being rewarded as the Forest Service has applied for and received a \$50,000 grant from the Recreational Trails Program of the Federal Highway Administration to fund this massive, dense horse trail project to the detriment of other forest users, particularly hunters who operate within the legal system.”	1	Again, these trails are not illegal. In addition, this proposal is for a multi-user trail system which would allow for horse, mountain bikes, and foot traffic. Receiving the grant does not relieve the agency of NEPA responsibilities, which will be met prior to any implementation of the project.
7	The current Land and Management Resource Plan for the Chattahoochee National Forest adopted in 2004 specifically prohibits cross country horse travel in section FW127. The Backcountry Horse group appealed this section of the plan. Of all the appeals filed to the plan (including one by Georgia Forest Watch) this issue alone was remanded back to the forest by the chief for further analysis. We were told at that time that public meetings would be held and further analysis performed. Three years later it appears that the solution to this problem is not further analysis but rather to incorporate user created trails into the legal trail system at great cost to the taxpayer.	1	Again, the social trails in the Dry Creek area are not illegal trails. The proposal includes establishing a system of trails. The Forest has conducted several public meetings and intends to continue discussions with the public on the topic of cross country horseback riding. However, resolution of an appeal point in the Forest is out of the scope of this site-specific project.
7	“What environmental monitoring data has been completed for justification and support for making this proposal? The present density of trails and their impacts on the watershed are not defined in the scoping letter	2, 5	The appropriateness and need for the project is supported by direction in the Forest Plan. The

Comment Number*	Scoping Comment	Issue Category	Additional Information
	<p>other than a general reference to “erosion”. As a baseline, are the present specific impacts known so that they may be addressed? If not, how can future conditions be gauged without present data to compare to? We understand that going from the present conditions in this watershed to an improved condition might be challenging but it is impossible to know if you have indeed improved conditions without the proper data, gathered initially. What do we know about the present condition of East Armuchee Creek? With the existing road density and proposed closing and stabilizing of trails is there any realistic hope that the health of the creek and downstream conditions will be improved?”</p>		<p>existing condition and environmental consequences will be disclosed in the EA. A monitoring plan will be included with the EA.</p>
<p>7</p>	<p>“Studying the proposed trail map one sees a web of trails barely removed from the riparian area along East Armuchee Creek with many of them crossing side drains that flow into the Creek. What will be the cumulative impact of the increased horse traffic on East Armuchee Creek when coupled with the impacts of the large Johns Creek project and the even more massive proposed Armuchee Ridges program, all of which involve ground disturbing activities in the watershed. East Armuchee Creek in the Dry Creek area is already heavily entrenched with crumbling banks and carrying a heavy silt load. It is well known that horses cup their hooves when they raise them thus acting as mini excavators and creating a great deal of damage to any trail that they use. It is very likely, given the proximity of the existing and proposed horse trails to East Armuchee Creek that this project, despite the best efforts of all involved will increase the silt load into the creek. Has there been an analysis of the likely cumulative impacts of all of this activity on the watershed? East Armuchee Creek is stocked with trout by the Georgia Department of Natural Resources and is considered a secondary trout stream. East Armuchee Creek flows into the Oostanaula River home to several aquatic species of concern.”</p>	<p>5</p>	<p>Impacts to the soil and water resources, including aquatic species, will be disclosed in the EA.</p>
<p>7</p>	<p>“The existing amount of horse traffic in the Dry Creek area is already creating user conflicts. Several Georgia ForestWatch members have reported conflicts with equestrians while Woodcock hunting in the area. These Georgia ForestWatch members specifically avoided the signed horse trails but found that encounters with horsemen and the dog packs that these horsemen traveled with were unavoidable as the horsemen rode wherever they pleased. A deer hunter reported a ruined hunt in the area as the horses and dog pack spooked his quarry. Apparently this practice of horsemen traveling with dog packs is common in this area and somehow simulates fox hunting. Any pedestrian who has encountered horseback riders is aware of the unsettling nature of the encounter.</p>	<p>5</p>	<p>User-conflicts will be included in the environmental consequences in the EA.</p> <p>Cross country equestrian use is not illegal in the Dry Creek Area and equestrian use has been well-established in this area for decades. The Dry Creek Horse Parking Area is located in this area and was constructed because</p>

Comment Number*	Scoping Comment	Issue Category	Additional Information
	<p>Horses are large beasts and depending on their nature, breeding and the degree of expertise of the rider can be very intimidating. The large riparian area along East Armuchee Creek creates a very desirable hunting ground, one of the few in the Armuchee section of the Conasauga Ranger District. To expand the facilities and trails for horses in this area while opening the trails for mountain bikes guarantees that traditional pedestrian use for hunting, fishing, botanizing and bird watching will suffer. A glance at the map of the proposed trail system shows a web of trails through the entire area making it impossible for the traditional hunter or naturalist to put any distance between himself and horse use. What is the thinking here, that these other users should just go somewhere else? Unfortunately that is exactly what happens. Hikers abandon trails that are dominated by and must be shared with horses and usually mountain bikes. Hunting in these areas is also greatly compromised.”</p>		<p>of the demand. Whether or not this project is approved, horseback riders will likely continue to use this area.</p> <p>It should be noted that the District had received reports of a horseback rider with a “pack of dogs”. This person was identified and issues a warning for this action and we have had no additional reports of this issue.</p>
7	<p>There are presently over 200 miles of trail open to horseback use on the CONF. Over 127 miles occur on the Conasauga District. Seasonally closed roads are also open to this recreation. How well maintained are these? Does the Forest Service have the budget and support from the horseback riding community to maintain the present system? How about an expanded system? What system is in place for on-going maintenance and does a cost estimate exist for this? Who will do the work? All of these questions reflect our concern that taxpayer dollars will be expended for supporting an un-maintainable system. Increases in both trail system maintenance and law enforcement will be necessary for maintaining the legal trails and successful closure of illegal routes.</p>	5, 7	<p>The EA will disclose the District intentions for design and maintenance.</p> <p>Several horseback riding groups, SORBA, and the Conasauga District Trail Volunteers have all supplied letters of support pledging their commitment to the maintenance of this trail system. These groups have a well-documented history of volunteerism and maintaining trails across the Conasauga District.</p> <p>Again, there are no illegal trails in the Dry Creek area.</p>
7	<p>“One only has to read the various “backcountry horsemen” websites to realize that a large group of equestrians feel that they have a ‘right’ to travel where they please on their horses. In point of fact cross country travel by horseback is impossible on this forest with out first cutting out blow downs and creating a trail which as noted is illegal. Where is it stated that one has a right to bring these potentially destructive animals onto public land? What are the equestrian’s responsibilities? It has always been accepted that activities such as horse travel and off-road motorized recreation, which have disproportionate effects on soil resources and other forest</p>	7	<p>Travel by horseback has been a long established appropriate use on National Forest System lands.</p>

Comment Number*	Scoping Comment	Issue Category	Additional Information
	users in our moist steep forests should be subject to special restrictions.”		
7	“It is entirely reasonable that the Dry Creek area within the Armuchee section of the Conasauga District as well as the Chattahoochee National Forest as a whole has no additional areas suitable for horse travel without significantly effecting soil and water resources as well as causing conflicts with other users. All citizens have the same rights to enjoy the Forest as the rest of us, ...on foot.”	5, 7	Travel by horseback has been a long establish appropriate use on National Forest System lands. The EA will disclose the impacts to the soil and water resources.
8	“The forest Service is to be commended to foster a project which will improve and expand an existing “social” trail system. My wife and myself are equestrians and enjoy riding our forest trail systems. We have reviewed the Dry Creek Trail Development scoping material and are greatly in favor of the proposal. “	7	
9	“...hunters have thanked us for being around as the deer slowly move thus allowing the hunters to see them/shoot them. I have many hunter friends and they (say) there is absolutely no adverse effect to any hunting opportunities for having more trails at Dry Creek. To claim there is an adverse impact is just a red herring- people do not like change. During the hunting season riders do so after 10 AM and during the week I think in 6 years of riding in that area I may have seen one or 2 hunters during the week.	5	A discussion of user conflicts will be displayed in the EA.
10	“I and my husband are avid turkey and deer hunters, and we also ride horses on many trails throughout the woods here in North Ga. The deer and turkey seem much at home with our horses in the woods. Of course those riding in hunting areas should be considerate of active hunting seasons, those hunting, and be cautious and aware at all times. I do believe we can co-exist in the woods, and I just wanted to give our bit of input on the situation, specifically on establishing the Dry Creek trail system.”	5	A discussion of user conflicts will be displayed in the EA.
11	“I would like to voice my input for trail access from a hunter’s point of view. Growing up in Pennsylvania, the opening day of deer season was a self imposed State wide holiday. It was the best hunting day of the season due to the fact that it had the most people in the woods moving the deer around. Hikers, non-motorized bikers, horsemen, and horsewomen on the trail would contribute to moving wildlife and improve the harvest. There is plenty of space along the trails that this area can be shared and enjoyed by all. As I mention to hikers at Jacks River Campground, in the most polite and helpful terms, on them to wear blaze orange while hiking during hunting season. Also, not white clothing during the deer hunting seasons and not wearing red during turkey season.”	5	A discussion of user conflicts will be displayed in the EA.

### APPENDIX 3. PACK AND SADDLE DESIGN PARAMETERS

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of National Forest System trails, based on their Designed Use and Trail Class and consistent with their management intent<sup>1</sup>. Local deviations from any Design Parameter may be established based on trail-specific conditions, topography, or other factors, provided that the deviations are consistent with the general intent of the applicable Trail Class.

Designed Use <b>PACK AND SADDLE</b>		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
<b>Design Tread Width</b>	<b>Wilderness</b> (Single Lane)	Typically not designed or actively managed for equestrians, although use may be allowed	12" – 18" May be up to 48" along steep side slopes 48" – 60" or greater along precipices	18" – 24" May be up to 48" along steep side slopes 48" – 60" or greater along precipices	24" May be up to 48" along steep side slopes 48" – 60" or greater along precipices	Typically not designed or actively managed for equestrians, although use may be allowed
	<b>Non-Wilderness</b> (Single Lane)		12" – 24" May be up to 48" along steep side slopes 48" – 60" or greater along precipices	18" – 48" 48" – 60" or greater along precipices	24" – 96" 48" – 60" or greater along precipices	
	<b>Non-Wilderness</b> (Double Lane)		60"	60" – 84"	84" – 120"	
	<b>Structures</b> (Minimum Width)		Other than bridges: 36" Bridges without handrails: 60" Bridges with handrails: 84" clear width	Other than bridges: 36" Bridges without handrails: 60" Bridges with handrails: 84" clear width	Other than bridges: 36" Bridges without handrails: 60" Bridges with handrails: 84" clear width	
<b>Design Surface<sup>2</sup></b>	<b>Type</b>		Native, with limited grading May be frequently rough	Native, with some on-site borrow or imported material where needed for stabilization and occasional grading Intermittently rough	Native, with improved sections of borrow or imported material and routine grading Minor roughness	

Designed Use <b>PACK AND SADDLE</b>		<b>Trail Class 1</b>	<b>Trail Class 2</b>	<b>Trail Class 3</b>	<b>Trail Class 4</b>	<b>Trail Class 5</b>
<b>Design Surface</b> (continued)	<b>Protrusions</b>		≤ 6" May be common and continuous	≤ 3" May be common, not continuous	≤ 3" Uncommon, not continuous	
	<b>Obstacles</b> (Maximum Height)		12"	6"	3"	
<b>Design Grade</b> <sup>2</sup>	<b>Target Grade</b>		5% – 20%	3% – 12%	2% – 10%	
	<b>Short Pitch Maximum</b>		30%	20%	15%	
	<b>Maximum Pitch Density</b>		15% – 20% of trail	5% – 15% of trail	5% – 10% of trail	
<b>Design Cross Slope</b>	<b>Target Cross Slope</b>		5% – 10%	3% – 5%	0% – 5%	
	<b>Maximum Cross Slope</b>		10%	8%	5%	
<b>Design Clearing</b>	<b>Height</b>		8' – 10'	10'	10' – 12'	
	<b>Width</b>		72" Some light vegetation may encroach into clearing area	72" – 96"	96"	
	<b>Shoulder Clearance</b>		6" – 12" Pack clearance: 36" x 36"	12" – 18" Pack clearance: 36" x 36"	12" – 18" Pack clearance: 36" x 36"	
<b>Design Turn</b>	<b>Radius</b>		4' – 5'	5' – 8'	6' – 10'	

<sup>1</sup> For definitions of Design Parameter attributes (e.g., Design Tread Width and Short Pitch Maximum), see FSH 2309.18, section 05.

<sup>2</sup> The determination of the trail-specific Design Grade, Design Surface, and other Design Parameters should be based upon soils, hydrological conditions, use levels, erosion potential, and other factors contributing to surface stability and overall sustainability of the trail.

#### APPENDIX 4. BIOLOGICAL REFERENCES

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