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Environmental Assessment

Munson Sandhill II Analysis Area

Wakulla Ranger District, Apalachicola National Forest
Leon County, Florida

R2W T1S

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Table of Contents

Summary	2
Introduction	3
Background	3
Purpose and Need for Action	5
Proposed Action	8
Decision Framework	9
Public Involvement	9
Issues	9
Alternatives	10
Coordination Measures	19
Comparison of Alternatives	21
Environmental Consequences	24
Physical Environment	24
Soil	24
Water Quality	27
Air Quality	31
Climate change.....	32
Biological Environment	33
Vegetation	44
Overstory and Midstory.....	44
Groundcover	49
Old Growth.....	50
Non-Native Invasive Species	50
Social Economic Environment	53
Public Health and Safety	53
Cultural Resources	54
Economics	55
Infrastructure	57
Visual Quality	60
Recreation	61
Environmental Justice and Civil Rights Impact Analysis	63
References	63
Consultation and Coordination	65
Appendix A Scoping Comments	66

SUMMARY

The Forest Service proposes to treat approximately 2,250 acres of forestland in the Munson Sandhill II Analysis Area. The proposed actions would include treatments such as clearcut of off-site slash pine, thinning, applying herbicide, groundcover restoration, planting longleaf pine, reducing hardwoods, or converting scrub oak stands to longleaf, relocating and decommissioning motorcycle trails, along with some connected actions like landline maintenance, road reconstruction and maintenance. These actions are needed to maintain a healthy forest and improve ecosystem functioning with a secondary goal to increase future habitat for threatened, endangered, and sensitive species (PETS).

The Munson Sandhill II Analysis Area is located in Compartments 201, 202, 218, and 226 on the Wakulla Ranger District of the Apalachicola National Forest. It is located in Sections 6, 7, 18, 19, 30 and 31 of Township 1 South Range 1 West; and Sections 1, 2, 11, 12, 13, 14, 23, 24, 25, 26 and 36 of Township 2 South Range 2 West, Leon County, Florida.

The proposed activities would include the clearcut off-site slash pine and replacing it with indigenous longleaf pine. First and intermediate thinning of slash and longleaf pine stands to give them more room to grow. The mechanical reduction or removal of hardwood trees or brush which shade-out beneficial herbaceous groundcover. Stabilize areas of soil erosion to maintain soil productivity. Restore native groundcover to increase the amount of fine fuel on the forest floor aiding the system's ability to prescribe burn. Apply herbicides to prepare sites for tree planting, groundcover restoration or pine release. Reforest under-stocked oak strips with longleaf pine. Designate areas for the public to gather and remove firewood. Reroute or decommission looping or unnecessary motorcycle trails to reduce trail density. Connected actions necessary to implement the proposed actions would include landline maintenance, road construction, reconstruction or maintenance. Refer to chapter 2 of this document for a detailed list of proposed actions.

In addition to the Proposed Action this environmental assessment evaluated the following alternatives:

- Alternative A – No Action
- Alternative C – No Herbicide, which utilizes prescribe fire instead of herbicides for site preparation, groundcover restoration, pine release, or hardwood control.

Based upon the effects of the alternatives, the responsible official will decide whether or not to improve forest health and future habitat for PETS species as described in the Proposed Action and whether to control hardwoods with herbicides or another method such as prescribed fire.

The implementation of this project would sustain forest health, improve future threatened, endangered, sensitive (PETS) species habitat, increase the average diameter of trees, reduce hardwood component, and encourage a grassy herbaceous understory. These conditions would

also increase the prescribed burn frequency and provide for future Red-cockaded Woodpeckers (RCWs) habitat.

INTRODUCTION

The Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives.

This EA is tiered to the Final Environmental Impact Statement and Record of Decision for the Land and Resource Management Plan (Forest Plan) for the National Forests in Florida (USDA 1999). This document is available for review at the District Office or online at the following address:

Forest Plan <http://www.fs.usda.gov/detail/florida/landmanagement/?cid=STELPRDB5269793>

Ongoing treatments likely to occur within and around the analysis area include prescribed burning and treating non-native invasive species. The effects of the activities have been documented in their own forest-wide environmental assessments. These documents are available for review at the District Office.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Wakulla Ranger District Office in Crawfordville, Florida.

Background

The Munson Sandhill II Analysis Area was entered on the 5-Year Vegetation Management Plan for the Apalachicola National Forest because it contains many stands that are candidates for longleaf conversion, thinning, hardwood control, soil stabilization and groundcover restoration. These are the typical silvicultural treatments prescribed to move forested stands toward the future desired condition for Forest/Urban Interface (9.2) Management Area (MA).

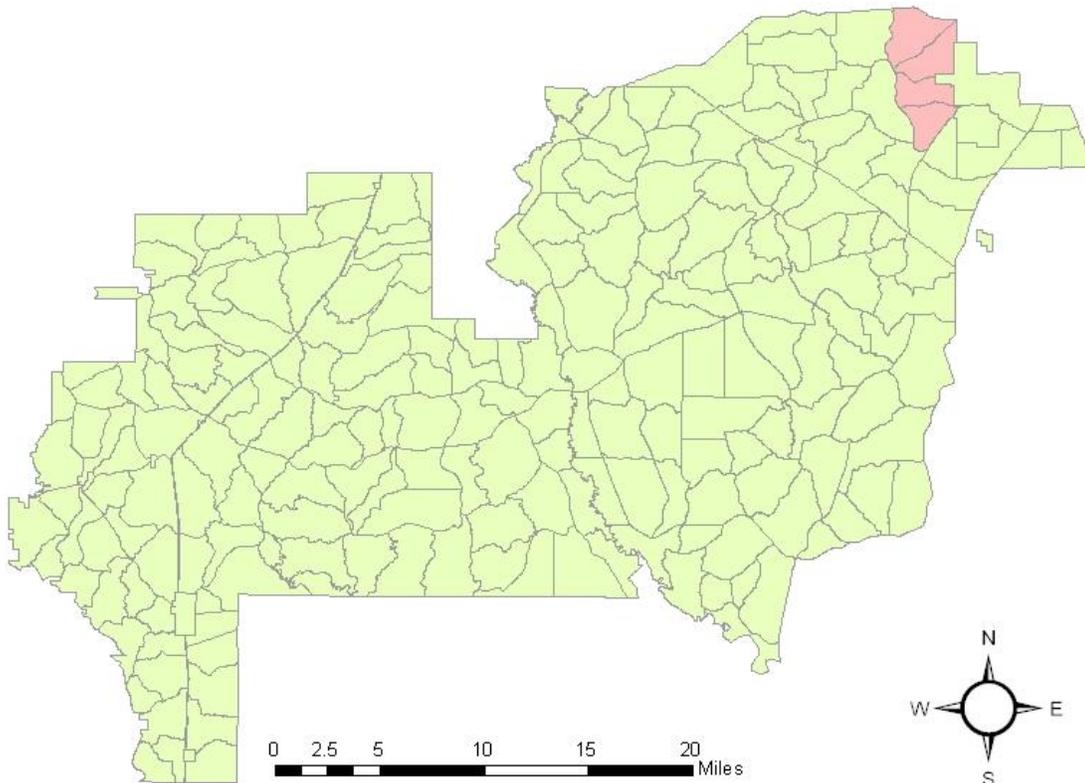
Munson Sandhill II Analysis Area

Apalachicola National Forest

Compartment 201, 202, 218, & 226



-  Munson Sandhill II Analysis Area
-  Apalachicola National Forest Compartments



Purpose and Need for Action

The primary purpose of this proposal is to maintain a healthy forest and improve ecosystem functioning by: removing off-site species and replacing them with indigenous longleaf pine; thinning pine plantations and mature pine stands to increase growth rates while removing diseased trees; reducing and controlling overabundant hardwood trees and brush to restore native herbaceous groundcover; releasing young longleaf plantations from hardwoods trees and brush, and also stabilizing soil erosion to maintain soil productivity. Secondary benefits would improve future habitat for proposed, endangered, threatened, and sensitive (PETS) species, such as the gopher tortoise, Indigo snake and the Red-cockaded woodpecker (RCW) through vegetation management.

Existing Condition

The Munson Sandhill II Analysis Area contains approximately 7,394 acres and is located entirely within the Forest/Urban Interface Management Area (MA 9.2). A description of the management objectives and resource conditions in this MA is found in the Forest Plan (USDA 1999, p. 4.51-4.54).

The analysis area contains a mosaic of plant communities, dependent mostly on moisture conditions and the history of fire on the landscape. Drier upland sites have slash pine plantations that have stagnated or native longleaf pine stands, which are growing well. These stands often have an overly dense layer of hardwood shrubs, and sparse groundcover consisting of wiregrass and flowering plants. Patches of medium to large oaks may occur on the drier sites where historically patchy fire resulted in refuges of fire-intolerant hardwood trees. On wetter flatwoods sites longleaf pine is joined by slash, loblolly, and pond pines which are less tolerant of frequent fire than the upland, drier portions. In these areas understory vegetation is ideally dominated by native grasses and a wide assortment of flowering plants, though there is often overly dense patches of palmetto and gallberry present in the area. The palmetto /gallberry understory restricts longleaf regeneration and alters the historically low-intensity, rapid moving ground fires provided by the herbaceous component. This type fire is essential to the long term maintenance of healthy longleaf pine forest systems. Along drainages and in basins black gum, cypress, red maple, titi and wax myrtle are all occurring in the system with limited understory although some herbaceous species do occur in cypress flats. As fine fuels become sparser, prescribed fire travels across fewer acres and hardwood species expand out from basins and drainages, occupying more space.

Within the compartments analyzed, there are approximately 1,167 acres of off-site slash pine plantations, 1,226 acres of scrub oak dominated stands, 4,136 acres of immature and mature longleaf stands, and 851 acres of lowland or hardwood stringers along watercourses.

These existing conditions are primarily the result of management activities over the last 80 years. Past management included establishment of longleaf and slash pine plantations, maintenance of scrub oak areas for mast production, prescribed burning and wildfire control.

The off-site slash plantations are in poor condition and not growing well as evidenced by their small crowns and stagnated diameter growth. They were established at densities which should

require periodic thinning to maintain growth rates and promote merchantable wood products. But, after a decade or two, it was determined that the wrong species was planted. Slash pine trees are better suited for moist or wet ground. Slash pine does not grow well on dry sandhill sites and are considered “off-site” and should be replaced with more drought resistant longleaf pine. The proposed action would remove the off-site slash pine and replace them with longleaf pine. The groundcover in these off-site stands has some remnant native herbaceous species, but in most cases they are sparse and patchy with little connectivity.

Adjacent to or within the vicinity of the off-site slash stands, past management activities established many acres of scrub oak stand for mast production. These scrub oak stands are aligned in North-South linear strips readily visible from and airplane and even visible from the ground. Some of the oak strips contain moderate to good populations of herbaceous plants like wiregrass. In other areas the oaks are so dense they have shaded out the native grasses leaving a bare oak leaf forest floor. Most of these scrub oak stands do not have a pine overstory and are considered to be under-stocked forest land which needs to be reforested. Many of these stands were designated and in the previous forest plan (Management Area 6) to produce hard mast as a food source for wildlife. Research has now shown that the groundcover plants like dwarf live oak and runner oak produce mast also. Therefore, there is no longer a need to especially designate areas for hard mast production because these groundcover oaks are well distributed across the forest.

The proximity of the analysis area to the City of Tallahassee and its airport make regular prescribed burning a challenge. Without prescribed burning the natural succession of the southern pine forest would be toward a hardwood forest. Fire is a natural ecological process that maintains the southern pine forest in what is called a fire climax state. Without fire the herbaceous groundcover vegetation is slowly shaded out and replaced by hardwood trees and brush.

Then in other parts of the analysis area, there are approximately 4,136 acres of longleaf and loblolly pine stands, ranging from 65 to 85 basal area (BA), some of which need thinning to maintain growth.

The lowlands or hardwood stringers along the watercourses are in good shape and generally do not need any treatment.

The transportation system of the area includes approximately 45 miles of designated system roads, 33 miles of designated motorcycle trails, 1.4 miles of system roads that are closed to the public, and 26 miles of non-system routes, which are also closed to the public. There is evidence of numerous miles of off-highway vehicle (OHV) trails that meander through the analysis area. While recreation and forest management travel are encouraged, unauthorized and impromptu road and trail development has resulted in soil erosion in this hilly, sandy ecosystem.

Other general indicators of forest health conditions include the diversity and amount of sensitive animal species. The most recent survey indicates there are no active red-cockaded woodpecker (RCW) colonies within the analysis area. The gopher tortoise and striped newt are

present, but there is no recorded siting of the indigo snake. These four animals have a high dependence on habitat qualities, such as tree age diversity, typical of natural sandhill ecosystems, and the absence or presence of the species is an indicator of overall forest health.

Desired Condition and Purpose of the Proposed Action

The objective of these management actions is to redirect the longleaf forest system in the analysis area toward a future condition with a forest structure and self-sustaining functioning system resembling a historic north Florida sandhill community. During the next two decades, with the proposed management actions and re-introduction of fire at historic frequencies (every 2-3 years), young even-aged longleaf stands will replace off-site slash pine and the scrub oak stands. The mature portions of the longleaf pine forest will be characterized by open, park-like patches ranging between $\frac{1}{4}$ and 2 acres with longleaf pine seedlings and saplings intermixed with a diverse grassy understory and a sparse hardwood midstory. When new pine saplings begin to grow these areas will begin to have an uneven-aged structure as described in the Forest Plan. While restoring the balance of understory, midstory and canopy in drier, upland sites has been demonstrated to be effective and long lasting, the wetter areas dominated by woody brush species can be more resistant to change, since wetter sites have abundant soil and water resources available for re-sprouting after control measures. Although the two-age structure will continue to be dominant, variation in growth rates of the slash pine will ultimately create a stand that appears uneven-aged.

The different plant communities co-existing within the area are not separated by sharp boundaries, but change from one type to another gradually in response to fluctuations in water level and fire history. Occasionally fires may also enter wetlands and the plant species typically found in these low lying areas are dependent on the occasional removal of dead plant material and reduction of fire intolerant shrubs and trees provided by the regular disturbance. Vegetation patterns like this are primarily the result of fire (including prescribed fire), as well as hydrology, and management such as timber harvesting. The pine canopy will be open and park like. A natural component of the ecosystem stumps and downed trees will continue to be scattered throughout the forest. Dead woody material is a result of natural tree thinning from ground fires and will provide numerous habitat values such as nesting and foraging sites for wildlife. Natural pine regeneration will occur in a variety of patch sizes smaller than 2 acres while forestry created patches may be found up to 80 acres. The oldest, largest pine trees are flat topped, and may exceed 200 years in age. There are snags, downed trees, and lightning-struck trees. Much of the area would have old-growth conditions at any one time.

The proposed management actions will redirect the sandhill habitat of the analysis area back to historic conditions, resulting in improved habitat for rare wildlife species that prefer mature longleaf pine-wiregrass forests, such as the red-cockaded woodpecker (RCWs), gopher tortoise, and the indigo snake. Gopher tortoises are especially important in the sandhills of the area since numerous other species share the deep burrows the tortoises excavate. Other wildlife species (mammals) will continue to include black bear, bobcat, gray fox, raccoon, and white-tailed deer, all of which play an important role in the sandhill animal community. Common sandhill reptiles will include black racers, fence lizards, narrow mouth toads, oak toads, and red rat snakes. Additionally, basin wetlands will attract species that like water such

as a variety of newts and frogs, other snakes and birds. This mosaic of wet and dry sites will make the area a suitable home for a vast number of animals, all contributing to the overall health of the forest and surrounding community

The Munson Sandhill II Analysis Area will offer many examples of services forests provide to nearby urban communities. The soil, water, and air quality will continue to be excellent, which serve to improve drinking water and air quality throughout the larger Leon and Wakulla County region. While there may be smoke from prescribed fire, the on-going fuel management and transition from a woody dominated understory to a grass and flower dominated understory will greatly reduce smoke and wildfire hazards in the area. Wetlands in the area will continue to provide habitat diversity and water purification services. Heritage resource sites may be dispersed throughout the area, offering a clear glimpse into the region's natural resource history.

The project area will continue to host numerous recreational opportunities, which will be encouraged through the maintained OHV and mountain bike trails as well as the network of public access forest roads. Implementation of the proposed action will reduce public uses of the project area in violation of MA 9.2 Standard 9.2-1 "Restrict motorized vehicles to open, numbered roads and designated trails, administrative use, and activities under contract or permit" (USDA 1999, p. 4.53). Trails are linked to other management areas, developed sites, and other nearby trails and will carry recreational users from relatively urban, high-use locations to almost complete isolation. Recreational sites in the area, such as swim areas, fishing access, and trailheads will continue to be available, some having signs, interpretive displays, and other developed facilities for the comfort and safety of the user.

Most of the roads in the area will continue to have native surfacing and will be rough and irregular even after the proposed management actions. In low areas, navigable roads will usually have ditches and are above the surrounding grade. Many drainage points that cross roads will continue to have low-water rock crossings making passage easier. However, travel with low-clearance vehicles will be generally difficult, with the irregularity of the road surface and occasional changes in overall road quality. In some circumstances, roads will also have an artificially improved sand-clay surfacing, will be higher than the surrounding grade, and have ditches. In low areas, these may have culverts or bridges. These roads may not be stable during bad weather conditions, but will be generally more navigable than the native surfaced roads discussed previously. However, rutting, roughness, and dust will be present most of the time and a high clearance vehicle will still be recommended. There will be a few higher-quality roads with limerock surfacing or pavement. These are stable and smooth all the time, have little dust or roughness and will be accessible by most vehicles.

Proposed Action

To meet this purpose and need the Forest Service is proposing the following treatments: Clearcut approximately 1,165 acres of off-site slash pine plantations and restore them to a native longleaf pine wiregrass ecosystem. Thin approximately 458 acres of longleaf stands to 50 square foot of basal area to reduce competition between trees, increase radial growth, and tree vigor. Apply the herbicides hexazinone and/or triclopyr to treat hardwood trees and brush

for site preparation, pine release and mid-story control on approximately 1,771 acres. Stands or areas containing excessive hardwood trees would be designated for public firewood gathering areas when situated along major roads with good access. The Forest Service is also proposing to restore native groundcover species on approximately 975 acres in clearcuts, under-stocked scrub oak stands, and erosion control areas by supplementing native grasses. Some sites may be prepared for seeding using mechanical equipment to shear and pile standing trees or logging debris. The piles would be burnt or hauled off to facilitate the seeding operations with a Grasslander® seed drill. The restoration goal would be to facilitate the historical balance of groundcover, midstory, and canopy components of the longleaf forest. Prescribed burn approximately 1,615 acres for site preparation, pine release and mid-story control. Reforest approximately 1,591 acres by planting longleaf pine seedlings. Release approximately 157 acres of pine plantations from competing hardwood trees and brush with the herbicides hexazinone and/or triclopyr. Decommission and rehabilitate approximately 2 miles of motorcycle trail segments (Sections 12B and 14) and reroute approximately 1 mile of motorcycle trail. Stabilize 1-5 acres of active soil erosion along private boundary lines and motorcycle trails. Connected actions necessary to facilitate the proposed action include maintenance of 7.2 miles of landlines, reconstruction of approximately 13.96 miles of system roads, temporary improvement and use of approximately 4.63 miles of non-system which provide access to pine plantations, and the maintenance of approximately 12.51 miles of system roads used to haul timber products from the analysis area.

Decision Framework

Given the purpose and need, the deciding official will review the proposed action and other alternatives in order to make the following decisions:

- Which alternative best meets the purpose and need for the proposal?
- How each alternative addresses the issues developed by the interdisciplinary team and through public involvement?
- Which alternative or combination of alternatives to implement?

Public Involvement

This proposal was listed in the Schedule of Proposed Actions for National Forests in Florida beginning the 2nd Quarter of Fiscal Year 2012. On May 3, 2012 a letter was sent to the public scoping mailing list for the forest requesting comments on the draft proposed action.

On April 29, 2013 a legal notice published in the *Tallahassee Democrat* to initiate the 30-day Notice and Comment Period during which concerned citizens, adjacent landowners, organizations, and other agencies, are invited to provide comments on the draft Environmental Assessment. Comments were received from 4 individuals or agencies.

Issues

The Forest Service evaluated comments received during project scoping and identified issues relevant for this analysis. Non-relevant issues include those which are:

- outside the scope of the proposed action,
- already decided by law, regulation, Forest Plan, or other higher level decision,
- irrelevant to the decision to be made,
- conjectural and not supported by scientific or factual evidence,
- addressed with minor project design modifications of the Proposed Action which when considered alone would not result in a clearly defined alternative to the Proposed Action, or do not include measurable effects for comparison.

Relevant issues were used to develop alternatives, identify mitigation measures to reduce undesired effects or focus the analysis. Scoping comments and the Forest Service Response to the issues they raised may be found in the *Public Involvement* Summary, Appendix A, and in the project record.

The Forest Service identified three relevant issues raised during the public scoping and internal ID Team scoping:

Issue #1- Potential direct, indirect, and cumulative impact from the application of herbicides to the resources of the analysis area.

Issue #2 - Cost of groundcover restoration will exceed revenues generated by the sale of the low value off-site slash pine.

Issue #3 – Some treatment stands have patches of native vegetation which could be impacted by proposed treatments.

ALTERNATIVES

This chapter describes and compares the alternatives considered for the Munson Sandhill II Analysis Area. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Alternative A - No Action

Under the No Action Alternative, on-going activities such as prescribed fire, road maintenance, treatment for non-native noxious and invasive weeds, and recreational maintenance would continue to guide management of the analysis area. None of the activities described in the Proposed Action would occur.

Alternative B - Proposed Action

The Forest Service is proposing to maintain a healthy forest and improve ecosystem functioning with a secondary goal to increase future habitat for threatened, endangered, and sensitive species (PETS). These actions are designed to move the analysis area closer to its future desired condition for Forest/Urban Interface Management Area (9.2). Detailed descriptions of the proposed treatments are as follows:

- Clearcut approximately 1,165 acres of off-site Slash pine plantations and restore them to a native longleaf pine wiregrass ecosystem. Longleaf pine would be cut only for access or operational purposes.
- Thin approximately 458 acres of longleaf stands to 50 square foot of basal area to reduce competition between trees, increase radial growth, and tree vigor. Some of this thinning will be in mature longleaf pine stands equal to or greater than 50 square foot basal area.
- Apply the herbicides hexazinone and/or triclopyr to treat hardwood trees and brush for site preparation, pine release and mid-story control on approximately 1,771 acres.
- Where applicable, stands or areas containing excessive hardwood may be designated for public firewood gathering areas when situated along major roads with good access.
- Restore native groundcover species on approximately 975 acres in clearcuts, under-stocked scrub oak stands, and erosion control areas by supplementing native grasses. The site may be prepared for seeding using mechanical equipment to shear and pile standing trees or logging debris. The piles would be burnt or hauled off to facilitate the seeding operations with a Grasslander® seed drill. The restoration goal would be to facilitate the historical balance of groundcover, midstory, and canopy components of the longleaf forest.
- Prescribed burn approximately 1,615 acres for site preparation, pine release and mid-story control.
- Plant Longleaf pine seedlings on approximately 1,591 acres for reforestation and adequate stocking.
- Release approximately 157 acres of pine plantations from competing hardwood trees and brush with the herbicides hexazinone or triclopyr.
- Decommission and rehabilitate approximately 2 miles of motorcycle trail segments (Sections 12B and 14) and reroute approximately 1 mile of motorcycle trail.
- Stabilize 1-5 acres of active soil erosion along private boundary lines and motorcycle trails.

Connected actions necessary to facilitate the proposed action include maintenance of 7.2 miles of landlines, reconstruction of approximately 13.96 miles of system roads, temporary improvement and use of approximately 4.63 miles of non-system which provide access to pine plantations, and the maintenance of approximately 12.51 miles of system roads used to haul timber products from the analysis area.

If approved, these actions would take place in Compartments 201, 202, 218, and 226 of the Wakulla Ranger District, Apalachicola National Forest in Leon County, Florida within the next 5-10 years.

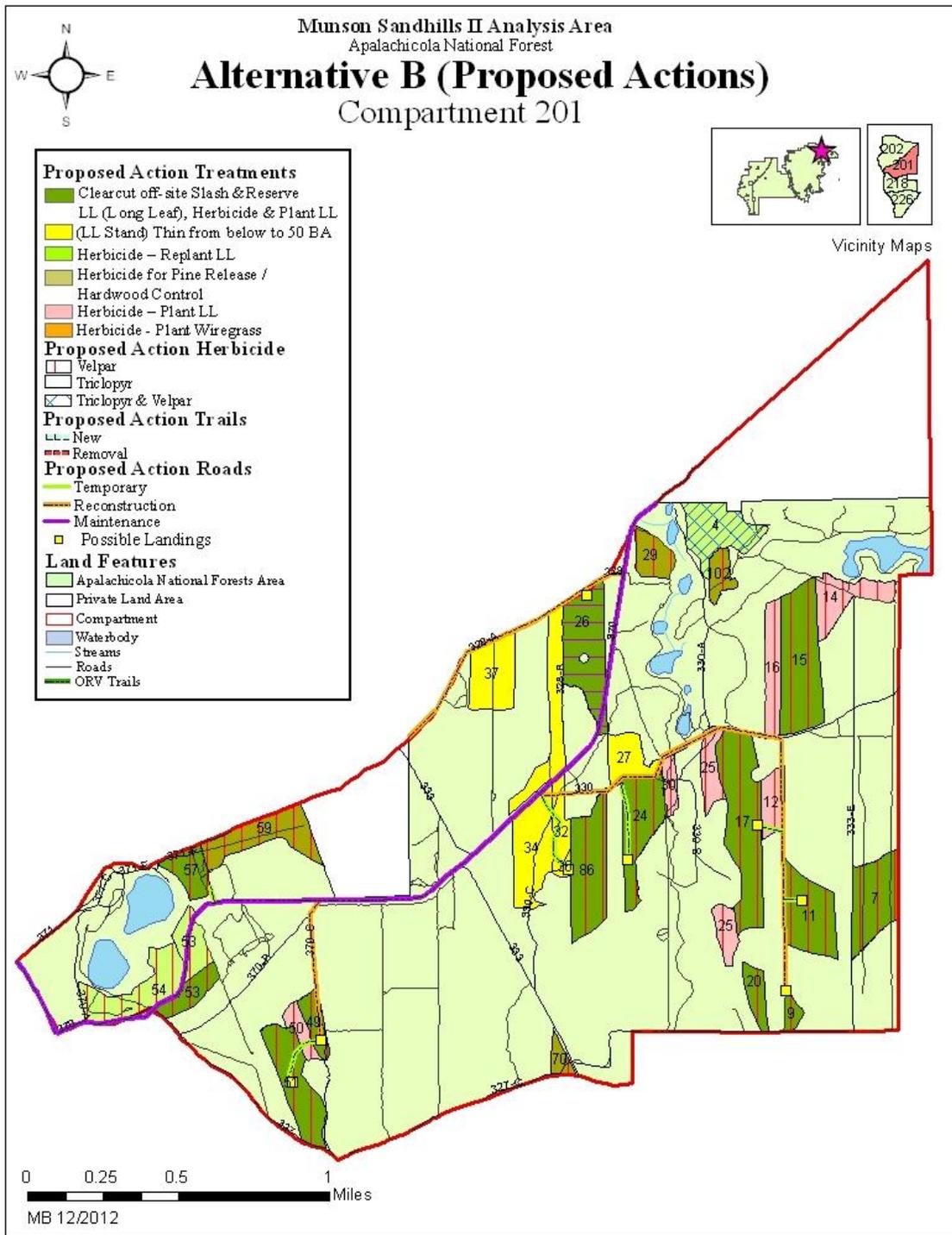
Table 1: Proposed Action, Alternative B – Estimated Treatment Acres by Stand

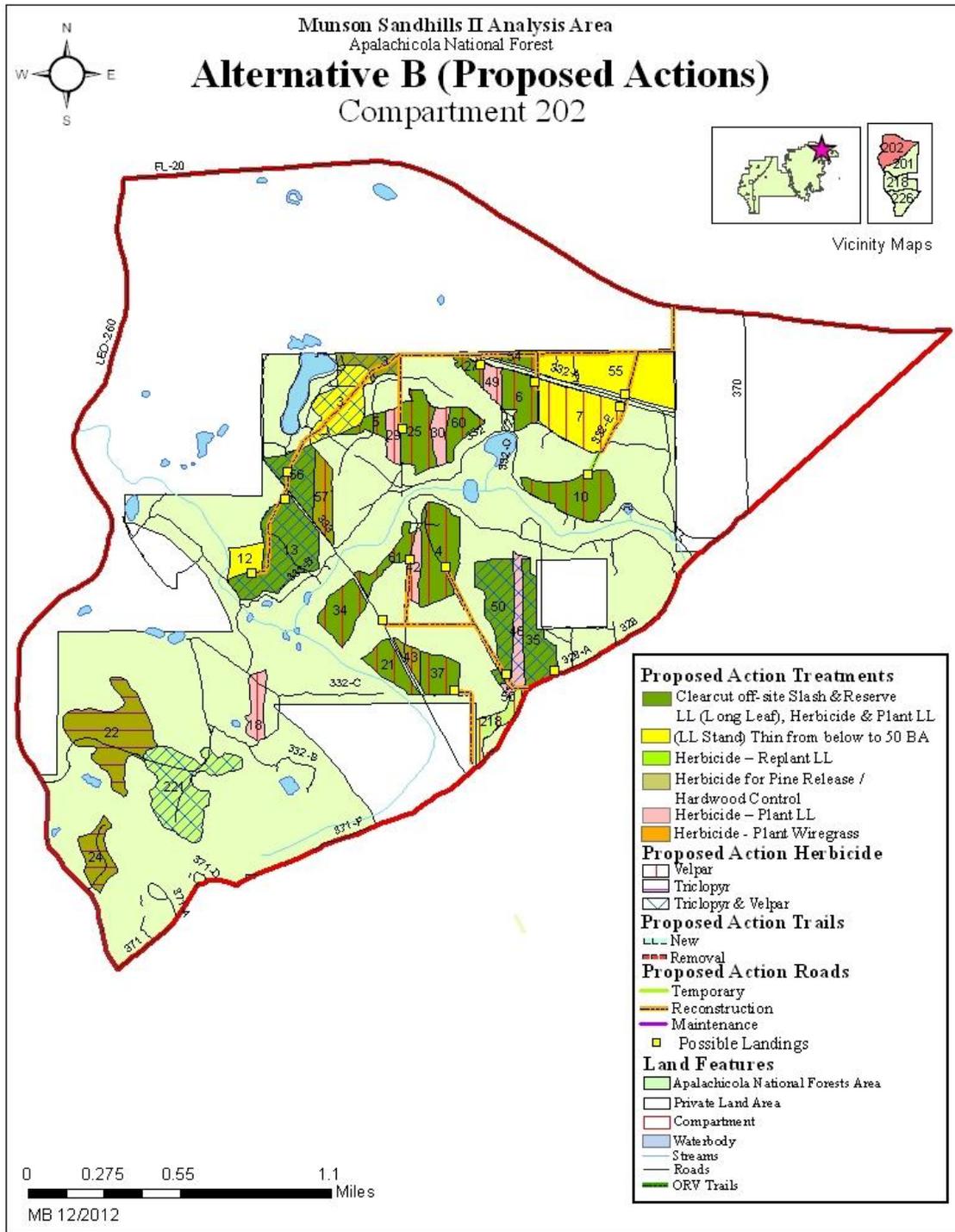
Comp	Stand	Treat AC	Treatment	Reforest Under Stocked Oak Stands	Clearcut	Thin	Triclopyr & Hexazinone Treatments	Triclopyr	Hex	Public Firewood	Mechanical Pile or Remove	Seed Native Grass	Plant Wiregrass Plugs	Plant Longleaf	Pine Release
0201	4	23	REPL						23					23	
0201	7	25	CC		25				25					25	
0201	9	4	CC		4				4					4	
0201	11	26	CC		26				26					26	
0201	12	10	PLT	10					10					10	
0201	14	17	PLT	17					17					17	
0201	15	40	CC		40				40					40	
0201	16	15	PLT	15					15					15	
0201	17	45	CC		45				45					45	
0201	20	7	CC		7				7					7	
0201	24	25	CC		25				25					25	
0201	25	17	PLT	17					17					10	
0201	26	33	CC		33			33		33	33	33		33	
0201	27	13	THN			13									
0201	29	10	REL						10						10
0201	30	5	PLT	5					5		5	5		5	
0201	32	32	THN			32									
0201	34	27	THN			27									
0201	36	2	THN			2									
0201	37	22	THN			22									
0201	49	8	CC		8				8		8	8		8	
0201	50	6	PLT	6					6		6	6		6	
0201	51	26	CC		26				26		26	26		26	
0201	53	9	CC		9				9		9	9		9	
0201	53	11	REPL						11					11	
0201	54	27	REPL						27					27	
0201	57	11	CC		11				11		11	11		11	
0201	59	24	REL						24						24
0201	86	31	CC		31				31					31	
0201	102	7	REL						7						7
0202	3	9	REL						9						9
0202	3	24	THN			24									
0202	4	29	CC		29				29		29	29		29	
0202	5	5	CC		5				5					5	
0202	6	14	CC		14				14		14	14		14	
0202	7	35	THN			35									
0202	10	24	CC		24				24					24	
0202	12	8	THN			8									
0202	13	40	CC		40		40				40	40		40	
0202	18	9	PLT	9					9					9	
0202	21	11	CC		11				11		11	11		11	
0202	22	42	REL					42							42
0202	25	20	CC		20				20					20	
0202	27	5	CC		5				5		5			5	
0202	29	7	PLT	7					7					7	
0202	30	7	PLT	7					7					7	
0202	34	16	CC		16				16		16	16		16	
0202	35	21	CC		21		21			21	21	21		21	
0202	37	12	CC		12			12			12	12		12	
0202	42	7	PLT	7					7		7	7		7	
0202	43	4	REL						4						4
0202	46	13	PLT	13			13						13	13	
0202	49	5	PLT	5					5		5	5		5	
0202	50	26	CC		26		26				26	26		26	
0202	54	6	CC		6				6		6	6		6	

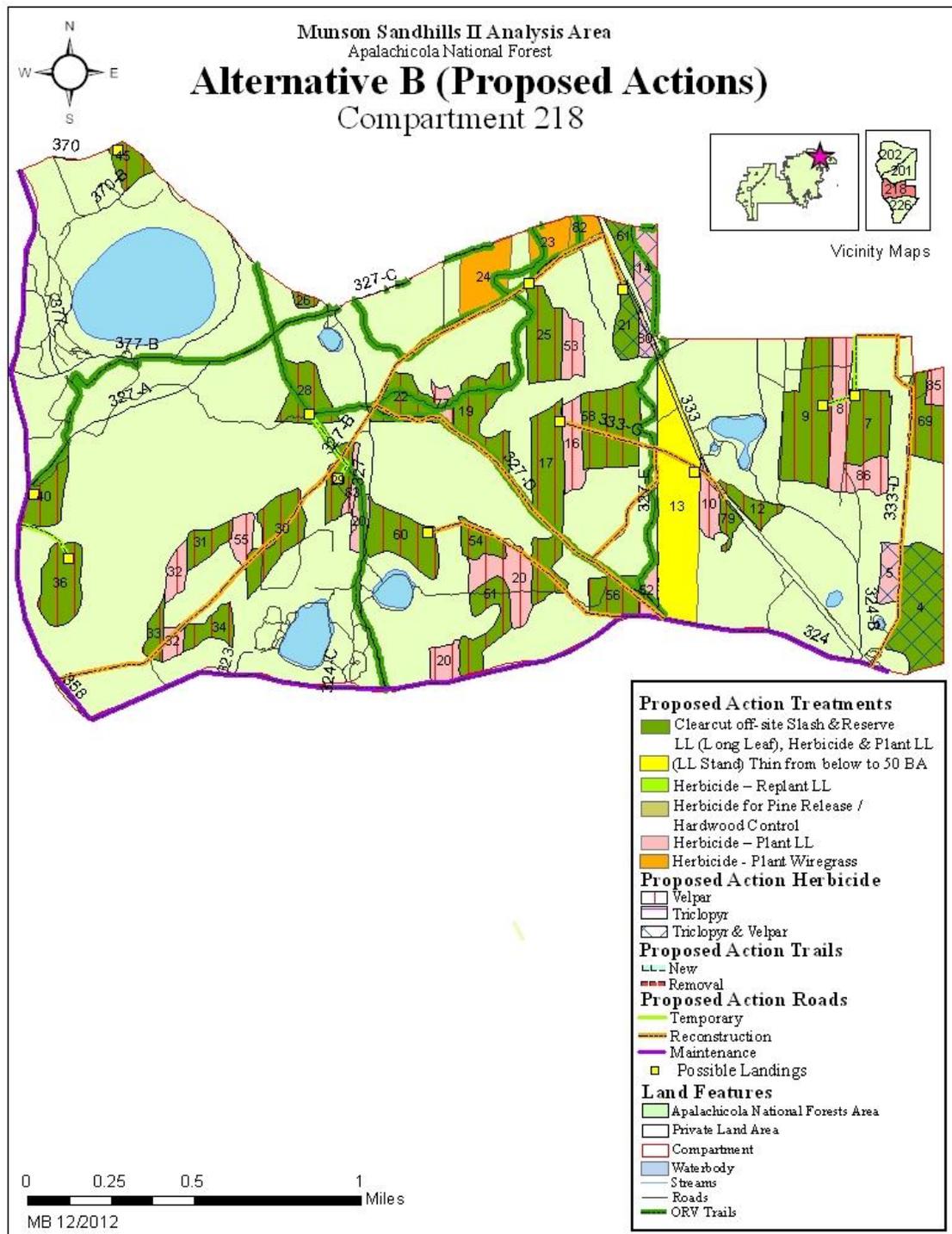
Comp	Stand	Treat AC	Treatment	Reforest Under Stocked Oak Stands	Clearcut	Thin	Triclopyr & Hexazinone Treatments	Triclopyr	Hex	Public Firewood	Mechanical Pile or Remove	Seed Native Grass Grasslander	Plant Wiregrass Plugs	Plant Longleaf	Pine Release
0202	55	48	THN			48									
0202	56	16	CC		16		16				16	16		16	
0202	57	12	REL						12						12
0202	60	9	CC		9				9					9	
0202	61	9	CC		9				9		9	9		9	
0202	218	9	REPL						9					9	
0202	221	41	REPL				41							41	
0218	4	32	CC		32		32				32	32		32	
0218	5	7	PLT	7			7						7	7	
0218	7	17	CC		17				17		17	17		17	
0218	8	15	PLT	15					15		15	15		15	
0218	9	36	CC		36				36		36	36		36	
0218	10	7	PLT	7					7		7	7		7	
0218	12	6	CC		6				6		6	6		6	
0218	13	53	THN			53									
0218	14	12	PLT	12			12							12	
0218	16	10	PLT	10					10		10	10		10	
0218	17	32	CC		32				32		32	32		32	
0218	19	19	CC		19				19		19	19		19	
0218	20	27	PLT	27					27	6	27	27		27	
0218	21	9	CC		9		9							9	
0218	22	13	CC		13				13		13	13		13	
0218	23	10	WIRE						10				10		
0218	24	18	WIRE						18				18		
0218	25	18	CC		18				18					18	
0218	26	2	CC		2				2					2	
0218	28	15	CC		15				15					17	
0218	29	9	CC		9				9		9	9		9	
0218	30	18	CC		18				18		18	18		18	
0218	31	7	CC		7				7		7	7		7	
0218	32	9	PLT	9					9		9	9		9	
0218	33	5	CC		5				5		5	5		5	
0218	34	8	CC		8				8		8	8		8	
0218	36	17	CC		17				17	17				17	
0218	40	13	CC		13				13	13				13	
0218	45	7	CC		7				7		7	7		7	
0218	51	14	CC		14				14	14	14	14		14	
0218	52	5	PLT	5					5	5				5	
0218	53	8	PLT	8					8					8	
0218	54	7	CC		7				7		7	7		7	
0218	55	6	PLT	6					6		6	6		6	
0218	56	11	CC		11				11	11				11	
0218	58	26	CC		26				26		26	26		26	
0218	60	19	CC		19				19		19	19		19	
0218	61	5	CC		5		5							5	
0218	69	14	CC		14				14					14	
0218	77	4	PLT	4					4		4	4		4	
0218	79	4	CC		4				4		4	4		4	
0218	80	3	PLT	3			3							3	
0218	82	4	WIRE						4				4		
0218	83	3	PLT	3					3		3	3		3	
0218	85	4	PLT	4					4					4	
0218	86	8	PLT	8					8		8	8		8	
0226	3	64	CC		64				64	64	64	64		64	
0226	9	28	CC		28				28	28	28	28		28	
0226	12	15	REPL						15					15	
0226	14	59	THN			59									
0226	20	8	CC		8				8	8	8	8		8	

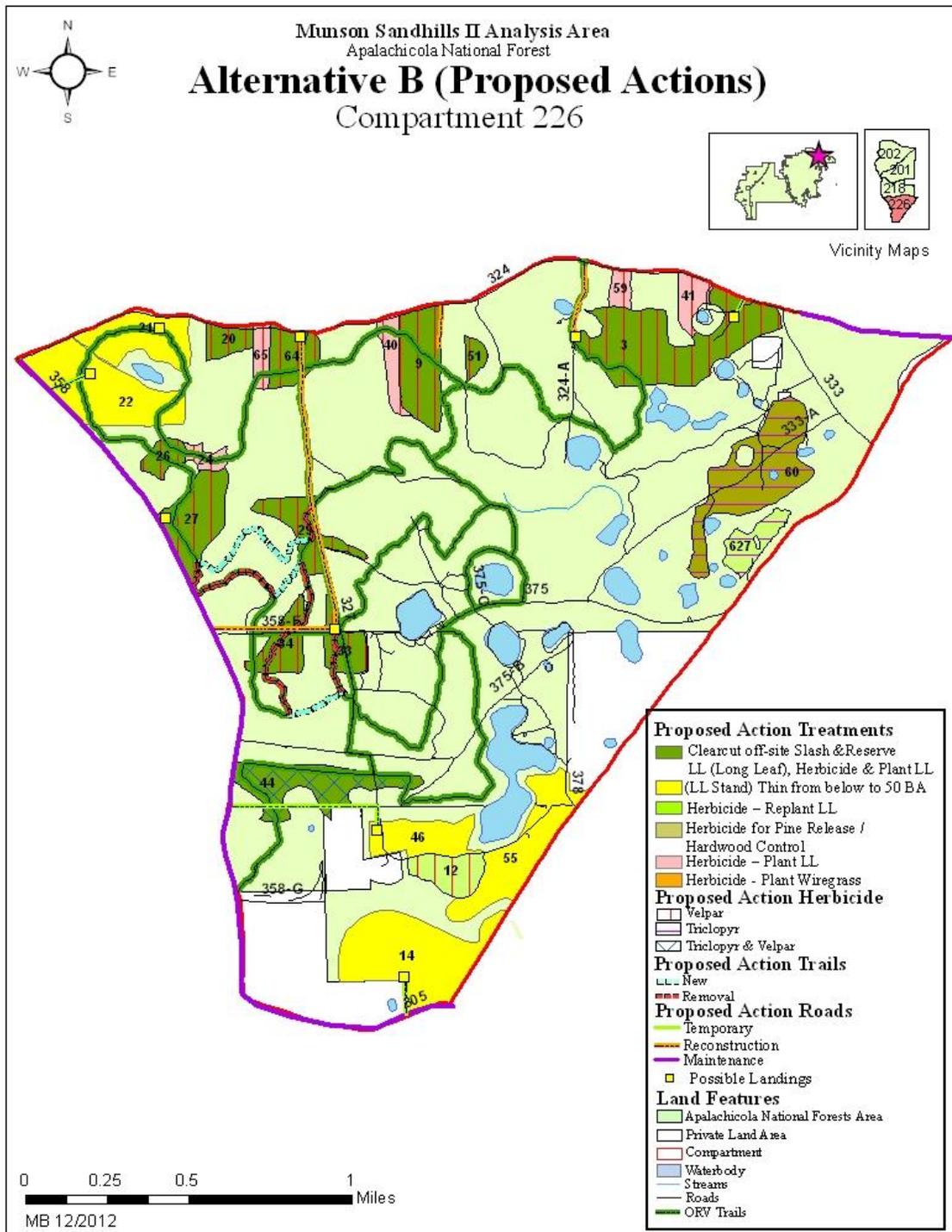
Comp	Stand	Treat AC	Treatment	Reforest Under Stocked Oak Stands	Clearcut	Thin	Triclopyr & Hexazinone Treatments	Triclopyr	Hex	Public Firewood	Mechanical Pile or Remove	Seed Native Grass Grasslander	Plant Wiregrass Plugs	Plant Longleaf	Pine Release
0226	21	27	THN			27									
0226	22	48	THN			48									
0226	24	5	PLT	5					5		5	5		5	
0226	26	7	CC		7				7		7	7		7	
0226	27	27	CC		27				27	27	27	27		27	
0226	29	18	CC		18				18		18	18		18	
0226	33	12	CC		12				12		12	12		12	
0226	34	14	CC		14				14		14	14		14	
0226	40	9	PLT	23					9	23	23	23		23	
0226	41	8	PLT	8					8				8	8	
0226	44	32	CC		32		32			32				32	
0226	46	21	THN			21									
0226	51	4	CC		4				4	4				4	
0226	55	39	THN			39									
0226	59	5	PLT	5					5				5	5	
0226	60	49	REL					49							49
0226	64	15	CC		15				15	15	15	15		15	
0226	65	6	PLT	6					6	6	6	6		6	
0226	627	12	REPL					12						12	
				293	1165	458	257	148	1366	327	905	910	65	1591	157

* CC=Clearcut, THN=Thin to 50 BA, PLT=Site Prep and plant, REPL=Site prep and replant, WIRE=plant Wiregrass









Alternative C – No Herbicide

This alternative would include all actions described in the Proposed Action, except prescribed fire would be used instead of the herbicides hexazinone and/or triclopyr for site preparation, groundcover restoration, pine release, or hardwood control.

Coordination Measures

Coordination measures were incorporated into the design of the alternatives to reduce the risk of potential impacts to the physical, biological, and social-economic environments. These measures include all applicable Forest Plan Standards and Guidelines (USDA, 1999, p. 3.1-3.32), particularly those described below.

Proposed, Endangered, Threatened and Sensitive (PETS) Species

- If modifications are made in the project, or if additional information regarding the effects of the project on listed species becomes available, the U.S. Fish and Wildlife Service (USFWS) would be notified and informal consultation would be reinitiated if the USFWS or the FS determines it is needed.
- When working in potential gopher tortoise habitat, FS personnel will prohibit locating log landings, designating skid trails, and parking equipment within 25 feet of known gopher tortoise burrows. Equipment operators will be instructed to maintain a 25 foot distance during operations when previously unknown burrows are encountered. (*USDA 1999, p. 3.29*).
- Purchasers and contractors will be advised of the possible presences of threatened, endangered, and sensitive species and will be instructed to avoid harming any wildlife they encounter, including snakes.

Heritage Resources

- **HE-1** If any cultural resources are discovered during operations all ground-disturbing activity will cease. The Forest Archeologist will determine changes to be made to the project before work resumes (*USDA 1999, 3.5*).
- **HE-9** Known cultural resource sites will be protected by timber sale contract and no ground-disturbing activities will occur in these areas, which may include segments of roads (*USDA 1999, 3.6*).

Public Health and Safety

- Use herbicides in accordance with registration label. Place herbicide notice signs at treatment sites. Herbicide notice signs (FSH 7109.11) would be clearly posted, and would include the application date, the herbicide used, and safe reentry date. Private lands would not be treated. No herbicide would be applied within 100 feet of private land. No herbicide would be applied within 100 feet of any public or domestic water source.
- The Pesticide Use Handbook (FSH 2109.14) and the Health and Safety Code Handbook (FSH 6709.11) would be used as guidance for workers. Workers who apply herbicides would be trained to ensure minimum impacts and maximum effectiveness. Only those

methods that assure proper application of herbicides would be used. Herbicide application by contract and/or in-house personnel would be performed by or directly supervised by the holder of a current Federal Pesticide Applicator's license following all current legal application procedures administered by the USDA Forest Service and the label on the herbicide container

Soil & Water

- **WA-1** Adhere to standards of Florida's Silvicultural Best Management Practices (BMPs). For a detailed discussion of these practices, see the Silviculture BMP Manual, 2004 Revision.
- **WA-2** A 35-foot Special/Streamside Management Zone (SMZ) will be required in the following areas (USDA 1999, 3.24): Compartment 201 Stands 14, 29, 102 and Compartment 202 stands 10, 12, 13, 21, 34, and 61.

Timber Harvest

- Where possible relict and flattop longleaf and slash pines would not be marked for harvest.
- Logging would only occur during dry periods to reduce rutting and/or compaction.

Vegetation

- **VG-37** - Control invasive terrestrial and aquatic weeds. Do not apply herbicides within 60 feet of any PETS plant species unless analysis indicate herbicide use is the best way to protect PETS plants from invasive weeds. (USDA 1999, 3.23). Contract specifications for equipment cleaning will be placed in contracts to prevent the introduction of exotic plants.
- **VG-18** – Minimize soil-disturbing site preparation in longleaf and slash pine sites. When disturbance is necessary to achieve the desired future conditions, use methods that displace no more than 10 percent of the soil surface in the treated area. The objective should be to maintain the integrity of the native herbaceous vegetation (especially wiregrass) overtime (USDA 1999, 3.20).
- Follow guidelines for planning and applying herbicides (Veg. Mgmt. FEIS, 1989).

Visual Quality

- **VG-15** - To enhance visual quality, require that slash, tops, and logging debris be piled on more than 2 feet high within 100 feet of the major travel way. Affected stands include Compartment 201, Stands 27, 29, 34; Compartment 202 stands 24, 26, 32; and Compartment 226 Stands 14, 55, 627.

Comparison of Alternatives

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

Table 2. Comparison of Alternatives

Proposed Actions	Units	Alternatives		
		A	B	C
		No Action	Proposed	Without Herbicide
Improve Forest Health:				
Replace off-site species with native species (Restore Longleaf Pine)	Acres	0	1,165	1,165
Thin pine longleaf pine stands to maintain radial growth and tree vigor	Acres	0	458	458
Remove diseased trees during thinning	Acres	0	458	458
Stabilize soil erosion	Acres	0	1-5	1-5
Improve Ecosystem Functioning:				
Prepare areas for tree planting by applying herbicides (Hexazinone and /or Triclopyr)	Acres	0	1,771	0
Prescribed burning for site preparation	Acres	0	1,615	1,615
Reduce woody vegetation by applying the herbicides Hexazinone and Triclopyr	Acres	0	157	0
Prescribed burning for hardwood reduction/pine release	Acres	0	0	157
Restore groundcover by supplementing native grasses.	Acres	0	975	975
Improve Future Habitat for PETS species				
Replace off-site species with indigenous longleaf pine	Acres	0	1,165	1,165
Reforest under-stocked scrub oak areas with Longleaf	Acres	0	293	293
Decommission unnecessary looping motorcycle trails	Miles	0	2	2
Reroute motorcycle trail to avoid loops	Miles	0	1	1
Transportation:				
Road maintenance for timber sale	Miles	0	12.51	12.51
Road reconstruction to haul timber removed	Miles	0	13.96	13.96
Reconstruction of existing non-system temporary roads	Miles	0	4.63	4.63
Forest Product Outputs:				
Sawtimber	CCF	0	2,948	2,948
Pulpwood	CCF	0	10,602	10,602
Product Value	Dollars	\$0	\$729,436	\$729,436

Table 3. Comparison of Environmental Consequences by Alternative

Resource Area	Alternative A (No Action)	Alternative B (Proposed Action)	Alternative C (No Herbicide)
Soils	No change from current conditions	No measurable change from current conditions	No measurable change from current conditions
Water	No change from current conditions	Improved road drainage and stream crossings would reduce current sedimentation.	Improved road drainage and stream crossings would reduce current sedimentation.
Air quality	Smoke from current burning program would continue to occur on approximately 100,000 acres annually.	Smoke from prescribed fire for site preparation on 1,165 acres would be in addition to annual burning. Duration of smoke would be short-term.	Smoke from prescribed fire for site preparation on 1,165 acres would be in addition to annual burning. Duration of smoke would be short-term.
PETS (Animals)	Habitat conditions for PETS species preferring open longleaf/wiregrass habitats would continue to decline gradually.	Habitat conditions for PETS species preferring open longleaf/wiregrass habitats would improve on the treated acres.	Habitat conditions for PETS species preferring open longleaf/wiregrass habitats would improve on the treated acres.
PETS (Plants)	Habitat conditions for sensitive species preferring open sunlit conditions would continue to decline gradually.	Habitat conditions for sensitive species preferring open sunlit conditions would improve on treated acres.	Habitat conditions for sensitive species preferring open sunlit conditions would improve on treated acres.
MIS (Animals)	Habitat conditions for MIS species would stay the same or decline gradually.	Habitat conditions for MIS species would improve on treated acres.	Habitat conditions for MIS species would improve on treated acres.
MIS (Plants)	Habitat conditions for perennial fire-dependent graminoids would continue to decline gradually while habitat conditions for sandhill onsite and offsite trees would improve.	Habitat conditions for perennial fire-dependent graminoids would improve on treated acres while sandhill onsite and offsite trees would be reduced in treated acres.	Habitat conditions for perennial fire-dependent graminoids would improve on treated acres while sandhill onsite and offsite trees would be reduced in treated acres.
Vegetation	Without replacing off-site species growth of trees would continue to decline and mortality would increase. Without thinning, overstocked stands would have slower growth and continue to shade out herbaceous vegetation. Non-stocked stands would continue to be dominated by oaks and other woody vegetation.	Growth rates would increase and conditions for herbaceous ground cover would be improved. Effects would last longer for those areas treated with herbicide and increase chance of survival of Longleaf.	Growth rates would increase but conditions for herbaceous ground cover would only be temporarily improved. Effect would be short lived. Survival of Longleaf seedlings is reduced due to the quick reestablishment of competition. Groundcover restoration efforts would most likely be delayed until prescribed fire could reduce the hardwood trees and brush through sequential growing season prescribed burns.

Resource Area	Alternative A (No Action)	Alternative B (Proposed Action)	Alternative C (No Herbicide)
Cultural Resources	No impact to cultural resources.	No impact to cultural resources.	No impact to cultural resources.
Visual Quality	Lack of treatment would result in thick forests outside desired conditions which would gradually reduce visual quality.	Treatment would result in short-term (1-5 years) reduction in visual quality from vegetation treatments. Long-term conditions (5-10 years) would improve as desired conditions are achieved.	Treatment would result in short-term (1-5 years) reduction in visual quality from vegetation treatments. Long-term conditions (20-30 years) would improve as desired conditions are achieved.
Economics	No change from current conditions	This alternative would remove approximately 13,550 CCF of pine products with a slightly positive Net Worth. The cost to improve ecosystem functioning through groundcover restoration would need supplemental funding through stewardship projects of grants.	This alternative would remove approximately 13,550 CCF of pine products with a slightly positive Net Worth. The cost of several sequential prescribed burns would likely rival the cost for herbicide treatments in Alternative B. The cost to improve ecosystem functioning through groundcover restoration would need supplemental funding through stewardship projects of grants.
Transportation System	Existing interior roads are in poor condition. No Change in miles available for public access.	Existing interior road conditions would be improved through road reconstruction and maintenance. The number of miles of motorcycle trail in the analysis area would be reduced to eliminate looping sections of trails. Public access on the road system would remain the same.	Existing interior road conditions would be improved through road reconstruction and maintenance. The number of miles of motorcycle trail in the analysis area would be reduced to eliminate looping sections of trails. Public access on the road system would remain the same.
Recreation	Motorcycle trails riding and Hunting are the primary recreation use in the area. Opportunities for these would remain about the same as the no action alternative.	Some disruption would occur during the course of the proposed actions. Motorcycle trails would be re-routed or closed during harvest operations. Increased activity in the area may reduce hunting success. Road conditions would be improved and could result in increased use.	Some disruption would occur during the course of the proposed actions. Motorcycle trails would be re-routed or closed during harvest operations. Increased activity in the area may reduce hunting success. Road conditions would be improved and could result in increased use.

ENVIRONMENTAL CONSEQUENCES

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

Effects of herbicides on resources are based on previous experience on the Apalachicola National Forest, the Forest Plan FEIS and technical reports prepared by the Syracuse Environmental Research Associates (SERA).

PHYSICAL ENVIRONMENT

Soil

Affected Environment:

The analysis area includes 10 general soil series as described in the morphology section of the Soils and Vegetation of the Apalachicola National Forest publication. Soil series that are within the analysis area are shown in the table below. Full descriptions of these soils can be found in *Soils and Vegetation of the Apalachicola National Forest* (USDA 1984). As noted in the following table, erosion hazard for these soils are slight but, due to their poorly drained conditions rutting by heavy equipment can occur.

Table 4. Soil Series

Soil Series	Acres of Soil in the Analysis Area	Acres Treated in Proposed Action	Drainage Class	Drainage Description	Erosion Hazard	Equipment Limitation
Albany	160	34	3	Somewhat Poorly Drained	Slight	Moderate
Alpin	1002	186	5	Excessively Well drained	Slight	Moderate
Blanton	236	100	4	Moderately Well Drained	Slight	Moderate
Chipley	310	39	3	Somewhat Poorly Drained	Slight	Moderate
Dorovan Mucky Peat	490	30	1	Very Poorly Drained	Slight	Severe
Kershaw Sand	6167	1792	1	Moderately Well Drained	Slight	Severe
Foxworth	266	20	4	Moderately Well Drained	Slight	Moderate
Ortega	932	151	4	Moderately Well Drained	Slight	Moderate
Pickney	439	20	1	Very Poorly Drained	Slight	Severe
Pits	300	0	Borrow Pit	N/A	N/A	N/A

Alternative A – No Action

Some soil displacement would occur as a result of ongoing forest management, but it would generally not result in any large-scale or long-term adverse effects. The effect of prescribed burning on soils would have a short-term reduction in litter and duff, but would increase the amount of organic matter in the uppermost layer of mineral soil (USDA, 2012). For more information on the affects prescribed burning on soil. (USDA Forest Service, Southern Region. 1989b IV 80-86)

Alternative B – Proposed Action

Some soil displacement would occur as a result of timber sale operations, but it would generally be within acceptable limits (USDA, 1999). The effect of prescribed burning on soils would have a short-term reduction in litter and duff, but would increase the amount of organic matter in the uppermost layer of mineral soil (USDA, 2012). Refer to the Apalachicola Prescribed Burning FY 2012-2017 Environmental Assessment for more information on the affects prescribed burning on soil.

Road reconstruction and road maintenance would increase the potential for soil erosion compared to Alternative A. Loose and exposed soil would occur on the road surface and within the immediate road prism and would be susceptible to runoff until fully stabilized. Road design features would generally control the amount of erosion and control it's occurrence through appropriate drainage features.

Re-establishing native vegetation would generally improve overall soil stability and productivity.

This alternative is proposing the use of herbicides for site preparation treatment. The use of herbicides may have an effect on soils.

The herbicide Hexazinone is proposed for site preparation on approximately 1,724 acres. Hexazinone is labeled for Site Preparation in forestry. The proposed application method would be on a 6 foot by 6 foot grid, in which 5 ml of 50% solution would be applied to each spot. This application method utilizes approximately $\frac{3}{4}$ of a gallon of herbicide per acre.

Hexazinone is soil active and tends to be highly mobile in soil, especially porous soils with percolating water. Mobility is strongly influenced by soil texture; high clay or organic matter content retards movement and reduces efficacy. Application rates must be adjusted to suit soil texture. Do not apply to saturated or poorly drained soils. (SERA, 2005)

Breakdown of Hexazinone in soil is by soil microbes and its persistence is moderate with a half-life of 1-6 months; 90 days being typical.

Another herbicide Triclopyr is prescribed for site preparation, hardwood control, or pine release. This herbicide is not soil active. It is generally non-mobile in soils, though gross applications (spills) or misapplications may show some mobility. It has a moderately short half-life of 10-46 days with an average of 30 days. It is degraded both by soil microbes and by photolysis. (SERA, 2011)

No effects from the past, present and future activities were identified that would combine with the effects of the proposed action and result in a measurable cumulative effect for soils resources.

The environmental consequences of both herbicides are also discussed in Chapter IV of the Final Environmental Impact Statement for Vegetation Management in the Coastal/Piedmont, Volume I.

Some soil may be displaced during the logging operations when skidders and other heavy equipment traverse across the land especially when dragging trees or lowering a blade, but would not result in any long-term adverse effects. Some soil compaction would occur in the top 3 inches of the soil. Implementation of Best Management Practices and coordination measures would generally ensure that no long-term adverse effects to soil resources occur. In areas where soils have severe equipment limitations, the following restriction would be applied to minimize the effect of silvicultural practices:

- Forest Plan standard WA-6: Restrict soil compacting activities, including logging traffic when the water table is within 12 inches of the surface, or when soil moisture exceeds the plastic limits.

Some soil compaction and displacement would occur during mechanical site preparation as heavy machinery traverses across treated areas, but would not result in any long-term adverse effects. During mechanical piling operations equipment operators would affect the first 6 inches of the soil profile, but during the re-vegetation operations the some disks on the front of the Grasslander would penetrate the surface layer breaking up any soil compaction. It is expected that Forest Plan Standard VG-18 as described below would be exceeded by these activities.

- Forest Plan Standard VG-18: Minimize soil-disturbing site preparation in longleaf and slash pine sites. When disturbance is necessary to achieve the desired future conditions, use methods that displace no more than 10 percent of the soil surface in the treated area.

VG-18 has been interpreted to apply to areas that have intact ground cover and was added to the forest plan as a standard and guideline to protect the viability of wiregrass. In the stands where groundcover restoration is planned the amount of remnant native vegetation is considered to be low to moderate.

Burning for site preparation may char and partly consume the litter and duff on the treated areas. Soil biota would be reduced in the short-term but would recover quickly. Soil structure would not be affected.

Alternative C – No Herbicide

The environmental effects of Alternative C are the same as Alternative B except that there would be no effects from the use of herbicide.

Cumulative Effects

No effects from the past, present and future activities identified were identified that would combine with the effects of the proposed action and result in a measurable cumulative effect for soils resources. The relative flatness of the area together with standard Best Management Practices, ensure that any movement of soil is generally localized within the project area. Other potential effects such as soil compaction are likewise limited to the project area.

Water Quality**Affected Environment:**

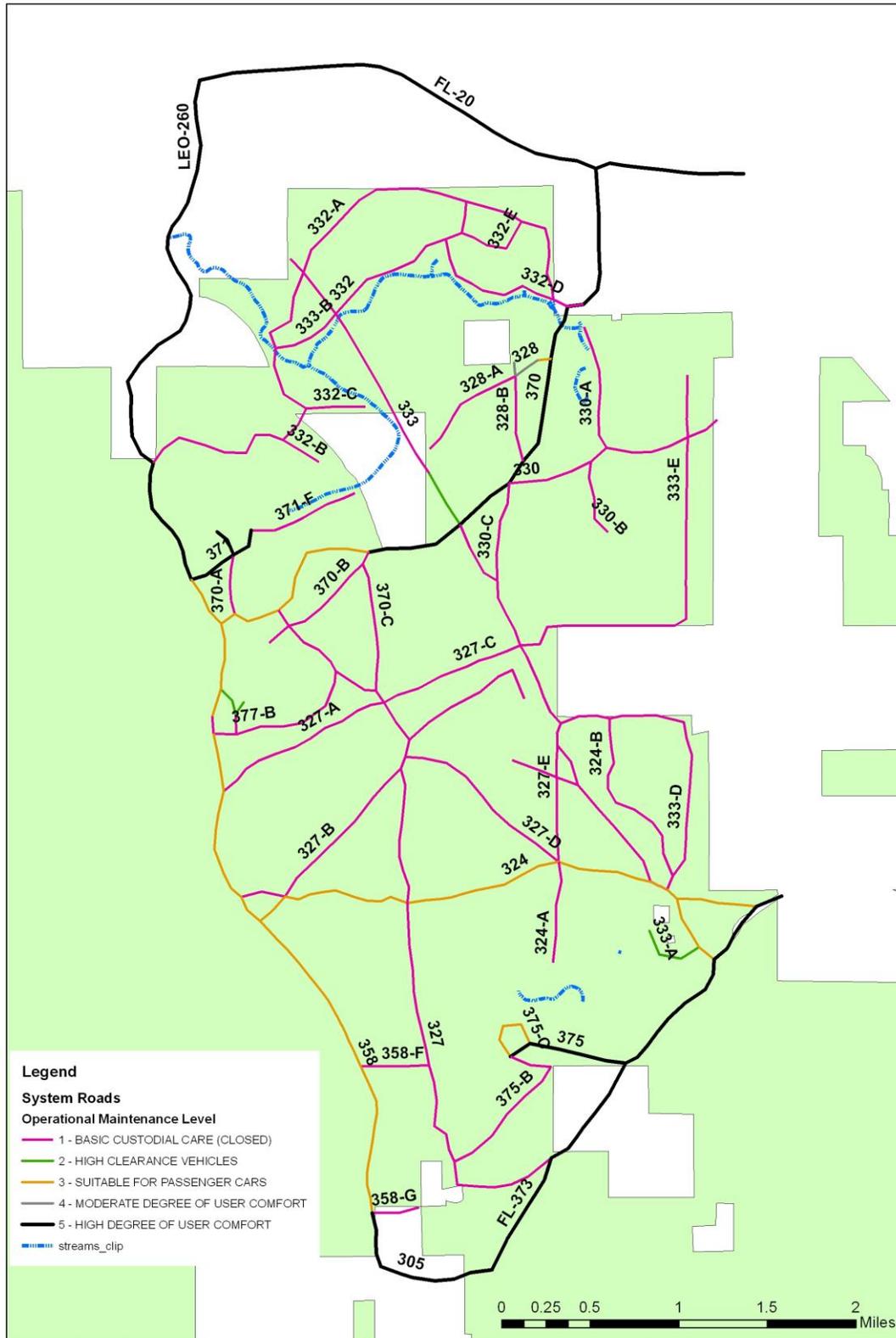
The project area falls within the boundaries of three watersheds: Lake Munson (7,283 acres), Wakulla Springs (2,994 acres) and the Lake Jackson Watershed (31 Acres), which extend outside the analysis area boundaries. The area within the boundary represents approximately 7% of the Lake Munson, 4% of the Wakulla Springs, and less than 1% of the Lake Jackson Watersheds.

The analysis area is drained by one stream to the north which eventually flows into Lake Munson. There is also one stream that drains the south end of the analysis area. This stream flows underground and is connected to Wakulla Springs. From there the Wakulla River flows out to the Gulf of Mexico through the Wakulla and St. Marks rivers. There are also some wet season ponds and swamps (wetlands) in the area that do not drain into these streams.

Water quality in the area is believed to be good, but there are no known background water quality tests that have been completed within this area.



Transportation System and Perennial Streams



Alternative A – No Action

The primary impacts to water quality in the area would occur from the existing transportation system which is in poor condition and from routine prescribed fire. Poorly designed water crossings can increase sedimentation and damage caused by vehicles when crossing streams.

Alternative B – Proposed Action

There are 9 stands adjacent to perennial streams. Most of these stands are separated from the streams by existing hardwood or other vegetative stringers. All stands would maintain buffers described in Forest Plan standard WA-2 and would comply with the most recent *Silviculture Best Management Practices Manual* published by the State of Florida.

The proposed road system includes two perennial or intermittent stream crossings by low standard roads. Current crossings would be improved as needed to reduce potential impacts to streams.

Reduction of trees through the thinning and clearcut treatments will reduce evaporation and transpiration in the treatment stands and cause a temporary increase in the groundwater level of the stands treated.

In this alternative, Hexazinone is proposed for site preparation, hardwood control, and pine release on approximately 1,623 acres. The herbicide would be put out at a rate of approximately three quarts per acre. The use of herbicides would introduce man-made chemicals into the ecosystem.

Hexazinone is generally selective, controlling most hardwoods while not affecting most grasses. Its mode of action is a photosynthetic inhibitor. The herbicide is readily absorbed through the roots and, to a lesser degree through foliage. It is translocated upward via the xylem. A description of Hexazinone and its environmental effects on soils is described in detail in the Environmental Impact Statement for Vegetation Management in the Coastal Plain/Piedmont (chapter IV, pages 90-91) and in the SERA report on Hexazinone (SERA, 2011b).

The herbicide triclopyr is prescribed on approximately 405 acres for site preparation, hardwood control, or pine release. This herbicide has a moderate to low solubility in water. Under normal conditions, its potential for leaching is low since it binds to clay and organic matter in soil. Sunlight rapidly breaks down triclopyr in water, with a half-life of less than 24 hours.

Solubility: Triclopyr has moderate to low solubility.

Potential for Leaching into Ground-Water: The potential for leaching depends on the soil type, acidity, and rainfall conditions. Triclopyr should not be a leaching problem under normal conditions since it binds to clay and organic matter in soil. Triclopyr may leach from light soils if rainfall is very heavy. Triclopyr is not soil active. Generally non-mobile in soils; but misapplications (spills) of Garlon 3A may show some mobility and non-target root uptake and may contaminate ground water.

Surface Waters: Sunlight rapidly breaks down Triclopyr in water. The half-life in water is less than 24 hours (10 hr. half-life at 25 ° C). It has a moderately short half-life of 10-46 days with an average of 30 days, and is degraded both by soil microbes and by photolysis. (SERA, 2011)

To reduce potential effects, this alternative is designed such that no herbicide equipment would be cleaned within 100 feet of open water or wells and no herbicide would be applied within 100 feet of perennial or intermittent springs or streams. Also, herbicide application would be suspended by the Contracting Officer's Representative or inspector if rainfall is heavy enough to cause movement of herbicide from target species. No herbicide would be applied within 100 feet of any public or domestic water source.

The application rate for the herbicides would be applied at or below the product label recommendations, and would meet the requirements of the 1989 FEIS Vegetation Management in the Coastal Plain/Piedmont, as amended. The environmental consequences of these herbicides are discussed in Chapter IV of the Final Environmental Impact Statement for Vegetation Management in the Coastal Piedmont, Volume I and the SERA Report on Triclopyr (SERA, 2011b).

When there is a lot of standing trees left the after logging operations mechanical shearing and piling will be necessary to clear the debris for the passage of specialized equipment needed for groundcover restoration. Mechanical shearing and piling may cause some soil movement or soil compaction, which may indirectly affect water quality. The environmental consequences of mechanical site preparation are discussed in Chapter IV of the Final Environmental Impact Statement for Vegetation Management in the Coastal/Piedmont, Volume I.

Planting Native Grasses or longleaf trees will help hold the soil in place and reduce the long-term chances of soil erosion.

Road construction, reconstruction, or maintenance may affect the water quality of the area directly through surface run-off or raindrop splash on soils disturbed or exposed during these operations. State of Florida Best Management Practices will be adopted during the road reconstruction or maintenance work. These practices will reduce potential effects of road work. All of the work would be conducted in or along existing road corridors so it is not anticipated that these activities would affect subsurface or groundwater flow.

Alternative C – No Herbicide

The environmental effects of Alternative C are the same as Alternative B except that there would be no effects from the use of herbicide.

Cumulative Effects

No effects from the past, present and future activities were identified that would combine with the effects of the proposed action and result in a measurable cumulative effect for water resources. The relative flatness of the area together with standard Best Management Practices ensures that any movement of soil is generally localized within the project area. Existing sedimentation is expected to be reduced by improving stream crossings of roads used for transporting logs.

Air Quality

The Munson II Analysis Area is located within an Air Quality Class II area. National Ambient Air Quality Standards (NAAQS) were set by the Environmental Protection Agency to promote a level of air quality sufficient to protect public health and welfare issues. The Florida Department of Environmental Protection (DEP) is responsible for inventory, monitoring, and regulation of air quality. Areas are divided into air quality classes. In Class I areas, fresh air (lack of odor) is a recognized value of the area and very little air pollution is allowed. Bradwell Bay Wilderness rated as a Class I Area, is approximately eleven miles southwest of the analysis area. There are no major wood processing plants within 50 miles of the wilderness or the analysis area. Class II areas allow a moderate level of air pollution to accommodate industrial/urban development. Prescribed fire has been a part of management of this analysis area for many years. These compartments have been prescribed burned several times in the past. The table below shows the history of prescribed burning in these compartments in the last ten years. The analysis area currently meets National Ambient Air Quality Standards.

Table 5. Five-Year Prescribed Burn History (Acres)

COMPARTMENT	FY-2003	FY-2004	FY-2005	FY-2006	FY-2007	FY-2008	FY-2009	FY-2010	FY-2011	FY-2012
201				2138			1206			
202	800		60				1166	463		
218	2279							1913		
226	640			1600				1600		

Alternative A – No Action

The ANF conducts a Forest-wide prescribed burning program that attempts to treat all upland pine areas every three years. Smoke created as a result of prescribed burning is managed and analyzed as part of each burn plan. The Apalachicola National Forest follows the National Forest Smoke Management Guidelines to minimize the effects. Refer to the Apalachicola FY 2012-2017 Prescribed Burning environmental assessment for more details on the environmental effects. Smoke from routine burning would result in short-term impacts to air quality, but would occur to a lesser degree than Alternatives B and C.

Alternative B – Proposed Action

In addition to routine prescribed burning, Alternative B would utilize prescribed fire in association with herbicide and mechanical site preparation in the stands identified under the Proposed Action.

The use of herbicides is not expected to affect air quality since application would only occur when wind speeds are greater than 8 miles per hour to reduce chance of wind drift.

Heavy equipment use would release emissions and create dust while in operation. Timber harvesting would occur during dry periods or when stand condition permits operability. The smoke from site preparation burning may adversely affect the visibility on roads and air quality depending on environmental conditions such as wind speed and direction, temperature, humidity and other factors. These effects would be short-term. Effects from dust for example would in most cases occur for less than a few hours, while smoke from prescribed fires could be present for several days.

Coordination measures would include caution signage and/or flashing warning lights on major highways and roads. In the event of severe smoke in heavily congested areas, Forest Service personnel are strategically stationed in areas of concern.

Alternative C – No Herbicide

Alternative C would have the same effects as Alternative B.

Cumulative Effects:

The only potential cumulative effect would be if prescribed fire in adjacent compartments occurs at the same time as the road reconstruction, maintenance, timber harvesting, or site preparation work. The duration of these overlapping effects would be short-term as described under Alternative B.

Climate change

Detailed analysis of the potential effects of forest management activities on climate change is not feasible at the scale of this project. There is insufficient information to quantify the effects of project activities on global phenomena such as air temperature increases, sea level rise, changes in precipitation patterns, and increased frequency of extreme weather events such as heat waves, droughts, and floods. As such, the consideration of climate change for this project is limited to the general discussion below and in the cumulative effects analysis for vegetation.

Although some activities proposed in this project will produce greenhouse gases (e.g., timber harvesting and prescribed fire), the primary objective of these activities is to convert fast-growing hardwoods and short-rotation pine plantations to resilient and diverse long-rotation longleaf pine stands. This shift in management will sequester more carbon in standing trees that will accumulate carbon for at least 120yr and live for up to 450yr (Kush et al. 2004, National Wildlife Federation 2009). When some of these longleaf pines are eventually harvested, they will primarily produce sawtimber products rather than pulp (Avalapati et al. 2002), which will sequester carbon beyond the life of the tree. Additionally, recent studies suggest that litter and understory C and N pools in longleaf/slash pine stands recover rapidly from fire (Lavoie et al. 2010), so the effects of prescribed burning on the overall carbon budget in this system are expected to be negligible. In conclusion, the short-term production of greenhouse gases by the proposed action in this project will likely be offset by increased carbon sequestration as desired vegetation responds to improved conditions. Although the no-action alternative would not directly result in increased emissions of greenhouse gasses, it would result in a higher risk of catastrophic fire due to high fuel loads, which in turn would release a large pulse of CO₂ and particulates

BIOLOGICAL ENVIRONMENT

Wildlife

Management Indicator Species - Animals

Affected Environment

Under the 1976 National Forest Management Act (NFMA), the Forest Service is charged with managing National Forests to provide for a diversity of plant and animal communities consistent with multiple-use objectives. Management Indicator Species (MIS) are one tool used to accomplish this objective. MIS and their habitat needs are used to set management objectives and minimum management requirements to focus effects analysis, and to monitor effects of plan implementation. The general wildlife community that occurs in the Munson II Analysis Area is typical of the southern Coastal Plain. Because it is not feasible to monitor the effects of management actions on all wildlife species, certain species were chosen to be “management indicators”. Management indicator species (MIS) are selected to monitor the effectiveness of Forest Plan implementation in meeting the desired future conditions. In 2011 the National Forests in Florida amended the Forest Plan (amendment 10) which changed the MIS species. Animal species chosen as MIS for the Apalachicola National Forest are the red-cockaded woodpecker (RCW) and Bachman’s sparrow. The Forest Plan identifies Bachman’s sparrow and RCW as indicators for sandhill, scrubby flatwoods, mesic flatwoods, and wet flatwoods community types. The predominant community in the project area is sandhill.

Red Cockaded Woodpecker

This species’ historical range includes the southeastern Piedmont and Coastal Plain from New Jersey to Texas, and inland to Kentucky, Tennessee, Missouri, and Oklahoma. It is now virtually extirpated north of North Carolina and in all interior states except Arkansas. Populations are fragmented and most are small. Habitat mainly consists of open, mature pine woodlands, but this species can sometimes be found in deciduous or mixed pine-hardwoods located near pine woodlands. Optimal habitat is characterized as a broad savanna with a scattered over-story of large pines and a dense groundcover containing a diversity of grass, forb, and shrub species. Mid-story vegetation is usually sparse or absent. (NatureServe2012)

A Alternative A (No Action)

Direct and Indirect Effects

This alternative would likely have no effect on red cockaded woodpeckers in the short term. Currently there are no active clusters within the proposed project area with the closest active cluster being approximately ½ a mile away. Under current management regimes, the proposed project area would not provide quality RCW habitat in the future. RCWs prefer an open midstory and while prescribed fire does help maintain an open midstory, some stands in the project area are too overgrown for fire alone maintain or improve stands. Unless the hardwood in the project area is reduced it is not likely that the project area would become quality RCW habitat in the future.

Cumulative Effects

Because no work would take place under this alternative, no cumulative effects are expected. This analysis area is not currently suitable RCW habitat and without midstory hardwood removal it is not likely to become suitable when combined with other forest service activities also taking place in the analysis area.

Alternative B (Proposed Action)

Direct and Indirect Effects

This alternative would have little to no direct effects on RCWs because there are no active clusters present within the project area. Indirect effects, however, are expected to be beneficial. Currently there are 8 inactive recruitment clusters and 1 abandoned cluster within the project area, and many of the stands presently contain an overabundance of midstory hardwood vegetation. Thinning, mechanical hardwood removal and herbicide application would recreate the open midstory favored by the rcw in mature stands. Conversion of slash and hardwood stands currently are not suitable for RCWs to longleaf stands through clear-cutting, wiregrass planting, and tree planting would provide quality RCW habitat in the future.

Cumulative Effects

Cumulative effects of the proposed action are expected to be beneficial. This alternative combined with prescribed burning is likely to improve rcw habitat. The proposed action would initially decrease the amount of midstory vegetation but prescribed burning is needed to maintain the sparse midstory. Also prescribed burning would be needed to maintain converted longleaf stands. Without fire longleaf seedlings and wiregrass are likely to get out-competed by shrubby vegetation and hardwoods which would make the habitat unsuitable for RCWs.

Alternative C (No Herbicide)

Direct and Indirect Effects

This alternative would have little to no direct effects on rcws because there are currently no active clusters in the proposed project area. Indirect effects are expected to be similar to alternative B, but there would be no effects from herbicide. Without herbicide application, hardwood removal is expected to be less effective because mechanical vegetation removal frequently only top kills targeted vegetation. Multiple treatments may be needed to kill undesirable midstory vegetation.

Cumulative Effects

Cumulative effects of this alternative are expected to be beneficial. This alternative combined with prescribed burning is likely to improve rcw habitat. The proposed action would initially decrease the ammount of midstory vegetation but prescribed burning is needed to maintain the sparse midstory.

Bachman's Sparrow

Bachman's sparrows are found in the southeastern United States. Most of the populations live in Florida and along the Gulf Coast. They are also found as far north as the Indiana-Michigan

border and as far west as the Arkansas-Oklahoma border. In the winter, Bachman's sparrows are especially secretive and little is known of their winter habits. Their winter range seems to be limited to the coastal southeastern U.S. This species is mostly found in open oak and pine forests with abundant grasses. They are most often found in forests with wiregrass (*Aristida*) or broomsedge (*Andropogon*). Populations are highest in areas where forest fires are regular, eliminating hardwood understory shrubs. Bachman's sparrow populations disappear 4 to 5 years after a burn. Much of their original habitat, open pine forests, has been logged throughout their range, forcing them into marginal habitats such as forest edges and utility rights-of-way. In the marginal habitats, hardwood understory shrubs are discouraged by poor soils, fires, or human management (Dewey, T. and N. Darin 2007).

Alternative A (No Action)

Direct and Indirect Effects

Under the no action alternative, Bachman's sparrow trends in this area would be expected to show no change. The continuation of prescribed burning alone would likely not improve habitat enough in the project area to result in any noticeable increase of sparrow numbers. Much of the potential Bachman's sparrow habitat in the project area suffers from hardwood encroachment. An over-abundance of hardwoods causes a decrease in herbaceous groundcover due to competition for sunlight and nutrients. When herbaceous groundcover is lost, potential nesting habitat is reduced and prescribed fire cannot maintain quality habitat due to the lack of fine fuels needed to carry fire across the landscape. Although prescribed burning is a necessary component of Bachman's sparrow management, with the existing state of the pine stands in the project area, application of routine prescribed burning alone may not provide long-term suitable habitat.

Cumulative Effects

There are no cumulative effects expected under this alternative. Prescribed burning would continue and gradually improve habitat in some areas and maintain the existing conditions in others. However, substantial habitat improvement is not expected. Without the removal of midstory and over abundant overstory vegetation in dense stands, herbaceous vegetation is not likely to receive enough sunlight to become abundant.

Alternative B (Proposed)

This action alternative would contribute to improving habitat for the Bachman's sparrow. Thinning pine stands, mechanical vegetation removal, and herbicide applications would control woody vegetation and increase herbaceous vegetation needed for quality Bachman's sparrow habitat. Herbicide application is not likely to directly affect this species because herbicide would be applied directly to target vegetation reducing the possibility of forage contamination (grass seeds and insects). This species is a ground nester, and it is not likely to be present in herbicide application areas because these areas would not provide suitable nesting habitat. Bachman's sparrows prefer open, well-burned pine stands. It is unlikely a substantial overall population difference would be realized due to this one project but numbers may increase in the project area.

Cumulative Effects

This alternative when combined with prescribed burning would have beneficial cumulative effects for Bachman's sparrow. This alternative would open up the canopy with herbicide

treatments, clear-cutting, and tree thinning, and prescribed burning and wiregrass planting would increase the herbaceous groundcover needed for nesting and foraging.

Alternative C (No Herbicide)

Direct and Indirect Effects

This alternative has the same management proposals and potential effects as Alternative B except herbicide would not be used. This alternative could be less effective and have shorter lived benefits on the woody shrub reduction and therefore have slightly less influence than Alternative B on eventually increasing available habitat for Bachman's sparrow in this area

Cumulative Effects

This alternative when combined with prescribed burning would have beneficial cumulative effects for Bachman's sparrow. This alternative would open up the canopy with clear-cutting, and tree thinning, and prescribed burning and wiregrass planting would increase the herbaceous groundcover needed for nesting and foraging. However, mechanical vegetation treatments could be less effective than herbicide treatments so benefits may be shorter lived than in alternative B.

Management Indicator Species – Plants

In 2011, the National Forest in Florida amended the forest plan (amendment 10) which changed the MIS species list. Many individual plant species were taken out of this list in favor of plant composition groups and new MIS species which can more easily be monitored. Plant composition groups and new individual species include:

Perennial Fire-Dependent Graminoids (*such as: wiregrass, pineywoods dropseed, chapman's beaksedge, toothache grass, hairy muhly, Florida toothache grass*) – an abundance of this plant composition group indicates healthy flatwood, sandhill, and savanna habitat.

Saw Palmetto – This species is primarily found in flatwoods. It is a good indicator of the effectiveness of prescribed burning. An overabundance of this species indicates degrading habitat conditions.

Titi – This species is found in wetland edges and flatwoods and provides a good indicator of the effectiveness of prescribed burning. Encroachment by this species indicates degrading habitat conditions.

Woody Shrubs/ Trees (*such as: gallberry, large gallberry, fetterbush, sweet pepper bush, sweetgum, loblolly bay, water oak*) – These species are primarily found in flatwoods, and the overall density of these species is a good indicator of management effectiveness. An overabundance of these species indicates degrading habitat conditions.

Sandhills Onsite Trees (*Turkey Oak, Sand Post Oak, Sand Live Oak, Bluejack Oak*) – These species are primarily found in sandhill habitat, and the overall density of these species is a good indicator of management effectiveness. While these species do provide quality forage for wildlife, an overabundance indicates degrading habitat conditions.

Sandhills Offsite Trees (*laurel oak, sand pine*) - These species are primarily found in sandhill habitat, and the overall density of these species is a good indicator of management effectiveness. An overabundance of these species indicates degrading habitat conditions.

Since the analysis area occurs in sandhill habitat, perennial fire-dependent graminoids, sandhill onsite trees, and sandhill offsite trees are the relevant MIS plants for this project.

Perennial Fire-dependent Graminoids

Alternative A (No Action)

Under alternative A, this plant group is expected to decline in the analysis area. While prescribed burning does benefit these species, it is not likely that prescribed burning alone can significantly increase graminoid density. These species are light dependent. The primary risk factor repeatedly noted for many of these plants species is habitat conversion to pine plantations and subsequent shading/competition for resources. Individuals will likely continue to be suppressed or otherwise impacted by the lack of sunlight.

Cumulative Effects

Vegetative changes would be limited to those resulting from natural phenomena and prescribed burning. Perennial fire-dependent graminoid abundance would stay the same in the analysis area.

Alternative B (Proposed Action)

Individuals may be crushed, broken, uprooted, buried or otherwise impacted during the proposed management actions due to the use of heavy equipment for logging, mechanical vegetation and herbicide treatments. Impacts to individuals from herbicide application could include direct or indirect deposition from unintentional spraying, spray drift, or contaminated water/soil movement. If sprayed accidentally, even at the low application rates used by the Forest Service, non-target vegetation could be damaged. Selective application methods would be employed and would minimize potential adverse effects.

It is anticipated that the woody vegetation treatments (mechanical and herbicide application) would improve conditions for these plant species by reducing the shrubs and, when combined with prescribed burning, would result in increased graminoid abundance.

Long-term positive benefits would be expected from implementation of this alternative. These species evolved in the longleaf pine-wiregrass community and require an open, fire-maintained landscape. The species under consideration are shade intolerant and would benefit from the proposed action. Herbicide application and timber harvest would open up the canopy allowing more light to reach the forest floor. This would make habitat conditions more favorable for fire dependent graminoids.

Cumulative Effects

This alternative when combined with past, present, and future activities is expected to improve habitat conditions for these species. Project activities under this alternative would open up the canopy providing sunlight to stimulate the fire-dependent graminoids. Prescribed burning would then maintain these species.

Alternative C (No Herbicide)

As in Alternative B, individuals may be crushed, broken, uprooted, buried, or otherwise impacted during the proposed management actions. Use of mechanical and prescribed fire alone, with the existing vegetative conditions, may not be as effective at reducing the woody vegetation competition as in Alternative B.

Cumulative Effects

This alternative when combined with past, present, and future activities is expected to improve habitat conditions for these species but activities may be less effective without the use of herbicides. Project activities under this alternative would open up the canopy providing sunlight to stimulate the fire-dependent graminoids. Prescribed burning would then maintain these species.

Sandhill Onsite Trees

Alternative A (No Action)

Under this alternative, onsite trees trends are expected to slightly increase or not change. While onsite trees are native to the ecosystem and do provide forage for some wildlife species, an overabundance of these tree species can reduce herbaceous ground cover needed to support the crucial fire regime that maintains quality sandhill habitat.

Cumulative Effects

The no action alternative when combined with past, present, and future management activities would cause onsite trees to slightly increase or not change. Prescribed fire does reduce the abundance of these species, but once the trees reach mid-story size as they have in many of the stands in the analysis area it is hard to control these species with prescribed fire alone.

Alternative B (Proposed Action)

Alternative B is expected to reduce the abundance of sandhill onsite trees in the project area. Individuals may be crushed, broken, uprooted, buried or otherwise impacted during the proposed management actions due to the use of heavy equipment for logging, mechanical vegetation and herbicide treatments. These actions would reduce overabundance of these species allowing more herbaceous groundcover to establish and carry fire more effectively through the project area.

Cumulative Effects

These activities when combined with past, present and future management activities such as prescribed fire would help achieve desired management goals for the project area. Activities proposed under alternative B would decrease onsite hardwoods and prescribed fire would maintain a sparse midstory.

Alternative C (No Herbicide)

As in Alternative B, individuals may be crushed, broken, uprooted, buried, or otherwise

impacted during the proposed management actions. Use of mechanical and prescribed fire alone, with the existing vegetative conditions, may not be as effective at reducing the woody vegetation competition (onsite trees) because herbicide would not be used. Without herbicide application, hardwood removal is expected to be less effective because mechanical removal and prescribed burning frequently only top kill the targeted vegetation.

Cumulative Effects

These activities when combined with past, present and future management activities such as prescribed fire would help achieve desired management goals for the project area, but would not be as effective with the absence of herbicide application.

Sandhill Offsite Trees

Alternative A (No Action)

Under this alternative, offsite trees trends are expected to slightly increase or not change. An overabundance of these tree species can reduce herbaceous ground cover needed to support the crucial fire regime that maintains quality sandhill habitat

Cumulative Effects

The no action alternative when combined with past, present, and future management activities would cause onsite trees to slightly increase or not change. Prescribed fire does reduce the abundance of these species, but once the trees reach mid-story size as they have in many of the stands in the analysis area it is hard to control these species with prescribed fire alone.

Alternative B (Proposed Action)

Alternative B is expected to reduce the abundance of sandhill onsite and offsite trees in the project area. Individuals may be crushed, broken, uprooted, buried or otherwise impacted during the proposed management actions due to the use of heavy equipment for logging, mechanical vegetation and herbicide treatments. These actions would reduce overabundance of these species allowing more herbaceous groundcover to establish and carry fire more effectively through the project area. These activities when combined with past, present and future management activities such as prescribed fire would help achieve desired management goals for the project area.

Cumulative Effects

These activities when combined with past, present and future management activities such as prescribed fire would help achieve desired management goals for the project area. Activities proposed under alternative B would decrease onsite hardwoods and prescribed fire would maintain a sparse midstory.

Alternative C (No Herbicide)

As in Alternative B, individuals may be crushed, broken, uprooted, buried, or otherwise impacted during the proposed management actions. Use of mechanical and prescribed fire alone, with the existing vegetative conditions, may not be as effective at reducing the woody vegetation competition (offsite trees) because herbicide would not be used. Without herbicide

application, hardwood removal is expected to be less effective because mechanical removal and prescribed burning frequently only top kill the targeted vegetation. These activities when combined with past, present, and future management activities such as prescribed fire would help achieve desired management goals for the project area, but would not be as effective with the absence of herbicide application.

Cumulative Effects

These activities when combined with past, present, and future management activities such as prescribed fire would help achieve desired management goals for the project area, but would not be as effective with the absence of herbicide application.

Proposed, Endangered, Threatened and Sensitive Wildlife (PETS)

A biological assessment (BA) and a biological evaluation (BE) were prepared to determine the likely effects of the alternatives on PETS animals and/or their habitat. The tables below summarize the determinations. See the BA or BE for more detail.

The standards of protection for species listed by the US Fish and Wildlife Service under the Endangered Species Act of 1973 are different from those species listed by the Forest Service as sensitive. PET species are protected both as individuals and at the population level, while sensitive species are generally protected at the population level only. Because of this, determining and stating the potential effects on PET species is not the same as deciding the possible effects for sensitive species.

Threatened and Endangered Species

The conceptual relationship between analysis and findings for PET species is as follows:

	Type of Effects Identified	Corresponding Determination of Effect
1.	No effects (not ever, any)	“No effect”
2.	Discountable, insignificant or completely beneficial effects	“May affect, Not likely to adversely affect”*
3.	Adverse effects	“May affect, Likely to adversely affect”*

*Both 2 & 3 determinations may be referred to as “may affect” determinations under the 1986 ESA regulations, but without further elaboration, the term “may affect” could be misunderstood.

The following species known or suspected to occur on the Apalachicola National Forest were not evaluated individually because neither individuals nor suitable habitat is present in the project area and no indirect effects on individuals or habitat is expected outside of the project area: gray bat, wood stork, frosted flatwoods salamander, Gulf sturgeon, fat three-ridge mussel, shiny-rayed pocketbook mussel, Ochlockonee moccasinshell mussel, oval pigtoe mussel, purple bankclimber mussel, Harper’s beauty, White-birds-in-a-nest, Florida skullcap, and Godfrey’s butterwort. The proposed activities or other alternatives therefore have no effect on these species. More information on threats and habitat requirements is available from the Apalachicola District Office, Florida Natural Areas Inventory and NatureServe.

Two species, the red-cockaded woodpecker and the eastern indigo snake, have not been recorded in the project area recently but suitable habitat is present and they could occur there.

Alternative A (No Action)

The No Action alternative would have **No Effect** on RCWs and eastern indigo snake because no activities would take place and habitat conditions would not change.

The No Action Alternative would have **No Effect** on the gray bat, wood stork, flatwoods salamander, Gulf sturgeon, fat three-ridge mussel, purple bank climber mussel, shiney-rayed pocketbook mussel, Ochlockonee moccasinshell mussel, oval pigtoe mussel, Harper’s beauty, white-birds-in-a-nest, Godfrey’s butterwort, or Florida skullcap.

Alternative B (Proposed Action)

Implementation of Alternative B is **Not Likely to Adversely Affect** the eastern indigo snake or red-cockaded woodpecker, and may have beneficial effects over the long term by creating and maintaining the open stand structure characteristic of this system and known habitat requirements. The FP has a “May Affect” determination for the eastern indigo snake because individuals could be killed by heavy equipment. Unfortunately, indigo snakes appear to be very rare on the ANF, records of occurrence are old and infrequent. The chances of harming one with this project are slight; therefore, a Not Likely to Adversely Affect determination is more appropriate.

The Proposed Action alternative would likely have **No Effect** on the gray bat, wood stork, flatwoods salamander, Gulf sturgeon, fat three-ridge mussel, purple bankclimber mussel,

shiny-rayed pocketbook mussel, Ochlockonee moccasinshell mussel, oval pigtoe mussel, Harper's beauty, white-birds-in-a-nest, Godfrey's butterwort, or Florida skullcap .

Alternative C (No Herbicide)

Implementation of Alternative C is **Not Likely to Adversely Affect** the eastern indigo snake or red-cockaded woodpecker and may have beneficial effects over the long term by creating and maintaining the open stand structure characteristic of this system. The Biological Assessment for the Forest Plan has a "May Affect" determination for the eastern indigo snake because individuals could be killed by heavy equipment. Unfortunately, indigo snakes appear to be very rare on the ANF, records of occurrence are old and infrequent. The chances of harming one with this project are slight; therefore, a Not Likely to Adversely Affect determination is more appropriate.

Alternative C would have **No Effect** on the gray bat, wood stork, flatwoods salamander, Gulf sturgeon, fat three-ridge mussel, purple bankclimber mussel, shiny-rayed pocketbook mussel, Ochlockonee moccasinshell mussel, oval pigtoe mussel, Harper's beauty, white-birds-in-a-nest, Godfrey's butterwort, or Florida skullcap.

Table 6. Summary of the threatened and endangered species effects determinations for the Munson Hills Project January 2013.

SPECIES	ALT A	ALT B	ALT C
*Gray bat	No Effect	No Effect	No Effect
*Wood stork	No Effect	No Effect	No Effect
*RCW	No Effect	Not Likely to Adversely Affect	Not Likely to Adversely Affect
*Indigo snake	No Effect	Not Likely to Adversely Affect	Not Likely to Adversely Affect
*Flatwoods salamander	No Effect	No Effect	No Effect
*Gulf sturgeon	No Effect	No Effect	No Effect
*Mollusks	No Effect	No Effect	No Effect
*Harperocallis flava	No Effect	No Effect	No Effect
*Macbridea alba	No Effect	No Effect	No Effect
*Scutellaria floridana	No Effect	No Effect	No Effect
*Pinguicula ionantha	No Effect	No Effect	No Effect

* US Fish and Wildlife Service Endangered or Threatened

Sensitive species

The conceptual relationship between analysis and findings for Forest Service sensitive species is as follows:

	Type of Effects Identified	Corresponding Determination of Effect
1.	No effects	“No impacts”
2.	Beneficial effects	“Beneficial impacts”
3.	Adverse effects (one of these two determinations, depending on extent of adverse effects)	“May impact individuals but not likely to cause a trend to federal listing or a loss of viability” or “Likely to result in a trend to listing or a loss of viability”

Alternative A (No Action)

The No Action alternative would likely have **No Impact** on the bald eagle, Apalachicola dusky salamander, Apalachicola king snake, Arogos skipper, the Dragonflies, and Aquatic Sensitive species. The project would not occur in their habitat.

The No Actions alternative would likely have **No Impact** on sensitive species in the analysis area because there would be no activities that could harm individuals and habitat conditions would not change.

Alternative B (Proposed Action)

This action alternative would likely have **No Impact** on the bald eagle, Apalachicola dusky salamander, Apalachicola king snake, Arogos skipper, the Dragonflies, and Aquatic Sensitive species. The project would not occur in their habitat.

This alternative **May Impact Individual Sensitive Species but Is Not Likely to Cause a Trend to Federal Listing or a Loss of Viability**. This project poses low risk to sensitive animal species populations except for the possibility of injury or death due to contact with heavy equipment. Road management activities such as road maintenance, road reconstruction, and road construction would not affect sensitive species that may be present in project area. Roads would not be barriers because forest roads are narrow, and have swales instead of ditches. Unlike ditches, swales have gradual slopes that do not create barriers for small fauna. Road management activities would not increase hunting or poaching in the project area because no additional road access would be grated as a result of this project. Roads to receive maintenance or reconstruction are roads that are already open to the public, and road construction would take place on temporary roads that would be closed when project activities were completed. Alternative B **May Impact Individuals, But Is Not Likely to Cause a Trend to Federal Listing or a Loss of Viability** for sensitive plant species that occur in the affected area (Sandhill) because these species are light dependent. A risk remains that individuals may be impacted, damaged or killed during the proposed management actions (thinning, mechanical shrub reduction, planting longleaf, herbicide application), however it is important to note that overall habitat improvement is the anticipated outcome of the project.

Alternative C (No Herbicide)

This action alternative would likely have **No Impact** on the bald eagle, Apalachicola dusky salamander, Apalachicola king snake, Arogos skipper, the Dragonflies, and Aquatic Sensitive species. The project would not occur in their habitat.

This action alternative **May Impact Individual Sensitive Species but Is Not Likely to Cause a Trend to Federal Listing or a Loss of Viability**. This project poses low risk to sensitive species populations except for the possibility of injury or death due to contact with heavy equipment.

Table 7. Summary of the sensitive and proposed species effects determinations for the Munson Hills Project January 2013. For a list of individual sensitive species represented by this list please see the Biological Evaluation.

Sensitive aquatic animals	No Impact	No Impact	No Impact
Sensitive terrestrial animals	No Impact	May Impact Indv.	May Impact Indv.
Gopher tortoise	No Impact	May Impact Indv.	May Impact Indv.
Striped newt	No Impact	May Impact Indv.	May Impact Indv.
Sandhills	No Impact	May Impact Indv.	May Impact Indv.
Mesic-Wet Flatwoods	No Impact	No Impact	No Impact
Strands, Cypress Ponds, Swamps	No Impact	No Impact	No Impact
Savannas, Bogs, Seepage Slopes	No Impact	No Impact	No Impact
Pond, Lake Margins	No Impact	No Impact	No Impact
Aquatic	No Impact	No Impact	No Impact
Slope, Hardwood Forest	No Impact	No Impact	No Impact
Bluffs	No Impact	No Impact	No Impact
River/Streambanks	No Impact	No Impact	No Impact
Floodplains	No Impact	No Impact	No Impact

Vegetation

Overstory and Midstory

Existing Condition

The majority of the trees suitable from timber management in the analysis area are longleaf pine (53%), followed by slash pine (17%) and then scrub-oak stands which comprise about 14% of the area. These scrub oak stands represent land that could support pine trees but are currently under-stocked. These stands are interspersed with hardwood and mixed pine/hardwood swamps and stream buffers to round out the rest of the analysis area.

The longleaf pine (*Pinus palustris*) stands within the analysis area have site indexes ranging from 60 to 70. Their ages range from 10 to 100+ years old. For the most part, these trees have crown ratios from forty to fifty percent with adequate growing space. The basal areas have a range of 50-80 sq. ft. per acre. There are some occasional slash pines growing with the longleaf. On the xeric sites, turkey oak is present and growing in the midstory. Most of these

stands are on their way to meeting the desired future condition for longleaf pine stands as described in the Forest Plan with little treatment other than continued prescribed fire.

The majority of the slash pine stands are between 40 and 60 years old. They are classified as immature or mature poletimber. These stands are also considered “Off-Site” because slash pine is better suited for moist or wet soils and these stands are not growing well. Slash pine puts out lateral roots for stability whereas longleaf pine has a tap root. The soils under these stands are well-drained to excessively well-drained. The water table is often 60 inches below the surface. A secondary indicator is the presence of scrub oaks in the understory, which are naturally found on xeric or dry sites. So when slash pine and scrub oaks are found together the slash pine should be considered off-site. The off-site stands are very far away from the desired condition of the forest described in the forest plan. The preferred trees species for this site would be longleaf pine. Clearcut with reserves would be best cutting method for converting these off-site slash pine sites to longleaf. Clearcut is the optimal cutting method because there are usually not enough longleaf pine volunteers in the stand to act as a seed source for natural regeneration. The longleaf pine volunteers are generally clumped or sporadic and would not provide a seed source to cover the whole stand.

The scrub oak stands in the analysis area range from sparse to thick. The groundcover under these stands varies with the density of the canopy. As the density of trees increase the amount of grasses decreases. The height of the trees is usually 5-40 feet tall, and would normally fit under a longleaf pine overstory. The species of oaks often include turkey oak, post oak, bluejack oak, sand live oak, and others. Many of these stands will have some scattered longleaf pine trees of different ages. Over time longleaf would be would fill in these stands. The typical treatment prescribed for these stands to move them toward the future desired condition would be to treat the oaks with herbicides and plant longleaf pine.

Table 8. Age-class Distribution by Forest Type

Forest Type	Acres by Age class												Total	Percent
	1-	11-	21-	31-	41-	51-	61-	71-	81-	91-	101-			
	10	20	30	40	50	60	70	80	90	100	110			
Slash pine-hardwood										102	49	151	2%	
Longleaf pine	712	943	476	247	575	90	7	54	478	522	23	4,126	53%	
Slash pine			8		697	470	95	3	59			1,332	17%	
Bald cypress									24	33		58	1%	
Yellow pine					4			34	52		23	112	2%	
Longleaf pine-hardwood						10						10	1%	
Loblolly pine - longleaf pine										23		23	1%	
Bottomland hardwood-yellow pine									33	185		218	3%	
Bear oak - southern scrub oak - yellow pine										8		8	1%	
Scrub oak					18	352	412	7	191	89		1,069	14%	
Laurel oak-willow oak									25			25	1%	
Bald cypress-water tupelo										6	117	123	2%	
Sweetbay-swamp tupelo-red maple								49	80	256		385	5%	
Oak hammock									47	75		122	2%	
Live oak									1	1		2	1%	
Brush species								67				67	1%	
Misc.	26	2			36							64	1%	
AC	738	944	484	247	1,329	923	514	214	989	1,300	212	7,894	Total	
%	10	12	7	4	17	12	7	3	13	17	3	100	Percent	

Table 9. Proposed Treatments and Volume Summary.

Compartment	Stand	Treatment Acres	Treatment	Approximate Volume Removed - CCF		
				Pulpwood	Sawtimber	Total
0201	7	25	Clearcut	201	55	256
0201	9	4	Clearcut	32	6	37
0201	11	26	Clearcut	199	35	234
0201	15	40	Clearcut	309	37	346
0201	17	45	Clearcut	371	100	471
0201	20	7	Clearcut	71	4	75
0201	24	25	Clearcut	161	39	201
0201	26	33	Clearcut	127	2	129
0201	27	13	THN	26		26
0201	32	32	THN	50		50
0201	34	27	THN	59		59
0201	36	2	THN	2		2
0201	37	22	THN	65		65
0201	49	8	Clearcut	109	51	160
0201	51	26	Clearcut	322	112	434
0201	53	9	Clearcut	59	28	87
0201	57	11	Clearcut	133		133
0201	86	31	Clearcut	190	25	215
0202	3	24	THN	77		77
0202	4	29	Clearcut	165	7	172
0202	5	5	Clearcut	41	14	55
0202	6	14	Clearcut	108	5	113
0202	7	35	THN	69		69
0202	10	24	Clearcut	177	35	212
0202	12	8	THN	18		18
0202	13	40	Clearcut	278	72	350
0202	21	11	Clearcut	90	51	142
0202	25	20	Clearcut	141	14	155
0202	27	5	Clearcut	37	9	46
0202	34	16	Clearcut	99	11	110
0202	35	21	Clearcut	117		117
0202	37	12	Clearcut	82	19	101
0202	50	26	Clearcut	239	46	285
0202	54	6	Clearcut	52	10	62
0202	55	48	THN	156		156
0202	56	16	Clearcut	87	19	106
0202	60	9	Clearcut	66	6	72
0202	61	9	Clearcut	46	2	48
0218	4	32	Clearcut	229	25	254
0218	7	17	Clearcut	123	5	128
0218	9	36	Clearcut	435	122	557
0218	12	6	Clearcut	49	11	61
0218	13	53	THN	170		170
0218	17	32	Clearcut	181	8	188
0218	19	19	Clearcut	93		93

Compartment	Stand	Treatment Acres	Treatment	Approximate Volume Removed - CCF		
				Pulpwood	Sawtimber	Total
0218	21	9	Clearcut	51	11	62
0218	22	13	Clearcut	89	15	105
0218	25	18	Clearcut	125	3	128
0218	26	2	Clearcut	2	1	2
0218	28	15	Clearcut	13	25	38
0218	29	9	Clearcut	72	14	87
0218	30	18	Clearcut	185	56	241
0218	31	7	Clearcut	63	17	80
0218	33	5	Clearcut	41	5	46
0218	34	8	Clearcut	40	7	46
0218	36	17	Clearcut	232	188	421
0218	40	13	Clearcut	191	129	320
0218	45	7	Clearcut	49	6	55
0218	51	14	Clearcut	53	3	56
0218	54	7	Clearcut	56	6	63
0218	56	11	Clearcut	64	3	67
0218	58	26	Clearcut	170	3	173
0218	60	19	Clearcut	148	37	185
0218	61	5	Clearcut	89	45	133
0218	69	14	Clearcut	93	17	110
0218	79	4	Clearcut	35	10	45
0226	3	64	Clearcut	786	629	1415
0226	9	28	Clearcut	361	148	509
0226	14	59	THN	95	11	105
0226	20	8	Clearcut	36	7	43
0226	21	27	THN	55		55
0226	22	48	THN	84		84
0226	26	7	Clearcut	78	30	107
0226	27	27	Clearcut	296	167	463
0226	29	18	Clearcut	190	32	222
0226	33	12	Clearcut	40	2	43
0226	34	14	Clearcut	41	2	43
0226	44	32	Clearcut	227	84	311
0226	46	21	THN	93	59	152
0226	51	4	Clearcut	43	23	66
0226	55	39	THN	170	116	286
0226	64	15	Clearcut	237	49	285
				10,602	2,948	13,549

Groundcover

The groundcover is mainly composed of dwarf live oak, runner oak, sand live oak, shiny blueberry, wiregrass, saw palmetto, and some gallberry. In spots where the scrub oaks are thick the groundcover has been shaded out and is often absent. In these areas a layer of oak leaves covers the ground. Where the ridge transitions to the stringers along the streams the density of gallberry in combination with fetterbush, titi, wax myrtle, sweetbay, huckleberry, or holly begins to pick up. The low areas and natural drainages contain bottomland hardwoods. Typical

treatments to improve groundcover would revolve around enhancing pyrogenic species allowing fire to spread across the landscape more efficiently. Examples of these treatments might include planting or seeding wiregrass, killing or reducing the density of oaks that shade out groundcover.

Old Growth

Some old growth stands, as designated by the forest plan, are within the analysis area. These old-growth stands were designated for the whole forest according to the guidance provided in Forestry Report R8-FR 62 at the projected acreages for individual management area (described in the Forest Plan on page 2-6). Many of the designated stands do not meet the old growth parameters in the report, but these stands were designated because these were the oldest stands and most likely to achieve the old-growth parameters first. Two of the old growth stands are proposed for treatment in alternative B and C. One is in the Upland Longleaf group and the other is in the Wet Pine group. The objective of the treatment would be to perpetuate old growth longleaf pine by controlling hardwood encroachment with herbicides. This will allow herbaceous groundcover which is necessary for the establishment of naturally seeded longleaf. In the Wet Pine group the some large hardwood trees would be retained while controlling the midstory hardwoods to allow more sunlight to reach the forest floor.

Table 10. Designated Old Growth Stands within Munson Sandhill II Analysis Area

Old Growth Type	Comp	Stand	Acres	Birth Day	Forest Type	DFC MA
Xeric Oak	201	8	39.2	1927	57	9.2
	201	31	10.4	1912	57	9.2
	226	40	30.4	1930	57	9.2
	226	63	2.4	1920	57	9.2
	226	48	23.4	1930	57	9.2
	226	45	70.1	1918	57	9.2
	226	52	20.7	1930	57	9.2
Upland longleaf and south Florida slash pine forest, woodland, and savanna	201	3	10.4	1912	21	9.2
	201	3	1.8	1912	21	9.2
	201	3	3.4	1912	21	9.2
	201	59	24	1908	21	9.2
Southern wet pine forest, woodland, and savanna	202	11	19.5	1909	14	9.2
	202	22	41.6	1909	14	9.2
	202	66	7.5	1909	14	9.2

Non-Native Invasive Species

A wide variety of non-native invasive species occur on the forest. A complete inventory of the forest has not been conducted although many species are known to occur throughout the forest, but are mostly located along roads and other disturbed areas. During this analysis several people have surveyed the stands to be treated that have the responsibility to report infestations found. As a coordination measure, contracts for timber sales, road reconstruction or

maintenance, site preparation and mechanical fuel reduction that involve equipment would contain equipment cleaning clauses to reduce the risk of spread or introduction of exotic plants.

If a population of non-native invasive species is discovered in the analysis area it could be treated under the authority established in the Environmental Assessment for Non-Native Invasive Plant Control on the Apalachicola National Forest. The decision notice for this analysis was approved on 7/15/2004.

Alternative A

Under alternative A, off-site slash pine plantations would continue to lose vigor, slow their growth and continue through the stem exclusion stage of development. As canopy closure continues the herbaceous understory vegetation would continue to decline. Once a stand stagnates it may not be able to respond to thinning in the future. Off-site slash pine would continue to occupy longleaf sites. Under stocked stands would continue to persist with undesirable woody vegetation such as scrub oaks. Prescribed burning would continue every 3 to 4 years which would help control undesirable species to a limited extent, but would not promote full recovery.

Alternative B

Thinning would reduce the basal area of selected stands to 50 ft²/ac of basal area by removing selected rows in the individual stands. The removal of pine trees would reduce the amount of pine needle litter that falls to the forest floor. Pine straw is one of the fuel types that provide continuity across a forest stand allowing fire to spread evenly. It has been determined by our fuels specialist and a biologist that this pine straw reduction would not cause a reduction in our ability to prescribe burn these stands effectively.

Harvesting operations, such as thinning pose a risk of direct mortality to sensitive plant species, but the benefit to plant populations as a whole would be positive. Thinning would open up the overstory of these stands and reduce the competition between residual trees for sunlight, moisture, and nutrients, causing an increase in radial growth. Hardwood brush and herbaceous vegetation would also respond to the increase of sunlight, moisture, and nutrients.

Removing off-site or poorly growing species and replanting the sites to longleaf pine should increase the site productivity of the stands involved. Currently these stands are not growing well and have stagnated.

Site preparation whether herbicide or mechanical would increase the survival of the longleaf seedlings to be planted. Site preparation is designed to kill or “knock back” woody vegetation that would compete with the longleaf seedlings for sunlight, nutrients, and water.

Hexazinone is a photosynthetic inhibitor in broadleaf trees. It is readily absorbed through the roots and, to a lesser degree, through foliage (liquid formulations). Foliar absorption can be greatly enhanced by the addition of a nonionic surfactant. Hexazinone translocates upward via the xylem and is generally selective, controlling most hardwoods. Loblolly pine is somewhat more susceptible than the other, generally resistant, southern yellow pines. (SERA, 2005)

Triclopyr is a growth regulator. It is readily absorbed by foliage with some stem uptake. It translocates up and down in plants, and accumulates in growing tissues and the root collar.

Herbicide application would kill approximately 60% of the understory hardwoods. Application of herbicide in combination with prescribed fire would result in a reduction of upland hardwoods and an increase in the cover of wiregrass and other native groundcover. (Brockway, 2000) It will also aid in the survival of pine seedlings.

Mechanical site preparation is a common method used throughout the southern United States. Piling and burning the remaining trees and logging debris added to the success of groundcover restoration in Torreya State Park (Personal Communications with David Printiss, The Nature Conservancy). The potential effects of mechanical site preparation on the vegetation would be to crush the vegetation and pull up tree roots. The vegetation and debris would be piled and burnt or removed from the site.

Site preparation burning after the harvest operations would knock back or top kill the hardwood brush reducing the chances of its encroachment. Planting wiregrass and longleaf pine would have a short-term effect of providing fine fuels to carry fire and structure for insects and birds. The long-term effect would result in fully stocked pine stands of desirable species and herbaceous vegetation.

Timber harvesting, road reconstruction, road maintenance, and mechanical site preparation contracts would increase the risk of introducing non-native invasive plants into the project area. Contracts contain a clause that would require that mechanical equipment be cleaned before entering the project area and when moving from one unit to another within the project area.

Alternative C

Effects of Alternative C would be the same as Alternative B, except the herbicides hexazinone and triclopyr would not be used. Prescribed fire would be used in place of the herbicides to control woody vegetation currently on the site or re-sprouting. The woody vegetation would persist following mechanical piling and burning. Without the use of herbicides it is anticipated the survival of longleaf seedling would be reduced and possibly fail. Therefore this alternative would be less effective in moving the forest toward it desired future condition.

Cumulative Effects

No effects from the past, present and future activities were identified that would combine with the effects of the proposed action and result in a measurable cumulative effect for forest resources. A general reduction in risk of attack from forest pathogens and fire on is expected to occur as timber thinning is implemented. Impacts are generally limited to within the project area. The proposed treatment in alternatives B and C would help move some to the treatment stands toward the desired Future Condition as described in the Forest Plan. However this will be a gradual change over time.

Climate change scenarios for the southeastern United States frequently include a moderate increase in average air temperature and a higher incidence and increased severity of droughts, fires and hurricanes. These changes may have a variety of effects on ecosystems and processes, but planting longleaf pines and frequent prescribed fires should increase forest resistance to disease and catastrophic wildfire and increase resilience to extreme weather events (Johnsen et al. 2009, National Wildlife Federation 2009). In the context of climate change, the proposed activities will increase forest health and resilience to climate-related perturbation, whereas the

no action alternative will produce forests that are less resistant and resilient to drought, disease, hurricanes and insect damage.

SOCIAL ECONOMIC ENVIRONMENT

Public Health and Safety

The use of herbicide is often a concern to forest users, workers, and the general public regarding human health and safety.

Alternative A – No Action

No herbicide use is proposed with this alternative. There would be no potential for effects to human health from herbicide use under this alternative.

Alternative B – Proposed Action

This alternative proposes the use of herbicides for woody plant control, but due to the short half-lives and fast biodegradability of the proposed products, there is a very low probability of prolonged exposure and risk. The herbicides considered for this project were selected largely for their low toxicity to humans and the environment. There is little risk that the public may unknowingly come into direct contact with treated vegetation as areas will be posted with signs or access otherwise prevented. With the mitigation measures described previously in this document, there is low probability of drift or off-site movement. The label directions place restrictions on wind speed at the time of spraying. Applications will be made close to the ground surface with equipment that produces large size droplets that do not carry far.

Herbicide labeling, which governs the types of uses, disposal, precautions for use, etc., is regulated by the EPA in accordance with FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act of 1947, with numerous additions). Based on tolerances, residue data, and environmental fate, label-use restrictions may be placed on an herbicide label.

Herbicides approved by the EPA would be used. All label requirements would be followed, as required by the EPA. Following the label ensures that the public will not come in contact with herbicide concentrations that may cause harmful effects.

Herbicide applications would be supervised by a Forest Service Certified Pesticide Applicator. This employee would ensure compliance with labeling instructions and safety methods to reduce the risk of accidents.

Risk to public health from herbicide applications has been addressed in a Risk Assessment as part of the VMEIS CP/P (Vol. II, Appendix A) and supplemented by the analyses done by Syracuse Environmental Research Associates (SERA 2005, 2011) They document the probable effects on human health (and wildlife) resulting from typical and maximum applications, and accidental spills of herbicide. They analyze the potential for these herbicides to cause toxic effects, cancer, mutations, and birth defects. Based on the Risk Assessment in the VMEIS CP/P, the Regional Forester concluded in the Record of Decision (ROD) for the VMEIS CP/P (p. 12) that application of these herbicides, when applied under the guidelines described, provided greater health protection to workers, the public, and wildlife, than is required by published health and safety standards. Applied under the guidelines, these

herbicides do not pose a significant risk to human health. These guidelines are found in Appendix A of the ROD for the VMEIS CP/P.

If label directions are not followed properly, these herbicides could cause eye and skin irritations to workers. The Apalachicola NF uses the lowest rate possible to meet its goals. For a typical application, the use of these chemicals poses a low risk to safety. Under the conditions of typical public exposure to hexazinone or triclopyr, no member of the public would be affected (VMEIS CP/P, Vol. I, p. IV-14).

Hexazinone and triclopyr herbicides are soluble and do not accumulate in human or animal tissue. Human and animal exposure and risk studies conducted for, or cited in, the VMEIS CP/P indicate that cumulative build up effects on human health do not occur when used at prescribed rate with appropriate application methods.

In summary, risks to public health and safety under the Proposed Action are negligible.

Alternative C – No Herbicide Alternative

No herbicide use is proposed with this alternative. There would be no potential for effects to human health from herbicide use under this alternative.

Cultural Resources

Affected Environment

All stands and roads in the proposal were inventoried for cultural and heritage resources in 2012. To avoid impacting potential sites, the proposed action has been developed to exclude known sites.

Alternative A – No Action

In this alternative, ongoing forest management activities would have no effect on cultural and heritage resources. There would be no opportunity to locate presently unknown sites within the project area.

Alternative B – Proposed Action

Activities involving the operation of heavy equipment, such as timber harvesting, mechanical site preparation, road maintenance, and road reconstruction have the greatest potential of all the proposed actions to damage or destroy heritage sites.

Alternative B is not likely to have an effect on cultural or heritage resources because stands to be treated have been surveyed by our forest archeologist. There is still potential to affect undiscovered sites, but this potential is low because stands that had a high probability for cultural resources were intensely surveyed. The following coordination criteria would be set in place to minimize the effect:

- *If any heritage resources were discovered during operations all ground-disturbing activity would cease. The Forest Archeologist would determine changes to be made to the project before work would resume (Forestwide Standard & Guide HE-1).*
- *Known cultural resource sites would be protected by timber sale contract and no ground-disturbing activities would occur in these areas, which may include segments of roads (Forestwide Standard & Guide HE-2).*

Alternative C – No Herbicides

Effects on cultural resources for Alternative C would be slightly less as Alternative B, because prescribed fire would replace heavy equipment used in groundcover restoration.

Cumulative Effects

No effects from past, present and future activities were identified that would combine with the effects of the proposed action and result in a measurable cumulative effect for cultural resources.

Economics**Alternative A – No Action**

The “No Action” alternative would not bring in any revenue to the United States Treasury, but it would also not cost any more than current management activities. Alternative A would not contribute to the economy of Leon County or surrounding counties in the form of revenues and the cost of the normal prescribed burning and road maintenance would cause this alternative to have a negative net value.

Alternative B – Proposed Action

This alternative would remove approximately 13,550 CCF of pine products through timber harvest.

The following table shows the financial analysis of the alternatives. The actual revenue generated by a timber sale would be computed using final cruise data, bid prices, and costs current at the time of the sale. The cost analysis indicates a sale Net Worth of this alternative would be slightly positive.

Alternative C – No Herbicide

Effects of Alternative C would be the less expensive than Alternative B because there are no herbicides proposed for the stands to be clearcut, which would be included in the sale economics as required reforestation.

Table 11. Financial Analysis

Base Year 2013
 Inflation Rate 0.019

				Alternative A		Alternative B		Alternative C	
Revenues:				Units	Inflated	Units	Inflated	Units	Inflated
Product	Units	Value/Unit	Year Planned	Planned	Benefits	Planned	Benefits	Planned	Benefits
Sawtimber	CCF	\$74.81	2013	0	0	2,948	220,540	2,948	220,540
Pulpwood	CCF	\$48.00	2013	0	0	10,602	508,896	10,602	508,896
Total				0	0	13,550	729,436	13,550	729,436

				Alternative A		Alternative B		Alternative C	
Costs:				Units	Inflated	Units	Inflated	Units	Inflated
Action	Units	Cost/Unit	Year Planned	Planned	Costs	Planned	Costs	Planned	Costs
Sale Preparation	CCF	\$0.00	2013	0	0	13,550	0	13,550	0
Site Preparation - Herbicide	Acre	\$100.00	2014	0	0	1,167	118,917	0	0
Site Preparation - Burn	Acre	\$36.18	2015	0	0	0	0	1,167	43,842
Plant Longleaf	Acre	\$150.00	2016	0	0	1,167	185,219	1,167	185,219
Road Reconstruction	Miles	\$11,793.62	2013	0	0	14	164,639	14	164,639
Road Maintenance	Miles	\$13,510.23	2013	0	0	13	169,013	13	169,013
Temporary Roads	Miles	\$11,615.98	2013	0	0	4.6	53,782	4.6	53,782
Sale Summary:					0		691,570		616,494

Action	Units	Calculation	Alternative A		Alternative B		Alternative C	
Benefits	Dollars	Total Revenues less Roads		0		511,015		511,015
Roads and Trails	Dollars	10% Roads and Trails		0		51,101		51,101
NFF- Return to Counties	Dollars	25% Revenues		0		127,754		127,754
Action Costs	Dollars	Total Costs		0		304,136		229,060
Sale Net Worth	Dollars			0		28,024		103,099

Non Sale Related Items:									
Site Prep Mechanical (NS)	Acre	\$254.67	2014	0		1,009	261,844	1,009	261,844
Herbicide Release	Acre	\$270.00	2014	0		174	47,873	0	0
Site Prep Herbicide (NS)	Acre	\$245.99	2014	0		363	90,991		0
Site Prep Burn (All)	Acre	\$36.18	2014	0		494	18,213	494	18,213
Plant Native Grass Plugs	Acre	\$386.00	2014	0		65	25,567	65	25,567
Seed Native Grasses	Acre	\$450.13	2014	0		1,014	465,104	1,014	465,104
Plant Longleaf	Acre	\$257.83	2015	0		494	132,254	494	132,254
1st Year Survival Check (NS)	Acre	\$62.22	2016	0		1,661	109,351	1,661	109,351
3rd Year Survival Check (NS)	Acre	\$66.01	2018	0		1,661	120,462	1,661	120,462
	Acre			0			0		0
RCW Inserts	Each	\$410.95	2014	0			0		0
				Non-Sale Related Costs			0		1,271,658
				Grand Total Cost of Alternative			0		1,963,228

Infrastructure

Affected Environment:

The Transportation Plan for the Munson Sandhill II Analysis Area includes roads in compartments 201, 202, 218, and 226. There are approximately ~ 145 miles of system and non-system roads in these compartments. The roads are maintained at several different maintenance levels described in the table below. The main travel arteries are graded forest roads. Most of the maintenance level 1 and 2 roads that provide back-country access to the public are of a native surface material and require high clearance vehicles. These woods roads are only maintained if a problem such as erosion occurs.

The Munson II project proposes to utilize most of the main access roads in the area but only ½ of the level 1 or 2 roads, and a few non-system roads. The amount of work necessary to maintain these roads will differ from location to location based on the current condition of the road and the amount of timber products to be removed.

Table 12. Miles of Roads by Operation Maintenance Level

Description	Road Maintenance Level	Miles	Used During Sale
High Degree of User Comfort	5	10.6	2.98
Moderate Degree of User Comfort	4	0.22	0
Suitable for Passenger Cars	3	9.02	9.02
High Clearance Vehicles	2	1.26	0
Basic Custodial Care (Closed)	1	44.09	15.22
Non-system – Administrative Use Only	NA	79.46	2.86
Total	NA	144.65	30.08
Designated Motorcycle Trails	NA	34.9	NA

In 2007 District Ranger Marcus Beard issued a Decision Notice and FONSI on Motorized Route Designation for roads and trails on the Apalachicola National Forest. This decision changed the basic way we managed the road system on the forest. It no longer allowed cross-county travel and required users to stay on numbered roads. It reduced the number of roads open to the public on the Apalachicola Ranger District by 968 miles and 249 miles on the Wakulla Ranger District thus reducing the road density accordingly.

In the Munson II analysis area the current road density is 2.8 miles per square mile of roads open to the public as compared to 4.1 miles per square mile prior to implementing the 2007 Route Designation decision.

Alternative A – No Action

There would be no change to the current transportation system described in Table 11 and shown in the preceding map on Page 28.

Alternative B – Proposed Action

Alternative B would include the use of approximately 4.3 miles of temporary non-system roads. Until the Forest-wide Transportation Analysis Process is completed in 2013 or beyond, these roads would only be used to extract timber from established plantation stands and would not be open to general public motorized use.

The proposed action would also include road reconstruction of approximately 13.96 miles and maintenance of 12.51 miles.

Timber harvesting would cause a temporary increase in traffic as a result of hauling timber products. The proposed roadwork would provide better access for public and/or administrative use, while protecting the environment. Temporary log landings would be placed in stands that are to be thinned.

Alternative C – No Herbicide

Effects from Alternative C on the transportation system would be the same as Alternative B.

Cumulative Effects

The Route Designation process completed in 2007 eliminated OHV use in the area. The Forest will complete a Forest-wide analysis of the transportation system in FY13 as described in 36 CFR§ 212.5. Any changes to the transportation system would be addressed in a separate site-specific analysis.

Improvement of the transportation system within the Munson hills II analysis area could lead to an increase in use by the general public especially during hunting season.

Table 13. Road Maintenance, Construction and Reconstruction Cost Summary.

Road Number	Reconstruction (Miles)	Maintenance (Miles)	Temporary (Miles)	Cost
305		0.97		\$0
324		2.99		\$57,886
328		0.55		\$0
358		4.7		\$90,992
370		1.04		\$20,134
370		2.26		\$0
305-T			0.23	\$2,672
324-T-1			0.13	\$1,510
324-T-2			0.06	\$697
327-B-T-1			0.16	\$1,859
327-B-T-2			0.08	\$929
328-A-T-1			0.34	\$3,949
328-A-T-2			0.14	\$1,626
328-A-T-3			0.31	\$3,601
328-A-T-4			0.27	\$3,136
328-A-T-5			0.32	\$3,717
330-T-1			0.29	\$3,369
330-T-2			0.25	\$2,904
330-T-3			0.09	\$1,045
330-T-4			0.06	\$697
332-A-T-1			0.04	\$465
332-A-T-2			0.38	\$4,414
332-E-T-1			0.06	\$697
333-D-T-1			0.28	\$3,252
358-T-1			0.53	\$6,156
358-T-2			0.14	\$1,626
358-T-3			0.2	\$2,323
370-T-1			0.06	\$697
370-C-T-1			0.21	\$2,439
324-A	0.23			\$2,672
327	0.91			\$10,571
327-B	2.37			\$27,530
327-D	1.81			\$21,025

Road Number	Reconstruction (Miles)	Maintenance (Miles)	Temporary (Miles)	Cost
327-E	0.42			\$4,879
328-A	0.75			\$8,712
330	1.72			\$19,980
332	0.12			\$1,394
332-A	2.06			\$23,929
332-E	0.4			\$4,646
333-C	0.71			\$8,247
333-D	1.17			\$13,591
333-G	0.28			\$3,252
358-F	0.38			\$4,414
370-C	0.47			\$5,460
OTIS WALLACE	0.16			\$4,337
Total	13.96	12.51	4.63	\$387,431

Visual Quality

The visual quality objectives of the analysis area range from maximum modification to retention. These designations are based in part on distances from points of interest, such as developed recreation areas, heavily traveled recreation roads, or wilderness areas. The majority of the Munson II Sale area falls into the Partial Retention classification. In this designation, some foreground vegetation should be kept to shield view of activities from their source. Openings in the forest should be designed to keep the view less than 10 acres in size. Patches of natural vegetation should be utilized to reduce the field of view.

Table 14. Visual Quality Objectives

Visual Quality Objective	Acres in Analysis Area	Percent Of Analysis Area
Retention	2,981	12%
Partial Retention	18,799	73%
Modification	487	2%
Maximum Modification	3,482	13%
Total	25,749	100%

Alternative A – No Action

In the short-term, the primary visual impact is from prescribed fire which leaves large areas of blackened vegetation. Much of the blackened ground vegetation regrows within the first month following fire. Blackened tree boles and woody shrubs killed by fire would remain for up to a year or more. Repeated burning would promote an open understory dominated by herbaceous ground cover in a more open park like condition which would improve visual quality.

Alternative B – Proposed Action

In the short-term, the primary visual impact is from prescribed fire which leaves large areas of blackened vegetation. Much of the blackened ground vegetation regrows within the first month following fire. Blackened tree boles and woody shrubs killed by fire would remain for up to a year or more. Repeated burning would promote an open understory dominated by herbaceous ground cover in a more open park like condition which would improve visual quality.

The treatment clearcut with reserves and associated site preparation would have the second largest impact on the visual quality of the area. Once the timber sale operations or site preparation begin, the removal of trees will be evident. Many other stems or brush species in these stands would be bent over or crushed by the mechanical equipment which will leave the area ragged looking. If the areas are scheduled to be mechanically cleared and piled the ragged appearance would be replaced with an even look or low vegetation. This effect is expected to last two or three years or until the trees seedlings begin to fill out the area.

Other short-term effects to visual quality would include residual slash from thinning, skid trails and log landings. These conditions would likely remain evident on the ground for up to 2-years, but would gradually become less evident. The long-term effect would be a more open forest with herbaceous ground cover which would improve the visual quality by meeting the areas desired conditions. Under this Alternative, Forest-wide standard *VG-15* would apply to several stands along Springhill highway and forest road 358. *VG-15* would require *slash, tops, and logging debris be piled no more than 2 feet high within 100 feet of these roads.*

The visual effects of mechanical or herbicide site preparation will be limited to the immediate area of the stand itself. Some of the treatment areas are right along forest roads and will be visible to people passing by.

Alternative C – No Herbicide

The effects from Alternative C would be the same as Alternative B except the browning of vegetation from the use of herbicides would not occur.

Recreation**Affected Environment:**

The recreation opportunities that are available to the public in this analysis area include, but are not limited to, Off Road Vehicles (ORV), camping, fishing, hunting, picnicking, swimming, pleasure driving, and wildlife viewing. Of these recreation uses, ORVs and hunting are the most common activities in this area. The project area covers a large portion of the 57 miles that are allotted for single track motorcycle only trails on the Apalachicola National Forest. The desired set of experiences offered in or adjacent to these areas are classified as Roaded

Natural or semi-primitive motorized in the Recreation Opportunity Spectrum (ROS). Roded Natural classification has the probability to experience some affiliation with other types of activities more common to the recreation experience but does not imply that management techniques would not be seen or heard. This spectrum is a USDA Forest Service management approach for recognizing possible combinations of recreation activities, settings and probable experience opportunities.

Alternative A – No Action

This alternative would have little effect on Off Road Vehicle (ORV) use in this area. Without reforestation, the area would lose composition and character, and would decline into a thick brushy understory. Hunting, wildlife viewing, and pleasure driving experiences would decline as the stands become dense with vegetation.

Alternative B – Proposed Actions

This alternative would have short and long term impacts to Off Road Vehicle recreation activities. Short term impacts would include ground disturbance of trail tread from equipment crossing trails, closing sections of designated trails that are identified as a haul route and during application of treatments on stands where trails go through them. Stands within compartments 201, 218, and 226 have clear-cut activities that have trails crossing through them. In these stands, there will be a long term effect on sections of trail. These effects would include a decline in technical difficulty and visual quality from removal of timber and vegetation adjacent to the trails. The application of herbicides to hardwood vegetation adjacent to trails would have a short term impact on dead fall across trails and potential hazard trees. Signage throughout the trail system consists of fiberglass signs posted to trees and at intersections in the ground and could be damaged or removed during operations. Initially there will be impacts to visual quality due to leftover slash and removal of trees. Until the replanted stand grows to a sufficient height the areas will be hotter to travel through with the amount of safety equipment that is worn for motorcycle trail riding. Positive effects of this alternative would include improved hunter success through better lines of sight and access. This alternative also includes opportunities for trail improvement on portions of trail 12 and 14. These trails will be rerouted to minimize impacts, cure safety and erosion issues, and improve loop flow. Eventually over time as longleaf pine replaces the off-site slash pine the general appearance of the forest will improve.

Alternative C – No Herbicides

Under this alternative, the effects would be the same as Alternative B except some of the short-term effects from the use of herbicides would not be evident and the long term openness of the forest may not be visualized.

Cumulative Effects

No effects from past, present and future activities were identified that would combine with the effects of the proposed action and result in a measurable cumulative effect.

Environmental Justice and Civil Rights Impact Analysis

None of the actions proposed by any of the alternatives should have a negative effect on the Civil Rights of the citizens of Leon County or the surrounding area. No minorities would be discriminated against because of the proposed actions in these alternatives. No groups of people would be disproportionately affected as a consequence of the proposed action. All labor contracts generated from the proposed action would have clauses, which prohibit discrimination for any reason. There are no foreseeable changes in the management of the forest or surrounding private lands that would adversely affect the Civil Rights of people in the future. There would be no significant effects on public health and safety. These activities are commonplace forestry activities, which have been utilized many times in the past.

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<http://www.fs.fed.us/r8/planning/index.php>

CONSULTATION AND COORDINATION

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

Interdisciplinary Team Members

Mike Bodziak, Prescription Forester
Sonja Durrwachter, Timber Manager
John Dunlap, Wildlife Biologist
Frank Fulford, Timber Sale Administrator
Shanon Harvey, Landscape Architect
Gary Hegg, Silviculturist
Chuck Hess, Wildlife Biologist
Brittany Phillips, Wildlife Biologist
Bill Stanton, Archeologist
Todd Waller, Engineer
Chandra Roberts, NEPA Forester & Recreation
Sherry Gaston - Recreation
Mary Owen, Fire Planner

FEDERAL, STATE, OR LOCAL AGENCIES, FEDERAL TRIBES and Individual Consulted:

USDI Fish and Wildlife Service
Florida State Historic Preservation Officer
Tallahassee Trail Riders
Northwest Florida Water Management District

Apalachicola National Forest Scoping Mailing List

APPENDIX A
PUBLIC INVOLVEMENT

Commenter	Comment	Response	Appeal Eligibility
<p>Dick Artley [retired forest planner, NEPA legal compliance reviewer, forest NEPA coordinator, and forest appeals/litigation coordinator --- Nez Perce National Forest, Idaho, also FEI instructor (Corvallis, Oregon)]</p> <p>Date and Time Received 5/5/2013 @ 11:59 a.m.</p>	<p>Reducing tree stocking to create vigorous trees, increase growth rates and changing the natural species mix are actions taken by private industrial tree farm managers ... not someone paid to perpetuate wild forests for the public.</p>	<p>The purpose and need states that offsite slash pine plantations will be removed and replaced with longleaf pine trees that were historic to the area.</p>	<p>Yes</p>
	<p>Please include (and cite) the source documents for the opposing views contained in the attachments to these comments in the References section of the final EA. When describing the environmental effects of the timber sale activities to the countless natural resources in the project area please cite the resource damage described in the source documents contained in the attachments.</p>	<p>The site specific effects of the timber operations on the Munson Sandhill Analysis Area are located on pages 19-62 of the EA.</p>	
	<p>Ranger Beard, nearly all literature available written by independent, unbiased scientists describes the major long term damage that logging inflicts on the natural resources in the forest. The attachments to these comments quote over 100 Ph.D. biological scientist explaining their research conclusions proved this damage occurs. You choose to reject these scientists' conclusions and instead take the advice of USFS timber employees who are paid to "get out the cut." The public doesn't want their forests trashed to generate short-term corporate profit.</p>	<p>This EA is tiered to the 1999 FEIS for the Land and Resource Management Plan for the National Forests in Florida. This EIS identified the potential impacts from timber harvest and developed a wide-variety of objectives, standards and guidelines designed to reduce adverse effects.</p> <p>The Munson II EA summarized the potential effects of the project on pages 19-62 of the EA.</p> <p>The Forest Service employs many specialists with advanced degrees in all resource areas. Specialists with advanced degrees are frequently assigned to the research branch of the Agency where they review and develop the science utilized by agency at all levels. The Forest Service is recognized by the courts as the experts in evaluating resource management actions on National Forest System lands.</p>	

Commenter	Comment	Response	Appeal Eligibility
	<p>Please comply with 40 C.F.R. § 1502.9(a) by responding to each opposing view in Attachments #1 and #4.</p>	<p>40 CFR 1502.9(a) is not an appropriate review standard for the current decision. This regulation applies to decisions analyzed in an environmental impact statement and record of decision. This decision was analyzed using an EA and decision notice.</p>	
	<p>The pre-decisional EA at page 5 states:</p> <p><i>“The Munson Sandhill II Analysis Area contains approximately 25,749 acres and is located entirely within the Forest/Urban Interface Management Area (MA 9.2). This management area is described in the Land and Resource Management Plan for the National Forests’ in Florida. (LRMP, 4-52).”</i></p> <p>Clearly THE most important responsibility of a public land manager is to protect the safety of the public living near national forest land should a wildfire occur. This means all caring, competent public servants must take the most effective action to reduce the risk of fire damage to homes located in the WUI. To do otherwise by responding to less important Purpose & Need statements defines a line-officer obsessed with volume.</p>	<p>Management of fuels directly adjacent to private holdings is covered in the Apalachicola National Forest 5 year prescribed burn EA and is not included in the purpose and need for the Munson Sandhill II project.</p>	
	<p>Please comply with 40 C.F.R. § 1502.9(a) by responding to each opposing view in Attachments #3 and #11.</p>	<p>40 CFR 1502.9(a) is not an appropriate review standard for the current decision. This regulation applies to decisions analyzed in an environmental impact statement and record of decision. This decision was analyzed using an EA and decision notice.</p>	

Commenter	Comment	Response	Appeal Eligibility
	Dr. Cohen states “ <i>Research results indicate that the home and its immediate surroundings within 100-200 feet (30-60 meters) principally determines the home ignition potential during severe wildland-urban fires.</i> ” Why are you spending tax dollars on this fuels timber sale rather than helping the public?	The primary purpose of this proposal is to maintain a healthy forest and improve ecosystem functioning. Management of fuels directly adjacent to private holdings is covered in the Apalachicola National Forest 5 year prescribed burn EA and is not included in the purpose and need for the Munson Sandhill II project. This comment is outside the scope of the decision to be made.	
	Dr. Cohen states “ <i>Extensive wildland vegetation management does not effectively change home ignitability.</i> ” How does the Munson timber sale differ such that his conclusion is not true in the timber sale location?	Treatments proposed in the Munson II project are not intended for fuel reduction but rather improvement of ecosystem functioning.	
	Dr. Cohen states “ <i>The wildland fuel characteristics beyond the home site have little if any significance to WUI home fire losses.</i> ” How does the Munson timber sale differ such that his conclusion is not true in the timber sale location?	This comment is beyond the scope of the decision to be made.	
	Dr. Cohen states “ <i>Vegetation management beyond the structure's immediate vicinity has little effect on structure ignitions.</i> ” How does the Munson timber sale differ such that his conclusion is not true in the timber sale location?	Treatments proposed in the Munson II project are not intended for fuel reduction but rather improvement of ecosystem functioning.	
	Dr. Cohen states “ <i>Past reports and recommendations as well as experimental research and modeling suggest that W-UI fire-loss mitigation should concentrate on the residence and its immediate surroundings.</i> How does the Munson timber sale differ such that his conclusion is not true in the timber sale location?	The Munson II project is not intended to address private home ignition. This comment not relevant to the decision to be made.	

Commenter	Comment	Response	Appeal Eligibility
	<p>Dr. Cohen states “<i>wildland fuel reduction does not necessarily mitigate the W-UI fire loss problem.</i>” How does the Munson timber sale differ such that his conclusion is not true in the timber sale location?</p>	<p>The primary purpose of this proposal is to maintain a healthy forest and improve ecosystem functioning. The Munson II project is not designed to address private property ignitability. This comment does not provide a substantive issue to be addressed and is not relevant to the decision to be made.</p>	
	<p>Dr. Cohen states “<i>wildland fuel reduction that is effective for reducing the wildland fire intensity might be insufficient for reducing the destruction of highly ignitable homes.</i>” How does the Munson timber sale differ such that his conclusion is not true in the timber sale location?</p>	<p>Treatments proposed in the Munson II project are not intended for fuel reduction but rather improvement of ecosystem functioning.</p>	
	<p>Dr. Cohen states “<i>Vegetation management to prevent ignitions from radiation does not require extensive vegetation removal hundreds of meters from a structure. Our analysis indicated that 40 meters was sufficient for a 20 meter flame height.</i>” How does the Munson timber sale differ such that his conclusion is not true in the timber sale location?</p>	<p>Treatments proposed in the Munson II project are not intended for fuel reduction but rather improvement of ecosystem functioning.</p>	
	<p>Dr. Finney, Dr. Cohen, Dr. Franklin and Dr. Agee agree that “<i>there are a number of misconceptions and misunderstandings about fuel treatments and their use as a panacea for fire hazard reduction across the United States.</i>” How does the Munson timber sale differ such that their conclusion is not true in the timber sale location?</p>	<p>The primary purpose of this proposal is to maintain a healthy forest and improve ecosystem functioning. Management of fuels directly adjacent to private holdings is covered in the Apalachicola National Forest 5 year prescribed burn EA and is not included in the purpose and need for the Munson Sandhill II project. This comment is outside the scope of the decision to be made.</p>	

Commenter	Comment	Response	Appeal Eligibility
	<p>Dr. Cohen states <i>“It is a misconception to think that treating fuels can ‘fire-proof’ important areas.”</i> How does the Munson timber sale differ such that his conclusion is not true in the timber sale location?</p>	<p>The proposed treatments are not designed to “fire proof” the area but rather the primary purpose of this project is to maintain a healthy forest and improve ecosystem functioning.</p>	
	<p>Dr. Bessie and Dr. Johnson say <i>“weather (fuel moisture and wind) is far more important than fuels in determining fire behavior; reducing fuels may have a limited impact on fire occurrence.”</i> How does the Munson timber sale differ such that their conclusion is not true in the timber sale location?</p>	<p>This comment is not relevant to the decision to be made.</p>	
	<p>Dr. Cohen states <i>“Treating fuels to reduce fire occurrence, fire size, or amount of burned area is ultimately both futile and counter-productive.”</i> How does the Munson timber sale differ such that his conclusion is not true in this timber sale location?</p>	<p>The primary purpose of this project is to maintain a healthy forest and improve ecosystem functioning, not fuel reduction.</p>	
	<p>Dr. Cohen states <i>““It may not be necessary or effective to treat fuels in adjacent areas in order to suppress fires before they reach homes; rather, it is the treatment of the fuels immediately proximate to the residences.”</i> How does the Munson timber sale differ such that his conclusion is not true in this timber sale location?</p>	<p>While some fuels will be treated along private lands, the purpose of those treatments are to improve/restore ecosystem functioning. This comment is irrelevant to the decision to be made.</p>	
	<p>Dr. Cohen says <i>“Thinning will often result in increased potential surface fire behavior.”</i> How does the Munson timber sale differ such that his conclusion is not true in this timber sale location?</p>	<p>The effects of thinning on vegetation is discussed on pages 44-51 of this EA.</p>	

Commenter	Comment	Response	Appeal Eligibility
	<p>Lertzman et al., 1998; Agee et al. state, “<i>Some viable fuel treatments may actually result in an increased rate of spread under many conditions.</i>” How does the Munson timber sale differ such that their conclusion is not true in this timber sale location?</p>	<p>The effects of thinning on vegetation is discussed on pages 44-51 of this EA.</p>	
	<p>Dr. Cohen states “Ecosystem restoration treatment and fuel treatment are not synonymous.” How does the Munson timber sale differ such that Dr. Cohen’s conclusion is not true in this timber sale location?</p>	<p>The primary purpose of this project is to maintain a healthy forest and improve ecosystem functioning, not fuel reduction.</p>	
	<p>Dr. Ingalsbee and Dr. Fox say “logging-induced changes in fuel composition, vegetation, and microclimate can result in increased rate of fire spread, higher fireline intensity, and more severe fire effects.” What scientific evidence does the Responsible Official have showing this is untrue?</p>	<p>The effects of the proposed action on vegetation are considered on pages 44-51 of the EA.</p>	
	<p>The public detests commercial logging in their national forest land, especially when the reason given for the logging does not help them during a wildfire.</p>	<p>Thank you for your comment, however it is considered conjecture and not supported by factual and scientific evidence.</p>	
	<p>The Munson timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Agee says. Why is his statement that fires are more weather –dependent than fuel-dependent not the case here?</p>	<p>This comment is outside the scope of the proposed action.</p>	

Commenter	Comment	Response	Appeal Eligibility
	<p>The Munson timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Alison says. Why is his statement that fires are driven by climate and weather not the case here?</p>	<p>The purpose and need for action is not to reduce wildfire severity but rather to improve ecosystem functioning.</p>	
	<p>The Munson timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Bessie and Dr. Johnson say. Why are their statements that fires are driven by drought and high winds not the case here?</p>	<p>The purpose and need for action is not to reduce wildfire severity but rather to improve ecosystem functioning. This comment is outside the scope of the proposed action.</p>	
	<p>The Munson timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Kelly says. Why are Dr. Kelly's statements that fires are driven by drought, wind, and low humidity not the case here? Also how will you replicate the fire benefits to the natural resources that exist in your timber sale area if the fires don't occur?</p>	<p>The purpose and need for action is not to reduce wildfire severity but rather to improve ecosystem functioning. This comment is outside the scope of the proposed action.</p>	
	<p>The Munson timber sale removes fuels to reduce wildfire severity and rate of spread in spite of what Dr. Partridge says. Why are Dr. Partridge's statements that fires are driven by temperature and moisture not the case here?</p>	<p>The purpose and need for action is not to reduce wildfire severity but rather to improve ecosystem functioning. This comment is outside the scope of the proposed action.</p>	
	<p>The Munson timber sale is precisely what USFS Chief Dombek says should not occur because the cost is high and it does not reduce the fire damage risk for people living in the WUI.</p>	<p>The primary purpose of this proposal is to maintain a healthy forest and improve ecosystem functioning. Management of fuels directly adjacent to private holdings is covered in the Apalachicola National Forest 5 year prescribed burn EA and is not included in the purpose and need for the Munson Sandhill II project. This comment is outside the scope of the decision to be made.</p>	

Commenter	Comment	Response	Appeal Eligibility
	<p>In the response to comments in the final NEPA document please tell the public why Dr. Schoennagel, Dr. Veblen and Dr. Rommie are wrong when they all agree that “once fuels reached critical moisture levels later in the season, the spatial pattern of the large, severe stand replacing fires was controlled by weather (wind direction and velocity), not by fuels or stand age.”</p>	<p>This comment is outside the scope of the decision to be made.</p>	
	<p>Dr. Schoennagel is a research scientist in CU-Boulder's geography department. Her research team included Dr. Cara R. Nelson, Dr. David M. Theobald, Dr Gunnar C. Carnwath, and Dr. Teresa B. Chapman. The Responsible Official should not ignore their conclusion that most fuels reduction timber sales are located far from the WUI where they are much less likely to reduce the risk that homes located in the WUI will burn.</p>	<p>The purpose and need for action is not to reduce wildfire severity but rather to improve ecosystem functioning. This comment is outside the scope of the proposed action.</p>	
	<p>The public expects the men and women who they pay to care for their national forests to understand how national policies created by a timber lobbyist (Mark Rey) appointed by bush to increase the cut from national forests is still driving the agency to do things the public abhors.</p>	<p>This comment is outside of the scope of the decision to be made.</p>	
	<p>The Munson project directly contradicts the truths stated by a person with a Ph.D. who specializes in fire and protection from fire damage.</p>	<p>Thank you for your comment however it is conjecture and is not supported by factual or scientific evidence</p>	

Commenter	Comment	Response	Appeal Eligibility
	<p>This timber sale is inconsistent with what the public wants the agency employees administering the national forest to do as documented in the USFS-authored document: Gen. Tech. Rep. RMRS-GTR-95. Explain why you feel that you have been given the authority to violate the public trust.</p>	<p>Actions outlined in the Munson II EA are consistent with 1999 FEIS for the Land and Resource Management Plan for the National Forests in Florida. This EIS identified the potential impacts from timber harvest and developed a wide-variety of objectives, standards and guidelines designed to reduce adverse effects. The proposed actions will move the analysis area towards the desired future condition outlined on pg. 4-52 of the Forest Plan.</p>	
	<p>There is no “timber famine” as the USFS has been so fond of predicting for many decades. There is no shortage of raw materials for paper and wood products in the United States otherwise the owners of private timberland would not be exporting their lumber. The public doesn’t want their public land logged and there is no economic need to log the trees. Therefore the Responsible Official is logging to:</p> <ol style="list-style-type: none"> 1) further his career by attempting to meet the Forest Supervisor’s volume expectations, and 2) spend every penny of timber \$\$ to assure a similar timber allocation next year. 	<p>This comment is considered conjecture and not supported by factual or scientific data.</p>	
	<p>If the Responsible Official really wants to eliminate the sediment originating from temporary roads he will obliterate all temporary roads after use and say this will be done in the final EA.</p>	<p>All temporary roads will be closed to the public after the timber sale has concluded. Further effects of the project on soils and infrastructure are addressed on page 56-57 of the EA</p>	

Commenter	Comment	Response	Appeal Eligibility
	<p>The chemicals listed in the title above kill aquatic life even if the concentrations of the chemical in water are very low. Fish deaths will occur in the streams in the project area and the herbicide toxicity will extend many miles downstream. Herbicides must never be allowed to contact water ... even so-called aquatic-safe herbicides.</p>	<p>The concerns mentioned here will be addressed under the No Herbicide Alternative. The Forest Service utilizes risk assessments based on evaluations by the Syracuse Environmental Research Associates. Detailed analysis of the exposure scenarios can be found in Forest Service/SERA Risk Assessments. The ANF follows guidelines for planning and applying herbicides documented in the 1989 Final Environmental Impact Statement for Vegetation Management in the Coastal/Piedmont, Volume I.</p>	
	<p>Please comply with 40 C.F.R. § 1502.9(a) by responding to each opposing view in Attachments #9a and #18.</p>	<p>40 CFR 1502.9(a) is not an appropriate review standard for the current decision. This regulation applies to decisions analyzed in an environmental impact statement and record of decision. This decision was analyzed using an EA and decision notice.</p>	
<p>Jeff Glitzenstein, PhD, botanist/ecologist Date and Time Received: 5/29/2013 @ 11:52 p.m.</p>	<p>Commenter field trip revealed a species on the regional forester's sensitive species list, <i>P. flexuosa</i> (Bent Golden Aster).</p>	<p>The biological evaluation determined some individual plants will be crushed or top killed during timber sale operations. The direct impact of a few individuals is not likely to lead towards federal listing.</p>	<p>Yes</p>
<p>Jeff Glitzenstein, PhD, botanist/ecologist Date and Time Received: 5/29/2013 @ 11:52 p.m.</p>	<p>Commenter reviewed three stands, of which two had moderate to good levels of residual groundcover plant diversity.</p>	<p>Restoration of these stands needs to include the overstory as well as the groundcover. The proposed action will replace offsite slash pine with longleaf pine while limiting the impact to groundcover vegetation.</p>	

Commenter	Comment	Response	Appeal Eligibility
<p>Jeff Glitzenstein, PhD, botanist/ecologist</p> <p>Date and Time Received: 5/29/2013 @ 11:52 p.m.</p>	<p>Application of herbicides may well damage or destroy the residual groundcover. This is contrary to the stated goal of increasing or improving groundcover quality. Elimination of the endemic, rare or local plants would be especially counterproductive. However, I recognize that herbicide application is to some extent an art rather than a science and good results may be achieved by knowledgeable practitioners.</p>	<p>Groundcover restoration treatments will be done to supplement the loss of any herbaceous groundcover from herbicide application. The No Herbicide alternative also addresses this issue</p>	
<p>Jeff Glitzenstein, PhD, botanist/ecologist</p> <p>Date and Time Received: 5/29/2013 @ 11:52 p.m.</p>	<p>Hiers et al. (2007) published results suggesting that duff accumulation is the critical limiting factor in fire suppressed xeric longleaf stands and that midstory removal treatments are not necessary for restoring diversity of longleaf groundlayer plants in this particular habitat type. This supports previous suggestions that fire alone is sufficient for restoration (Provencher et al. 2001, Glitzenstein et al. 2003).</p>	<p>Current conditions suggest that prescribed fire alone is not sufficient to restore groundcover and a longleaf overstory. The project area's proximity to the Tallahassee Airport makes it more difficult to prescribe burn at intervals sufficient enough to promote herbaceous groundcover.</p>	
<p>Tom Greene</p> <p>Date and Time Received 5/30/2013 @ 12:00 a.m.</p>	<p>It is recommended that these two stands (Compartment 201 stand 26 and Compartment 218 stand 4) be removed from the list of those proposed for clearcutting, herbiciding and replanting. These activities necessitate use of heavy equipment in the stand and tend to result in application of herbicide to non-target native groundcover species. Use of frequent prescribed fire in these stands is more likely to bring these stands to the desired future condition, which includes a high quality native groundcover component.</p>	<p>Forest Service employees revisited these stands to determine if the proposed action was appropriate. Upon review it was determined that the prescriptions for these stands were still valid. The off-site slash pine needs to be removed and the herbicide application will be monitored by Forest Service Employees. Plus the groundcover in these stands will be supplemented if necessary. Removing these stands from the proposed treatments would not meet the purpose and need for this proposal. The No Action Alternative would satisfy the commenters request to no treat these stands.</p>	<p>Yes</p>

Commenter	Comment	Response	Appeal Eligibility
Timothy A. Parsons for Robert F. Bendus, Director Division of Historical Resources and State Historic Preservation Officer Date and Time received 5/30/2013 @7:51a.m.	Based on the information provided, it is the opinion of this office that the proposed undertaking is not likely to have an effect on historic properties, provided that the applicant makes contingency plans in the case of fortuitous finds or unexpected discoveries during ground disturbing activities within the project area	The forest plan has a standard and guide HE-1 that addresses fortuitist finds and Forest Service have contract specifications to protect newly discovered sites.	Yes