DECISION NOTICE
and
FINDING OF NO SIGNIFICANT IMPACT
for the
Armuchee Ridges Thinning and Restoration Project

USDA Forest Service
Conasauga Ranger District, Chattahoochee National Forest
Chattooga, Floyd, Gordon and Walker Counties, Georgia

1. Introduction

The Armuchee Ridges Thinning and Restoration project is the result of a collaborative process initiated by the Forest Service in November of 2005 with the Armuchee-Cohutta Large Scale Assessment (LSA). The LSA identified opportunities for vegetation management across the Conasauga Ranger District that would help to meet forest health and ecological restoration objectives of the Chattahoochee-Oconee National Forest Plan. This project will implement those opportunities identified in the LSA that are located in the western portion of the Conasauga Ranger District.

Collaboration has been a key part in the development of the project to this point and our partners have stayed engaged and involved since April 2006. I am committed to continuing this collaboration in the implementation of the Armuchee Ridges project.

2. Decision and Rationale for the Decision

Background

The Armuchee Ridges Thinning and Restoration Project area includes an estimated 41,000 acres in the Ridge and Valley Ecoregion. In the early 1900s, lands within the Armuchee Ridges project area were cleared for agricultural lands or harvested for timber production. Included within these lands were areas that were once mountain longleaf pine, shortleaf pine, oak or oak-pine forest types. Reforestation following timber harvest often used loblolly pine. In the case of some bottomland hardwood areas, the sites were left to regenerate to the species that was left on site after disturbance.

The Armuchee Ridges project is designed to:

- Improve forest health in over-crowded stands to decrease the risk of insect and disease infestation, particularly southern pine beetle, and to improve wildlife habitat;

- Restore and/or maintain native mountain longleaf pine and native shortleaf pine forest types in areas that have been impacted by past southern pine beetle infestations and/or have a component of Virginia pine,

- Restore and/or maintain native oak and oak-pine forest types in areas that have been impacted in the past by southern pine beetle infestations and/or in areas with high amounts of fire intolerant species such as maple, sweet gum, and Virginia pine;

- Improve habitat for riparian associated species by encouraging hardwood growth in riparian corridors currently dominated by loblolly pine;

- Restore riparian hardwood old growth communities in hardwood stands located along streams; and

- Improve wildlife habitat through native plant community restoration.

The environmental assessment (EA) documents the analysis of 2 alternatives to meet this need.

Decision

I have reviewed each of the action alternatives and I have decided to implement **Alternative 2-Proposed Action, with modifications**. This decision will move the area towards the desired conditions identified in the Forest Plan by improving forest health, restoring forest communities in decline, initiating the restoration of forest communities to historic composition that were converted by previous land uses, and improving wildlife habitat.

Alternative 2- Modified includes the following activities:

- 669 acres of mountain longleaf and shortleaf pine restoration
- 453 acres of oak/oak-pine restoration and maintenance
- 5,787 acres of pine thinning to improve forest health.

A total of approximately 6,909 acres would be treated. See Appendix A for a detailed description of Alternative 2-Modified. The modifications include:

1. Defer Riparian Hardwood Restoration: I have decided not to move forward with the 54-acre riparian hardwood restoration project at this time (stand 925007). The analysis identifies 2 stands that pose the highest risk for impacts from non-native invasive species under this alternative. One stand contains a population of rare plants. The analysis indicates that applying a buffer to this population will adequately mitigate the concerns over the impacts to this rare plant population from NNIS.

The other stand highlighted in the analysis is identified for riparian hardwood restoration. This riparian area contains widespread populations of non-native invasive species (NNIS). The analysis indicates that our activities would pose a risk of spread of NNIS and potential establishment of new populations within this riparian corridor. Because of the widespread nature of the NNIS, mitigation through buffers and avoidance would not adequately protect the riparian area. Considering the sensitivity of riparian areas, I am not comfortable moving forward with the bottomland hardwood restoration at this time.

The District is currently completing an adaptive management EA for the treatment of NNIS, which is scheduled to be completed this fall. I will re-consider the implementation of this project once we have the avenue to treat the NNIS and I have an assurance that the bottomland hardwood restoration activities will not further the spread or establishment of NNIS in this specific riparian area.

2. Drop a Portion of Oak/Oak Pine Restoration (223 acres): I have decided to drop 2 stands from implementation in this decision with the objective of oak/oak-pine restoration. These stands total 223 acres. The intent of the oak/oak-pine restoration is to treat pine stands located on sites more appropriate for oak/oak-pine forest types. Field review indicates that these stands are primarily mixed hardwoods with a high component of mature oak. The existing condition of these stands already meets the stated objective so treatment is not needed. These stands are 922035 (56 acres) and 943004 (167 acres) and were identified as regeneration harvests.

Rationale for Decision

Pine Thinning

The Armuchee Ridges project area contains several thousand acres of planted loblolly pine. These stands also have a high component of Virginia pine, which is fire intolerant and has established as a result of removing fire from the ecosystem. Thinning these stands, both commercial thinning and pre-commercial thinning depending on age, will make them more resilient to infestation of insect and disease, particularly southern pine beetle. Implementation of Alternative 2- Modified will allow us to begin this important process in improving the health of these stands.

Riparian Corridors

Riparian corridors were not afforded special protection with the agricultural uses and commercial timber production of the past. Many of these areas were planted with loblolly pine in the same manner as the adjacent uplands. The hardwood riparian communities, lost through past practices, provided complex structure for nesting habitat, provided mast for forage, denning sites, and other features important to riparian associated species.

The current pine-dominated riparian corridors provide little habitat for riparian associated species. Implementation of Alternative 2- Modified will allow us to begin increasing the hardwood component in some of these riparian areas in order to improve habitat for riparian associated species. Following the Georgia Best Management (BMPs) and the design features/mitigation measures associated with Alternative 2-Modified will allow these activities to occur while still protecting riparian and water resources.

Longleaf and Shortleaf Restoration

Longleaf pine forests originally covered almost 100 million acres in the southeastern United States. Now, less than 3 million acres remain, and longleaf pine forest in its natural fire-maintained condition is recognized as the rarest community type in the southeast (Moss et al. 1995). Mountain longleaf pine is even rarer, comprising only 2% of overall longleaf pine remnant acres. Native mountain longleaf pine communities have disappeared across the Armuchee Ridges area, except for a few remnant stands. Implementation of Alternative 2-Modified will allow for the restoration of this important native forest community.

The sites identified for longleaf restoration were chosen because of their ecological suitability on the landscape. These sites contain mature hardwood stands with a large component of mature,

mast-producing oak trees. Implementation of Alternative 2-Modified will mean that these stands will be regenerated, leaving very little mature oak or hickory overstory. This is needed because longleaf pines are shade-intolerant and need an open growing condition, in addition to prescribed burning, for the restoration to be successful.

A significant issue was identified during the public involvement process which identified the concern that removing mature, mast-producing oak would impact wildlife habitat. I have reviewed the environmental analysis and I have determined that removal of mast-producing oaks within the 639 acres identified for longleaf restoration, in context with the surrounding area, would be negligible considering the abundance of oak stands in the area. In addition, the intention is to create a stand with a mix of mountain longleaf and fire-tolerant hardwoods, primarily oak and hickory. Once the stands are planted and fire is introduced, we fully expect that natural hardwood regeneration would be interspersed throughout the young stands. Based on this, I believe that the need for mountain longleaf restoration outweighs the need for retention of all mature mast-producing oaks on these sites.

Shortleaf pine is also a native forest community that has declined within the Armuchee Ridges project area because of past land uses, fire suppression, insect infestations, and encroachment of Virginia pine. Implementation of Alternative 2-Modified will allow for the restoration of 30 acres of this important native forest community.

Oak and Oak/Pine Restoration and Maintenance

As mentioned previously, the Armuchee Ridges project area contains several thousand acres of planted loblolly pine. Some of the sites planted to loblolly pine are more ecologically suited for oak and oak/pine forest communities. Activities that would occur on these sites are designed to encourage or maintain an oak component in theses stands. Implementation of Alternative 2-Modified will allow for the restoration and maintenance of oak and oak/pine forests on ecologically appropriate sites.

Alternative 2-Modified has been modified in respect to oak and oak/pine restoration. Field review of stands 922035 and 943004 has determined that these stands are primarily mixed hardwoods with a high component of mature oak and, therefore, treatment of these stands would not meet the objectives identified in the EA. These stands have been dropped from implementation.

Collaboration

The proposed action was identified through a collaborative process with partners such as the Georgia Department of Natural Resources- Wildlife Resources Division, Quail Unlimited, National Wild Turkey Federation, U.S. Fish and Wildlife Service, Georgia ForestWatch, Southern Environmental Law Center, and numerous interested individuals. The projects in the proposed action represent the objectives that these groups agreed were important to move forward with at this time in implementation of the Forest Plan.

I have reviewed and considered the input we have received from the public in my decision. I think it's critical to acknowledge the time and energy our partners put forth in the collaboration process and I want to support that effort in the decision. Choosing Alternative 2- Modified moves towards meeting all the objectives identified in the collaboration process.

I acknowledge that all the partners do not agree with the way the project has been designed in order to meet the mountain longleaf pine restoration and the oak and oak/pine restoration. One group, in particular, that has been involved in the collaboration process from the beginning of the project supports the objective of native forest restoration but does not agree with the regeneration harvests, and resulting removal of mature oak, that will occur with the restoration efforts. I have considered this concern and weighed it against the analysis found in the EA. I have determined that the restoration projects, as designed, is the most effective way to achieve restoration objectives while minimizing environmental impacts.

I believe there is consensus with the need to move forward with improving forest health through thinning pine stands.

Other Alternatives Considered

In addition to the selected alternative, I considered two other alternatives for implementation. A comparison of the alternatives can be found in Chapter 2 of the EA. I also considered two alternatives that were identified but not given detailed study in the EA.

Alternative 1- No Action

Under the No Action Alternative, timber harvest and silvicultural treatments would be deferred. Existing trends across the landscape would be expected to continue. Ongoing Forest Service permitted and approved activities would continue in the Armuchee Ridges project area. For example, road maintenance, fire suppression, hunting, fishing, and camping would continue to occur within the project area.

I eliminated the No Action Alternative from consideration because it would not move towards meeting the purpose and need for the project. Forest health would not be improved through commercial and pre-commercial thinning, increasing the susceptibility of these stands to infestation of insects and disease, such as southern pine beetle. Mountain longleaf pine and shortleaf pine, rare and important native forest communities, would continue to decline. Sites that are more ecologically suitable for oak and oak/pine forests would remain as primarily southern yellow pine stands into the near future. Riparian corridors dominated by pine forests would continue to provide little habitat for riparian associated species into the near future.

Alternative 3- Minimize Oak Harvest

Alternative 3 was designed to address the issue relating to harvesting of mature oaks in the project area. The mountain longleaf and shortleaf restoration and the oak-oak/pine restoration and maintenance proposals have the potential to remove mature oak trees from the stands in order to meet restoration or maintenance objectives. The objective of the pine thinnings is to remove of a portion of the pine component in the stands, not mature oak; although an incidental number of mature oak would be expected to be harvested during thinning activities as part of logging operations.

I eliminated Alternative 3- Minimize Oak Harvest from consideration because it would not restore rare native mountain longleaf forests or shortleaf pine forests. Mountain longleaf and shortleaf pine are shade-intolerant species and need an open growing condition to become

established so the majority of the overstory needs to be removed. The analysis indicates that mature, mast-producing oak stands are abundant throughout the project area. Also, we fully expect that hardwoods, particularly oak, would naturally regenerate as a result of the prescribed fire regime that will occur with the restoration. This will result in a mixed stand of mountain longleaf or shortleaf pine and hardwoods. Considering this, I believe that restoration of mountain longleaf and shortleaf pine forests outweighs the need to retain the mature, mast-producing oaks in these stands.

In addition, I eliminated Alternative 3- Minimize Oak Harvest because it would not restore or maintain oak/oak-pine forests. These sites were targeted for oak and oak pine restoration or maintenance because they are located on sites ecologically suited for stands with a high component of oak. The existing stands identified for oak or oak/pine forest restoration or maintenance are comprised of southern yellow pine with a strong component of hardwoods, including oak and hickory. The trees targeted for removal are pine and shade intolerant hardwoods such as maple, although some mature mast-producing oak may be removed in the restoration activities.

The intent of the treatments is to initiate the movement of these stands toward oak and oak/pine forests, or at least maintain the level of oak in these stands in the case of stands identified for maintenance. I believe that the need to implement the restoration and/or maintenance activities outweighs the need to remove some mature mast-producing oaks during implementation. In addition, the analysis indicates that mature, mast-producing oak stands are abundant throughout the project area so the impact of removing mature oak would be negligible.

Alternatives Eliminated from Detailed Study

I considered two additional alternatives that were not given detailed study.

A. Scoping Proposal: In December 2006, the Conasauga Ranger District released a scoping letter for the "Armuchee Ridges Thinning and Restoration Project". The letter requested input on projects designed to improve forest health, restore native vegetation communities, and improve wildlife habitat over the next 5-10 years on the Armuchee and Cohutta Units of the Conasauga Ranger District. The entire original proposal was not brought forward in the EA to simplify cumulative effects analysis and to allow for further review of the Cohutta Unit projects. I determined that the projects located on the Cohutta Unit in the original proposal are not ripe for decision. Therefore, I eliminated the original 10,364 acre proposal from detailed study.

B. Harvesting, But Retaining Mature Oak in Restoration Units: An alternative that would be designed so that no mature oak would be harvested in the stands proposed for longleaf, shortleaf and oak oak/pine restoration was considered. It was determined that this type of silviculture treatment on these sites would not move the stands towards the restoration objectives, generally due to impacts on the growth and establishment of the planted seedlings. I eliminated this alternative from detailed study because restoration efforts without harvesting oaks on these sites to create an open canopy for restoration would be unsuccessful and impractical.

3. Public Involvement

The Armuchee-Cohutta Large Scale Assessment (LSA) was initiated in November 2005 as a collaboration effort with interested partners and the public. The LSA was designed to identify a 5-year vegetation management program of work for the Conasauga Ranger District, formerly the Armuchee-Cohutta Ranger District.

The Forest completed an initial field assessment of stands across the District in areas where vegetation management was identified as an objective in the Forest Plan. Using this field information in combination with existing data for these stands, the Forest identified 18,475 acres of potential vegetation management activities which were designed to meet 14 Forest Plan objectives. The objectives emphasized forest health, restoration of forest ecosystems, and creation of declining natural communities needed to support viable populations of native and desired non-native plants, wildlife and fisheries.

A public meeting was held in April 2006 where the 18,475-acre Large Scale Assessment was presented. Three field trips were held on the District to discuss the various objectives and potential effects of silvicultural treatments. Field trips were also made to the Forest Service research units at Bent Creek Experimental Forest and Coweeta Hydrologic Laboratory to address specific public concerns of silviculture of Appalachian hardwoods, riparian area management, and water quality impacts.

Through a collaborative process, which included several additional meetings and field trips, the Forest decided to move forward with objectives that our partners in collaboration identified as the most critical for implementation. The activities associated with these objectives, an estimated 10,364 acres, were presented to the public in a scoping notice as the Armuchee-Cohutta Thinning and Restoration Projects in December 2006. Eleven responses were received as a result of the scoping process.

Based on comments received during scoping and further consideration, I modified the Armuchee-Cohutta Thinning and Restoration Project with a decision to defer the proposals identified on the Cohutta portion of the District because they need further examination before being considered ripe for decision. This became the 7,186 acre Armuchee Ridges Thinning and Restoration Project proposed action.

A field trip was held in February 2006, after the scoping period, which visited a relict mountain longleaf pine stand, a mountain longleaf plantation, and stands proposed for mountain longleaf pine restoration in this project.

In May 2007, an additional public meeting was held with partners to discuss the results of the scoping process and potential issues to be used for alternative development.

The EA was released for a 30-day comment period in September 2007. I received a request from the public to extend the comment period and decided to allow for an additional 30-day comment period, which ended in November 2007.

We received 13 written comments on the EA. The responses to these comments are found in Chapter 4. Georgia ForestWatch requested a meeting after the end of the comment period to

discuss their comments on the EA. On February 7, 2008, we visited several sites in the field to discuss their concerns. In addition, we met at the District office to review the discussion from the field trip and to review their comment letter.

In addition to public meetings, field trips, and the formal NEPA comment requirements, the Interdisciplinary Team and I had numerous e-mail and phone conversations with partners about this project throughout the entire process.

4. Finding of No Significant Impact

After considering the environmental effects described in the Environmental Assessment, I have determined that the actions associated with Alternative 2- Modified will not have a significant effect on the quality of the human environment considering the context and intensity of impacts (40 CFR 1508.27).

Thus, an environmental impact statement will not be prepared. I base by finding on the following:

1. Both beneficial and adverse effects have been considered. Impacts associated with the project are discussed in Chapter 3 of the EA. These impacts are within the range of those identified in the Forest Plan. My finding of no significant environmenal effects is not biased by the beneficial effects of the action.

2. The selected alternative will not result in significant effects on public health and safety, and implementation will be in accordance with project design features (EA, Chapter 2).

3. There will be no significant effects on unique characteristics of the geographic area such as park lands, historical and cultural resources, prime farmlands, wetlands, floodplains, wild and scenic rivers, or ecologically critical areas. (EA, page 25)

4. The oak and oak/pine restoration and mountain lonlgeaf pine restoration proposal was referred to consistently as “experimental” by one group throughout the public involvement process. Oak and oak/pine forests and mountain longleaf forests have been successfully restored through the methods that will be used in this project and these methods are standard, successful silivicultural techniques. The effects on the quality of the human environment are not likely to be highly controversial because there is no known scientific controversy over the impacts of the project. (EA, pages 9-24).

5. We have considerable experience with the types of activities to be implemented. The effects analysis shows the effects are not uncertain, and do not involve unique or unknown risk (EA Chapter 3).

6. The action is not likely to establish a precedent for future actions with significant effects, because they do not represent a decision in priciple about future proposals.

7. The cumulative impacts are not significant. The EA includes all connected, cumulative, and similar actions in the scope of the analysis. The cumulative effects of past, present

and reasonably foreseeable actions are considered and disclosed in the EA, pages 36-38, 48-52, 68-134, 140-149, 154-156, 156-161.

8. The Chattahoochee-National Forests, the State Historic Preservation Office, and the Eastern Band of Cherokee Indians have entered into a Programmatic Agreement (PA) for phased compliance for heritage resources. The PA outlines that clearance surveys will be conducted and documented prior to implementation and heritage resources will be protected through avoidance as needed. The action will have no significant adverse effect on districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, and will also not cause loss or destruction of significant scientific, cultural, or historical resources. (pages 154-156)

9. The action will not adversely affect any endangered or threatened species or result in loss of any other species' viability, or create significant trends towards Federal listing of sepcies under Endangered Species act of 1973. This determination is based on site-specific surveys, the Biological Evaluation for Armuchee Ridges Thinning and Restoration Projects, and concurrence from the US Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act. (EA pages 110-118). The US Fish and Wildlife Service has concurred with the findings of no effect for the large-flowered skullcap and not likely to adverstely affect gray bats (USFW Letter, 06/13/2008). In addition, I have committed to coordinated with the US Fish and Wildlife Service on an annual basis in order to ensure that the findings of the BE remain current as we progress through the project.

10. The action will not violate Federal, State, and local laws or requirements for the protection of the environment. Applicable laws and regulations were considered in the EA (EA, page 163). The action is consistent with the Chattahoochee-Oconee National Forests Land and Resource Management Plan (Chapter 1, page 4).

Findings Required by Other Laws and Regulations

Alternative 2-Modified is consistent with the Forest Plan. It is consistent with the Forest Goals and Objective listed in the purpose and need of the project. The project was designed to conform to land and resource management plan standards and incorporates them in the implementation.

The regeneration harvest identified for shortleaf and mountain longleaf pine restoration and the oak and oak/pine restoration, including additional treatments such a prescribed fire, is appropriate to meet the goals and objectives of the forest Plan (EA, pages 11-13). All regeneration harvests will be adequately restocked within five years of these treatments.

Administrative Review or Appeal Opportunities

This decision is subject to appeal, pursuant to 36 CFR 215.11 by those who provided comments or otherwise expressed interest in this particular proposal during the 30-day public comment period. A written appeal, including attachments, must be postmarked or received within 45 days after the date the legal notice is published in *The Daily Citizen* newspaper published in Dalton, Georgia.

The Appeal shall be sent to:

Chattahoochee-Oconee National Forests
ATTN: Appeals Deciding Officer
1755 Cleveland Highway
Gainesville, Georgia, 30501

Hand-delivered appeals must be received within normal business hours of 9:00AM-4:00PM at the above address, Tuesday through Friday. Appeals may be faxed to (770)297-3011.

Contact Information

For further information on this decision contact Ruth Stokes, Wildlife Biologist, Conasauga Ranger District, 3941 Highway 76, Chatsworth, GA 30705; phone (706) 695-6736. For information on the Forest Service planning process as it relates to this decision, contact John Petrick, Forest Planner, at 770-297-3005.

Implementation Date

If no appeals are filed within the 45-day time period, implementation of the decision may occur on, but not before, 5 business days from the close of the appeal filing period. When appeals are filed, implementation may occur on, but not before, the 15th business day following the date of the last appeal disposition.

Responsible Official

/s/ Michele H. Jones *August 7, 2008*
MICHELE H. JONES Date
District Ranger
Consauga Ranger District

Appendix A – Armuchee Ridges Decision Notice & FONSI
Alternative 2-Modified

The following series of tables displays the activities that will be implemented for the Armuchee Ridges project. An estimated 23 miles of temporary road will be constructed in the implementation of this project. A Map of Alternative 2 can be found in the EA. Stands 922035, 943004, and 925007 are not included in this decision as compared to Alternative 2. The monitoring plan for this project has also been attached.

Table 1: Mountain Longleaf and Shortleaf Pine Restoration Summary

Compartment	Stand	Acres	Treatment	Additional Activities		Compartment	Stand	Acres	Treatment	Additional Activities
922	27	37	R (LL)	GB, P, DB		933	12	36	R (LL)	GB, P, DB
923	14	43	R (LL)	GB, P, DB		935	18	142	R (LL)	GB, P, DB
924	18	16	R (LL)	GB, P, DB		935	35	11	R (LL)	GB, P, DB
924	19	21	R (LL)	GB, P, DB		946	5	39	R (LL)	GB, P, DB
924	43	18	R (LL)	GB, P, DB		946	7	18	R (LL)	GB, P, DB
932	11	57	R (LL)	GB, P, DB		946	8	42	R (LL)	GB, P, DB
933	1	60	R (LL)	GB, P, DB		946	17	19	R (LL)	GB, P, DB
933	7	80	R (LL)	GB, P, DB		946	29	30	R (SL)	GB, P, MR, DB
Total Shortleaf/Longleaf Restoration				669 Acres						

R = Regeneration Harvest, GB = Growing Season Burn, P = Plant, DB = Dormant Season Burn, MR = Mechanical Release, (LL) = Longleaf Restoration, (SL) = Shortleaf Restoration

Table 2: Oak and Oak/Pine Restoration or Maintenance

Compartment	Stand	Acres	Proposed Treatment	Additional Activities		Compartment	Stand	Acres	Proposed Treatment	Additional Activities
916	16	14	CT (M)	DB		918	56	180	R (R)*	NR**
917	32	12	CT (M)	DB						
917	22	13	PCT (M)	DB		927	28	42	R (R)*	DB, NR
939	9	33	CT (M)	DB		927	4	10	PCT (R)	DB, NR
939	39	44	CT (M)	DB		935	7	25	R (R)*	DB,NR
952	21	28	PCT (M)	DB						
952	25	12	PCT (M)	DB		943	27	32	PCT (R)	DB, NR
917	8	8	R (R)*	DB, NR						
Total Oak/O-Pine Restoration and Maintenance				453 Acres						

* These stands are targeted for regeneration harvest because the intent is to regenerate oak, but they will have the appearance of a commercial thinning.
** This stand fall within an existing prescribed burning unit. Burning is not identified as an activity, but natural hardwood regeneration is expected.
R = Regeneration Harvest, PCT = Pre-Commercial Thinning, CT = Commercial Thinning, DB = Dormant Season Burn, NR = Natural Regeneration
(M) = Maintenance, (R) = Restoration

Table 3: Pine Thinning

Compartment	Stand	Acres	Treatment	Additional Activities
915	2	76	CT	PRCT
	7	60	CT	PRCT
	10	13	CT	PRCT
	11	109	CT	PRCT
	16	13	CT	
	24	17	CT	PRCT
916	4	217	CT	PRCT
	6	65	CT	PRCT
	13	50	CT	PRCT
	20	34	CT	PRCT
	21	23	CT	PRCT
	22	79	CT	PRCT
	23	24	CT	
	29	102	CT	PRCT
	35	73	CT	PRCT
	36	89	CT	PRCT
	38	47	CT	PRCT
917	1	30	CT	
	3	14	CT	PRCT
	10	13	CT	
	11	23	CT	
	13	15	CT	
	14	14	CT	
	17	9	CT	PRCT
	34	7	CT	PRCT
	12	14	PCT	PRCT
	19	6	PCT	
	21	10	PCT	PRCT
918	15	99	CT	PRCT
	34	21	CT	PRCT
	35	59	CT	PRCT
918	37	8	CT	PRCT
922	29	32	PCT	
923	16	22	CT	
	17	37	CT	PRCT
924	12	137	CT	
	13	20	CT	PRCT
	14	21	CT	
	22	44	CT	
	36	7	CT	PRCT
	39	247	CT	PRCT
925	1	165	CT	PRCT
	3	98	CT	
	11	36	CT	PRCT
	12	87	CT	PRCT
	15	46	CT	PRCT
	16	37	CT	
	14	50	CT	
	22	42	CT	PRCT
	28	29	CT	
	31	149	CT	PRCT
	35	183	CT	PRCT
	44	10	CT	PRCT
927	3	171	CT	PRCT
	7	19	CT	
	9	16	CT	PRCT
	10	83	CT	PRCT
	11	19	CT	
	14	26	CT	PRCT
	17	44	CT	PRCT
	36	14	CT	PRCT
	37	45	CT	PRCT

Table 3: Pine Thinning (Continued)

Compartment	Stand	Acres	Treatment	Additional Activities
928	2	65	CT	PRCT
	6	30	CT	
	21	49	CT	
	26	36	CT	
	32	46	CT	
	38	12	CT	
	41	41	CT	
	44	33	PCT	
	43	13	CT	PRCT
929	7	32	CT	PRCT
	8	11	CT	
	11	17	CT	PRCT
	12	99	CT	PRCT
931	1	56	CT	PRCT
	3	21	CT	
	4	40	CT	
	5	33	CT	
	8	65	CT	PRCT
	9	18	CT	PRCT
	10	48	CT	
	11	51	CT	
	12	6	CT	
	15	75	CT	
	17	43	CT	
	18	20	CT	
	19	21	CT	
	21	19	CT	
	22	8	CT	

Compartment	Stand	Acres	Treatment	Additional Activities
931	24	39	CT	
	25	14	CT	
	26	18	CT	
	28	7	CT	
	32	32	CT	
	34	17	CT	
	35	30	CT	
	39	52	CT	
	42	101	CT	
	44	20	CT	
932	4	80	CT	
	7	8	CT	
	17	13	CT	
	18	72	CT	
	12	37	PCT	
933	21	70	CT	PRCT
	31	13	CT	
	49	34	CT	PRCT
	50	9	CT	
	54	27	CT	
	10	35	PCT	
	19	35	PCT	
	23	48	PCT	PRCT
	47	24	PCT	
	52	23	PCT	
	53	30	PCT	
939	38	30	CT	
940	4	41	CT	
	7	27	CT	

Table 3: Pine Thinning (Continued)

Compartment	Stand	Acres	Proposed Treatment	Additional Activities	Compartment	Stand	Acres	Proposed Treatment	Additional Activities
940	9	38	CT		946	30	31	CT	PRCT
	17	28	CT			40	62	CT	PRCT
943	8	19	CT			42	17	PCT	
	23	30	CT		952	7	11	CT	
	31	5	CT			9	35	CT	
946	16	42	CT			11	53	CT	
	27	41	CT		916	3	12	CT	PRCT
Total Pine Thinning				**5,787 Acres**					

CT = Commercial Thinning, PCT = Pre-Commercial Thinning, PRCT = Potential Riparian Corridor Treatment

Table 4: Summary of Treatments

Treatment	Total
Shortleaf/Longleaf Restoration	669 Acres
Oak/O-Pine Restoration and Maintenance	453 Acres
Pine Thinning	5,787 Acres
Total	6,909 Acres

Implementation of Alternative 2-Modified will result in the offering of several timber sales which will be accomplished over the period of an estimated 5-10 years. Table 5 provides an approximate schedule for offering in "Sale Areas". These "Sale Areas" will be broken into several separate timber sales.

Table 5: Estimated Timber Sale Schedule

Year	Sale Area	Acres	Compartments
2008	Dry Slough	1105	922, 931, 932
2009	North Pocket	984	917, 927-929, 939
2010	Taylor Ridge	1128	932, 933, 935, 946
2011	Furnace Valley	622	915-917
2012	East Armuchee Creek	669	925
2013	East Strawberry Mountain	1263	918, 923-925
2014	Furnace Creek	562	916
2015	Hidden Creek	576	928, 940, 943, 952

The items displayed below provide an overview of important aspects of the project that will be implemented to address soils and water resources, riparian corridors, heritage resources, non-native invasive species, vegetation management, and visual quality. In addition to the items listed below, the decision will be implemented in accordance with Georgia Best Management Practices, Forest Service Timber Sale Contracts (2400-6T, 2400-3T, 2400-13T), and Forest Plan Standards.

Table 6: Design Features and Mitigation Measures

Resource	Design Feature/Mitigation Measure
Soil and Water	Temporary roads will be constructed on previous exiting routes (old woods roads or skid trails) where possible to minimize the need for new temporary road construction.
	Temporary roads will follow the general contour as practical and will generally not exceed sustained grades over 10%.
	The travel way of temporary roads will generally not exceed 12-14 feet except at turnouts and landings.
	Drainage structures, such as outsloping and waterbars, will be installed along temporary roads when the use of the road is no longer needed.
	Once the temporary roads are not longer needed, they will be closed to normal vehicle traffic and so that illegal ATV use is discouraged. The closures may include such things as the installation of an earthen barrier, re-contouring, placement of logging debris along the road surface, or placement of boulders.
	Skid trails will be closed at their junction with landing sites by placing slash on the skid trail in order to discourage illegal ATV use.

Resource	Design Feature/Mitigation Measure
Soil and Water	Log landings and skid trail locations will be evaluated and approved by the Forest Service prior to harvesting in order to ensure that they are placed in locations with adequate drainage and away from sensitive soils or riparian areas.
	Skidding and decking will be limited to designated and approved routes along ridges and gentle slopes to protect sensitive soils. Skidding will not be allowed on sustained slopes over 35%.
	Operation of ground-based equipment will only be allowed when soils are dry. Soil moisture will be assessed during harvest operations to determine periods when equipment should be halted to minimize compaction and rutting.
	Skid trails, log landings, temporary roads, or other areas of exposed soil, will be seeded and fertilized as soon as practical after harvest activities have been completed in to restore vegetative cover and reduce the potential for erosion.
	Water bars will be installed on skid trails and temporary roads at the completion of the project to minimize the potential for erosion.
	Compacted soils on skid trails, temporary roads, and log landings will be ripped or tilled in areas of detrimental soil compaction to maintain soil quality standards and increase water infiltration.
	Sensitive soils discovered during timber sale layout will be protected by restricting access or activities in these areas.
Riparian Areas	Skidding will not occur within riparian corridors, except for at designated crossings.
	No heavy equipment, other then mechanical fellers, will be allowed to operate within the riparian corridors (MP 11) during harvest activities. The exception to this will be at designated crossings.
	Harvest activities in riparian corridors will take place under dry soil conditions.
Heritage Resources	Heritage resource protection will be implemented through phased compliance. Heritage resource surveys will be conducted for the annual program of work as this project progresses through the next 5-10 years. This phased compliance is documented in a Programmatic Agreement signed by the State Historic Preservation Office, the Eastern Band of Cherokee Indians, and the Forest Service.
	Heritage resources subject to direct or indirect effects resulting from the activities associated with this project will be avoided and protected from project effects as needed.
	Heritage resource sites will have a minimum protective buffer of 50 feet as needed. The buffer will be marked on the ground and excluded from project activities.
Non-native Invasive Species (NNIS)	Equipment cleaning will be required in order to minimize the spread of NNIS and to minimize the potential to introduce new NNIS to the area.
	Skidding through known populations of NNIS should be avoided, where possible, to reduce the potential for spread.
	Many of the known populations of NNIS in the project area are within riparian corridors. Skidding in riparian corridors is prohibited, except for at designated crossings, to minimize the potential for spread.
	A rare plant population exists within one stand identified for pine thinning, which also contains known populations of NNIS. The rare plant population will be protected from NNIS infestation through excluding this area from harvesting. This will be accomplished with the use of a buffer where equipment and harvesting will be prohibited.
Vegetation Management	Even-aged regeneration harvests will be limited to 40 acres in size.
Visual Quality	Measures which will be applied to protect the visual quality of the Armuchee Ridges area are described in Appendix 5 of the EA.

Monitoring for Armuchee Ridges Thinning & Restoration Project (Alternative 2- Modified)

Resource Assessed	Monitoring Question/Objective	Frequency	Field Method/Data Collection	Documentation Format	Primary Responsibility
Soil Productivity & Water Quality	Are Best Management Practices (BMPs) being implemented through timber sale contract provisions, and according to Forest Plan standards?	During operational periods (timber sales, site prep, road construction and maintenance)	Evaluate implementation of Best Management Practices, timber sale contract provisions. All timber sale units are evaluated for implementation.	Field inspection forms, filed in Timber Sale Contracts, reviewed by FSR	District Timber Sale Administrator, Harvest Inspector, Forest Service Representative (FSR)
Soil Productivity & Water Quality	Are the Best Management Practices and applicable Forest Plan standards effective in meeting soil productivity and water quality standards?	During operational periods and within 6 months to 1 year after operations end.	Field evaluation of the effectiveness of BMPs to meet Forest Plan standards. Random sample of harvest units using line transects & point samples	Field inspection forms, filed in S.O.	Interdisciplinary Team (Forest personnel in hydrology, soils, timber)
Best Management Practices Implementation – Audit by GFC	Were Best Management Practices implemented per Georgia's Forestry BMP Handbook and effective in protecting water quality?	During operational periods and within 6 months to 1 year after operations end.	Field evaluation of randomly selected harvest units and prescribed burns by Georgia Forestry Commission water quality personnel.	Completion of GFC Best Management Practice Audit Form, filed in state database	Georgia Forestry Commission Water Quality personnel
Revegetation of Disturbed Areas	Were the prescribed revegetation efforts on disturbed sites such as skid trails, landings, skid trails, and firelines implemented and effective in establishing ground cover and erosion protection?	Within one growing season of revegetation operations.	Field visual evaluation of disturbed areas that have been revegetated to assess that have been seeded and rehabilitated to ensure revegetation is successful.	Field visual inspection of random sample of revegetated areas.	Timber Sale Administrator, Wildlife Biologist

Resource Assessed	Monitoring Question/Objective	Frequency	Field Method/Data Collection	Documentation Format	Primary Responsibility
Non-Native Invasive Plants	Are NNIS populations present within harvest units?	During timber sale layout, prior to harvest	Field inventory and mapping of NNIS populations during the timber sale layout process.	Inventoried populations will be mapped using GPS and filed at the District	District Silviculturist, District Wildlife Biologist
Non-Native Invasive Plants	Are timber sale contract provisions to limit the spread of NNIS plants effective?	1-2 field seasons after harvest activities have been completed	Field inspections to identify establishment or spread of NNIS	Inspection report of findings	District Silviculturist, District Wildlife Biologist
Threatened and Endangered Plants	Are timber sale contract provisions being implemented to protect the *Stachys nuttallii* population during activities?	During timber sale layout, prior to harvest	Field inspection to ensure area is flagged to keep equipment off plants and to preserve the light regime in the population.	Inspection report of findings	District Wildlife Biologist
Timber	Are timber harvest activities adhering to applicable Forest Plan standards?	Throughout the life of the timber sale contract	Field inspections through all phases of harvesting to ensure contract provisions are being met and implemented in compliance with the Forest Plan.	Timber Sale inspection reports	Harvest Inspector, Timber Sale Administrator, Forest Service Rep
Timber	Are harvested stands regenerated and restocked within five years of harvest?	One and three years after planting trees, and at 5 years or later after site prep has been completed with natural regen	Field evaluation of representative sample plots and/or field inspection will be used to determine stocking, composition and condition of regeneration.	Report documented in District FACTS database	District Silviculturist

Resource Assessed	Monitoring Question/Objective	Frequency	Field Method/Data Collection	Documentation Format	Primary Responsibility
Fire and Fuels	Are conditions prior to a prescribed burn "in prescription" to meet parameters identified in burn plan?	4-48 hours prior to ignition	Fuel moisture conditions will be assessed using fuel moisture sticks and field inspection of site. Weather conditions and other consideration identified in the burn plan will be reviewed and documented prior to ignition to ensure burn is within prescription.	Prescribed Burn Plan	District Fire Management Officer, District Ranger
Fire and Fuels	Did the prescribed burn accomplish prescribed changes in fuels?	Pre-burn in and post burn during periods of leaf-on	Establishment of fire monitoring plots using FSM 5140 protocols.	Prescribed Burn Plan	District Fire Management Officer
Ground Cover Vegetation	Did prescribed fire result in desired changes in ground cover s (grasses, forbs, etc)?	Pre-burn in and post burn during periods of leaf-on	Establishment of fire monitoring plots using FSM 5140 standard procedures. These plots will not only measure changes in fuels, but will also gather information on the changes to ground cover.	Prescribed Burn Plan	District Fire Management Officer, District Wildlife Biologist
Heritage	Are Forest Plan standards effective in protecting cultural and heritage resources?	During and immediately after harvest activities	Field inspections of sites to ensure the protection or avoidance of heritage resources.	Inspection report of findings	Timber Sale Administrator, Archeologist, District Ranger