ENVIRONMENTAL ASSESSMENT

Early Successional Habitat Project
Chattahoochee National Forest
Tallulah Ranger District
Rabun County, Georgia

September 20, 2004

Responsible Agency:
U.S.D.A. Forest Service

Responsible Official:
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Chapter 1

BACKGROUND

Early successional habitat (ESH) is important for many game and non-game animal species. Wildlife management professionals have studied the benefits of ESH for many years and conclude that ESH is vital for a successful wildlife management program (Wildlife Society Bulletin 2001 29(2): pages 407-494). Management actions taken within the past 10 years have been inadequate to provide sufficient ESH for disturbance dependant wildlife species such as Golden-winged warbler, ruffed grouse, and chestnut-sided warbler. Research conducted in the Southen Appalachians indicates the Golden-winged warbler may be eliminated from the region without the creation of ESH at suitable elevation (Klaus and Buehler 2001). Recent mortality of pine trees from southern pine beetle (SPB) has not, in most cases, created the same high quality ESH required by many wildlife species. Events such as wildfires, ice storms, or high winds can and have provided some ESH on the Chattahoochee National Forest. However, they have not occurred often enough to ensure ESH is well distributed in all forest types, elevations, aspects, and slopes, including riparian corridors described in the Land and Resource Management Plan for the Chattahoochee – Oconee National Forests (Forest Plan, page 2-4). Also, these events may leave too much residual canopy creating conditions unsuitable for many disturbance dependant species (Newbold 1999).

Information from the Continuous Inventory of Stand Conditions (CISC) database indicates that less than three percent of the Chattahoochee National Forest provides quality ESH for disturbance dependant wildlife species.

PURPOSE AND NEED FOR ACTION

The ESH enhancements described in this project are needed to move from the existing condition toward those described by the Forest Plan.

Goal 2 in the Forest Plan guides the Forest to provide a diversity of habitat including ESH for a full range of native species (Forest Plan, page 2-4). Goal 3 states that the Forest would enhance, restore, manage and create habitats as required for wildlife including disturbance-dependent forest types (Forest Plan, page 2-6).

The Tallulah Ranger District identified three areas that do not meet Forest Plan goals 2 and 3. Current information from the Continuous Inventory of Stand Conditions (CISC) database indicates that the amount of ESH (age class 0-10 years) on the Tallulah Ranger District has been in decline for several years and is now less than three percent. CISC data shows that less than three percent of the 65,895 acre (National Forest lands) Tallulah River watershed is in age class 0-10 years. CISC data also shows that less than three percent of the 76,901 acre (National Forest lands) Chattooga River watershed is in age class 0-10 years.

CISC data shows that the Tallulah Ranger District has sufficient mid to late growth forest areas to support species such as gray squirrel, pileated woodpecker, and some songbirds that need mature forests. Many factors such as designated wilderness and management prescriptions in the Forest Plan assure that old-growth forests would continue to be an available habitat type on a large part of the Chattahoochee National Forest.

FOREST PLAN DIRECTION

The scope and purpose of this proposal is consistent with the Forest Plan goals. Desired Conditions for the applicable Management Prescriptions for the project areas are summarized below.

4.F.1. *Scenic and Wildlife Management Areas,* includes the provision of protecting natural beauty of seen areas while allowing vegetative manipulation for wildlife habitats. The objective includes management of forest successional stages to maintain up to 4 percent per decade in ESH. Standards include:

- Creation of ESH is limited to 4 percent of forested acres.
- Where compatible, patches of ESH created by management actions would be clustered on the landscape to maintain large blocks of late-successional forest.

4.I. *Natural Areas - Few Open Roads,* includes the provision of allowing the maintenance of existing openings for wildlife. The objective includes managing forest successional types to maintain a minimum of up to 4 percent ESH per decade. Standards include:

- Creation of ESH is limited to 4 percent of the forested acres.

- ESH created would be clustered on the landscape to maintain blocks of late-successional forest.

8.A.2 *Forest Interior, Mid to late successional Forest Habitat*, includes the provision to increase vertical vegetative diversity and maintain up to 4 percent per decade in ESH. Standards include:

- Creation of ESH is limited to 4 percent of the forested acres.
- ESH created would be clustered on the landscape to maintain blocks of late-successional forest.

Creation of ESH as described would help meet Forest Plan direction and would move these areas toward the desired condition envisioned.

PROPOSED ACTION TO MEET THE PLAN

See attached maps for project locations. Actions to meet the desired conditions for the three project areas are described below:

1. **Billingsley Creek Road Project Area (FS Road 86-B):** This project site is located in the Chattooga River watershed. The existing closed portion of Billingsley Creek Road (approximately two miles) would be utilized to create a linear wildlife opening. A farm tractor would be used to initially plow, plant, fertilize, and lime the historic portion of the roadbed. The roadbed would be planted and maintained in a clover/grass mixture to provide high quality forage for game and non-game species. Plowing and reseeding to maintain the clover and grass would occur every three to four years. Fertilizer and lime would be applied annually.

   To increase open conditions, both sides of the existing road banks within the 4.I area would be mowed every two to three years. Day lighting would be conducted on portions of the Billingsley Creek Road within the 4.I area. Day lighting actions include removing selected overstory and midstory trees along the edges of the road to allow sunlight to stimulate the growth of needed food sources and provide nesting habitat along road edges. Selected trees adjacent to the roadway would be cut and removed by commercial timber sale to increase openness. Day lighting would be conducted up to 100 feet out from the road, but this distance would vary widely as dictated by terrain, riparian areas, and species composition.

   To further provide a diverse intermingling of habitats, selected areas along the road managed as a wildlife opening would also have the number of large trees reduced to approximately 10 to 20 trees per acre. The means to do this would be a commercial timber sale. Individual areas treated in this way would range from 5 to 10 acres. The total acreage of ESH created would be approximately 30. Re-growth in the shelter of the residual trees would provide the desired grass-weed-shrub (early successional) habitat. The forest type would be converted from white pine to oak.

No new system roads would need to be constructed. This area is not within an inventories roadless area.

2. **Coleman River Project Area:** This project site is located in the Tallulah River watershed. To increase open conditions, both sides of the existing road banks would be mowed every two to three years. To further provide a diverse intermingling of habitats, selected areas along the road would also have the number of large trees reduced to approximately 10 to 20 trees per acre. The means to do this would be a timber sale of the trees to be removed. Individual areas treated in this way would range from 5 to 10 acres. The total acreage of ESH created would be approximately 45. Re-growth in the shelter of the residual trees would provide the desired grass-weed-shrub (early successional) habitat. The forest type of the stand would be converted from white pine to upland oak to oak.

   Day lighting, as defined and described for the Billingsley Creek Project Area above, would be used within the project area.

   No new system roads would need to be constructed. This area is not within an inventories roadless area.

3. **Lake Burton Wildlife Management Area (WMA) Project:** This project site is located in the Tallulah River watershed. To increase open conditions, both sides of the existing road banks would be mowed every two to three years. To further provide a diverse intermingling of habitats, selected areas along roads managed as a wildlife opening would also have the number of large trees reduced to approximately 10 to 20 trees per acre. The means to do this would be a timber sale of the trees to be removed. Individual areas treated in this way would range from 5 to 20 acres. The total acreage of ESH created would be approximately 45. Re-growth in the shelter of the residual trees would provide the desired grass-weed-shrub (early successional) habitat. The forest type would be converted from white pine to oak.

   Day lighting, as defined and described for the Billingsley Creek Project Area above, would be used within the project area.

   No new system roads would need to be constructed. This area is not within an inventories roadless area.

The total estimated acreage of new areas of ESH that would be created in all three areas is approximately 120.

DECISION TO BE MADE

The decision to be made is whether or not wildlife habitat should be enhanced by the creation of early successional habitat at the three project locations using the proposed treatments or other types of treatments.

PUBLIC INVOLVMENT- ISSUE IDENTIFICATION

A letter detailing the projects was sent to 97 individuals, agencies and public organizations on August 1, 2002. (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 National Forest from September 2002 to present.

On site meetings were made with representatives of the Forest Service, Georgia DNR, Georgia Forest Watch, Chattooga Conservancy, and the Ruffed Grouse Society. These on site meetings were conducted to clarify project proposals and activities and discuss issues and concerns.

An Interdisciplinary Team (ID Team) was formed and included the following specialists: Andy Gaston (ID Team Leader, Wildlife Biology) Steve Cole (NEPA Coordinator/Silviculture), Cindy Wentworth (Ecology/Botany), Dick Rightmyer (Soil Science), Charlene Breeden (Hydrology), Jay Cantrell (Georgia DNR Wildlife Biologist), and Nathan Klaus (Georgia DNR Nongame Wildlife Biologist).

MAJOR ISSUES RELATED TO THE PROPOSED ACTION

The ID Team reviewed public as well as internal comments and developed a list of issues that might apply to the proposed action. The deciding official then determined which issues were major, and other issues, and grouped them by a common cause or effect. An issues worksheet documented this effort, and is found in the project file.

Individuals and groups responded to the scoping letter dated August 1, 2002. The ID Team reviewed public as well as internal comments, including those from ID Team members and others. Preliminary issues were analyzed and major issues were recommended to the District Ranger, the responsible official for this project. The Ranger approved the two issues listed below:

Major Issue 1: Project implementation activities will expose soil and may cause sedimentation into watercourses degrading water quality and stream health.

Major Issue 2: Project proposed at the Billingsley Creek Road project site would reduce big, old trees in an area that has old growth character.

OTHER ISSUES

A worksheet documenting this determination can be found in the project file. These issues were identified by the I.D. Team as other issues because of one or more of the following conditions:

- The issue is outside the scope of the proposal.
- The issue is already decided by law or in the Forest Plan.
- The issue is not in conflict with the proposed action.
- The issue is not supported by scientific evidence.
- The issue is limited in duration, extent, or intensity.

Chapter 2

ALTERNATIVES TO THE PROPOSED ACTION

Alternatives to the proposed action were designed to respond to the major issues. The ID Team considered seven preliminary alternatives. Two of these alternatives along with the proposed action (displayed as Alternative 2) were approved by the District Ranger (responsible official) to be carried forward for detailed analysis (see project file for further documentation). These alternatives are described below:

Alternative 1 (No Action)

None of the proposed actions would take place. This alternative would respond to both major issues by not doing the actions that prompted the issues. However, this alternative would not meet the purpose and need for the project. Forest Plan Goals 2 and 3 would have to be met at another location on the Forest.

Alternative 2 (Proposed Action)

Refer to Section above titled "**PROPOSED ACTION TO MEET THE PLAN"** for a complete description of the initial proposal.

Alternative 3

This alternative was designed to respond to both major issues. It would respond to Major Issue 1 by reducing treatments that may expose soil which may lead to erosion and sedimentation. It would respond to Major Issue 2 by not treating any forest land that may be close to reaching old growth criteria with actions that might disqualify the area under one of the criteria as outlined in the Southern Region guidance and in the Forest Plan.

1. **Billingsley Creek Road Project Area (FS Road 86-B):** The existing closed portion of Billingsley Creek Road (approximately two miles) would be utilized to create a linear wildlife opening. A farm tractor would be used to initially plow, plant, fertilize, and lime the historic portion of the roadbed. The roadbed would be planted and maintained in a clover/grass mixture to provide high quality forage for game and non-game species. Plowing and reseeding to maintain the clover and grass would occur every three to four years. Fertilizer and lime would be applied annually. To increase open conditions, both sides of the existing road banks would be mowed every two to three years. Some trees adjacent to the roadway would be cut and removed to increase openness. This increased openness would allow more sunlight to reach the ground resulting in an increase in young plant growth that wildlife need for food and cover. No new system roads would need to be constructed. This area is not within an inventories roadless area.

2. **Coleman River Project Area:** Same as the Proposed Action.

3. **Lake Burton WMA Project:** Same as the Proposed Action.

The estimated acreage of new areas of ESH that would be created in all three areas is approximately 90.

Mitigation Measures Common to All Actions

For each alternative and the proposed action, all applicable standards in the 2004 Forest Plan and the mitigating measures would be applied. Below is a list of some important mitigation measures:

- To reduce erosion, the roadbed adjacent to the Lake Burton WMA project would be surfaced with gravel from the intersection of Wildcat Road to the end of the project area. Hay bales would be placed in turnouts to reduce soil movement. Where needed, sections of Flat Branch Road (FR 54-A) would be resurfaced with gravel from the intersection of Coleman River Road (FR 54) and the crossing at Flat Branch.

- Because no new system roads would be constructed and impacts to riparian zones would be limited, erosion and sedimentation generated by this project have been determined to be insignificant. The road adjacent to the project areas at Lake Burton WMA is currently gated year round and would continue to be closed to private vehicles. The road utilized for the Billingsley Creek Road Project is closed permanently and would not be open to private vehicles. The open road (FS 54 A) adjacent to the Coleman River Project Area is proposed to have a gate installed at the intersection with the Chestnut Mountain Road. This gate would be seasonally closed from March 1 to September 1. Implementation of this project would result in no new roads being open for public vehicle travel. Maintenance of these three roads would be completed periodically to minimize erosion and potential sedimentation. The U.S. Forest Service Coweeta Hydrologic Laboratory would monitor stream water attributes (sediment, nutrients, temperature, DO, etc.) before and after the timber harvest activities on the project located adjacent to Flat Branch in the Coleman River Project. All Best Management Practices (BMP's) (project file) and Standards and Guidelines (Forest Plan) would be followed. These include but are not limited to the following:

- Streamside management zones would be protected. The Coleman River and Billingsley Creek Road projects are located adjacent to trout streams. "Georgia's Best Management Practices for Forestry," pages 48-53 (available for review at the Tallulah District office) would be followed.

- Within harvest areas and in the day lighting treatment, flowering and other visually attractive trees and understory shrubs would be favored when leaving vegetation.

- Slash from harvest and day lighting would be removed, burned, chipped, or lopped to within and average of two feet of the ground, when visible within the 100-foot zone beyond travel routes. (Forest Plan, page 2-29, Standard FW-105)

- Harvest units would be shaped and oriented to contours and existing vegetation patterns to blend with existing landscape characteristics. Edges would be shaped and/or feathered where appropriate. No geometric shapes would be used. (Forest Plan, page 2-29, Standard FW-103)

- Unit marking would be applied so as to not be visible within 100 feet of Billingsley Creek and Flat Branch Roads. (Forest Plan, page 2-29, Standard FW-105.) Marking at the Lake Burton project area would not be within 100 feet of the Wildcat Road, so no mitigation is necessary.

- When possible, the road itself would be used as a log landing for transferring logs from skidders to log trucks for removal from the site. Any bladed skid trails or log landings off of the main road would be, to the extent possible, located out of view to avoid bare mineral soil observation from Flat Branch Road, Wildcat Creek Road, and Billingsley Creek Road.

- Harvest unit openings would be limited to 10 acres in size from the foreground view of Flat Branch Road and Billingsley Creek Road; and limited to 20 acres at the Lake Burton project area. Harvest units would be spaced 1,000 feet apart along Billingsley Creek Road.

Alternatives Considered But Not Fully Developed

Five other alternatives were considered by the interdisciplinary team and the responsible official. These alternatives are briefly described below as well as the reason for eliminating them from detailed study:

- **Implement Alternative 2 except drop the treatments at the Coleman River project area.** This alternative would respond to both significant issues in the same way as Alternative 2 described above. Additionally, this alternative would remove any chance for affecting the riparian zone of Flat Branch (part of Issue 1) by not implementing those harvest units. However, in reviewing this alternative it is apparent that it will diminish the effects of early successional habitat on high elevation ecosystems and would meet the purpose and need for the project at such low levels that it was dropped from detailed study.

- **Implement Alternative 2 but restrict the removal of trees to areas outside of perennial stream riparian corridors.** This alternative would respond to both issues effectively. However, in both areas (Coleman River and Lake Burton) where partial cutting is proposed, the reduction in harvest volume combined with small and narrow harvest units would make these areas inoperable as timber sales. Therefore, this alternative was not considered in detail.

- **Implement the Lake Burton WMA and Coleman River project areas using non-commercial methods including cut-and-leave and prescribed burning:** This alternative would not meet the purpose and need of providing high quality early successional habitat. Larger slash and logs left over from the cut-and-leave and prescribed burn treatments would reduce the amount of overhead cover habitat and restrict desired species use of the sites. Since this alternative does not meet the purpose and need for the project, it was not considered in detail.

- **Implement timber removal at the Lake Burton WMA project area only:** This alternative does not meet the purpose and need of providing high quality, early successional habitat at these project areas, therefore, this alternative was eliminated from further consideration.

- **Daylight system roads in all three project areas, but do not implement any harvest units.** This alternative clearly does not meet the purpose and need of providing high quality, early successional habitat at these project areas. The daylighting of existing roads does not create required habitat types needed by target species. No overhead escape cover would be created and less soft mast would be available under this Alternative. Therefore, this alternative was not considered in detail.

Comparison of Alternatives

The alternatives are compared on how well they meet Forest Plan Goals and how well the issues are addressed and analyzed. The effects of the alternatives are disclosed in Chapter 3 of the EA. Table 1 compares the proposed action and alternatives according to how they meet Forest- wide Goals. Table 2 compares the estimated environmental effects that the proposed action and alternatives would have based on the major issues.

Table 1: Comparison of Alternatives in terms of their ability to meet Forest- wide Goals.

Forest-wide Goal	Alt. 1	Alt. 2	Alt. 3
Goal 2- To provide a diversity of habitat including ESH for a full range of native species.	No	Yes	Yes
Goal 13- Enhance, restore, manage and create habitats as required for wildlife including disturbance -dependent forest types	No	Yes	Yes

Table 2: How the Alternatives Address the Major Issues

Issue	Alt. 1	Alt. 2	Alt. 3
Probability project implementation activities would expose soil and cause sedimentation into watercourses degrading water quality and stream health.	None	Low	Low
Probability project proposed at the Billingsley Creek Road project site would reduce big, old trees in an area that has old growth character.	None	High	Low

Chapter 3

ENVIRONMENTAL CONSEQUENCES

PHYSICAL ENVIRONMENT

Soils

A published soil survey exists for the project area, Rabun and Towns Counties Soil Survey (RT), published cooperatively by the USDA Soil Conservation Service and the USDA Forest Service in 1981. Soil scientists identified four (4) soil map units within the boundaries of the proposed treatment areas on the project. The soils are generally characterized as deep, well-drained, moderately permeable soils typical of the forested environments of the southern Appalachian Mountains of Georgia. Map units found within the proposed treatment areas in the project are displayed in the table below:

Proposed Treatment Area	Soil Mapping Units by Treatment Area
Flat Branch	BrE, TuC
Wildcat	HaE
Billingsley	HaE, EVF

Soil Map Units in the Project Area: Each of the soil map units found on the proposed treatment areas is described in the Rabun-Towns Counties Soil Survey. The soil maps were created on an aerial photo base to provide a photographic background. The following descriptions of the soil map units are from the Rabun-Towns Counties Soil Survey.

BrE – Bradson fine sandy loam, 10 to 25 percent slopes. The soil is deep (greater than 60 inches to bedrock), well drained, and found on toe slopes and in coves or saddles of mountains. Soil texture is fine sandy loam and clay loam. Erosion hazard is moderate.

EVF – Evard Association, steep, 25 to 50 percent slopes. The soil is deep, well drained, and found on narrow ridgetops and side slopes. Soil texture is sandy loam and sandy clay loam. Erosion hazard is moderate to severe but can be addressed by minimizing the area of soil disturbance with use of best management practices.

HaE – Hayesville fine sandy loam, 10 to 25 percent slopes. The soil is deep, well drained, moderately steep and found on broad ridgetops and hill sides of intermountain plateaus. Soil texture is fine sandy loam, sandy clay loam and clay. Erosion hazard is moderate to severe, but can be addressed by minimizing the area of soil disturbance with use of best management practices.

TuC – Tusquitee loam, 4 to 10 percent slopes. The soil is deep, well drained, gently sloping and found on toe slopes, coves and in saddles of the mountains of the area. Soil texture is loam throughout the profile, with bedrock more than 6 feet below the surface. Erosion hazard is slight.

Two effects management activities have on soil productivity are compaction and erosion. A brief discussion of these effects is provided with an analysis of the potential for these effects to occur in the proposed action.

Compaction to the Soil

Compaction is the lowering of the air space in the soil by the passage of heavy weight, e.g. OHV vehicles, 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. Increased compaction results in lowered ability of the soil to absorb rainfall, causing an increase in surface runoff. Surface runoff then moves soil through erosion, with the potential to become sediment if it reaches streams. Soil compaction can be mitigated by locating access routes outside of streamside areas and by suspending use during periods of high rainfall. Mitigation includes locating travel routes on well-drained soils and keeping tread widths to a minimum to reduce the extent of compaction to the area within the immediate tread.

The bounds of analysis for compaction will be limited to the current project areas for the 10-year period following the actions. Compaction will be measured using the estimated acres compacted by disturbance from vehicle access.

Existing Condition: In general the soils within proposed treatment areas are not compacted as evidenced by the presence and vigor of vegetation. Access routes used in prior treatment operations do exist and may exhibit evidence of compaction. However, these routes are in vegetation cover and not contributing to soil productivity problems. These acres are those most subject to compaction and the associated adverse effects. Of this acreage the soils most compacted are those with repeated passes by vehicles over the same route, typically within the roadbed. Maintaining vegetation cover has contributed to mitigating any adverse compaction effects from past use. By sustaining normal vegetation growth adequate to provide soil cover and beginning the process of re-establishing normal soil functions soil productivity can be maintained.

Effects of Alternative 1 (no action): Existing conditions will continue in the stands. Compaction in soils would remain at existing levels. Cumulatively, soil productivity will continue at existing levels with minimal changes anticipated except for natural events.

Effects of Alternative 2 (Proposed Action): Treatments are proposed on approximately 120 acres in the three areas identified in the project. Treatments include creation of linear wildlife areas along 4 miles of existing access roads and removal of trees from small patches of timber to create openings in the canopies. Estimated size of areas proposed for tree removal range from 5 to 20 acres. No new permanent road construction will be required to accomplish the treatments. Temporary access by vehicles would occur using existing routes.

The direct effect of the proposed action would be soil disturbance primarily along the existing system roads, at landings developed for the project, and along skid trails from the landings needed to access the stands. Within the proposed treatment areas there is a potential for compaction to occur on access routes and landings as vehicles make repeated trips to create linear openings and to remove timber as proposed.

Forest System roads to be used in the three areas are as follows:

Proposed Area	Road Number	Road Miles	Acres Disturbed *
Billingsley Creek	FS 86B	5.1	10.2
Coleman River	FS 54A	4.1	8.2
Wildcat Creek	FS 26	3.2	6.4

*Acres disturbed based on an estimated 16-foot roadbed width and shoulders, average of 2.0 acres per mile of road. Disturbance for this project is for road maintenance activities before, during and after the project to maintain the road profile and associated road drainage and/or vegetation along the road.

Use of these existing roads will require maintenance of the route, including improvement of surface drainage controls within the roads to reduce runoff, addition of surface gravel to provide traction and filter runoff, and revegetating disturbed areas after the project is completed to mitigate compaction effects. Revegetation will provide soil cover, filter water runoff from the road surface, and allow plants to aid in restoring normal soil functions needed for optimum productivity. Continued vehicle use will require maintenance to keep the impacts on compacted soils within tolerable levels.

Indirect effects: Soil compaction can create an impervious surface and cause a reduction in the permeability of the soil profile, resulting in a potential for increased runoff and overland flow. Controlling compaction effects will result in vegetation becoming re-established and restore soil productivity. Surface runoff is reduced through an overall reduction in the width of compacted areas.

Cumulative effects: No additional actions are proposed within the project area that would add to the compaction effects occurring within the disturbed acres. Soil productivity will recover for areas disturbed by vehicle access after the project is completed and vegetation cover is reestablished to maintain soil functions. Classified road miles within the sixth (6th) level Hydrologic Units (HUCs) where the proposed actions are located are as follows: Billingsley Creek – 35.58 miles, Coleman River – 22.9 miles, and Wildcat Creek – 96.38 miles. Most of these road mileages are downstream of the project treatment areas. The Wildcat Creek project is located in the headwaters of a Lake Burton HUC, therefore most of the road mileage is on private lands and a large portion being paved surfaces. Road mileages on National Forest lands are classified as aggregate, improved or natural surface.

Effects of Alternative 3: Same as Alternative 2, except overall acreage proposed for treatment is about 90 acres. Tree removal proposed at the Billingsley Creek project site other than proposed linear wildlife opening is eliminated.

Indirect effects: Same as Alternative 2, except overall acreage proposed for treatment is about 90 acres.

Cumulative effects: Same effects as Alternative 2.

Soil Erosion

Soil erosion begins with the direct effect of soil exposure as a result of some activity. Mineral soil is exposed when the organic root mat and duff layer are removed from the natural soil profile. Soil particles then become loosened by the energy of falling rain and carried as sediment by surface runoff. Of greatest concern are long, unbroken grades on trails and roads. Continued erosion results in loss of soil productivity, loss of traffic tread, and increased costs to maintain roads or trails. Existing actions that expose mineral soil to erosion include: (1) vehicle use of roads, trails and stream crossings, (2) clearing for camp areas, (3) construction of diversion ditches and surface reshaping during maintenance activities. Soil erosion can be mitigated by minimizing the area of soil disturbance, locating trails and trailheads on grades less than 10%, maintaining ground cover (vegetation or other material), providing adequate drainage on trails, and minimizing use during wet seasons.

Soil erosion will be measured using the estimated acres of soil disturbed by storm water flow. The analysis will be bounded by the proposed treatment areas over the 10 year period starting with the actions.

Existing Condition: Existing access routes within the proposed treatment areas have the highest potential for erosion due to the disturbance and removal of vegetation cover that protects soil from the impacts that cause erosion. Temporary access routes used for previous management operations are in place and in vegetation cover within proposed treatment areas. Permanent Forest Service system roads are in place and provide an adequate system for the proposed actions.

Acres disturbed by the existing Forest Service system roads range from 6.4 to 10.2 acres (average 2.0 acres per mile). The road segments have adequate gravel surfacing allowing for filtering to occur during storm events minimizing surface erosion. Road improvements are proposed for Flat Branch Road (FS 54A) and the road to be used off of Wildcat Road. Improvements include gravel surfacing and water controls for surface runoff. Both of these roads are in slope positions with lower erosion risk due to less slope gradient and landform position, generally ridge top and upper side slopes.

Effects of Alternative 1: Existing conditions within the roads and adjacent areas will continue at current levels. Erosion may occur during storm events where water controls

are not maintained. Indirect effects include the delivery of eroded soil to stream channels and degraded aquatic habitats.

Cumulative effects: No additional actions are proposed within the analysis area that would add to the erosion occurring within the disturbed acres of the road template.

Effects of Alternative 2: Erosion may occur as a direct effect on acres disturbed by the proposed treatments during periods of operation. Areas at risk for erosion include the system roads, temporary roads, landings, and skid trails beyond the landings. Mitigation to reduce the erosion risk includes the use of best management practices such as:

- locating access routes outside of riparian corridors on slopes suitable for access
- installation of water bars and broad based dips on roads
- revegetating of disturbed soils following project completion to provide soil cover
- surfacing roadbeds with gravel to reduce erosion when used by truck traffic

Short-term erosion will occur during the project and for six months to a year after completion until an adequate cover is attained and levels of disturbance return to pre-project levels. Cover will result from the addition of surfacing on the road template and re-establishment of vegetation cover as needed on disturbed soils.

Cumulative effects: No additional actions are proposed within the analysis area that would add to the erosion occurring within the disturbed acres of the road template.

Effects of Alternative 3: Same as Alternative 2, except overall acreage to be treated is approximately 90 acres. Road mileage proposed for use is the same as Alternative 2.

Cumulative effects: No additional actions are proposed within the analysis area that would add to the erosion occurring within the disturbed acres of the road template.

Water Quality

The proposed treatment areas identified in the project occur in three separate and distinct sub-watersheds of larger basins. These "subdivisions" of watersheds are described as sixth level hydrologic units (HUs) for the purposes of mapping, inventory and classification. The sixth level HUs are sub-units of fifth level watersheds, also classified as watershed management areas in the Chattahoochee-Oconee National Forest Land Management Plan. The Lake Burton WMA and Coleman River proposed treatment areas both occur in the Tallulah River watershed management area (0306010207) and the Billingsley Creek Road project occurs in the Chattooga River watershed management area (0306010201).

Streams Identified in Proposed Project Treatment Areas

Project Area	6th Level HU Code #	Stream Names
Lake Burton WMA	030601020705	Unnamed tributary to Wildcat Creek to Lake Burton
Coleman River WMA	030601020701	Flat Branch to Coleman River
Billingsley Creek Road	030601020102	Overflow Creek & Clear Creek to West Fork Chattooga River

Each of the named perennial streams identified in the proposed treatment areas has an assigned water use classification, or beneficial use, of fishing. The streams have been further classified as primary trout waters by the Georgia Department of Natural Resources (Georgia Rules and Regulations for Water Quality Control, Chapter 391-3-6, August 2003). Streams designated as Primary Trout Waters are waters supporting a self-sustaining population of Rainbow, Brown or Brook trout. Streams designated as Secondary Trout Waters are those with no evidence of natural trout reproduction, but are capable of supporting trout throughout the year. The criterion stated for trout streams by the DNR rules is there shall be no elevation of natural stream temperature for primary trout waters. No streams within the project area are currently identified as partially supporting or not supporting on the Georgia 305(b) listing maintained by the Georgia DNR-Environmental Protection Division

Sedimentation

On most forested watersheds, sediment is the most troublesome pollutant and roads are a major source of that sediment. Sediment can adversely impact water quality by increasing turbidity, affecting the morphology and capacity of channels, changing streambed material size, altering stream temperatures resulting in a reduction of the overall quality of aquatic habitat. Sediment is basically the transport of detached soil particles from erosion into the stream system. The primary mechanism for this transport is storm water runoff, moving the particles from a source overland into a channel or other location. Sediment often goes through a repeating sequence of transport and deposition. In some cases a number of storm events occur before sediment may reach a stream system. A desired condition is to stop the sediments before they enter the streams.

Sedimentation will be measured by estimating the acres of soil disturbed that contribute to sedimentation over the 10 year period starting from implementation. This analysis will be bounded by the proposed treatments occurring in three 6th Level HUs. The bounds for analysis include portions of these 3 HUs (6th Level). The first two 6th Levels listed eventually drain into the Tallulah River, and the existing roads affect small headwater streams. The third 6th level HU listed (60200030106) drains into the West Fork Chattooga River.

Existing Conditions: Streams within the project areas are mostly 1st and 2nd stream orders. This is characteristic of upper side slope and ridge top topographic positions, commonly called “headwaters” in stream systems. The major perennial streams, such as

Flat Branch, Wildcat Creek and Overflow Creek are 3rd order streams or larger because they have collected smaller tributary streams as they flow down the mountains. In each of these streams, sediment levels increase after rainfall storm events. One major source of sediment is runoff from dirt and gravel roads. Another, less obvious, source is sediment already in the streams from several sources that is moved by increased water volume and flow after storm events.

Effects of Alternative 1 (No Action): When eroded soils are delivered to the stream system, they can fill interstitial space between substrate particles, fall out of the water column and get deposited on the stream bottom, or continue to be transported downstream to other stream reaches. In this alternative, all road segments of Forest Service system roads (12.3 miles) are subject to erosion during storm events, with approximately 24 acres contributing to sedimentation. Erosion will continue at levels described for existing conditions- over 18 to 24 acres, and could increase over time as users continue to create disturbed areas adjacent to the current travel way.

Indirect effects include the delivery of eroded soil to stream channels resulting in the loss of aquatic habitats, the loss of total pool volume downstream, or a shift in substrate particle size distribution downstream of road segments.

Cumulative Effects: No ground disturbing projects have been implemented in the past 5 years in the project vicinity for the Flat Branch and Wildcat Road areas. Road improvements and watershed restoration treatments have been completed in the Overflow Creek vicinity in the past five years. These treatments are in stable condition. No additional actions are currently proposed or expect to be proposed in the reasonably foreseeable future within the analysis area that would add to the erosion and sedimentation currently occurring within the disturbed acres of the road template.

Effects of Alternative 2 (Proposed Action): When eroded soils are delivered to the stream system, they can fill interstitial space between substrate particles, fall out of the water column and get deposited on the stream bottom, or continue to be transported downstream to other stream reaches. In this alternative short-term erosion will continue during the treatment period and for 6 months to 1 year after completion until disturbance levels decline and adequate cover is attained.

Indirect effects will be reduced when the road use declines to pre-project levels and mitigation measures are maintained. Less sediment will be delivered to the stream channel resulting in improved aquatic habitat and water quality.

Cumulative Effects: No ground disturbing projects have been implemented in the past 5 years in the project vicinity for the Flat Branch and Wildcat Road areas. Road improvements and watershed restoration treatments have been completed in the Overflow Creek vicinity in the past five years. These treatments are in stable condition. No additional actions are currently proposed or expect to be proposed in the reasonably foreseeable future within the analysis area that would add to the erosion and sedimentation currently occurring within the disturbed acres of the road template.

Effects of Alternative 3: The direct effects would be the same as Alternative 2, except acres to be treated decline to about 90 acres total for the three areas. Indirect effects would be the same as Alternative 2, except acres to be treated decline to about 40 acres total for the three areas.

Cumulative Effects: No additional actions are currently proposed or expect to be proposed in the reasonably foreseeable future within the analysis area that would add to the erosion and sedimentation currently occurring within the disturbed acres of the project areas.

Visual Quality

This section will disclose the effects from project activities on the Landscape Character using the Scenery Management System (SMS). The SMS makes use of scenic classes based on the relative value and importance of the landscape, on a scale of one through seven. Scenic classes were derived by combining the scenic attractiveness of the area (which includes landscape character and existing scenic integrity) with landscape visibility (which includes concern levels, distance zones, and travel way importance). The actions can be compared with the scenic integrity objectives adopted by the 2004 Forest Plan to determine if the specific level is met.

The bounds of analysis in this section will include effects of actions on the scenic quality from typical observer positions, including the primary travel ways and any use areas within or nearby the project areas. The analysis will consider 10 years as the limit (bounds) of the analysis since most vegetation manipulation that causes visual contrasts in this area is largely subordinate to the viewer after this time period.

Existing Conditions: Currently, all three-project areas are visible from observer positions on travel ways or use areas that provide access to the recreating public. The landscape character goal envisioned for the Coleman River and Lake Burton project areas is *natural appearing*, and for the Billingsley Creek project area is *natural appearing or naturally evolving*.

Existing conditions related to visual quality are summarized below:

Project Area – Mgmt. Presc.	Travel way Or Use Area	Concern Level - travel way[1]	Distance Zone[2]	Concern Level - Scenery[3]	Scenic Class[4]	Scenic Integrity Obj.[5]
Billingsley Creek[6] – 4.I and 2.B.2 and 2.B.1	Overflow Creek and Clear Creek	Primary	90 %: Fore ground 10%: Middle ground	1 – 90% 2 – 10%	1 – 90% 2 – 10%	2.B.1: Very High 2.B.2:High 4.I: High
Coleman River – 8.A.2	Flat Branch Road – seasonally closed to vehicles. (FDR 54A)	Secondary	Fore ground	3	2	High
Lake Burton – 4.F.1	Wildcat Creek Road (FDR 26)	Primary	Middle ground	1	2	High

[1] Primary Travel ways (roads, trails, rivers) or Primary Use Areas are national or regionally important locations largely associated with recreation and tourism use. Secondary travel ways and use areas are locally important locations associated with all types of use including recreation and tourism.
[2] Foreground observer distances from a travel way or use area are generally 0 - 1/2 mile; middle ground distances are ½ - 4 miles, and background distances are 4 miles to the horizon. Landscapes not visible from selected travel ways are considered seldom seen.
[3] Concern levels indicate the degree of public importance placed on landscapes viewed from travel ways and use areas. The type of area and its level of use is divided into three categories: high (1), moderate (2), and low (3).
[4] Scenic classes indicate the relative value and importance of a particular landscape, ranging from most important (1) to least important (7). Scenic classes are derived by combining the scenic attractiveness of the area (which includes landscape character and existing scenic integrity) with landscape visibility (which includes concern levels, distance zones, and travel ways).
[5] Scenic integrity objectives (SIO) correspond to a given inventoried scenic class, and are adopted objectives within the Forest Plan by management prescription. SIO's are defined by minimally acceptable levels (very high, high, moderate, low) and the direct intent to achieve the highest scenic integrity possible.
[6] The Overflow Creek corridor is in Prescriptions 2.B.1 and 2.B.2. The 2.B.1 segment, Recommended Wild River, extends approximately ½ mile above the 2.A.1 Chattooga River (on the West Fork of the Chattooga River) designated Wild River Segment. Overflow Creek continues from this point to the North Carolina state line as a 2.B.2, Recommended Scenic River Segment. Clear Creek has also been reclassified as a 2.B.1 on the West Bank and a 2.B.2 on the East Bank for approximately ¼ mile above the fork with Overflow Creek. This puts these segments into a Scenic Class 1 with a Scenic Integrity Objective (SIO) of Very High for the 2.B.1 and a SIO of High for the 2.B.2. The concern level of these segments is now calculated from the travel way/use area of the Creeks themselves, putting most of the land within ½ mile into Concern Level 1, Foreground, therefore Scenic Class 1.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions and no direct or indirect effects would be evident on the scenery within the three project areas. The Landscape Character would be sustained.

Cumulative Effects: There would be no cumulative effects to the scenic resources other than routine road maintenance (mowing, grading, spot gravel treatments) and some wildlife maintenance actions on Billingsley Creek Road bed.

Effects of Alternative 2 (Proposed Action): The approximate 120 acres of 5-20 acre partial cutting within the three areas would create openings where the number of large (5 inches and greater in diameter) trees would be reduced from approximately 60-80 to about 10-20 trees per acre. These openings would not be directly visible to the driving public within the foreground from Wildcat and Billingsley Creek Roads, but would be visible within the foreground view of Flat Branch Road, classified as secondary travel way under the SMS and closed seasonally motorized vehicles (see table). The openings created would be within the middle ground view of visitors to Wildcat Creek Road, and within the foreground view of Overflow Creek, a popular seasonal destination for kayakers.

Logging activity would be visible to the driving public along Flat Branch Road and to the walking or hiking public along Billingsley Creek Road and Eli Fields Road (off of Wildcat Road), including exposed mineral soil, brush and slash.

Billingsley Creek Road Project Area: The Landscape Character would be changed within the 2.B.1 and 2.B.2 portions of this project area. The effects of rehabilitating the road bed and using it as a linear wildlife opening would be to decrease the influence of man in the area and increase the movement of the landscape character towards the high end of natural appearing.

The effects of day lighting the roadway would be a negative effect. The effect of reducing the density of the trees to approximately 10 to 20 trees per acre in areas up to 10 acres would also have a negative effect on the Landscape Character. If the above two actions (day lighting plus patch cuts leaving 10 to 20 trees per acre) are taken, the Landscape Character would not be enhanced and the Scenic Attractiveness would be degraded.

The Clear Creek and Overflow Creek corridors were classified as High Existing Integrity. The Billingsley Creek Road Project area was classed as Moderate Scenic Integrity. Moderate refers to landscape where the valued landscape character "appears slightly altered". Noticeable deviations must remain visually subordinate to the landscape character being viewed. Day lighting would reduce the scenic integrity. This change would dominate the landscape and the landscape character.

Mitigation measures listed on pages 8-9 would be followed. The entire length of the road falls into Concern Level 1, and the reservation of 10 to 20 trees per acre within the harvest areas is like a modified shelter wood. This would produce a Natural Appearing Landscape Character. An actual opening size up to 10 acres is allowed in the foreground zone.

The cumulative Scenic Benefits of the Proposed Action would be a degradation of the Scenic Heritage of the area, and also a downgrading of the Recreation and Tourism settings.

Lake Burton Wildlife Management Area (WMA) Project: The Landscape Character in 4.F.1 is Natural Appearing with natural processes the dominant agents of change. However, natural appearing managed change does occur. Management changes are designed to be low contrast. The Emphasis of management allows for vegetative manipulation for both scenery and wildlife habitat.

Mitigating measures on pages 8-9 would be followed. Cutting units would be limited to 20 acres in size, and reserve tree densities would approximate a modified shelterwood method.

The Natural Appearing Landscape Character would be sustained by using the above mitigations. These changes are in keeping with the historic range of activity in this area. This is an area of moderate Existing Scenic Integrity. Moderate refers to landscape where the valued landscape Character "appears slightly altered". Noticeable deviations must remain visually subordinate to the landscape character being viewed. Day lighting the road by removing selected overstory and midstory trees would maintain the scenic integrity. The area has had past prescribed burning and harvests, and the change to the landscape due to the actions in this proposal would not dominate the landscape.

The cumulative Scenic Benefits of the Proposed Action would maintain the Scenic Heritage of the area and the Recreation and Tourism settings would be maintained.

Coleman River Project Area: Prescription 8.A.2, Forest Interior, mid-to-late Successional forest habitat, should have a Natural Appearing Landscape Character. Natural appearing managed change occurs, but affects a limited area either individually or cumulatively at any one time. Management changes are designed to be low to moderate contrast, and therefore compatible with the SIO of High for Scenic Class 2.

These areas have been inventoried as having Moderate Scenic Integrity. Moderate refers to landscape where the valued landscape Character "appears slightly altered". Noticeable deviations must remain visually subordinate to the landscape character being viewed. Day lighting would maintain the scenic integrity and this change would not dominate the landscape. The 5-10 acre harvest units including the reservation of 10-20 trees per acre (like a modified shelterwood) would not dominate the landscape character in this area.

The cumulative Scenic Benefits of the Proposed Action would maintain the Scenic Heritage of the area. The Recreation and Tourism would not be altered.

Effects of Alternative 3: Same as Alternative 2, except overall acreage proposed for treatment is about 90 acres. Tree removal proposed at Billingsley Creek project other than proposed linear wildlife opening is eliminated.

Heritage Resources

According to heritage surveys and reviews of known sites, no known cultural resource sites would be affected by the proposed action or alternatives considered in detail (see project file for additional documentation.).

BIOLOGICAL ENVIROMENT

Wildlife and Wildlife Habitat

The effects on wildlife from project activities will be measured by estimating the potential impacts or trends to specific populations and habitat conditions within a five mile radius of the three project sites over the next 10 years.

Existing Conditions: A wide variety of game and non-game wildlife species occur within the project areas and adjacent lands. Game species present in this portion of the Forest include deer, turkey, squirrel, grouse and bears. Non-game species such as small mammals, reptiles and amphibians, and songbirds, including neo-tropical migrants are present on the areas.

Most of the project areas are in mid to late successional stages of forest with some young pine stands (regeneration areas) and some grassy openings (wildlife openings) (CISC Database). Currently there is less than three percent total ESH in each project area (CISC Database). Very little active vegetation management has occurred in these areas in the last two decades. As a result, mid and late successional conditions predominate and abundant habitat is available for species that use older forests. Because much of the area consists of older hardwood forests, the availability of hard mast such as acorns and hickory nuts is high. Early successional conditions are extremely limited on the project areas. As a result, available habitat for species that require young forests or a mix of successional conditions is at low levels. This includes game species such as ruffed grouse, deer, turkey, and a variety of non-game species including songbirds such as indigo bunting, yellow-breasted chat, and chestnut-sided warbler.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions and no direct impacts to wildlife populations or habitat are expected.

Cumulative Effects: There would be no cumulative effects to wildlife or wildlife habitats.

Effects of Alternative 2: The approximate 120 acres in the three areas identified in the project would create wildlife habitat required by many disturbance dependant game and non-game species. The creation of linear wildlife openings and the removal of trees in small patches of timber to create openings in canopies would allow for ESH that is beneficial to many game and non-game species such as ruffed grouse, white-tailed deer, wild turkey, chestnut-sided warbler, and yellow-breasted chat. With the increase in ESH, populations of disturbance dependant species should increase. Project activities may

temporarily impact species dependant on mature forests such as the gray squirrel and pileated woodpecker that occur in the project sites, however project areas are small in scope and there is sufficient adjacent mature forests that provide habitat for species dependant on older forests.

Cumulative effects: No additional actions are proposed within the project areas that would add to the effects occurring within the disturbed acres. ESH created in the sites would provide enhanced habitat for disturbance dependant species for approximately 10-20 years.

Effects of Alternative 3: Same as Alternative 2, except the overall acreage proposed for treatment is approximately 90 acres. Tree removal proposed at the Billingsley Creek project other than proposed linear wildlife opening is eliminated.

Cumulative effects: Same effects as Alternative 2.

Management Indicator Species

Wildlife and plant species that are used to represent specific habitats for other species are referred to as Management Indicator Species (MIS). These species, identified by the Forest Plan, act as a barometer of change in specific habitats. The Forest Plan identifies 15 MIS for the Chattahoochee-Oconee National Forests. Of these, 10 occur within or near the three project areas. These species were selected because they occur in this portion of the Forest and have populations or habitat requirements that could directly or indirectly be affected by the project.

MIS will be used in this analysis to assess the effect of the actions on populations and habitat conditions in and adjacent to the project areas over the decade after implementation.

Below is a summary of the Forest-wide status and trends and a discussion of existing habitat conditions and requirements for each of these species. These Forest-wide trends are useful in putting the project-level effects into perspective.

Pine Warbler: This species was selected as a MIS to help indicate the effects of management on species associated with pine and pine-oak forests. The pine warbler uses mid to late successional pine forests through the year (Hamel 1992). It occurs in both open pine woodlands and dense pine plantations, but seldom uses hardwood stands. Pine warbler populations are expected to increase through the implementation of the Forest Plan (Forest Plan, page 2-5). Bird survey data suggests that pine warbler populations have been relatively stable on the Forest. The availability of older pine stands on the Forest has increased over the last few decades. Recent outbreaks of Southern Pine beetle however have reduced the availability of these habitats on some portions of the Forest. The majority of the project areas consist of white pine/hardwood forests. Therefore pine warbler populations are low on the project areas due to the limited availability of older pine forests.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions and no direct or indirect impacts to the pine warbler are expected.

Cumulative Effects: There would be no cumulative effects to the pine warbler.

Effects of Alternative 2 (Proposed Action): Approximately 20 acres of new ESH would be created. Since the scope of Alternative 2 is small, the available habitat for this species would remain sufficient to ensure continued stable populations.

Cumulative effects: Project activities are small in scope. No additional actions are proposed within the project areas that would add to the effects occurring within the project areas. ESH created in the sites would be allowed to process through successional stages and mature.

Effects of Alternative 3: Same as Alternative 2, except overall acreage proposed for treatment is about 90 acres. Tree removal proposed at the Billingsley Creek project other than the proposed linear wildlife opening is eliminated.

Cumulative effects: Same effects as Alternative 2.

Chestnut-sided Warbler: This species was selected as a MIS to help indicate the effects of management on species associated with a high-elevation early successional forest. Chestnut-sided warblers are found in second-growth forests, overgrown fields, woodland edges and in open, park-like woods (Hamel 1992). They are most common in suitable habitat over 3500 feet elevation, but occur sparingly down to 2000 feet. They are associated with dense vegetation in the form of shrubs and small trees about three feet above the ground that provide nesting sites and foraging areas (DeGraaf et al. 1991). The Forest Plan has an objective to create and maintain a high elevation early successional component on the Forest and chestnut-sided warbler populations are expected to increase through the implementation of the Forest Plan (Forest Plan, page 2-5). Chestnut-sided warblers can be found in early successional habitat at higher elevations throughout the Forest. These types of habitat are however limited on the Forest and have decreased due to a reduction in active forest management (USDA Forest Service 2004). Chestnut-sided warbler populations are low in all three project areas due to the limited availability of high elevation, early successional habitat.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions. The amount of suitable habitat will decrease within areas that are currently in younger forest stages. Because the amount of ESH is decreasing, suitable habitat for the chestnut-sided warbler would decrease.

Cumulative Effects: Without the creation of ESH, suitable habitat for the Chestnut-sided warbler would decrease.

Effects of Alternative 2 (Proposed Action): The 120 acres treated in the three areas identified in the project would create ESH required by Chestnut-sided warbler. With the increase in available ESH, suitable habitat for the Chestnut-sided warbler should increase.

Cumulative effects: No additional actions are proposed within the watersheds that would add to the effects occurring within the disturbed acres. ESH created in the sites would provide enhanced habitat for the Chestnut-sided warbler for approximately 10-20 years.

Effects of Alternative 3: Same as Alternative 2, except the overall acreage proposed for treatment is about 90 acres. Tree removal proposed at the Billingsley Creek project, other than the proposed linear wildlife opening, is eliminated.

Cumulative effects: Same effects as Alternative 2.

Hooded Warbler: This species was selected as a MIS to help assess the effects of management on species associated with mature mesic deciduous forests. Hooded warblers are found in mixed hardwood forests of beech, maple, hickory and oaks with a dense undergrowth (DeGraaf et al 1991). They nest in the understory of deciduous forests, and a dense shrub layer and scant ground cover are important (NatureServe 2004). Bird survey data suggests that hooded warbler populations have been relatively stable on the Forest. The availability of older mesic hardwood stands on the Forest has increased over the last few decades. The Forest Plan has an objective to increase the structural diversity in mature mesic deciduous forests and hooded warbler populations are expected to increase through the implementation of the Forest Plan (Forest Plan, page 2-5). Hooded warblers are common in all three project areas due to the abundance of suitable habitat.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions and no direct or indirect impacts to the hooded warbler are expected.

Cumulative Effects: There would be no cumulative effects to the hooded warbler.

Effects of Alternative 2 (Proposed Action): 120 acres of new ESH would be created. Since the size of Alternative 2 is limited to 120 acres, the available acres of suitable habitat for this species would remain sufficient to ensure continued stable populations.

Cumulative effects: Project activities are limited to 120 acres. No additional actions are proposed within the project area watersheds that would add to the effects occurring within the disturbed acres. ESH created in the sites would be allowed to process through successional stages and mature.

Effects of Alternative 3: Same as Alternative 2, except the overall acreage proposed for treatment is approximately 90 acres. Tree removal proposed at the Billingsley Creek project other than the proposed linear wildlife opening is eliminated.

Cumulative effects: Same effects as Alternative 2.

Prairie Warbler: This species was selected as a MIS to help indicate the effects of management on species associated with early successional forests. Prairie warblers are shrubland nesting birds found in suitable habitats throughout the Southern Appalachians, Piedmont, and Coastal Plain (Hamel 1992). Prairie warblers require a dense forest regeneration or open shrubby conditions in a forest setting. Near optimal habitat conditions are characterized by regeneration, thinned areas or patchy openings 10 acres or more in size (Nature Serve 2004). Populations respond favorably to conditions created 3 to 10 years following regeneration in larger forest patches (Lancia et al. 2000). Prairie warblers occur through the Forest although bird survey data suggests that populations have declined somewhat over the last decade (USDA Forest Service 2004). This likely is a result of a decreased availability of early successional habitat due to a reduction in active forest management. Prairie warbler populations are expected to increase through the implementation of the Forest Plan (Forest Plan, page 2-5). Prairie warbler populations are low in all three project areas due to the limited availability of early successional habitats

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions. The amount of suitable habitat will decrease within areas that are currently in younger forest stages. Because the amount of ESH is decreasing, suitable habitat for the Prairie warbler would decrease.

Cumulative Effects – Without the creation of ESH, suitable habitat for the Prairie warbler would decrease.

Effects of Alternative 2 (Proposed Action): The 120 acres treated in the three areas identified in the project would create ESH required by the Prairie warbler. With project implementation, the amount of suitable habitat for this species would increase.

Cumulative effects: No additional actions are proposed within the project area watersheds that would add to the effects occurring within the disturbed acres. ESH created in the sites would provide enhanced habitat for the Prairie warbler for approximately 10-20 years.

Effects of Alternative 3: Same as Alternative 2, except the overall acreage proposed for treatment is about 90 acres. Tree removal proposed at the Billingsley Creek project, other than the proposed linear wildlife opening, is eliminated.

Cumulative effects: Same effects as Alternative 2.

Ovenbird: This species was selected as a MIS to help indicate the effects of management on species associated with interior forest habitats. Forest interior birds avoid forest edges during nesting and can be sensitive to forest fragmentation. Ovenbirds are

strongly associated with mature forest interior habitats (Hamel 1992, Crawford et al. 1981). Bird data demonstrates that ovenbird populations have been relatively stable on the Forest (USDA Forest Service 2004). Ovenbird populations are expected to increase through the implementation of the Forest Plan (Forest Plan, page 2-5). The availability of older hardwood stands on the Forest has increased over the last few decades. The majority of the forest near the project areas consists of large contiguous blocks of mature hardwood forests. Therefore ovenbirds are fairly common on areas near the proposed projects due to the abundance of suitable habitat.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions and no direct or indirect impacts to the ovenbird are expected.

Cumulative Effects: There would be no cumulative effects to the ovenbird.

Effects of Alternative 2 (Proposed Action): Approximately 120 acres of new ESH would be created. Since the size of Alternative 2 is limited to 120 acres, the available acres of suitable habitat for this species would remain sufficient to ensure continued stable populations.

Cumulative effects: Project activities are limited to 120 acres. No additional actions are proposed within the project area watersheds that would add to the effects occurring within the disturbed acres. ESH created in the sites would be allowed to process through successional stages and mature.

Effects of Alternative 3: Same as Alternative 2, except overall acreage proposed for treatment is approximately 90 acres. Tree removal proposed at Billingsley Creek project other than proposed linear wildlife opening is eliminated.

Cumulative effects: Same effects as Alternative 2.

Acadian Flycatcher: This species was selected as a MIS to help indicate the effects of management on species associated with mature riparian forests. Habitat for the Acadian flycatcher consists of deciduous forests near streams (Hamel 1992). Preferred habitat for this species is moist bottomlands, swamps, and riparian thickets. Usually this bird builds its nest in branches directly overhanging streams. Bird survey data suggests that Acadian Flycatcher populations have been relatively stable on the Forest. Acadian flycatcher populations are expected to increase through the implementation of the Forest Plan (Forest Plan, page 2-5). The Acadian flycatcher is common within the riparian areas of larger streams near all three project areas.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions and no direct or indirect impacts to the Acadian flycatcher are expected.

Cumulative Effects: There would be no cumulative effects to the Acadian flycatcher.

Effects of Alternative 2 (Proposed Action): The Acadian flycatcher is common within the riparian areas of larger streams near all three project areas. Since the size of Alternative 2 is limited to 120 acres and all BMP's and riparian corridor standards would be followed during project implementation, the available habitat for this species would remain sufficient to ensure continued stable populations.

Cumulative effects: Project activities are limited to 120 acres. No additional actions are proposed within the project area watersheds that would add to the effects occurring within the disturbed acres. ESH created in the sites would be allowed to process through successional stages and mature.

Effects of Alternative 3: Same as Alternative 2, except overall acreage proposed for treatment is about 90 acres. Tree removal proposed at the Billingsley Creek project other than proposed linear wildlife opening is eliminated.

Cumulative effects: Same effects as Alternative 2.

Scarlet Tanager: This species was selected as a MIS to help assess the effects of management on species associated with mature upland oak communities. The scarlet tanager is most abundant in mature, upland deciduous forests (Hamel 1992). It is most common in areas with a relatively closed canopy, a dense understory with a high diversity of shrubs, and limited ground cover (NatureServe 2004). The availability of older oak stands is expected to increase through the implementation of the Forest Plan (Forest Plan, page 2-5) and as a result, scarlet tanager populations also are expected to increase. Bird survey data suggests that scarlet tanager populations have been relatively stable on the Forest during the last decade.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions and no direct or indirect impacts to the scarlet tanager are expected.

Cumulative Effects: There would be no cumulative effects to the scarlet tanager.

Effects of Alternative 2 (Proposed Action): Only 120 acres of new ESH would be created. Since the treatment acreage of Alternative 2 is limited to 120 acres, the available habitat for the scarlet tanager would remain sufficient to ensure continued stable populations.

Cumulative effects: Project activities are limited to 120 acres. No additional actions are proposed within the project area watersheds that would add to the effects occurring within the disturbed acres. ESH created in the sites would be allowed to process through successional stages and mature.

Effects of Alternative 3: Same as Alternative 2, except overall acreage proposed for treatment is about 90 acres. Tree removal proposed at the Billingsley Creek project other than proposed linear wildlife opening is eliminated.

Cumulative effects: Same effects as Alternative 2.

Pileated Woodpecker: This species was selected as a MIS to help indicate the effects of management on species that utilize snags. Habitat consists of mature (60+ years) and extensive hardwood and hardwood-pine forest (Hamel 1992). Preferred habitat is primarily deep woods, swamps, or river bottom forests. The pileated woodpecker can also be found in rather open, upland forest of mixed forest types. This bird forages and nests on and in snags, with some foraging also occurring on fallen logs and other forest debris. This species requires snags for nesting and foraging. Pileated woodpecker populations are tied to the availability of large snags, which are expected to increase through the implementation of the Forest Plan (Forest Plan, page 2-5). Bird survey data suggests that pileated woodpecker populations have been relatively stable on the Forest during the last decade (USDA Forest Service 2004). Pileated woodpeckers are common in all three project areas watershed due to the abundance of required habitat.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions and no direct or indirect impacts to the pileated woodpecker are expected.

Cumulative Effects: There would be no cumulative effects to the ovenbird.

Effects of Alternative 2 (Proposed Action): About 120 acres of new ESH would be created. Since the size of Alternative 2 is limited to 120 acres, the available acres of suitable habitat for this species would remain sufficient to ensure continued stable populations.

Cumulative effects: Project activities are limited to 120 acres. No additional actions are proposed within the project area watersheds that would add to the effects occurring within the disturbed acres. ESH created in the sites would be allowed to process through successional stages and mature.

Effects of Alternative 3: Same as Alternative 2, except overall acreage proposed for treatment is about 90 acres. Tree removal proposed at the Billingsley Creek project other than proposed linear wildlife opening is eliminated.

Cumulative effects: Same effects as Alternative 2.

White-tailed Deer: This species was selected as a MIS to help indicate the effects of management in meeting public demand as a hunted species. The habitat capability model for the Forest shows a slight decrease in browse availability during the past 10 years (USDA Forest Service 2003). This is due to a decline in the amount of forested early successional habitat. However, white-tailed deer are very adaptable. Game harvest regulations and habitat improvement techniques—such as forest thinnings, prescribed burning, and wildlife opening development—have helped create healthy deer populations throughout Georgia. Implementation of the Forest Plan is expected to provide a diversity of habitats that will benefit white-tailed deer populations on the Forest (Forest Plan, page

2-5). Deer harvest data indicates that populations in the mountains are stable with some fluctuations primarily due to differences in the annual mast crops. Deer populations seem to be stable in all three project area watersheds (GA DNR harvest data 1998-2003).

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions. The amount of available suitable habitat would decrease.

Cumulative Effects – With no action, the amount of high quality ESH available for white-tailed deer would decrease.

Effects of Alternative 2 (Proposed Action): The 120 acres treated in the three areas identified in the project would create ESH beneficial to the white-tailed deer. With the increase in available ESH and associated browse, more suitable habitat would be available for white-tailed deer.

Cumulative effects: No additional actions are proposed within the project area watersheds that would add to the effects occurring within the disturbed acres. ESH created in the sites would provide improved habitat conditions for the white-tailed deer.

Effects of Alternative 3: Same as Alternative 2, except the overall acreage proposed for treatment is about 90 acres. Tree removal proposed at the Billingsley Creek project, other than proposed linear wildlife opening, is eliminated.

Cumulative effects: Same effects as Alternative 2.

Black Bear: This species was selected as a MIS to help indicate the effects of management in meeting public demand as a hunted species. Black bear numbers have increased and are beginning to stabilize after 20 years of growth, according to bait station survey results (USDA Forest Service 2003). Based on harvest records and bear and human encounters, state biologists have concluded that bears are nearing carrying capacity on the Chattahoochee NF. Implementation of the Forest Plan is expected to provide a diversity of habitats that will benefit black bear populations on the Forest (Forest Plan, page 2-5). Increased acres of older hardwood stands, sustained hard mast production, and enhanced soft mast production through forest management activities—such as prescribed burning and tree removal—would contributed to improved black bear habitat on the Forest. Current bear populations are at moderate levels in all three project areas. This is probably due to the abundance of hard mast producing stands in project area watersheds.

Effects of Alternative 1 (No Action): This alternative will perpetuate current conditions and no direct or indirect impacts to the black bear are expected.

Cumulative Effects – There would be no cumulative effects to the black bear.

Effects of Alternative 2 (Proposed Action): The 120 acres in the three areas identified in the project would increase the amount of soft mast and browse that would be beneficial for black bear.

Cumulative effects: No additional actions are proposed within the project area watersheds that would add to the effects occurring within the disturbed acres.

Effects of Alternative 3: Same as Alternative 2, except the overall acreage proposed for treatment is about 90 acres. Tree removal proposed at the Billingsley Creek project, other than proposed linear wildlife opening, is eliminated.

Cumulative effects: Same effects as Alternative 2.

Table 3 below summarizes the effects of the alternatives on the Management Indicator Species.

Management Indicator Species	**Alt.1**	**Alt. 2**	**Alt. 3**
Pine Warbler	M	M	M
Chestnut-sided Warbler	D	I	I
Hooded Warbler	M	M	M
Prairie Warbler	D	I	I
Ovenbird	M	M	M
Acadian Flycatcher	M	M	M
Scarlet Tanager	M	M	M
Pileated Woodpecker	M	M	M
White-tailed Deer	D	I	I
Black Bear	M	I	I

I=Increase Habitat Capability, D=Decrease Habitat Capability, M=Maintain Habitat Capability.

Proposed, Endangered, Threatened, and Sensitive (PETS) and Locally Rare Species

PETS is an acronym that combines the categories of Proposed, Endangered, Threatened, and a Forest Service list of Sensitive species. There is also a category for "locally rare" species. There are 25 federally listed proposed, endangered, or threatened (PET), 100 sensitive (S), and 136 Locally Rare (LR) species known to occur or with potential to occur on the Forest. Of these, 185 are terrestrial species and 76 are aquatic species. PETS

and LR species addressed here were chosen due to known occurrences and/or presence of habitat for the species in the project area. This was determined by:(1) consulting 13 years of Forest Service plant inventory records, (2) consulting Georgia Natural Heritage Program (GNHP) records, (3) consulting University of Georgia (UGA), Forest Service, and Georgia Department of Natural Resources (GADNR) aquatic inventory records, (4) reviewing U.S. Fish and Wildlife Service county lists for potential species in Rabun County, (5) ongoing discussions with GNHP, Forest Service, and other agency biologists, and (6) various scientific references such as technical manuals, herbarium records, NatureServe information, and others.

No PETS plants were found during plant inventories. Two LR plant species were found during plant inventories. These plants are naked- fruit rush (*Juncus gymnocarpus*) and climbing fern (*Lygodium palmatum*). The known population of the Locally Rare plants naked- fruit rush and climbing fern would be protected from disturbance with the implementation of any of the Alternatives. Based on plant inventories completed for this project, there will be no affect on federally listed Threatened or Endangered species by any of the Alternatives (see the Biological Evaluation (BE) in the project file). In addition, there will be no impact on Forest Service Sensitive plant species from any of the Alternatives (see BE).

The project sites contain no habitat for federally listed vertebrates or invertebrates whose range would include this area, and none are known to occur in the vicinity of the project sites. Several terrestrial Sensitive species have the potential to occur in the project areas due to their general habitat requirements. These include Diana Fritillary (*Speyeria diana),* Rafinesque's Big-Eared Bat (*Corynorhinus rafinesquii),* Margarita river skimmer (*Macromia margarita*), Appalachian snaketail (*Ophiogomphus incurvatus*), Edmund's snaketail (*Ophiogomphus edmundo)* and Oconee stream crayfish (*Cambarus chaugaensis*). No known locations of Forest sensitive vertebrates or invertebrates were identified in Forest Service records or the GNHP database for the project area (see BE in project file).

Analysis LR species includes the effects on populations and habitat in and immediately adjacent to the project areas through a period of time of approximately 10-15 years following implementation. Analysis is not needed for PETS species since none were found in the project areas.

Effects of Alternative 1 (No Action): This alternative would perpetuate current conditions and no direct impacts to LR species are expected.

Cumulative effects: There would be no cumulative effects to LR species.

Effects of Alternative 2 (Proposed Action) and 3: The LR plant species found during PETS plant inventories were naked- fruit rush (*Juncus gymnocarpus*) and climbing fern (*Lygodium palmatum*). The known population of the LR plants including naked-fruit rush and climbing fern would be protected from disturbance with the implementation of Alternatives 2 or 3.

Cumulative effects: There are no additional actions planned in the vicinity of the project areas that would adversely affect LR species. Implementation of Forest standards water quality standards all assist in avoiding adverse cumulative effects to the LR species. Adherence to these standards and riparian corridor standards found in Management Prescription 11 (Forest Plan, page 3-177-3-178) also assist in maintaining habitat for LR species at the Forest level.

Future management activities and project locations will be analyzed utilizing any new information available on Locally Rare species. Mitigating measures would be implemented where needed to maintain habitat for LR species on the Forest and to prevent future listing under the Endangered Species Act.

Vegetation

The analysis of vegetation will be limited to some aspects of biological diversity and the Major Issue of old growth. The reason for this is to focus on topics or issues that are truly important within the overall context of the project. A full copy of the effects analysis on vegetation is included in the project file at the Tallulah District office.

The bounds of analysis for this analysis include predicted impacts to immediate and adjacent forest communities and to the forest landscape (areas approximately 2,000 acres in size) over the next 10-15 years. Old growth analysis will use the sixth-level Hydrologic Unit (HU) to determine if there is a sufficient area of old growth (or potential old growth) areas in old growth compatible prescriptions. The measure is the amount of area affected in acres.

The Continuous Inventory of Stand Conditions (CISC) database has been used for portions of this analysis. The date in the CISC is 10-15 years old, and does not take into account SPB mortality. Despite this deficiency, this data is valid for this analysis because SPB-killed stands typically have a well-developed midstory of pole timber or a dense understory that does not meet the conditions needed for ESH in the project. Due to this, any aging of CISC data accurately reflects conditions relative to the purpose and need for this project without re-inventory of SPB mortality prior to reaching a decision on this project.

Existing Condition: Forest types across the landscape are include substantial amounts of white pine, pitch pine, hardwoods (white oak, red oaks, chestnut oak and scarlet oak, among others), and yellow poplar. Minor components include shortleaf pine, Virginia pine, and hemlock. See the project file for a more complete breakdown by forest type and project area.

Landscape Age Class Diversity: Age class diversity across the landscape of the Lake Burton area is lopsided within 10-year increments (see table). There is only one stand (20 acres) in the Lake Burton area that is within the 0-10 year old age class. Although there are some small openings created by the southern pine beetle infestations (two-five

years ago), prescribed burning (six years ago), and Hurricane Opal blowdown (nine years ago), the number of total acres of early successional forest communities created is negligible within the overall 2,003 - acre area examined.

Age Class (10-year increments)	Billingsley		Lake Burton		Coleman River		Total	
	Acres	*%*	*Acres*	*%*	*Acres*	*%*	*Acres*	*%*
0-10 years	0	0	20	1	0	0	20	0
11-20 years	0	0	39	2	53	2	92	2
21-30 years	0	0	19	1	118	5	137	2
31-40 years	15	1	0	0	0	0	15	0
41-50 years	0	0	0	0	0	0	0	0
51-60 years	24	1	0	0	0	0	24	0
61-70 years	42	2	173	9	147	6	362	6
71-80 years	67	3	178	9	742	30	987	15
81-90 years	113	6	253	13	296	12	662	10
91-100 years	62	3	574	29	557	22	1,193	18
101-110 years	878	43	448	22	181	7	1,507	23
111-120 years	529	26	130	6	248	10	907	14
121-130 years	218	11	30	1	0	0	248	4
131-140 years	15	1	139	7	0	0	154	2
141-150+ years	79	4	0	0	149	6	228	4
Totals…	2,042	100	2,003	100	2,491	100	6,536	100

Age class diversity across the 2,042 – acre landscape surrounding the Billingsley project area is also lopsided, showing no acreage 30 years old or younger. There may be some openings killed by southern pine beetle infestations scattered across the landscape, however the amounts in this particular area are negligible relative to the overall age class diversity across the landscape.

The Coleman River landscape (2,491 acres) contains no 0-10 year old forest communities, and has approximately 53 acres in the 11-20 year old age class. A prescribed burn conducted in the past year has created approximately 100-150 acres of forest communities that have some mortality of the overstory. Also, there has been some southern pine beetle (SPB) infestations (1999-2002) scattered across the landscape. Although these stands now provide some habitat diversity for wildlife species that require new growth, they do not provide the same habitat conditions as do early successional areas created by tree removal. SPB killed stands typically have a well-developed midstory of pole timber or a dense understory that is not ESH. A substantial amount of the prescribed burn area where mortality has occurred still has basal areas higher than that needed for high quality ESH.

Within-Stand Species Diversity: The density of trees in the stands in the project areas was measured at approximately 140 square feet per acre in each of the stands. Species composing the woody stems over five inches in diameter include red maple, yellow poplar, blackgum, sourwood, pitch pine, white pine, shortleaf pine, white oak, chestnut oak, scarlet oak, black oak, sassafras, and eastern hemlock.

Mountain laurel dominates an average of 70% of the midstory (vegetation occupying the middle of the forest, above the herbaceous layer but below the dominant/co-dominant trees) in the Coleman River project area, leaving little or no forbs or grasses in the understory. The laurel averages about 15 feet in height.

Due to the prescribed burn covering the Lake Burton project area (conducted in 1998), the mountain laurel dominance is greatly reduced, only covering approximately 20% of the midstory layer, and measuring about six feet on the average. The Lake Burton Project area has about 30% understory coverage of high-brush blueberry, about two feet in height.

The Billingsley Creek project area is similar to the Lake Burton area, with mountain laurel only capturing approximately 20-40% of the midstory.

Old growth: All three of the project areas do not meet all of the criteria for old growth. The defining criteria for old growth are described in *"Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region,"* available for review at the Tallulah Ranger District office in Clayton. These four criteria were referred to in the Forest Plan, Appendix D, page D-2, and include the following:

- a minimum age in the oldest age class,
- no obvious human-caused disturbance that conflicts with old growth characteristics,
- minimum basal areas of stems with diameters at 4.5 feet of 5 inches and greater,
- the diameter at 4.5 feet of the largest trees.

The table below displays the inventory of the project areas and the measurements obtained compared to the four criteria:

Description	Billingsley Creek	Lake Burton	Coleman River
Current Forest Type	White pine	Upland hardwood-white pine	White pine – upland hardwood
Old growth type	02 – conifer/ northern hardwood	25 – dry and dry – mesic oak pine	25 – dry and dry – mesic oak pine
Minimum age of oldest age class	Criteria: 140	Criteria: 120	Criteria: 120
	Ages: 62-130	Ages: 64-120	Ages: 61-86
Minimum diameter at 4.5 feet of largest trees	Criteria: 20"+	Criteria: 19"+	Criteria: 19"+
	Diameters: 16-24"	Diameters: 14-18"	Diameters: 14-24"
Basal area in square feet per acre of trees > 5"	Criteria: 40	Criteria: 40	Criteria: 40
	BA: 140 (avg.)	BA: 140 (avg.)	BA: 140 (avg.)
Human-caused disturbances	Criteria: obvious	Criteria: obvious	Criteria: obvious
	Nothing observed that is obvious	Road into stand on east side – obvious	Nothing observed that is obvious

Description	Billingsley Creek	Lake Burton	Coleman River
Number of measures meeting criteria (4)	3 of 4	2 of 4	3 of 4

A portion of one of the proposed openings in the Billingsley Creek project area overlaps into an area inventoried by Carlson (funded under the Chattooga River Ecosystem Management Demonstration Project, March, 1995) as a high quality old growth stand. This "Class A" has a high probability of meeting all of the criteria for existing old growth.

Effects of Alternative 1 (No Action): This alternative would not alter the continued growth and mortality of trees, shrubs, forbs and grasses in the area. Indirectly, over the next 10-15 years, the amount of 0-10 year old forest communities would decline to zero, and the percentage of 11-20 year old stands would decline to nearly zero. Unexpected events, such as tornadoes, hurricanes, southern pine beetle infestations as well as other localized winds may create some young forest communities with heavy amounts of downed woody debris.

Roads within the project areas would become increasingly shaded and seedlings of a variety of species along the sides of the roads would grow taller and also increase the shading over the roads, decreasing the amounts of herbaceous vegetation, including native and non-native forbs and grasses.

Within the three project areas the trees and other species would continue to age and mortality due to a multitude of factors would increase, especially for older trees. Trees would become taller and their crowns would become increasingly vulnerable to wind events. Mountain laurel in the Coleman River project area would continue to dominate the midstory and understory, and the resprouting mountain laurel in the Lake Burton project area would continue to grow in height and dominance.

In all three areas, established white pine would continue to grow, expand their crowns, and increase their dominance. Any gaps in the stand where white pine are present would see increased growth by this species, possibly displacing other species including pine and hardwood trees.

Across the landscape, there would be little change in the species diversity of trees and shrubs across the compartments examined. Depending on mortality across the various species within each project area, the measurements related to old growth could get closer to meeting the Region 8 criteria. However, if mortality increases among the older age classes within these stands, there is also a possibility of a reduction in measurements meeting old growth criteria.

Cumulative Effects: The cumulative effect of no action within these three project areas would be slight incremental increases in dominance of species that thrive on undisturbed areas. The growing space of overstory species would slightly shift toward white pine and possibly sourwood and blackgum and the midstory would shift slightly toward mountain laurel, sourwood, blackgum and flowering dogwood.

Effects of Alternative 2 (Proposed Action) Direct effects would include the harvest of selected trees within three to five 5-20 acre patches within each of the three project areas. With these trees removed, there would be in immediate increase in sunlight to the ground within these patches as well as some side light into the adjacent forest. Shrubs such as mountain laurel and rhododendron would sustain some damage, getting pushed over or knocked down by falling trees and logging equipment.

Day lighting of the roads within the project areas would remove selected trees from road sides, allowing more sunlight to the ground and to the roadbed.

Periodically mowing the roadsides would reduce the seedlings and saplings immediately adjacent to the road, reducing the shade on the roadbed.

Indirectly, species diversity within the project areas would increase. The patches where the density of trees have been reduced to 10-20 square feet per acre would see immediate increases in herbaceous and woody species growth during the growing season, with sprouts and germinating seeds from trees as well as shrubs (including mountain laurel and rhododendron) growing up to five feet in the first year. Trees from sprouting and germination would exceed acceptable levels stocking (Forest Plan, page 2-26) by the first or second year following harvest. Herbaceous growth would also be abundant, including a wide variety of grasses and forbs.

The eventual forest type of the three project areas would be converted from white pine (Billingsley Creek), white pine – oak (Coleman River) and oak-pine (Lake Burton) to oak forest types.

Treating these forest communities with the modified shelterwood harvest method (an even-aged system of silviculture) is recommended for white pine, white pine – oak, and oak – pine forest types (Forest Plan, Appendix F), and would create early successional conditions that would be appropriate for species like the golden-winged warbler, yellow-breasted chat, and the ruffed grouse. Sprouting of hardwood tree species, shrubs and other forbs that would be abundant under this action would provide the successional conditions envisioned under the purpose and need for this project.

Across the landscape, forest communities less than ten years in age would increase in all areas:

Alternative	Before or After	Billingsley Landscape – 2,042 acres	Lake Burton Landscape – 2,003 acres	Coleman River Landscape – 2,491 acres	Total Landscape Area – 6,536 acres
Alternative 1 – No Action	Before	0 (0%)	20 (1%)	0 (0%)	20 (0%)
	After	0 (0%)	20 (1%)	0 (0%)	20 (0%)
Alternative 2 – Proposed Action	Before	0 (0%)	20 (1%)	0 (0%)	20 (0%)
	After	40 (2%)	60 (3%)	40 (2%)	140 (2%)
Alternative 3	Before	0 (0%)	20 (1%)	0 (0%)	20 (0%)
	After	0 (0%)	60 (3%)	40 (2%)	100 (2%)

Forest communities 11-20 years old would stay steady at approximately 2% for the next twenty years following the proposed harvest. Stands that are now 11-20 years old would rotate into older age classes as the proposed areas rotate into this age class.

Old growth characteristics within the harvested patches would be directly impacted, including reductions in large trees, oldest age class, and basal areas. Some isolated portions of these stands may retain obvious human-caused disturbances, such as segments of skid trails that cut into the ground and sides of some of the roads where landings may be visible for more than a couple years. A portion of a Class A area (about 5 acres) inventoried by Carlson would be harvested, decreasing the acreage of this area and making that 5-acre area incapable meeting Region 8 Old Growth criteria.

However, within the sixth level hydrologic units that each of the project areas reside, over five percent of the total area is already committed to old growth compatible prescriptions, including Wilderness Areas, wilderness study areas, Wild and Scenic Corridors and recommended Wild and Scenic Corridors. This amount of old growth satisfies Forest Plan Standard FW-044 (page 2-17), designed to meet Objective 20.1 and move the desired condition toward Goal 20 on page 2-16.

Cumulative effects: No additional actions are proposed within the project areas that would add to the effects occurring within the harvest patches. Across the landscape, a prescribed burn in the Chestnut Mountain area may contribute to additional herbaceous growth and a wider species diversity of plants, including trees and shrubs. However, this cumulative effect on species diversity is not expected to raise the percentage of early successional forest communities more than one percent across the landscape.

Effects of Alternative 3: Much the same as Alternative 2, except the Billingsley area would not have any partial cutting within the patches and also would not have day lighting treatments outside of the original disturbed area of the road. The Billingsley area outside of the original disturbed area of the road would approximate effects similar to Alternative 1, where no action is proposed.

The total acres of 0-10 year old age class created would be approximately 90 as opposed to about 120 acres under the Proposed Action (Alternative 2).

The eventual forest type of the three project areas would stay the same in the Billingsley project area, and would move incrementally toward a more dominated white pine forest community. The Coleman River project area would be converted from white pine – oak (Coleman River) and oak - white pine (Lake Burton) to oak forest types.

Old growth characteristics affected in the same way for the Coleman River and Lake Burton project areas, however the would be no effect on the old growth characteristics in the Billingsley Creek project area. The high quality old growth area (Class A as defined by Carlson) inventoried in this area would not be affected and stands adjacent to the Billingsley Creek Road would also not be affected due to the day lighting treatments being confined to the original disturbed area of the road.

Cumulative effects: Similar to Proposed Action (Alternative 2), with the exception of the Billingsley Creek project area. Most notably, the overall inventory of old growth would not decrease under this alternative because this area would not be treated.

ECONOMIC AND SOCIAL EFFECTS

Costs and Revenues to the Government

This section will disclose the effects of costs and revenues to the government. The costs and revenues will be disclosed for the immediate life of the project, but not including actions taking place outside of this decision, including routine mowing and road maintenance.

The proposed action (Alternative 2) and Alternative 3 both harvest timber from National Forest System lands, producing revenue to the U.S. government. Below is summary of the costs and revenues of the project:

Year	Description	Alternative 1 (no action)	Alternative 2 (proposed action)	Alternative 3
		(Cost) or Revenue	(Cost) or Revenue	(Cost) or Revenue
0	Environmental Analysis, including NEPA, NHPA and ESA compliance[1]	($15,000)	($15,000)	($15,000)
1	Cruise/mark timber sale units[2]	0	($4,200)	($2,800)
1	Road maintenance on existing roads (gravel, other prep)[3]	0	($10,540)	($6,205)

Year	Description	Alternative 1 (no action)	Alternative 2 (proposed action)	Alternative 3
		(Cost) or Revenue	(Cost) or Revenue	(Cost) or Revenue
2	Sale administration[4]	0	($50,775)	($33,850)
2	Timber Receipts[5]	0	$110,290	$73,526
3	Non-commercial day lighting and mowing[6]	0	($3,720)	($3,720)
Totals discounted at 4%...		**($15,000)**	**$22,545**	**$9,718**

[1] Environmental analysis includes compliance with the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), and the Endangered Species Act (ESA). For this project, it was calculated at the rate of 50 person days multiplied by a person-day cost of $300.
[2] The cost of cruising (estimating the amount of timber volume) and marking (painting marks) the trees selected to be harvested was made using an average cost within the Forest Service for this activity of $35 per acre multiplied by the number of acres in the timber sale.
[3] Road maintenance was calculated by including costs including gravel, surface blading, ditch cleaning, and roadway mowing into a per mile cost, and multiplying by the total number of existing roads where work would take place. For this project, an estimate of $850 per mile was used, based on average figures from the Region 8 Appraisal Guide, Fiscal Year 2004.
[4] The timber sale administration costs include inspections, monitoring, and payment processing completed by the Forest Service. This cost was estimated using an average cost of $25 per CCF (hundred cubic feet), from the Region 8 Appraisal Guide.
[5] The timber receipts were estimated using current market prices for the various species proposed to be sold.
[6] The daylighting cost was estimated at approximately $300 per mile for disking, planting, fertilizing, mulching, and mowing.

Due to the Proposed Action (Alternative 2) including approximately 120 acres of harvesting, the timber revenue was the highest. With no permanent or temporary roads being built, this resulted in the highest present net value.

Alternative 3 dropped the patches of cutting in the original proposed action, and the approximate harvest acreage dropped from 120 to about 90, resulting in lower receipts and a lower overall present net value.

Recreation, Tourism, and the Quality of Life

The two major issues did not directly involve recreation, tourism and quality of life. However, an analysis was completed, and is available for review at the Tallulah Ranger District office where the project file resides. Overall, there were minimal effects on recreation, tourism, and the quality of life.

Public Health and Safety

The two major issues did not directly involve public health and safety. Overall, there are negligible impacts on public health and safety. An analysis was completed, and is available for review at the Tallulah Ranger District office where the project file resides.

OTHER CONSIDERATIONS

Consumers, Civil Rights, Minority Groups, and Women

Consumers or users of the three project areas would be affected as detailed in the physical, biological, economic and social effects analysis. Hunters as users should see increases in game populations including ruffed grouse, white-tailed deer, as well as small mammals and other birds. Sightseers would see a short-term increase in contrast the harvest operations for approximately three to five years. Wildflowers, green sprouts from most species of trees and shrubs, and other forbs and vines would grow vigorously with the increase in sunlight created by the harvesting.

The civil rights of individuals or groups, including women, would not be affected under the proposed action or any of the alternatives. There are no actions or methods of actions that would affect any one group or individual any differently than others.

Irreversible and Irretrievable Effects

An irreversible commitment of resources results from a decision to use or modify resources when they are renewable only over a long period of time, such as soil productivity; or are nonrenewable resources, such as cultural resources or minerals (Final Environmental Impact Statement (FEIS) for the Forest Plan, page 3-648). There are no irreversible commitments of resources in the initial proposed action or alternatives to the initial proposal:

- Reports from archeological surveys conducted by professional archeologists have concluded that there are no properties eligible for listing on the National Register of Historic Places that are known to occur within the three project areas.
- Implementation of the proposed action or the alternatives to it would not have any long-term effect on soil productivity.
- The proposed action (Alternative 2) would harvest approximately five acres of old growth. This is considered an irretrievable commitment of resources since the area can be restored to this condition.

An irretrievable commitment of resources is the loss of production or human use of renewable resources (FEIS for the Forest Plan, page 3-649). This represents opportunities forgone for the period of time that the resource cannot be used. An example of an irretrievable commitment includes harvesting planned in the proposed action (Alternative 2) as well as the Alternative 3 where the existing timber volume is lost and then is gradually replaced as new trees or reserve trees grow and re-occupy the growing space. Another example would be some skid trails may lose production of trees for a short period of time when grasses are sowed on those exposed soils, causing a short-term irretrievable loss of tree growth.

Irretrievable commitments are not listed in full here, but are disclosed in detail throughout the Environmental Consequences chapter.

AGENCIES AND INDIVIDUALS PROVIDING CONSULTATION

Dr. James Vose, USDA Forest Service, Coweeta Hydrologic Lab, Southern Research Station
Dr. James Wentworth, USDA Forest Service, Chattahoochee National Forests, Wildlife Biologist
Mike Hurst, Chattahoochee National Forests, Forest Wildlife Biologist
Dr. David Buehler, University of Tennessee Department of Forestry, Wildlife, and Fisheries
Bill Fletcher, GA DNR Game Management Section, Regional Supervisor
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Ron Stephens, USDA Forest Service, Chattahoochee National Forests, Forest Silviculturist
Mitzi Cole, USDA Forest Service, Chattahoochee National Forests, Forest Fisheries Biologist
Carolyn Hoffmann, USDA Forest Service, Chattahoochee National Forests, Forest LAR
John Petrick, USDA Forest Service, Chattahoochee National Forests, Forest Planner

PERSONS, AGENCIES, AND ORGANIZATIONS PROVIDING PUBLIC INPUT

Appalachian Trail Conference
George Chase
Georgia Department of Natural Resources
Trent Conner
Walter Rehm
Ruffed Grouse Society
Walter Chastain
Bill Cunningham
Wayne Rider
Mitchell Barrett
Sherry Chastain
Darron Britt
Thomas Womack
National Wild Turkey Federation
Oscar Stewart
Monte Seehorn
John Muir Project
Carolyn Nouse
Ed Nicholson
Georgia Forest Watch
Chattooga Conservancy
Justine Thompson
Christa Frangiamore
John Izard
Reis Birdwhistell
Vandyke Price
Joseph Gatins
Butch Clay
Darek Musierowicz
James Wayt
Robert Hodges
Bob Shultz
Southern Appalachian Biodiversity Project

PERSONS AND ORGANIZATIONS NOTIFIED OF THE PROPOSED ACTION

Ninety-seven entities were mailed a letter detailing the description of the paving. The list of person and organization that was mailed the letter is in project file.

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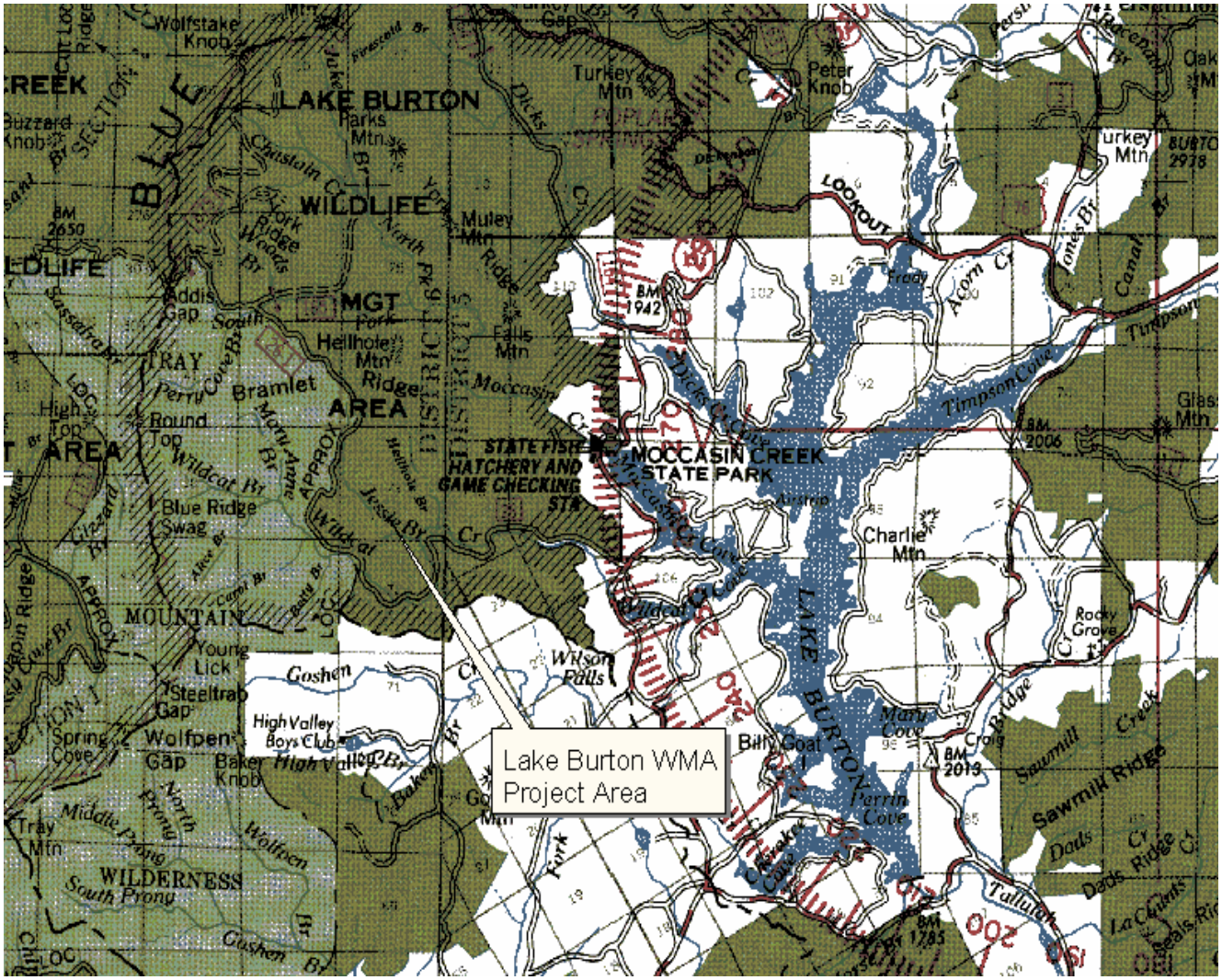
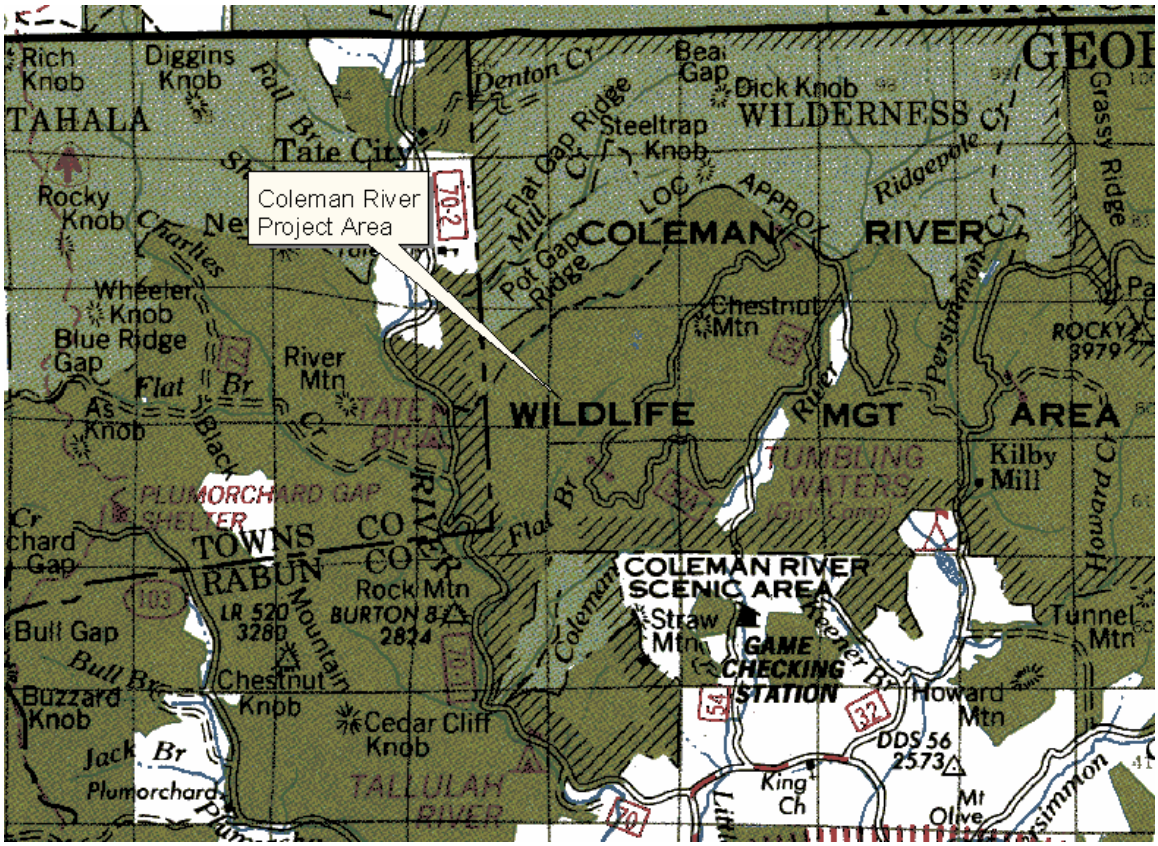
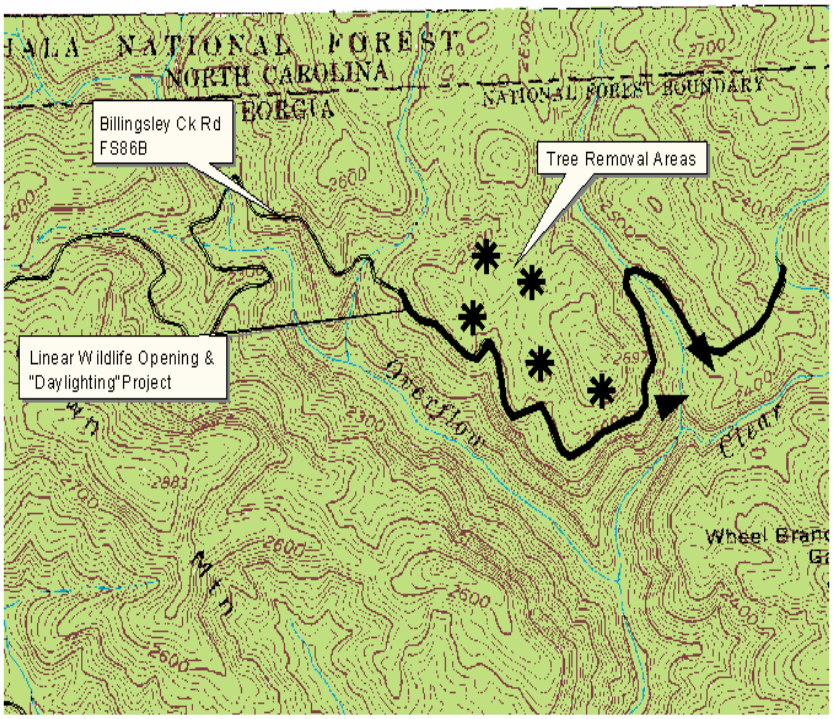

Lake Burton WMA
Project Area
LAKE BURTON
WILDLIFE
MGT
AREA
MOCCASIN CREEK
STATE PARK
STATE FISH
HATCHERY AND
GAME CHECKING
STA
LOOKOUT
Turkey Mtn
Peter Knob
Wolfstake Knob
Parks Mtn
Muley Mtn
Addis Gap
Hellhole Mtn
Falls Mtn
Bramlet
Round Top
Blue Ridge Swag
Charlie Mtn
Rocky Grove
Wilson Falls
Goshen
High Valley Boys Club
Wolfpen Gap
Baker Knob
Steeltrap Gap
Young Lick
Spring Cove
Tray Mtn
WILDERNESS
Billy Goat
Perrin Cove
Mary Cove
Sawmill Ridge
Dads Ridge
Timpson Cove
Acorn Cr
Tallulah
Canal Br
Jones Br
Glass Mtn
Oak M
BM 1942
BM 2006
BM 2019
BM 1785
BM 2650
BM 2978


Coleman River
Project Area
Rich Knob
Diggins Knob
TAHALA
Tate City
Rocky Knob
Wheeler Knob
Blue Ridge Gap
As Knob
River Mtn
Denton Cr
Beal Gap
Dick Knob
WILDERNESS
Steeltrap Knob
Flat Gap Ridge
Pot Gap Ridge
COLEMAN
RIVER
Ridgepole Cr
Grassy Ridge
Chestnut Mtn
ROCKY 3979
WILDLIFE
MGT
AREA
TUMBLING WATERS
Kilby Mill
Howard Cr
PLUMORCHARD GAP SHELTER
TOWNS CO
RABUN CO
Rock Mtn
BURTON 8
2824
LR 520
3280
Bull Gap
Buzzard Knob
Chestnut Knob
Cedar Cliff Knob
Jack Br
Plumorchard
TALLULAH RIVER
COLEMAN RIVER SCENIC AREA
Straw Mtn
GAME CHECKING STATION
Tunnel Mtn
Howard Mtn
DDS 56
2573
King Ch
Mt Olive

Billingsley Creek Road Project



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