13.11 Recreation Master Plan

Recreation Master Plan
for
Joe Budd WMA

Florida Fish and Wildlife Conservation Commission

Office of Public Access and
Wildlife Viewing Services

October 2014

Joe Budd Wildlife Management Area
Recreation Master Plan

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I. Introduction

Purpose of Plan/Planning Process

This Recreation Master Plan (RMP) serves as a guide for providing recreational and educational experiences focused on wildlife viewing and nature study on Joe Budd Wildlife Management Area (Joe Budd). The RMP contains specific recommendations for recreational enhancements and educational products and programs. It also provides guidelines for monitoring recreation-related use to ensure resource protection and meaningful visitor experiences. The plan was developed by the Florida Fish and Wildlife Conservation Commission (FWC) Office of Public Access and Wildlife Viewing Services (PAWV) in collaboration with Joe Budd Field Staff with input from other FWC divisions and a Technical Assistance Group of recreational stakeholders (Appendix 1).

Location

(Figure 1)

Joe Budd protects a total of 11,133 acres in Gadsden County with 4,767 acres managed by FWC or jointly between FWC and the Florida Forest Service (FFS). This plan addresses recreation on this smaller portion. Joe Budd consists of primarily upland pine, floodplain forest and upland hardwood forest. The property is a key part of a mosaic of public lands that protects the ecology of the region and helps to provide a linkage down the Ochlockonee River/Lake Talquin between Tallahassee and the Gulf of Mexico. Joe Budd supports a diversity of wildlife populations that provides opportunities for hunting, fishing and wildlife viewing. A network of roads and trails accommodates bicyclists, hikers, horseback riders, and other recreationists while Lake Talquin, Joe Budd Fish Management Area, the Little River, and several small streams support fishing.

II. Resource Inventory

Topography and Hydrology

Joe Budd has significant topographic relief with a difference in elevation of approximately 123 feet between the higher upland pine areas and the floodplain forests along the Little River, other streams, and Lake Talquin. This is especially pronounced on the Rocky Comfort Tract on the west side of the area where there are numerous drainages creating steep ravines covered in slope forests.

The topography creates impressive vistas but, limits the internal road and trail network due to erosion potential and presence of rare plants. There are paddling opportunities on the Little River and on Lake Talquin along the southern boundary.

Natural Communities

(Figure 2)

Figure 1: Joe Budd WMA Location Map

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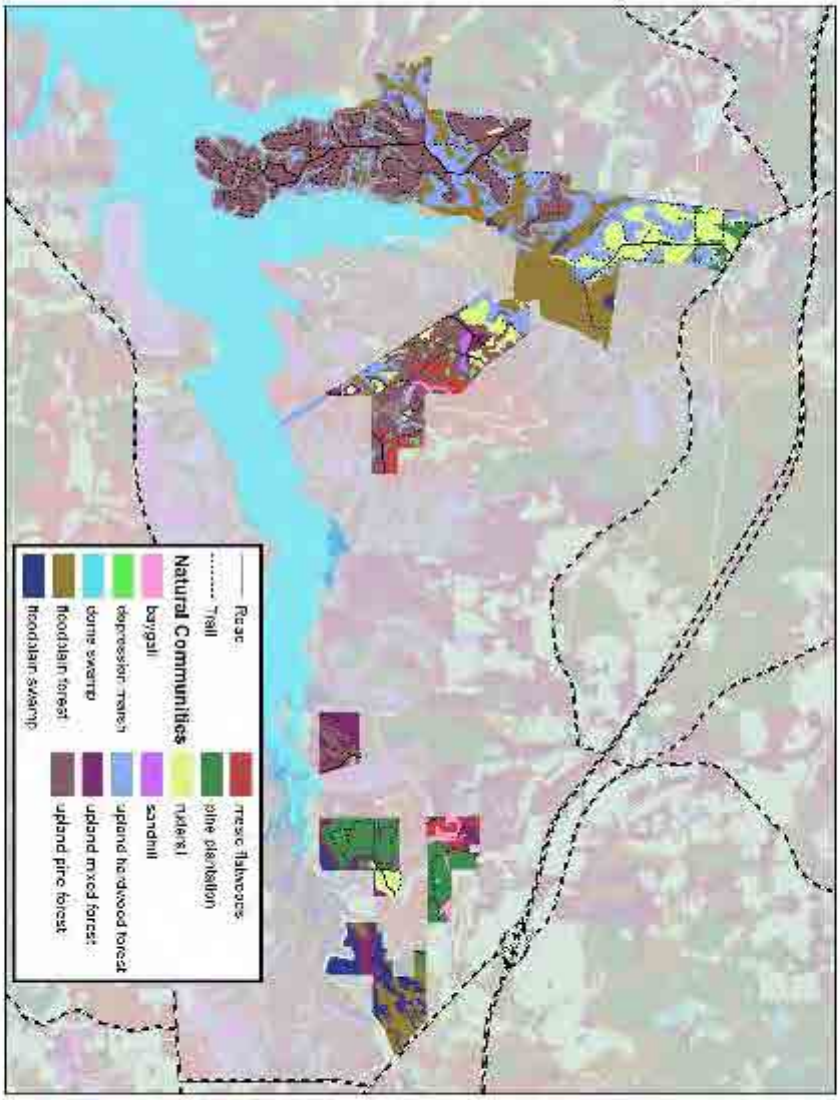

Figure 2: Joe Budd WMA Natural Communities

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Scenic Resources

Joe Budd offers a variety of scenic vistas including Little River, Lake Talquin, mesic flatwoods, and slope forests. The slope forests are particularly scenic. They feature a sparse understory, a high canopy, significant topography, and a variety of plants not often seen in Florida. Seasonal wildflowers include a variety of *Vaccinium* species, deer tongue, blazing star, Flyr's brickell-bush, silky-camellia, and trout lily. Peak blooms occur in the spring and fall.

Resource Management

The FWC's resource management goals for the area include enhancing and maintaining the native upland and wetland communities on the WMA. To accomplish this objective, the FWC is restoring disturbed sites, has instituted a program of prescribed burning and is eliminating or controlling nonnative invasive plants through mechanical and chemical treatments. Plants such as alligatorweed and Japanese climbing fern are present on the area. Other management activities include timber thinning, longleaf pine reforestation, ground cover restoration, and re-establishing hydrologic regimes to benefit fish and wildlife habitats.

III. Recreation Planning Context

The 2010 population estimate for Gadsden County was 46,389 people with a projected growth to 48,453 (4.4% increase) by 2020 and 51,036 (10.0% increase) by 2040 (Office of Economic and Demographic Research 2013). Less than 6% of the population identifies itself as Hispanic or Latino, which differs significantly from the statewide figure of almost 23%. Sixty-four percent of the county's population identifies itself as non-white, with the largest group being African American (56% of the total population); more than three times the statewide percentage. In other respects, the population demographics of Gadsden County fall in line with statewide proportions. These demographic data will influence the design of infrastructure and interpretive materials in order to accommodate the full spectrum of potential visitors to the WMA.

	Gadsden County		Florida		
Race/Ethnicity	#	%	#	%	Difference
Hispanic or Latino	4,419	9.5%	4,223,806	22.5%	-13.0%
Non-Hispanic or Latino	41,970	90.5%	14,577,504	77.5%	13.0%
White	16,646	35.9%	14,109,162	75.0%	-39.1%
African American	25,996	56.0%	2,999,862	16.0%	40.0%
Asian	227	0.5%	454,821	2.4%	-1.9%
American Indian/Alaskan Native	137	0.3%	71,458	0.4%	-0.1%
Native Hawaiian/Pacific Islander	19	0.04%	12,286	0.1%	-0.06%
Other	2,757	5.9%	681,144	3.6%	2.3%
2 or more	607	1.3%	472,577	2.5%	-1.2%

Population age distribution is comparable to numbers statewide with slightly higher population under 18 and slightly lower over 65.

	Gadsden County		Florida		
Age/Gender	#	%	#	%	Difference
Male	22,647	48.8%	9,189,355	48.9%	-0.1%
Female	23,742	51.2%	9,611,955	51.1%	0.1%
<18	16,785	24.2%	4,002,091	21.3%	2.9%
18+	35,184	75.8%	14,799,219	78.7%	-2.9%
20-24	2,691	5.8%	1,228,758	6.5%	-0.7%
25-34	5,800	12.5%	2,289,545	12.2%	0.3%
35-49	9,180	19.9%	3,832,456	20.4%	-0.5%
50-64	2,792	21.4%	3,677,959	19.6%	1.8%
65+	6,323	13.6%	3,259,602	17.3%	-3.7%

As the regional population increases, the public use pressures on the WMA will likely increase. Recreational user groups can be expected to urge connections to trails on lands outside the

WMA. Joe Budd is within 25 miles of several other public recreation areas that offer a variety of recreation opportunities:

Area	Hiking	Biking	Camping	Paddling	Fishing	Horseback Riding	Hunting	Wildlife Viewing
Alfred B. Maclay Gardens State Park	✓	✓	x	✓	✓	✓	x	✓
Apalachicola National Forest	✓	✓	✓	✓	✓	✓	✓	✓
Edward Ball Wakulla Springs State Park	✓	✓	x	x	x	x	x	✓
L. Kirk Edwards WEA	✓	✓	x	✓	✓	✓	✓	✓
Lake Talquin State Forest	✓	✓	✓	✓	✓	✓	✓	✓
Lake Talquin State Park	✓	x	x	✓	✓	x	x	✓
St. Marks NWR	✓	✓	✓	✓	✓	✓	✓	✓
St. Marks River Preserve State Park	✓	✓	✓	✓	✓	✓	✓	✓
Torreya State Park	✓	x	✓	x	x	x	x	✓
Wakulla State Forest	✓	✓	x	x	x	✓	✓	✓

✓=Activity available
x=Activity not available

The Florida Statewide Comprehensive Outdoor Recreation Plan (SCORP) collects data on participation levels in various outdoor recreation activities for different regions of Florida. The results for the North Central SCORP Region are summarized below:

Activity	Resident Participation (%)	Tourist Participation (%)
Paddling	29	10
Picnicking	44	37
Hiking	32	22
Unpaved Bicycle Trails	15	4
Wildlife Viewing	55	47
Nature Study	18	8
Equestrian Activities	9	6
Geocaching	3	3

The North Central SCORP Region (Gadsden/Leon/Wakulla Counties to Columbia/Gilchrist/Levy Counties) has over six-times the statewide average level of service (miles of trail/1000 participants) for equestrian activities. At current participation levels, it is projected that the current level of service will be maintained over the next 10 years. The region has twice the level of service for hiking trails to maintain the current level of service; yet trail miles per 1,000 participants is projected to decline slightly over the the same time period. Levels of service for most of the other listed activities are well above the statewide mean level of service with off-road cycling at 500% higher (miles of trail/1,000 participants), picnicking at 200% higher (tables/1,000 participants), and nature study at 400% higher level of service (miles of trail/1,000 participants).

Gadsden County is part of the Capital Region Transportation Planning Agency (CRTPA). None of the roads near Joe Budd are scheduled for improvement in the CRTPA Transportation Improvement Plan or Florida DOT plans and there are no new facilities near Joe Budd in the Bicycle and Pedestrian Facilities Master Plan (BPFMP). Lake Talquin is identified as a major blueway facility in the region in the BPFMP. It is also recommended that signage be installed to identify launching locations and wayfinding signs be installed to identify paddling routes. The Gadsden County Comprehensive Plan classifies Joe Budd as Conservation Land in the Current and Future Land Use components.

There are currently no large scale residential development projects proposed near Joe Budd. Developments have the potential to increase recreational demand and impact the area and its natural and recreation resources.

IV. Interpretation

In this plan, emphasis is placed on integrating recreation and interpretive planning. Using this approach, the type of recreational experience offered and the location of recreation amenities provided, is strongly influenced by the interpretive goals for the area. Recreation opportunities thus become a means to an end - reaching visitors with important themes and concepts about an area's natural resources, plant communities, wildlife and wildlife management.

Visitor Experience Goals

Joe Budd has the potential to provide visitors with opportunities to see and learn about a variety of natural communities while engaging in recreational activities focused on fish and wildlife resources. Visitor experience goals are those concepts and experiences we want visitors to take away from their time at Joe Budd. These goals guide both interpretive and recreation planning.

At Joe Budd, the FWC will provide opportunities for visitors to:

1. Become oriented to and participate in a range of recreational activities on Joe Budd and adjoining natural areas while:

- Becoming acquainted with wildlife and natural plant communities
- Understanding Joe Budd's natural, cultural and commercial history within the context of the state's prehistory and modern history
- Appreciating Joe Budd as an oasis providing a retreat from the pressures of urban life and an opportunity to connect with the natural world

2. Learn information and stories associated with major interpretive themes and other related information, through interpretive materials at welcome kiosks, trails and wildlife viewing sites.

3. Have an enjoyable recreational experience without impairing the natural and cultural values of the site. In terms of wildlife viewing, FWC's goal will be to facilitate positive, memorable experiences that keep wildlife disturbances to a minimum.

4. Understand the management goals and activities of the FWC on Joe Budd.

Interpretive Themes

Interpretive concepts are categorized into themes and subthemes. All interpretive materials revolve around one or two primary themes, which allow visitors to understand and remember important messages. Primary themes also help set visitor experience goals and priorities and are considered in the design of amenities offered to nature-based recreationists. Subthemes expand upon and support the primary themes. These guide the development of all interpretive products, which may include sign panels, printed materials, electronic media and educational programming. This detailed media prescription will be developed at a later date.

Central Theme: Biologists manage and protect the diverse habitats at Joe Budd WMA to benefit wildlife populations and improve recreational opportunities.

Subtheme 1: Diverse plant and animal communities at Joe Budd WMA require a variety of management tools.

A. Science-based management allows managers to fine-tune their methods to fit the needs of individual species and ecosystems.
B. Prescribed fire is one of the most visible and effective management tools.
C. Nonnative animal populations and invasive vegetation are monitored and controlled.
D. Management that benefits one species or habitat type often benefits many others.
E. Slope Forest is a rare natural community with unique plant species that is protected at Joe Budd.

Subtheme 2: Restoration benefits wildlife populations, gives visitors a glimpse of the original wild Florida and increases ecosystem resilience.

A. Restoration improves the quality of habitats, water resources and wildlife populations.
B. Restoration is a long-term solution that may appear destructive in the short-term.
C. As wildlife diversity and population numbers increase as a result of restoration, recreational opportunities such as hunting, fishing and wildlife viewing will improve.
D. Restored habitat improves species survival and may increase species' resilience to environmental changes.

Subtheme 3: The long-term benefits of management efforts at Joe Budd extend well beyond the WMA boundary.

A. Careful management of the uplands protects the water quality in area creeks, ponds and other waterways that eventually connect to Lake Talquin, the Ochlockonee River and the Gulf of Mexico.
B. The WMA preserves evidence of the historical significance of the region, which included subsistence hunting and fishing by native peoples, agriculture and silviculture.
C. FWC places a high value on habitat and wildlife management, thus ensuring quality hunting, fishing and other recreation for the region.

Subtheme 4: Conservation education and recreational skill programs at Joe Budd Youth Conservation Center help inspire the next generation that cares.

A. Native plant communities and wildlife are the foundation of healthy ecosystems that serve as the gateway to high-quality recreational experiences.
B. Resource managers at Joe Budd use a variety of management tools to maintain habitat for healthy wildlife populations.

C. Learning responsible outdoor recreation skills at Joe Budd Youth Conservation Center builds support for the agency's mission and fosters an appreciation for outdoor recreation and a sense of conservation stewardship in participants.
D. Careers with FWC provide opportunities to join a team that keeps Florida's natural communities safe and healthy for wildlife and the visitors who enjoy the outdoors.

V. Recreation Assessment

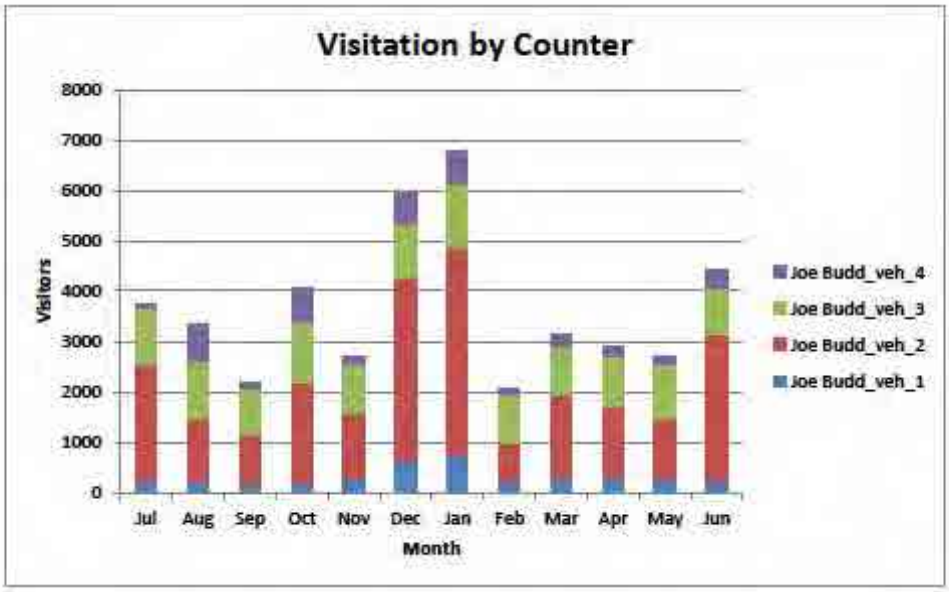
Existing Recreational Use and Facilities

The purpose of this section is to identify and describe the existing recreational uses and facilities on Joe Budd and note their status and condition (Figure 3). This informs recommendations for achieving visitor experience goals and meeting future recreation demands and needs.

Joe Budd offers opportunities for a variety of high quality, wildlife-focused recreation activities. Based on the approved uses and activities as stated in the 2015-2025 Management Plan (MP), the analysis of existing resources and uses, and the interpretive themes developed for the area, the following activities should be continued and enhanced as described in this section. Conditional activities are those that require additional licenses, permits or permission.

- Hunting (conditional)
- Fishing (conditional)
- Wildlife viewing
- Bird watching
- Nature study
- Photography
- Hiking
- Biking
- Horseback riding
- Paddling
- Picnicking
- Geocaching (conditional)

Visitation, as recorded by four vehicle counters installed and monitored by FWC at designated entrances, has averaged 106 visitors/day for July 2013 to June 2014. Seasonally, use peaks during deer hunting season from September to December with another, smaller peak in March and April for spring turkey hunting season. There is also an increase in visitation during the summer months due to fishing and youth activities at the Joe Budd Youth Conservation Center (YCC).



Visitor Contact Points and Roads/Vehicle Access - The main entrance for Joe Budd WMA is at the end of Peters Road approximately 1.2 miles west of CR238. The check station, parking area, a 3-panel kiosk and seasonally a portable toilet are all located at this point.

An entrance leading to the WMA office is located on CR238 approximately 6.4 miles west of Midway and 0.7 miles east of CR65B. This entrance has no amenities but would be a good location for a pull-off and kiosk to provide overall orientation and introduction to Joe Budd WMA.

The entrance to the Rocky Comfort Tract is at the end of Magnolia Farms Road approximately 1.6 miles south of CR65B. A small parking area and kiosk are proposed for this entrance.

A fourth entrance is located at the end of Central Road approximately 1.3 miles south of CR268. Access to the YCC is at the end of Pond Road in the interior of the WMA. There is existing interpretive information located at the main entrance and at the YCC.

Vehicles are allowed year-round on named roads with entry to the area prohibited during certain hunting periods and when the entry gate is closed. Unlicensed/unregistered vehicles are prohibited.

Named roads on the area are well-maintained limerock, grass and dirt roads and can be traversed in two-wheel drive vehicles when dry.

Wayfinding signage on interior roads is to FWC standards. There are approach signs for Joe Budd on CR268.

Hunting - Hunting is an approved use on Joe Budd with seasons for small game, archery, archery/muzzleloading, spring turkey including a youth turkey hunt and migratory birds. There are 58 days of hunting each year excluding migratory bird days. Between October and April there is hunting 25 out of 29 weekends and 7 of those weekends are spring turkey season with shooting hours only until 1pm. There are only 2 days of hunting in February. All hunt days are on weekends with the exception of 3 Fridays in December for archery season, 2 Fridays in January for archery season and 3 Fridays in January for archery/muzzleloading season. In 2015 there will be an experimental change to all-day turkey hunting. During hunt periods the area is only open to individuals authorized to participate in the hunt with the exception of turkey hunts where access is allowed after 1pm during the all-day turkey hunts. Quotas limit the number of hunters accessing the area during hunting seasons to provide a high-quality-hunting experience.

Fishing/Boating/Paddling - Fishing is available at all water bodies within the WMA with the exception of Joe Budd Pond at the YCC which is open for fishing beginning the first Saturday in July and ending the Sunday before Labor Day. There is a boat ramp for access to Lake Talquin on FFS property at the end of High Bluff Road and the Little River at CR268 is a designated bank fishing location. There are currently no designated paddling trails within the WMA. The Little River and extensive shoreline of Lake Talquin provide potential for a paddling trail.

Trail Use – Hiking, bicycling and horseback riding are permitted on all areas of Joe Budd. There are no designated routes outside of trails located near the YCC.

Trail infrastructure - Two recreational trails exist on Joe Budd and are located at the Aquatic Education Center/YCC (0.82 miles). During center programs these trails are not open to the public. The trails are well-shaded and the Wetlands Trail traverses slope forest and upland hardwood forest and the Pond Trail includes several boardwalks and traverses upland pine following the northeast shore of Joe Bud Pond. In order to ensure the trail remains sustainable and safe, the Wetlands Trail requires redesign to eliminate sections of direct fall-line travel and other design-related sources of erosion and hiking difficulty.

No designated trails exist on the Rocky Comfort Tract. Public use of this portion of the area could be enhanced by designating scenic routes on existing service roads linked by short sections of new single-track for up to 5 miles of designated trails.

All roads on the WMA are open to hiking, biking and horseback riding when the WMA is open unless otherwise designated with a total of 34 miles of non-motorized roads available.

Youth Conservation Center Facilities – A small classroom with interpretive exhibits, covered picnic pavilion and archery range are located near Joe Budd Pond. All the facilities within the center lack required ADA access and the interpretive center is aging and needs to be replaced or upgraded. Several other program facilities and enhancements have been identified and are shown on the map. These upgrades are being planned and carried out through partnerships outside this planning process.

Wildlife Viewing and Nature Study - Wildlife viewing opportunities are available throughout Joe Budd, especially in the slope forests and along the waterbodies in and around the WMA. There are currently no viewing structures at these sites to enhance the viewing experience. The potential for a viewing platform that takes advantage of the topography of the slope forests without disturbing these fragile communities will be evaluated. Joe Budd is a site on the Great Florida Birding and Wildlife Trail.

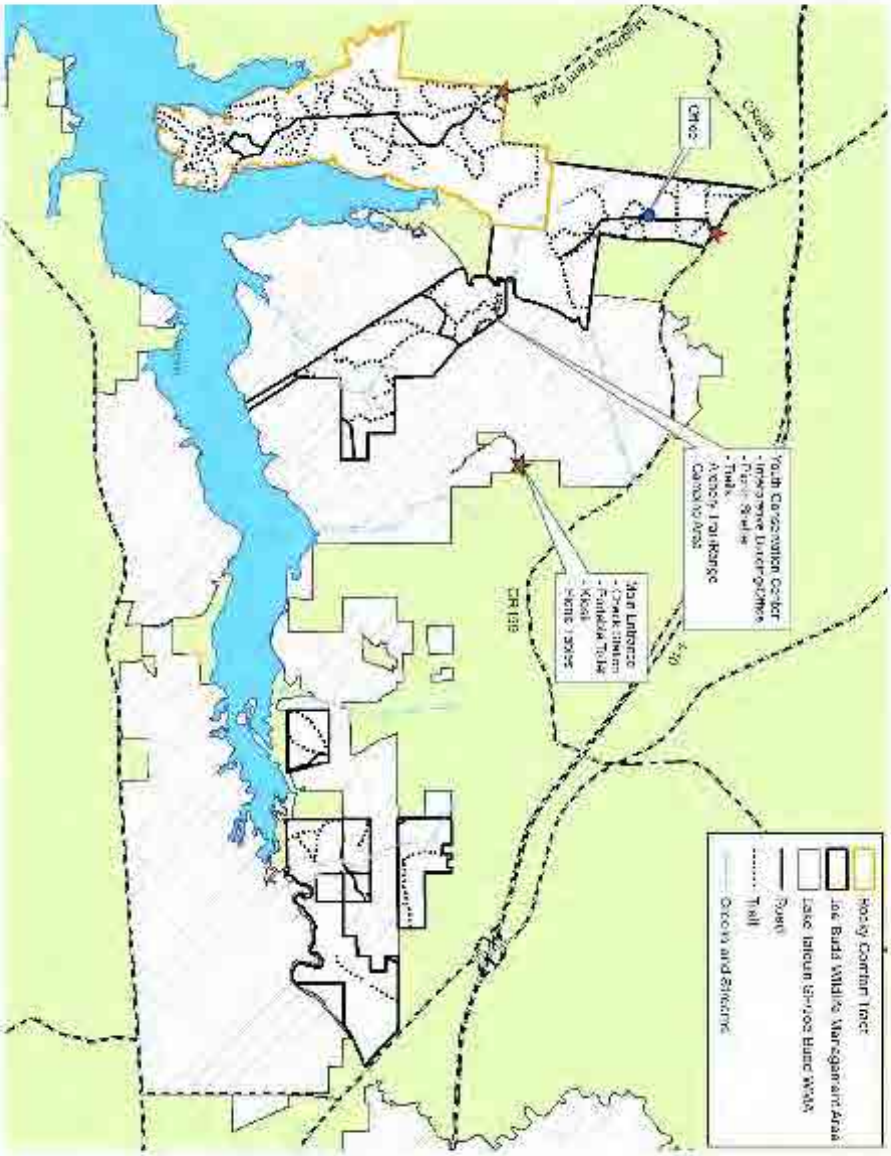
Picnicking - There are currently no picnic shelters on the WMA outside of the YCC. There are picnic tables at the main entrance. No picnic facilities exist on the Rocky Comfort Tract. Picnic tables and/or shelters at the entrance and along proposed trails would enhance the visitor experience. The Lower Camp area on Rocky Comfort offers the potential for a day use area with picnic tables and signage.

Camping – There is no camping available on the portion of Joe Budd covered by this plan except camping related to YCC programs. Camping is available for a fee via permit at the FFS High Bluff Campground.

Geocaching - Geocaching is allowed on the area. There are currently no permitted geocaches on Joe Budd. Approval of new geocaches and disposition of existing geocaches is at the discretion of the site manager and coordinated by FWC's PAWV.

Special Events/Tours – Outside of the YCC, there are no regular tours or special events at Joe Budd. Given the significant resources on the area, the potential exists for birding and or native plant tours.

Joe Budd Youth Conservation Center – JBYCC provides programs in aquatic ecology to students from area schools.


Hosley Corridor Tract
Joe Budd Wildlife Management Area
Lake Talquin State Forest WMA
Roads
Trail
Ocklawaha Creek
Youth Conservation Center
- Interpretive Lookout/Office
- Pavilion Shelter
- Trails
Archery Trail Range
Camping Area
Main Entrance
- Check Station
- Portable Toilet
- Kiosk
Picnic Tables
Ocklawaha River Road
CR 108
CR 109
Office
Figure 3: Joe Budd WMA Existing Facilities
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Recreation Sensitivity Analysis

(Figure 4)

While there are existing facilities at Joe Budd, it is useful to analyze the WMA in its entirety to determine optimum locations for recreation opportunities. To this end, a Recreation Sensitivity Analysis is developed (Appendix 4) that looks at the entire WMA, independent of existing infrastructure and opportunities, to look for the potential to relocate or improve facilities, and to determine locations for new infrastructure.

Recreation Zoning

Research of recreational use demonstrates that visitors come to recreate on public lands with many different expectations (NPS, 1997). Providing a variety of settings allows visitors to select the type of experience they desire, simplifies management and reduces conflicts between visitors who are seeking different types of experiences. The zones delineated by the planning team are provided in Figure 5. Each zone is described below in terms of the type of experience it offers, the natural resources related to the experience and the level of management required.

Primitive Zone

This zone offers an experience of solitude deep in a natural landscape with no evidence of human development. This zone can encompass sensitive natural resources. Access is difficult and the number of people should be limited. Only limited recreation and interpretation opportunities should be developed in this zone. A minimal level of management is necessary for resource protection and safety.

Semi-Primitive Zone

The semi-primitive zone provides a sense of being immersed in a natural landscape with opportunities for solitude. Observation structures, boardwalks, interpretative signs and unpaved trails are the types of recreational facilities that are appropriate in this zone. In areas with vehicle access on roads, the semi-primitive motorized zone provides a sense of being in a natural landscape with minimal human modification and moderate opportunities for solitude. Interpretative signs, wayfinding signs, vehicle pull-offs, unimproved parking locations and unpaved roads are the types of recreational facilities that are appropriate in this zone. Roads are passable by two-wheel drive vehicle. A moderate level of management is provided for resource protection and safety.

Developed Zone

Developed zones are areas with visitor facilities such as parking, picnicking and toilets. The visitor's experience in this zone is highly social. Trails may be paved or hardened for access by people with disabilities. Visitors and facilities are intensively managed in this zone for resource protection and safety purposes. Staff should monitor visitor behavior and attend to maintenance needs. The most intensive interpretation is provided in the developed zone. This is the most appropriate zone for building construction.

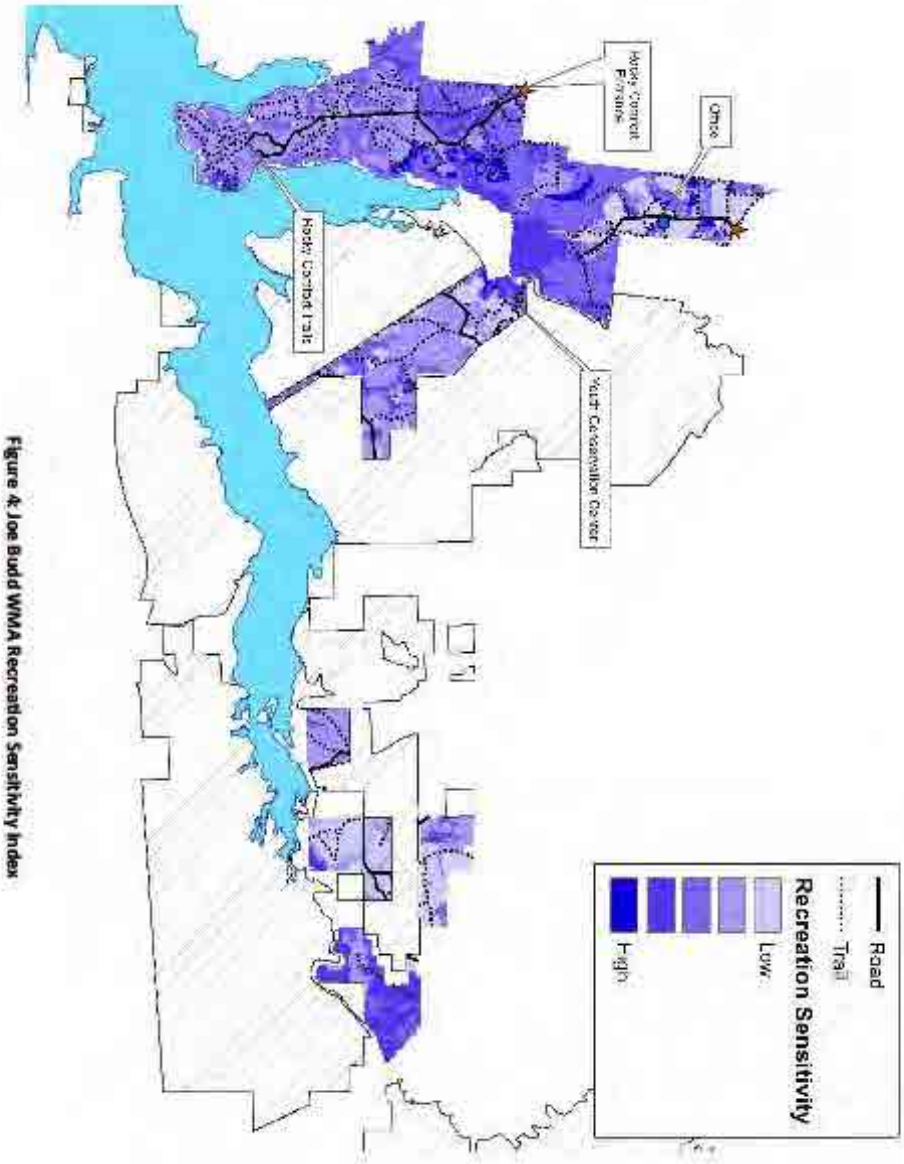

Figure 4: Joe Budd WMA Recreation Sensitivity Index

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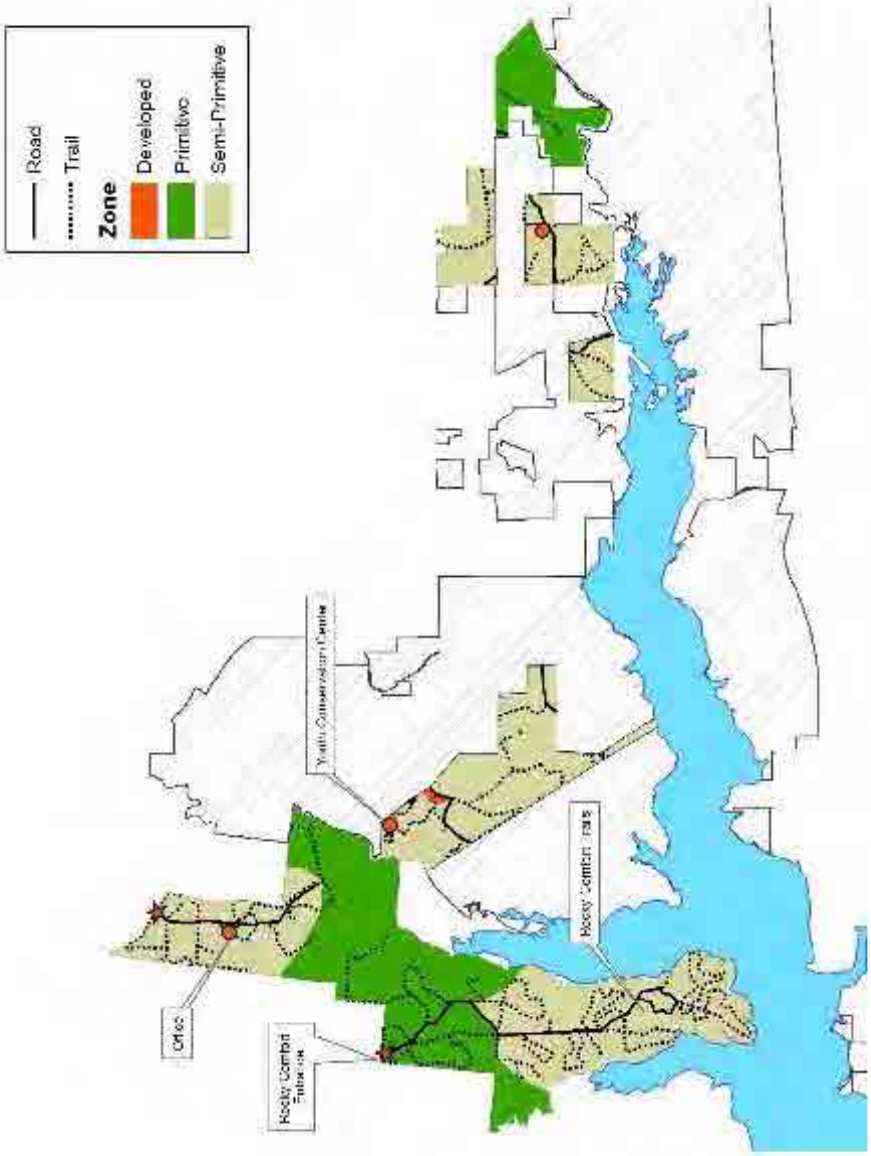

Figure 5: Joe Budd WMA Recreation Zones

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Carrying Capacity

In order to minimize disturbance of wildlife and other natural resources and to provide an enjoyable experience for visitors, FWC calculates a carrying capacity for its managed areas (Appendix 4). This carrying capacity takes into consideration natural community sensitivity, known locations of sensitive natural communities, known archaeological and historic sites, existing recreation facilities and wildlife disturbance distances with a turnover rate that varies with the activity or facility. This capacity is not a visitation goal but rather is a level at which the natural and recreation resources of the area can sustain use without damage. Current capacity for Joe Budd is 107 people per day (including hunting capacity). If all planned facilities are constructed, this capacity increases to 214 people per day, exclusive of the Joe Budd Aquatic Education Center/YCC.

VI. Nature-based Recreation Recommendations

Joe Budd WMA Recreation Use Potential

Joe Budd provides an opportunity for visitors to learn about and see examples of natural communities that are rapidly being converted to other uses in north Florida. The following sections of the plan provide for comprehensive interpretation of these communities, common and listed species of interest to visitors, and FWC's management. Recommended recreation enhancements are those that provide a range of enjoyable opportunities to view wildlife without negatively impacting resources.

Goals and Objectives

Careful design and placement of recreational facilities can provide desirable visitor experiences and minimize impacts to the natural and cultural resources of the area. Construction and improvements will not harm wildlife, fragile habitats or historic and cultural sites. All planning and implementation should be done in accordance with guidelines in Appendix 3. A conceptual site plan for proposed recreation facilities is provided in Figure 6.

Goal A. Orient visitors to the area and its recreation opportunities and interpret WMA resources

1. Develop recreation guide.
2. Develop interpretive sign plan.
3. Develop a trail guide.
4. Develop interpretive materials for High Bridge Road pull-off and Rocky Comfort and explore use of multimedia interpretation (QR Codes, etc.).
5. Stock recreation guide, regulation summaries and bird list in brochure boxes at the main entrance and walk-in entrance.
6. Install approach signs on CR65B for the Rocky Comfort Tract.
7. Construct a kiosk at the Rocky Comfort Tract and High Bridge Road pull-off.
8. Maintain up-to-date information about the area on the FWC website.

Goal B. Enhance existing trail opportunities

1. Renovate existing trails at YCC to prevent erosion and simplify management and maintenance of the trails.

2. Monitor trail use and demand to determine the need for expanded trail opportunities.

Goal C. Create new trail opportunities

1. Designate or construct and mark up to 5 miles of new trails from the Rocky Comfort entrance using a combination of existing roads and new trails.
2. Coordinate development of a Lake Talquin Paddling Trail with the FFS, Florida Park Service, Gadsden County and Leon County.

Goal D. Enhance existing facilities and develop new wildlife viewing opportunities

1. Create small parking area at the Rocky Comfort Tract entrance.
2. Install picnic tables at Lower Camp on the Rocky Comfort Tract and at selected locations along new trails if feasible.
3. Evaluate potential for a viewing platform near the slope forest on the Rocky Comfort Tract and construct if feasible.
4. Work with Florida Youth Conservation Center Network to assist in improving the YCC facilities as requested. Proposed facilities include: bunk houses, dining hall/kitchen, classroom, replace existing interpretive building/office, and a .22 rifle range/5-stand shotgun range.

Goal E. Direct and manage recreational use to minimize negative resource impacts and maximize visitor satisfaction

1. Implement a monitoring strategy to assess resource impacts and institute corrective management actions if indicators begin to approach standards.

2. Collect and evaluate information about visitor use and satisfaction:
    - Number of visitors to the area and patterns of visitation
    - User group conflicts
    - Origin and length of stay
    - Motivations for visiting and preferred experiences
    - What visitors already know about the area and primary interpretive themes

Goal F. Coordinate with local, state and federal agencies and organizations when planning and implementing nature-based recreation opportunities and enhancements

1. Cross-promote Joe Budd WMA with other regional public lands.

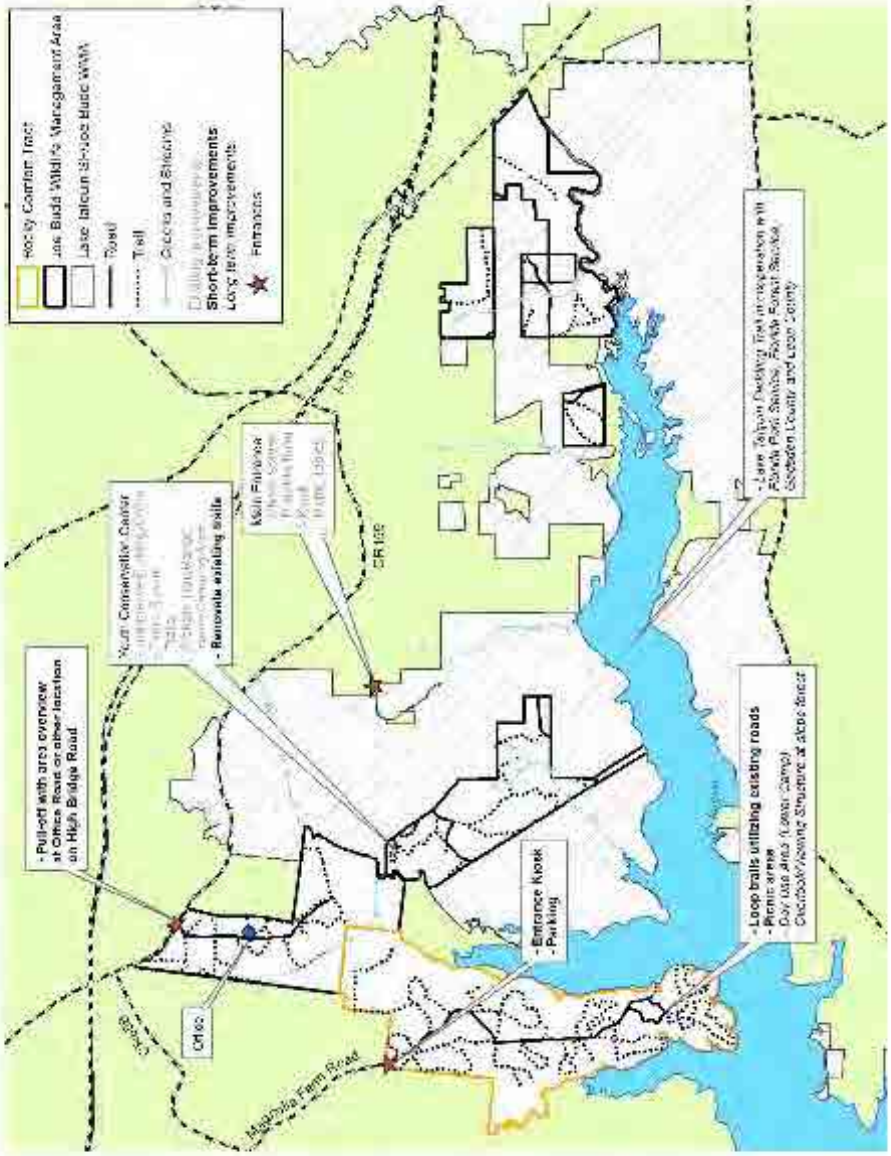

Figure 6: Joe Budd WMA Proposed Recreation Facilities

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Challenges and Strategies

There are several challenges facing the effective implementation and management of nature-based recreation opportunities on Joe Budd. Challenges and proposed strategies to address them are discussed in this section.

1. Challenge:

   Joe Budd is not a widely-known recreation destination.

   Strategies:

   - Cross-promote Joe Budd with other regional conservation lands.
   - Provide rack cards or similar publication at sources in Tallahassee and Quincy.
   - Work with Gadsden County tourism boards for promotion.

2. Challenge:

   As the population density around Joe Budd continues to increase, recreational use of the area will increase, potentially resulting in resource damage and wildlife disturbance.

   Strategies:

   - Periodically monitor all public use sites for environmental impacts and implement corrective actions when and where necessary.
   - Recreational use will be directed away from sensitive environments to the greatest degree possible.
   - Environmental protection information will be provided in all interpretive materials.

3. Challenge:

   As recreational use increases, conflicts among user groups may occur.

   Strategies:

   - Provide a range of recreational opportunities in a variety of settings to avoid user conflicts as much as possible.
   - Involve stakeholders and user groups during planning.
   - Ensure that user groups understand how to contact local staff to resolve problems.
   - Provide opportunities for different user groups to volunteer together to maintain public access amenities and conduct conservation stewardship activities.

- Display hunting information (dates, times and types) at all entrances to help all users make choices as to when to visit.

Summary of Proposed Infrastructure Enhancements

- Rocky Comfort Tract
  - New kiosk with interpretive sign panels
  - Parking area
  - Up to 5 miles of designated trails using existing roads and short sections of new single-track
  - Picnic tables at Lower Camp and along trails
- YCC
  - Renovate trails for increased sustainability
  - Work with FYCCN staff to assist with desired renovations as needed.
- Office Road entrance/High Bridge Road
  - Pull-off with kiosk and WMA information
- Lake Talquin Paddling Trail

Work Plans

PAWV will work with local staff to prepare annual work plans and budgets to implement the RMP for Joe Budd. PAWV will be responsible for 1) developing cost estimates for recreation-related facilities; 2) coordinating design and permitting; and 3) obtaining construction bids and the work of contractors during the construction phase. This includes pre-construction meetings, site visits at construction milestones and final reviews. Generally, the area manager and staff monitor construction sites frequently during the construction process to make sure the contractor is not doing damage to the surrounding area.

PAWV will design interpretive materials for the areas in consultation with management area staff. Generally, the cost of producing maps and interpretive products and maps comes from the PAWV budget.

Monitoring and Management of Recreation Facilities

PAWV will monitor recreation infrastructure on the WMA biannually including trail and structure photopoints. PAWV will also create an annual monitoring report at the end of each fiscal year. Any impacts encountered during each monitoring will be brought to the attention of PAWV and WMA staff to determine the best course of action for correction and prevention.

Measurable indicators for monitoring key aspects of the visitor experience and resources at Joe Budd are described in Appendix 5. Indicators should be monitored for each zone, and when necessary, management actions taken to ensure that visitor use and resource impacts remain within the established standards.

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References

A Management Plan for Joe Budd Wildlife Management Area 2015 – 2025 (Draft). Florida Fish and Wildlife Conservation Commission (2015).

Office of Economic and Demographic Research. http://www.edr.state.fl.us. 2013

Florida Statewide Comprehensive Outdoor Recreation Plan. Florida Department of Environmental Protection (2008).

National Park Service. The Visitor Experience and Resource Protection (VERP) Framework: A Handbook for Planners and Managers (1997).

Gadsden County Comprehensive Plan. Gadsden County (2001)

US Census 2010. US Census Bureau (2010)

Appendices

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Appendix 1: Joe Budd WMA Stakeholder Meeting Notes

15 August, 2013
NWFWMD Office

List of stakeholders in attendance:
Mike Jenkins, Native Plant Society
Shawn McGlynn, President, Apalachee Audubon
Ray Eubanks, Hunter (Archery)
Bo Raker, Hunter (Muzzleloader)
Frances Stone, West Florida Canoe and Kayak Club, Florida Paddling Trails Association
Sue Noyes, President, Southern Trailriders Association (Equestrian)
Richard Pace, Angler
Mike O'Hare, Florida Trail Association
Charles Strickland, Talon Shooting Range
Sharon Hauton, Southern Trailriders Association

FWC staff in attendance:
Jerrie Lindsey, Director, Office of Public Access and Wildlife Viewing Services
Rich Noyes, Section Leader, Planning and Design
Tom M. Matthews, Recreation Planner
Judy Gillan, Section Leader, Interpretive & Conservation Stewardship Programs
Ann Morrow, Interpretive Writer
Mark Kiser, GFBWT Manager
Phil Manor, Joe Budd WMA District Biologist
James Alleman, Joe Budd WMA Fish and Wildlife Technician
David McDuffie, Joe Budd WMA Fish and Wildlife Technician
Rae Waddell, Florida Youth Conservation Center Network
George Warthen, Hunter Safety Regional Coordinator

Meeting Agenda:
Introduction and Overview of Recreation Planning - Jerrie Lindsey
Overview and History of Joe Budd WMA – Phil Manor
Proposed Interpretive Themes - Ann Morrow
Overview of Proposed Recreation Improvements – Tom M. Matthews
Stakeholder Input
Review of Stakeholder Suggestions - Jerrie Lindsey

Responses to stakeholder comments and suggestions:

Facilities/Structures

- Portable toilet at Joe Budd Pond.
  - *Restroom facilities are in the long-term plan for the Youth Conservation Center. In the short term the suggestion has been passed on to Freshwater Fisheries, YCC and WMA staff.*

Trails/Activities

- Marked equestrian trails on Rocky Comfort with shade and horse-compatible substrate.
  - *Trails on Rocky Comfort will be routed off the main limerock roads as much as possible. Due to the small size of the area and number of existing roads and trails there is limited opportunity for construction of new trails.*
- Marked equestrian trails on other areas of Joe Budd.
  - *There is limited opportunity for marked horse trails on portions of Joe Budd managed by FWC outside of the Rocky Comfort Tract. The request will be passed on to FFS staff.*
- Can paddling be added to the list of approved uses?
  - *Paddling will be suggested as an approved use as the Management Plan for Joe Budd WMA is developed.*

Programming/Interpretation

- Install interpretive signs at a height usable by equestrians and hikers.
  - *We will take this into consideration when installing new interpretive signs.*

Hunting/Fishing

- Increasing hog population can impact rare plants, especially on the Rocky Comfort Tract.
  - *FWC will continue to explore methods of hog control through hunting and alternative methods.*
- Will recreation improvements impact hunting?
  - *The current hunting rules and format will not be impacted by any planned recreation improvements.*
- Develop more fishing area in Zone F at Landing Road.
  - *This is on property managed by the Florida Forest Service. The request will be passed on to FFS staff.*

Volunteers

- Southern Trailriders Association will help develop and maintain equestrian trails.
  - *Any assistance with trail development and maintenance is welcomed and we will coordinate trail activities with interested parties.*

Miscellaneous

- Does building amenities detract from wildlife management activities such as food plots?
  - *No. The funding for recreation infrastructure does not come from the operating budget for Joe Budd WMA.*

Appendix 2: Work Plan for Recreation Enhancements

Based on the prioritization of the goals and objectives listed above, the following list of projects and tasks has been ordered in terms of short and long term completion timeframes.

Short Term

- Rocky Comfort Tract
  - Up to 5 miles of designated trails using existing roads and short sections of new single-track
  - Picnic tables at Lower Camp and along trails
- YCC
  - Renovate trails for increased sustainability

Long Term Completion and Ongoing Tasks

- Rocky Comfort Tract
  - New kiosk with interpretive sign panels
  - Parking area
- Office Road entrance/High Bridge Road
  - Pull-off with kiosk and WMA information
- Lake Talquin Paddling Trail
- Work with FYCCN to assist in YCC facility enhancements as needed

Appendix 3: Recreation and Wildlife Viewing Facilities Design Guidelines

- **Entrances**
  Should welcome visitors to the area, identify the Commission, describe the range of potential experiences on the area, and describe the wildlife viewing experiences by season, time of day or wildlife event.

- **Viewing structures**
  Structures should include wildlife identification or other interpretive information. The structure should be surrounded by and focused on wildlife and habitat, rather than being the focus itself. For towers, each level should focus visitor attention to a different habitat or feature.

- **Trails**
  Trails should be described at the trailhead with length or time required. If the focus is wildlife viewing, include best seasons. Interpretive panels or brochure stops should be well-spaced and focused by season.

General considerations in developing facilities:

- Locate viewing facilities on previously disturbed properties wherever possible.
- Preserve a sense of solitude and limit impact on natural resources by concentrating recreation uses in small "developed" zones and along existing road/trail corridors.
- Site facilities and design trails to minimize user conflicts.
- Avoid sensitive areas such as wetlands and route trails to avoid fragmenting habitat.
- Consider physical characteristics and the historical and natural character of the location.
- Adapt parking lots, buildings and other physical developments to existing topography.
- Retain on-site surface water run-off generated by development.
- Use porous pavements where surface hardening is required.
- Consider sewage disposal needs.
- Use native plants representative of the area for all landscaping.
- Design and build trails and observation structures to avoid disturbing wildlife and to minimize negative impacts such as erosion.
- Use elevated boardwalks in wet areas and swamps and walkovers to protect other sensitive areas.
- Incorporate wildlife viewing ethics into all interpretive materials.
- Incorporate interpretive themes into all brochures, trail guides and other materials produced to support recreation opportunities.
- Install interpretive signs and panels as appropriate at all recreation facilities.
- Route trails to interpret restoration and wildlife management activities.
- Insure interpretation of highly desired species viewable on the area.

Universal Access

Nature-based recreation facilities and programs must be developed and implemented in compliance with the Americans with Disabilities Act. All facilities in developed zones should be universally accessible. Recreation facilities in semi-primitive or primitive zones should be planned to be accessible to the degree possible except where:

- compliance will cause harm to cultural, historic or religious sites or significant natural features or characteristics.
- compliance will substantially alter the nature of the setting or purpose of the facility (or a portion of the facility).
- compliance would require construction methods or materials prohibited by federal, state or local regulations or statutes, or compliance would not be feasible due to terrain or prevailing construction practices.

Appendix 4: Carrying Capacity Methodology

FWC Recreation Carrying Capacity

Carrying capacities for recreational users on FWC lands are developed using a methodology employing existing spatial data and models, recommended guidelines for spatial and temporal carrying capacity, recommended guidelines for minimizing wildlife disturbance by outdoor recreation, and site-specific characteristics. The intent of this methodology is to provide a realistic carrying capacity which is based on the best science and data available with a focus on minimizing wildlife and habitat disturbance and providing the type of recreation our visitors desire and FWC's managed areas can support. This methodology also provides a means of monitoring visitor impacts and allows for flexibility in responding to these impacts and adjusting the carrying capacity as necessary. The carrying capacities generated though this process are not a visitation goal but are a guideline included in the overall area Management Plan and used as a tool to help plan and develop recreation opportunities.

Sensitivity Analysis

An initial analysis of site sensitivity to recreation impacts is conducted using:

- Integrated Wildlife Habitat Ranking System model results for the site
- Natural community values based on threat rankings developed for the Florida Wildlife Legacy Initiative using the rankings for Roads, Incompatible Recreation Activities, and Conversion to Recreation Areas
- Natural community values based on the sensitivity guidelines published by the Florida Park Service
- Wetlands
- Slope
- Soils
- Known point locations of species-of-interest
- Known locations of sensitive resources
- Division of Historic Resources Master Site File sites
- Density of existing roads, trails and facilities
- Other datasets as available and appropriate

These data layers are converted to grids as necessary and normalized to a scale of 1-100. Then a weighted sum is calculated for all data resulting in a "Sensitivity Index" for the area with higher values being more sensitive to disturbance from recreation.

Recreation Zoning

Once the results of the Site Sensitivity model are obtained, a Recreation Zone Map is developed incorporating these results and any statutory or rule constraints for recreation activities. These Recreation Zone Maps will show the different types of recreation experiences

appropriate for each zone of the area. This guides potential trail lengths, trail types, types of facilities and other parameters related to recreation infrastructure.

Carrying Capacity Development

For linear recreation facilities (i.e. trails), a physical carrying capacity is developed based on trail length using a 100-meter buffer on either side of the trails. This buffer distance is consistent with the estimated area of wildlife disturbance along the trail. In addition, an additional 100-meter buffer is used between potential trail users to provide an undisturbed 100-meter area between users. This results in an estimate of 1 user or group every 300 meters along the trail. This estimate is generated using GIS and is adjusted to minimize disturbance "hot spots" such as overlapping disturbance buffers. Point facilities (i.e. observation structures) have a single 100-meter radius buffer. The temporal component of carrying capacity is developed based on the Florida Park Service turnover estimate of two per day on primitive hiking trails or four per day on shorter, improved nature trails. In addition, existing and planned parking and other trailhead limitations are factored into the estimate. If the site already has a Recreation Master Plan (RMP) developed, these estimates will be based on existing and planned facilities as detailed in the RMP. If the area does not have an RMP these estimates are based on potential trail corridors and potential point facility sites derived from the Recreation Zoning and site visits by PAWVand area staff. Another product of this estimate is a "Wildlife Habitat Disturbance Index" based on the ratio of potentially impacted habitat to impact-free habitat expressed as a percentage of the area potentially impacted by recreation.

Camping Facility Carrying Capacities

- Primitive tent camping with no facilities or limited facilities (fire ring, picnic table): 4 people/site with a turnover of once per day.
- Standard camping site (fire ring, picnic table, improved or paved pad, toilet facilities): 8 people/site with a turnover of once per day.
- Generally group camping will be 30 people per 5 acres of camping area.

Picnic Areas

- 8 tables/acre and 4 people/table with a turnover twice a day.

Structures

- Structures dependent on trails for access will be included in the calculated trail capacity.
- Structures that can be accessed independently of trails will have a carrying capacity determined on a case-by-case basis based on the type and size of the structure.

Shoreline Fishing Areas

- Shoreline fishing areas will have a capacity of 1 angler per 25 linear feet.

Seasonal Hunting

- For those areas with seasonal hunting use carrying capacities range from one hunter per 75 acres to one hunter per 150 acres. The exact density chosen depends on a variety of factors with game management most paramount, but is also influenced by the layout of the area and the chosen hunting framework. Areas with dove fields will have a dove field capacity of one hunter to 1.75 acres of dove fields. This capacity is in addition to the calculated capacity for non-hunting recreation uses. Areas with quota permits will have the hunting capacity established as double the maximum number of permits for any one season to account for guest permits.

As needed, capacities for other uses not listed above will use the carrying capacity guidelines published by the Florida Park Service as a baseline.

Recreation Impact Monitoring

To provide a quantitative measure of recreation impacts, limits will be established as "No impact ranks greater than 1," as observed during each biannual monitoring conducted by PAWV field staff. If any ranking values are greater than 1, the site will be assessed to determine the source of the impact. If impacts are the result of recreation activities (as opposed to facility design or other sources), the carrying capacity will be revisited and corrective measures will be developed by PAWV and area staff.

Appendix 5: Management and Monitoring

Recreation Facility Monitoring Protocol

Florida Fish and Wildlife Conservation Commission
Office of Public Access and Wildlife Viewing Services

Introduction

In order to better plan and manage recreation opportunities on lands managed by the Florida Fish and Wildlife Conservation Commission (FWC), FWC's Office of Public Access and Wildlife Viewing Services (PAWV) has developed a monitoring program for recreation-related facilities and infrastructure. Using both qualitative and semi-quantitative methods this program will encompass trails, signs, wildlife viewing structures and other facilities. Data obtained through this program will help FWC better plan, construct and maintain facilities to provide the recreation experiences that are meaningful, enjoyable and safe.

Materials

- Digital camera
- Tripod
- Kaidan panoramic photo mount
- VRWorx, or other software for creating panoramic photos
- Monitoring forms
- Tape measure
- Compass
- GPS (loaded with waypoints for monitoring points)
- Hand tools for checking structure hardware

Monitoring Procedures

Frequency

Starting in FY 2013-2014, trails will be monitored annually in the fall and structures monitored annually in the spring. Prior to FY13-14 trails and structures were both monitored biannually.

Photopoints

Panoramic and single photopoints are used to track and document impacts such as trail degradation, corridor condition, structural integrity and vandalism. Single photopoints are taken at use areas to capture the overall condition. Additionally, each amenity and structure has a photopoint associated with it. Panoramic photos are taken at use areas in a central location and at trailheads. Photopoints are predetermined (with the exception of trouble areas along trails), geographically referenced, and consistent. Data are compiled by analyzing panoramas and

photopoints from each monitoring session and combining the findings with impact indices recorded for each site.

Photopoints should be recorded with GPS, which can also be used to navigate back to the photopoint location on future monitoring visits. A description of the location should be recorded to ensure maximum accuracy in relocating the photopoint.

Assemble the panoramic photo gear and set the tripod over the photopoint, making sure the panoramic head is level. Standard photopoint height is 60" to the center of the camera lens while mounted on the panoramic mount. This may be modified for some photopoints depending on surrounding vegetation or other considerations, but the new height should be recorded and used each time that photopoint is taken. The easiest way to set the height is to assemble the tripod, panoramic mount and camera on level ground, adjust the legs to their full length and adjust the center column to achieve the proper lens height. The center column can be marked with a permanent marker, tape, or scored with a small file or engraver and each mark should be labeled with the height and camera model. This will have to be done for each different camera that will be used for photopoints, although it is preferable that the same camera be used for all photopoints.

Cameras should be set to full wide zoom, landscape mode if available, with flash off. All photopoints begin with the detent closest to due north and continue in a clockwise direction. A log should be kept to record the photo numbers and their corresponding photopoint.

After downloading the images they should be processed into a flat panorama (a digital image composed of all of the photos for a particular photopoint). These panoramas along with the component images should be kept in a central location organized by WMA, photopoint number, and photopoint date. Parallel photopoints will not need to be processed but should be organized as above.

Trails

Trails are monitored with a panoramic photopoint centered at the trailhead, and one photopoint wherever problems areas exist: one photo taken facing forward on the trail and one facing the opposite direction on the trail.

Use areas

Use areas have 2 photopoints. One is a panoramic photo taken at the center of the use area that follows the procedure for trailhead photopoints. The other is a single photo taken from the perimeter of the area. The compass bearing of the photo should be recorded and used for all subsequent photos taken at that photopoint.

Structures
Structures have a single photopoint. This is a single photo, and the compass bearing of the photo should be recorded and used for all subsequent photos taken at that photopoint. If desired, a panoramic photo can be taken to represent the view from the structure (such as the top of a tower).

Physical Inspections

- Check for presence or absence (smaller amenities such as fire rings and benches)
- Check for proper location (smaller amenities such as fire rings and benches)
- Inspect for damage (signs and structures)
- Check hardware and tighten or replace if necessary (signs and structures)

Trails should be traversed in their entirety, either on foot for shorter trails or by vehicle for longer trails. Trouble spots (erosion, trail braiding, shortcuts, litter, excess vegetation encroachment, etc.) should be recorded by GPS and noted on the monitoring form.

Monitoring Forms and Record Keeping

Monitoring forms are completed in the field. This can be done electronically using the Recon field computer or manually. If done manually they should be transferred to an electronic version by filling out the form on computer. Completed electronic forms are then placed in the appropriate location on the Project Management Site for that WMA along with any relevant GPS data (converted to shapefile), photographs, photopoints and other notes.

Any issues that need attention should be sent to the appropriate Recreation Planner via email. The Recreation Planner is responsible for ensuring that the issue is brought to the attention of the appropriate personnel, both internal and external to FWC, and tracking the issue through resolution.

Litter Impacts		
Rating	**Category**	**Description**
1	None	
2	Very Little	small isolated pieces of litter
3[2]	Some	frequent small pieces or isolated large pieces of litter
4	Extensive	small areas used for trash dumping or multiple areas of high litter
5	Very Extensive	large areas used for trash dumping

Structure or Amenity Damage		
Rating	**Category**	**Description**
1	None	none/ loose bolts on new structures.
2	Very Little	minor graffiti or scratches, dirty, light crazing or oxidation, crooked, minor cracks.
3[2]	Some	minor wood repair; extensive graffiti; cuts or gouges; bullet holes; major cracks, extensive crazing or fading.
4	Extensive	hazardous damage, rotten supports, severe rust, illegible signs, burnt
5	Very Extensive	structure is missing or rendered completely ruined/useless

Trail and Use Area Erosion		
Rating	**Category**	**Description**
1	Very little	mostly natural groundcover distribution or man-made materials (concrete, aggregate, mulch, etc.)
2	Some	localized patches of bare soil from use or runoff from structures or impervious surfaces; vehicle tracks noticeable; standing water; minor hog damage
3[2]	Moderate	large areas of bare soil created by use, ruts from vehicles, areas muddied by use, roots partially exposed, heavy hog damage
4	Extensive	channelization, washout, and/or undercutting banks; roots mostly exposed; deep ruts; trail widening

Trail Corridor Condition		
Rating	**Category**	**Description**
1	Within Standards	minimal vegetation encroachment
2[3]	Exceeds Standards	trail needs some mowing/lopping/chainsawing; minor tree fall
3	Unacceptable	trail is generally overgrown and difficult to find; tree fall that impedes passage

[1]Ratings of three and above exceed PAWV standards for structure and amenity damage or litter impacts and trail erosion.
[2]Ratings of two and above exceed PAWV standards for trail corridor condition.

WMA Visit Checklist

- O Trail maintenance needs
- O Sign maintenance needs
- O Structure maintenance needs
- O Day-use area condition/maintenance needs
- O Sufficient PAWV publications in field office
- O Brochure boxes adequately stocked
- O Hunting calendar posted and up-to-date
- O Users encountered on area (number, activity, address for future surveys)
- O Geocaches inspected
- O Manager concerns
- O New ideas for area enhancement

13.12 Timber Assessment - Forest Resource Management Plan

THE FORESTRY COMPANY

Joe Budd Wildlife Management Area
Pine Inventory

Prepared for:

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Prepared by:
The Forestry Company
John M. Bogue
Forest Inventory Manager

THE FORESTRY COMPANY
502 West Green Street
Perry, Florida 32347

Date of Report: 05/06/14

May 6, 2014

Donald Francis
Wildlife Biologist
5300 Highbridge Road
Quincy Fl, 32351

RE: Joe Budd WMA CRUISE REPORT

Dear Donald:

Each management unit/stand is largely composed of similar pine species and stocking. There are 18 stands in total. Most stands are coded the same as the FWC management unit (MU) number with the exception of three. These three stands were delineated from their larger management unit because of a noticeable difference in stocking, specie and age. Most of the stands are a mix of natural pine species. The planted stands also contain some natural pine scattered though out, around the edges, and near the drains. Some of the planted stands (stands 12 – 15) have slash and loblolly that was inter-planted at the same time.

Age per stand is an average of site index measurements. Due to the older age classes and specie variation though out the tract, "USDA Soil Survey 50 Year Site Indexes" are shown. This soil survey shape file is included on the CD.

The stand shape files provided will show acres, species, comments, MU, type, age, and basal area (BA) for each StandID. One shape file is merged per StandID and the other contains each separate pine polygon.

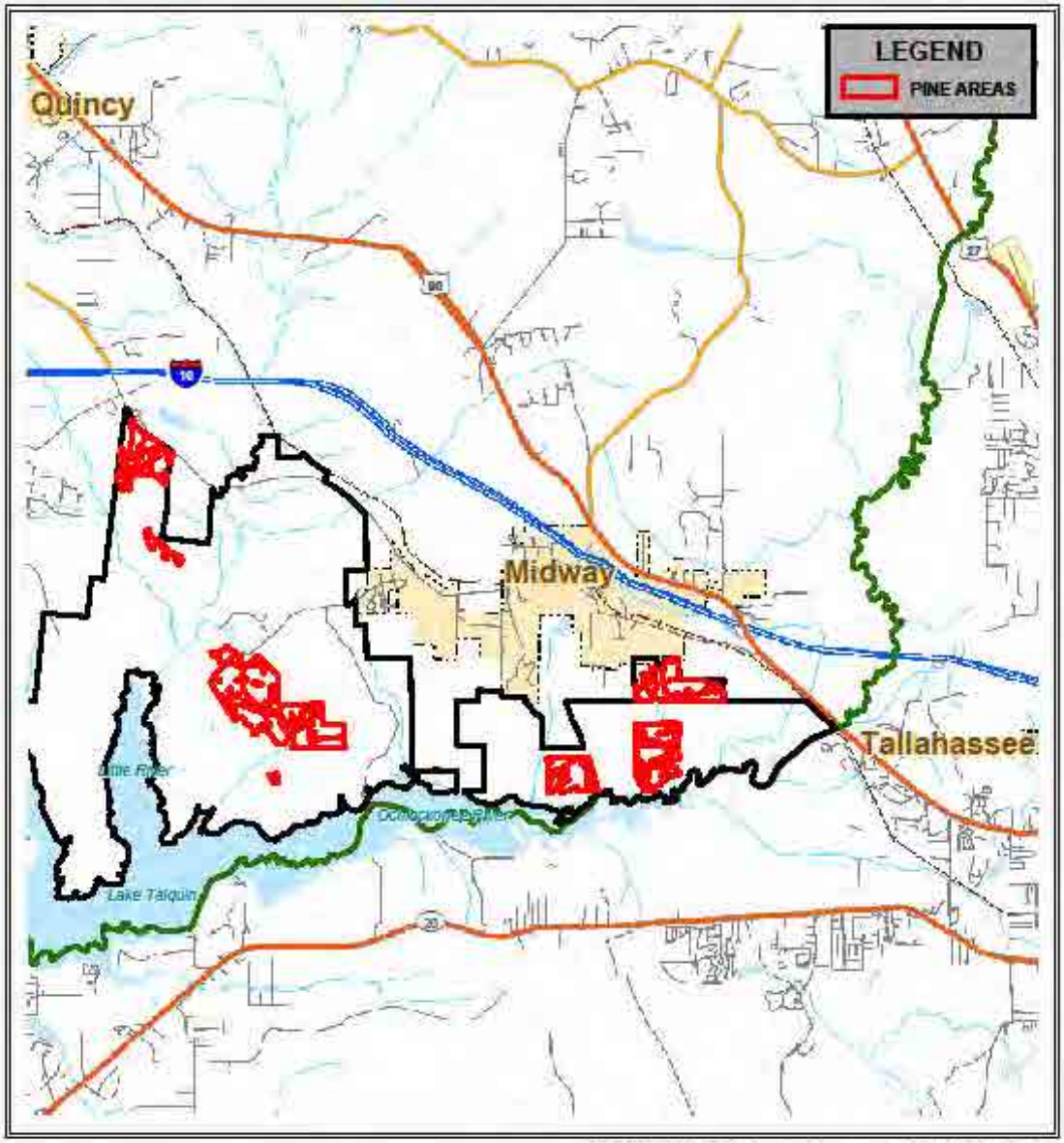
Please call me if you have any questions.

Respectfully yours,

John Bogue – Timber Inventory Manager
(850) 843-1192

MAPS

FWC 13/14-72 - JOE BUDD WILDLIFE MANAGEMENT AREA
GADSEN CO., FL
PINE/UPLAND ACRES - 1009.2 (MOL GIS)
PINE INVENTORY 2014



1 0.5 0 1 2 Miles

1:100,000

PROJECTION: GCS_North_American_1983_HARN_Meters
2013 Aerials

NOTE: ACREAGE WAS DETERMINED ON THIS MAP THROUGH THE USE OF GLOBAL POSITIONING SYSTEMS (GPS) AND/OR GEOGRAPHIC INFORMATION SYSTEMS (GIS). THIS MAP IS NOT A SURVEY. THEREFORE, ACREAGE ON THIS MAP AND ANY SUBSEQUENT REPORT SHOULD BE VIEWED AS AN APPROXIMATION. FURTHERMORE, THE USE OF ANY OF THESE ACREAGES IN NEGOTIATIONS, SALES, OR CONTRACTUAL AGREEMENTS IS ENTIRELY AT THE RISK OF THE BUYER AND SELLER. REPRODUCTION OF OR EDITING OF THIS MAP IS FORBIDDEN WITHOUT EXPRESS WRITTEN PERMISSION OF THE FORESTRY COMPANY.

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JOHN BOGUE
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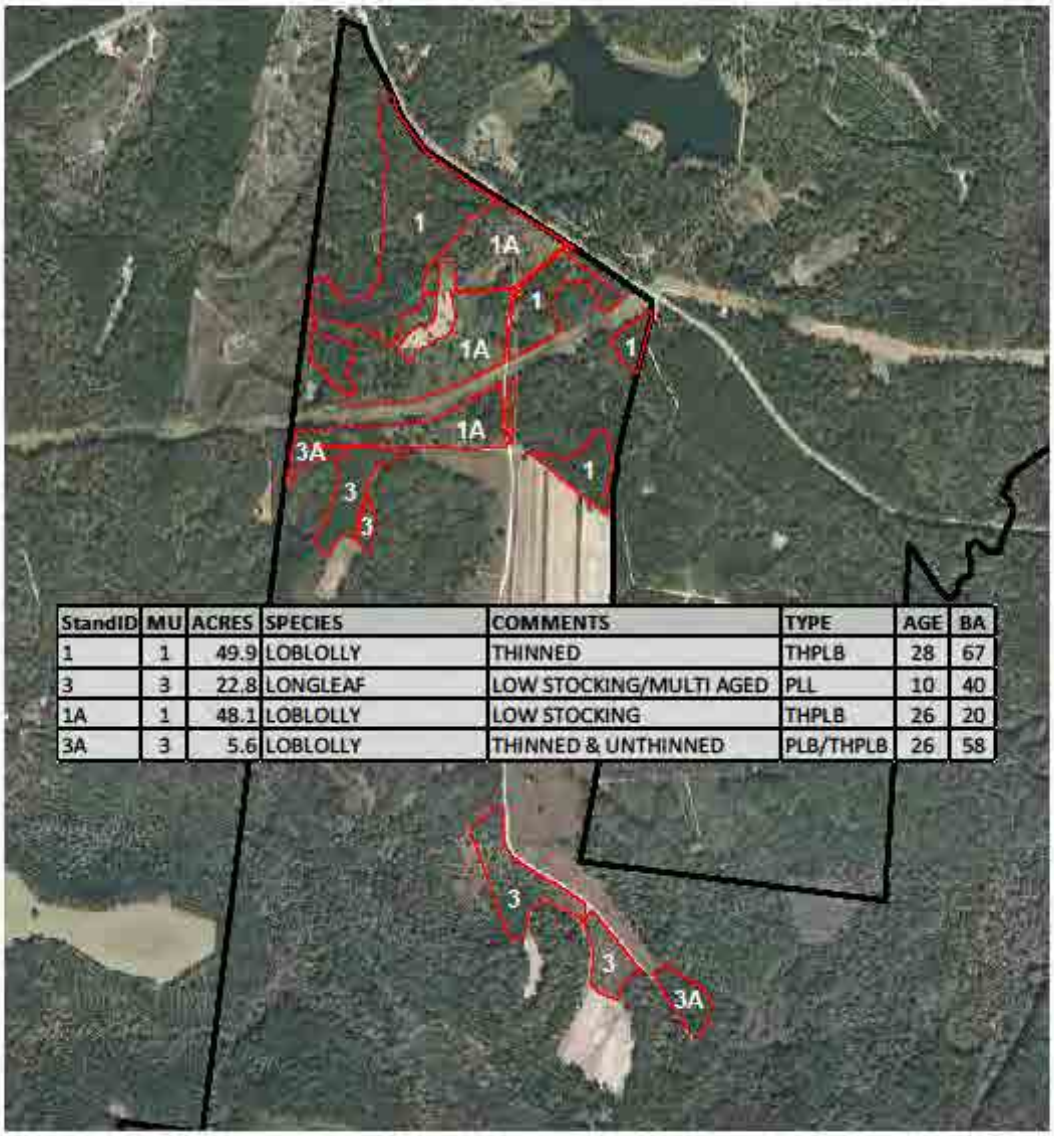
05/06/14

FWC 13/14-72 - JOE BUDD WILDLIFE MANAGEMENT AREA
GADSEN CO., FL
CRUISE MAPS
PINE/UPLAND ACRES - 1009.2 (MOL GIS)
PINE INVENTORY 2014



StandID	MU	ACRES	SPECIES	COMMENTS	TYPE	AGE	BA
1	1	49.9	LOBLOLLY	THINNED	THPLB	28	67
3	3	22.8	LONGLEAF	LOW STOCKING/MULTI AGED	PLL	10	40
1A	1	48.1	LOBLOLLY	LOW STOCKING	THPLB	26	20
3A	3	5.6	LOBLOLLY	THINNED & UNTHINNED	PLB/THPLB	26	58

660 330 0 660 1,320
Feet

1:15,840

PROJECTION: GCS_North_American_1983_HARN_Meters
2013 Aerials

NOTE: ACREAGE WAS DETERMINED ON THIS MAP THROUGH THE USE OF GLOBAL POSITIONING SYSTEMS (GPS) AND/OR GEOGRAPHIC INFORMATION SYSTEMS (GIS). THIS MAP IS NOT A SURVEY. THEREFORE, ACREAGE ON THIS MAP AND ANY SUBSEQUENT REPORT SHOULD BE VIEWED AS AN APPROXIMATION. FURTHERMORE, THE USE OF ANY OF THESE ACREAGES IN NEGOTIATIONS, SALES, OR CONTRACTUAL AGREEMENTS IS ENTIRELY AT THE RISK OF THE BUYER AND SELLER. REPRODUCTION OF OR EDITING OF THIS MAP IS FORBIDDEN WITHOUT EXPRESS WRITTEN PERMISSION OF THE FORESTRY COMPANY.

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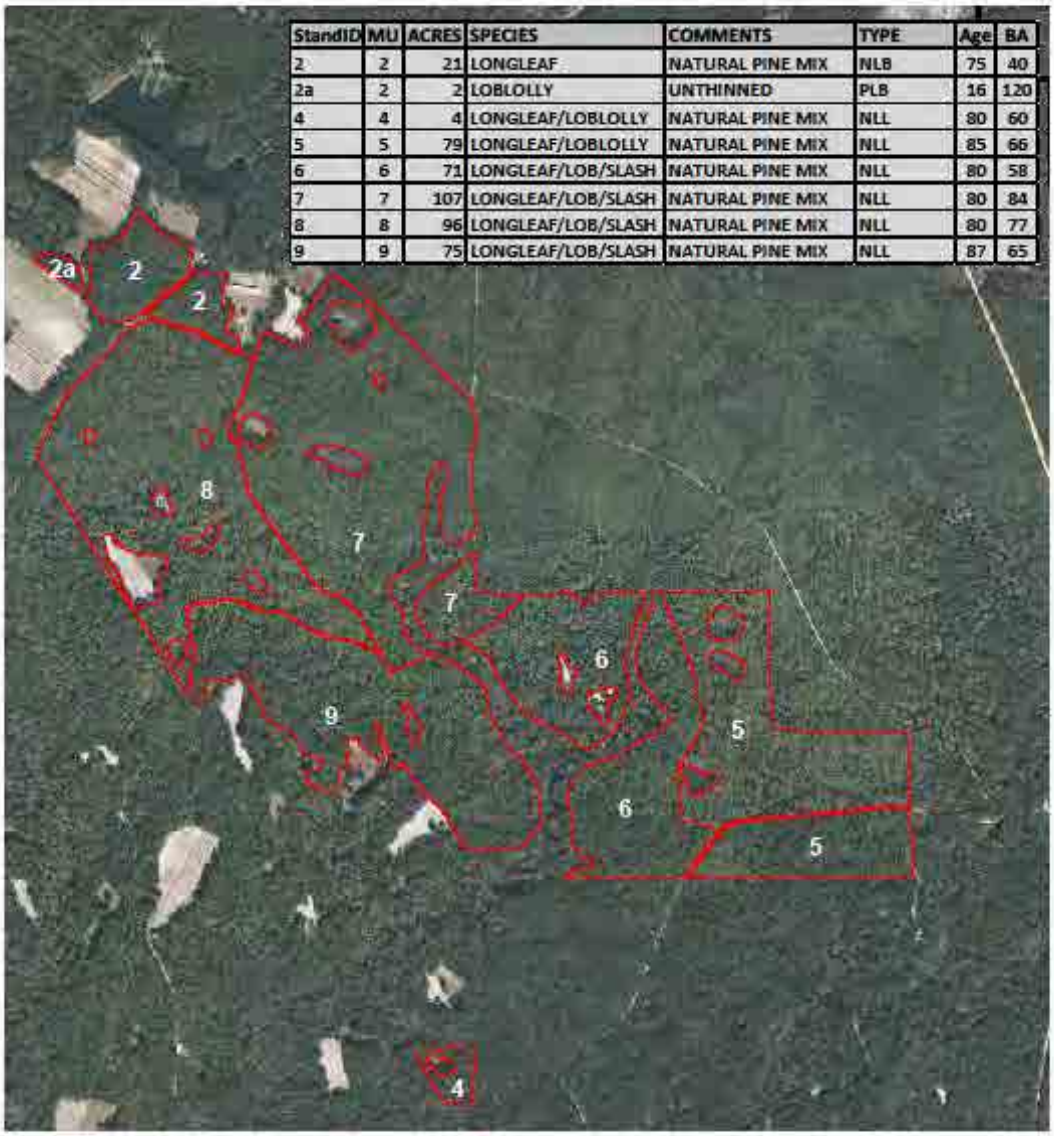
GADSEN CO., FL
CRUISE MAPS
PINE/UPLAND ACRES - 1009.2 (MOL GIS)
PINE INVENTORY 2014

StandID	MU	ACRES	SPECIES	COMMENTS	TYPE	Age	BA
2	2	21	LONGLEAF	NATURAL PINE MIX	NLB	75	40
2a	2	2	LOBLOLLY	UNTHINNED	PLB	16	120
4	4	4	LONGLEAF/LOBLOLLY	NATURAL PINE MIX	NLL	80	60
5	5	79	LONGLEAF/LOBLOLLY	NATURAL PINE MIX	NLL	85	66
6	6	71	LONGLEAF/LOB/SLASH	NATURAL PINE MIX	NLL	80	58
7	7	107	LONGLEAF/LOB/SLASH	NATURAL PINE MIX	NLL	80	84
8	8	96	LONGLEAF/LOB/SLASH	NATURAL PINE MIX	NLL	80	77
9	9	75	LONGLEAF/LOB/SLASH	NATURAL PINE MIX	NLL	87	65



660 330 0 660 1,320
Feet

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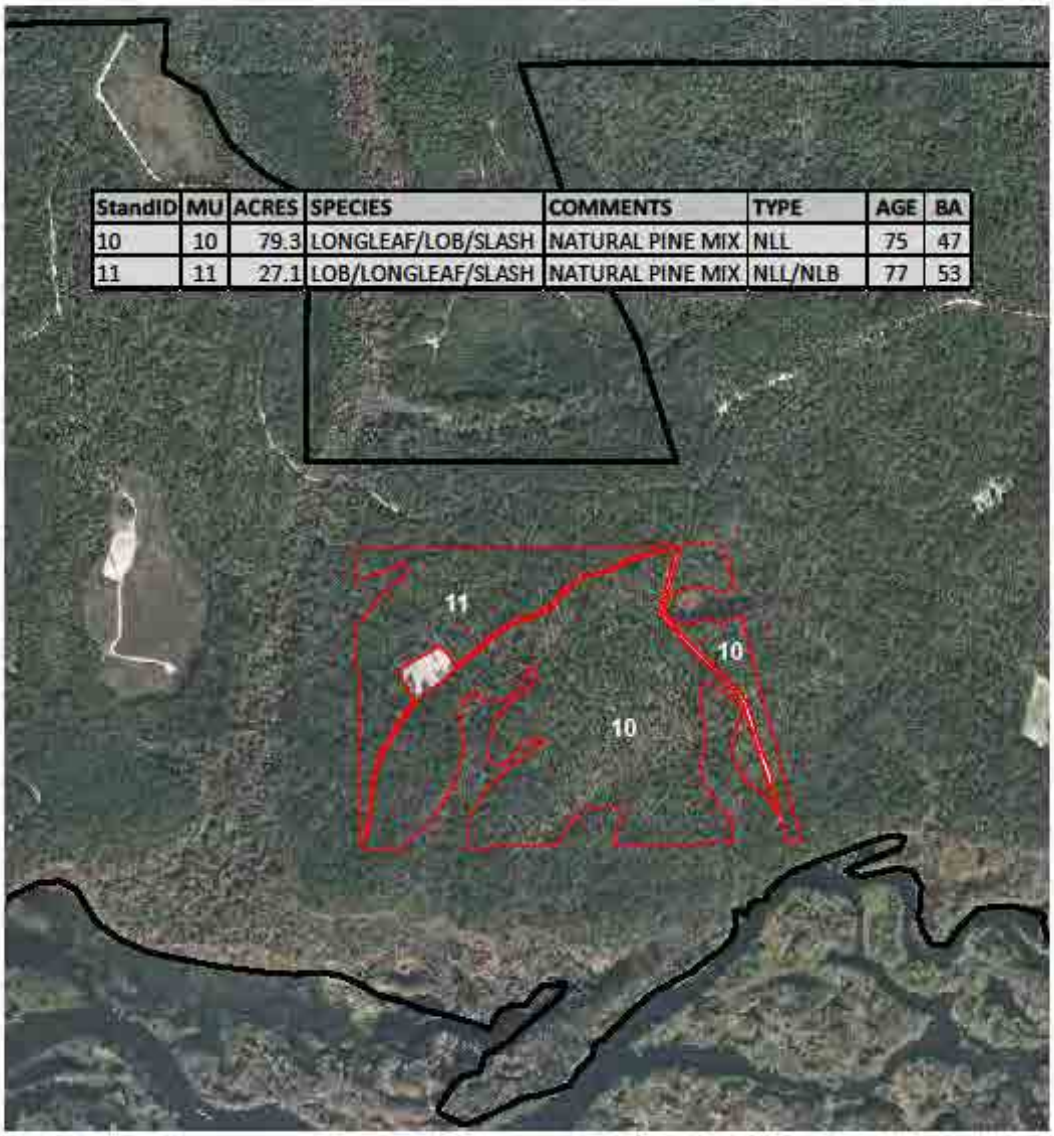
PINE/UPLAND ACRES - 1009.2 (MOL GIS)
PINE INVENTORY 2014



StandID	MU	ACRES	SPECIES	COMMENTS	TYPE	AGE	BA
10	10	79.3	LONGLEAF/LOB/SLASH	NATURAL PINE MIX	NLL	75	47
11	11	27.1	LOB/LONGLEAF/SLASH	NATURAL PINE MIX	NLL/NLB	77	53

660 330 0 660 1,320
Feet

1:11,880

PROJECTION: GCS_North_American_1983_HARN_Meters
2013 Aerials

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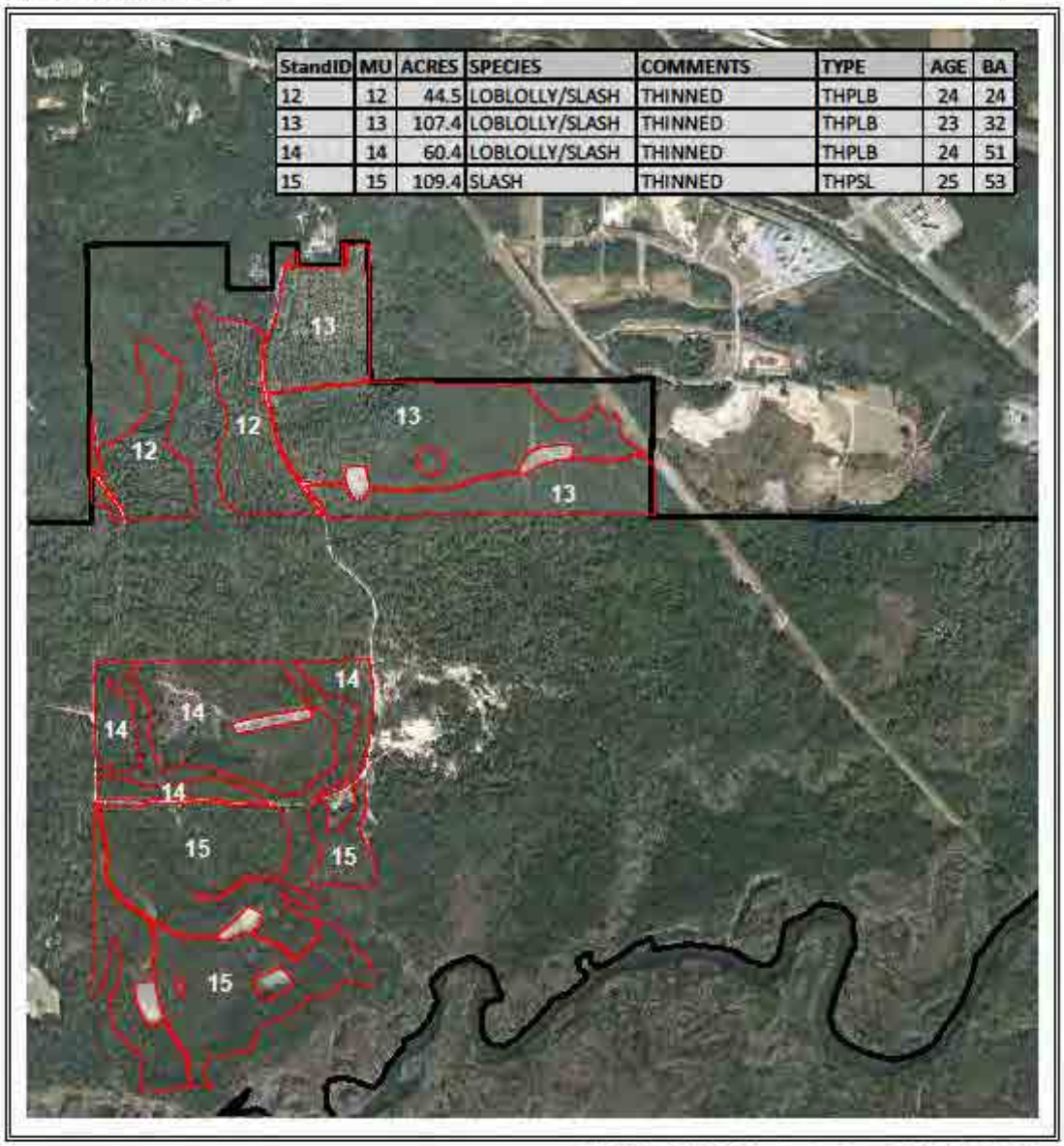
03/26/14

FWC 13/14-72 - JOE BUDD WILDLIFE MANAGEMENT AREA
GADSEN CO., FL
CRUISE MAPS
PINE/UPLAND ACRES - 1009.2 (MOL GIS)
PINE INVENTORY 2014

StandID	MU	ACRES	SPECIES	COMMENTS	TYPE	AGE	BA
12	12	44.5	LOBLOLLY/SLASH	THINNED	THPLB	24	24
13	13	107.4	LOBLOLLY/SLASH	THINNED	THPLB	23	32
14	14	60.4	LOBLOLLY/SLASH	THINNED	THPLB	24	51
15	15	109.4	SLASH	THINNED	THPSL	25	53



660 330 0 660 1,320
Feet

1:15,840

PROJECTION: GCS_North_American_1983_HARN_Meters
2013 Aerials

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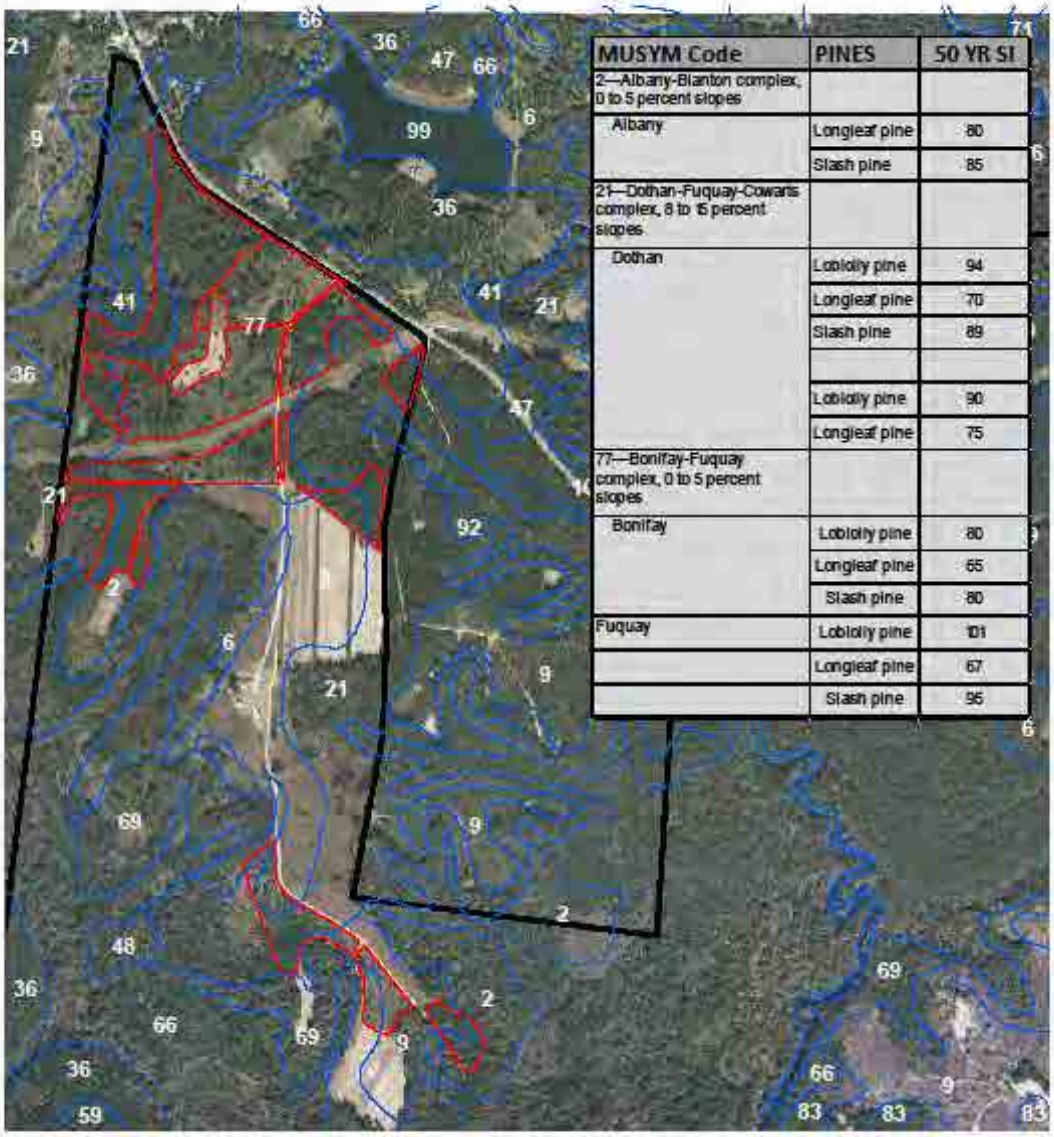
FWC 13/14-72 - JOE BUDD WILDLIFE MANAGEMENT AREA
GADSEN CO., FL
CRUISE MAPS
PINE/UPLAND ACRES - 1009.2 (MOL GIS)
SOIL TYPES AND SITE INDEX - USDA



MUSYM Code	PINES	50 YR SI
2—Albany-Blanton complex, 0 to 5 percent slopes		
Albany	Longleaf pine	80
	Slash pine	85
21—Dothan-Fuquay-Cowarts complex, 8 to 15 percent slopes		
Dothan	Loblolly pine	94
	Longleaf pine	70
	Slash pine	89
	Loblolly pine	90
	Longleaf pine	75
77—Bonifay-Fuquay complex, 0 to 5 percent slopes		
Bonifay	Loblolly pine	80
	Longleaf pine	65
	Slash pine	80
Fuquay	Loblolly pine	101
	Longleaf pine	67
	Slash pine	95

660 330 0 660 1,320 Feet

1:15,840

PROJECTION: GCS_North_American_1983_HARN_Meters
2013 Aerials

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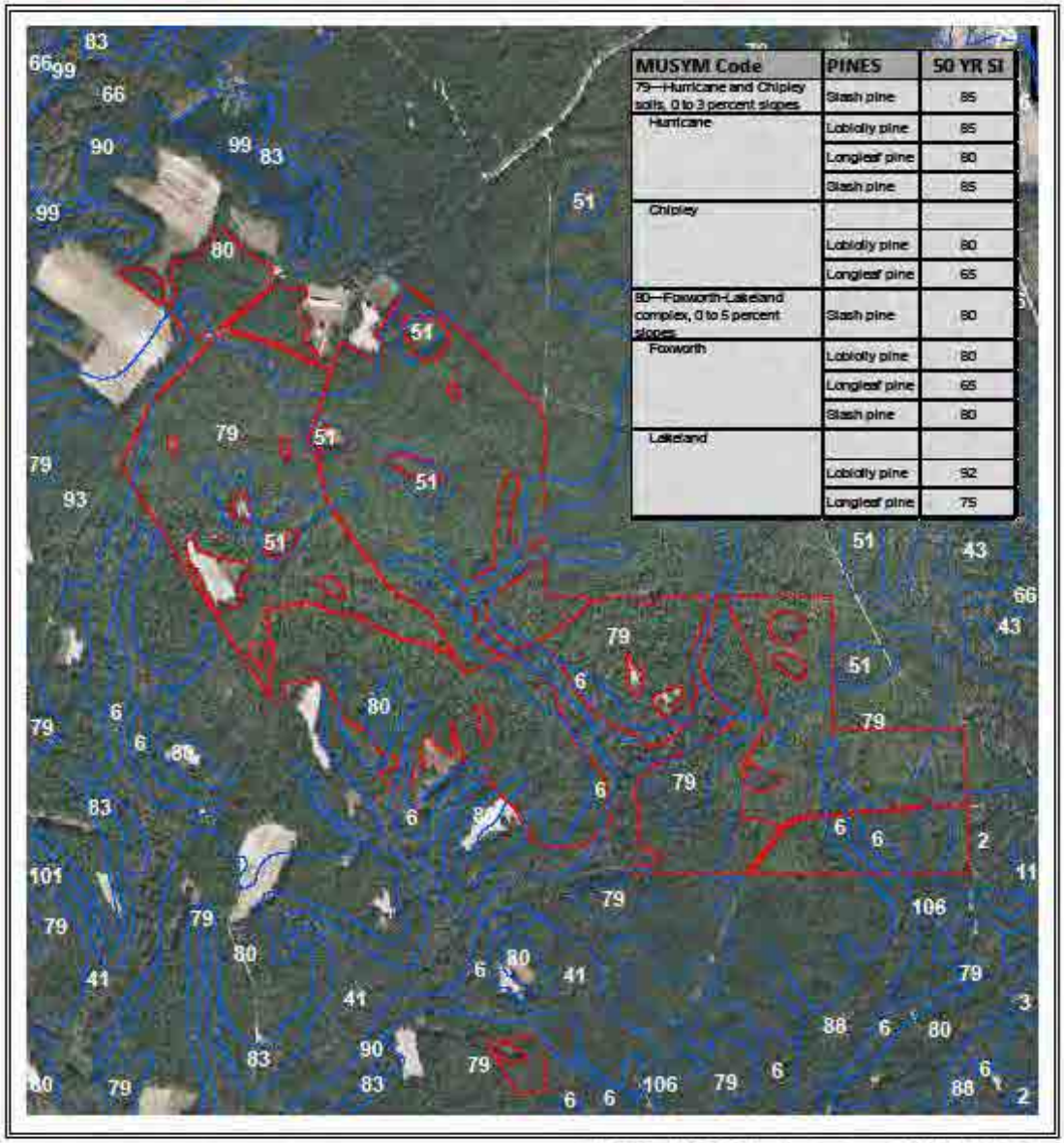
PINE/UPLAND ACRES - 1009.2 (MOL GIS)
SOIL TYPES AND SITE INDEX - USDA



MUSYM Code	PINES	50 YR SI
79—Hurricane and Chipley soils, 0 to 3 percent slopes	Slash pine	85
Hurricane	Loblolly pine	85
	Longleaf pine	80
	Slash pine	85
Chipley		
	Loblolly pine	80
	Longleaf pine	65
80—Foxworth-Lakeland complex, 0 to 5 percent slopes	Slash pine	80
Foxworth	Loblolly pine	80
	Longleaf pine	65
	Slash pine	80
Lakeland		
	Loblolly pine	92
	Longleaf pine	75

660 330 0 660 1,320 Feet

1:15,840

PROJECTION: GCS_North_American_1983_HARN_Meters
2013 Aerials

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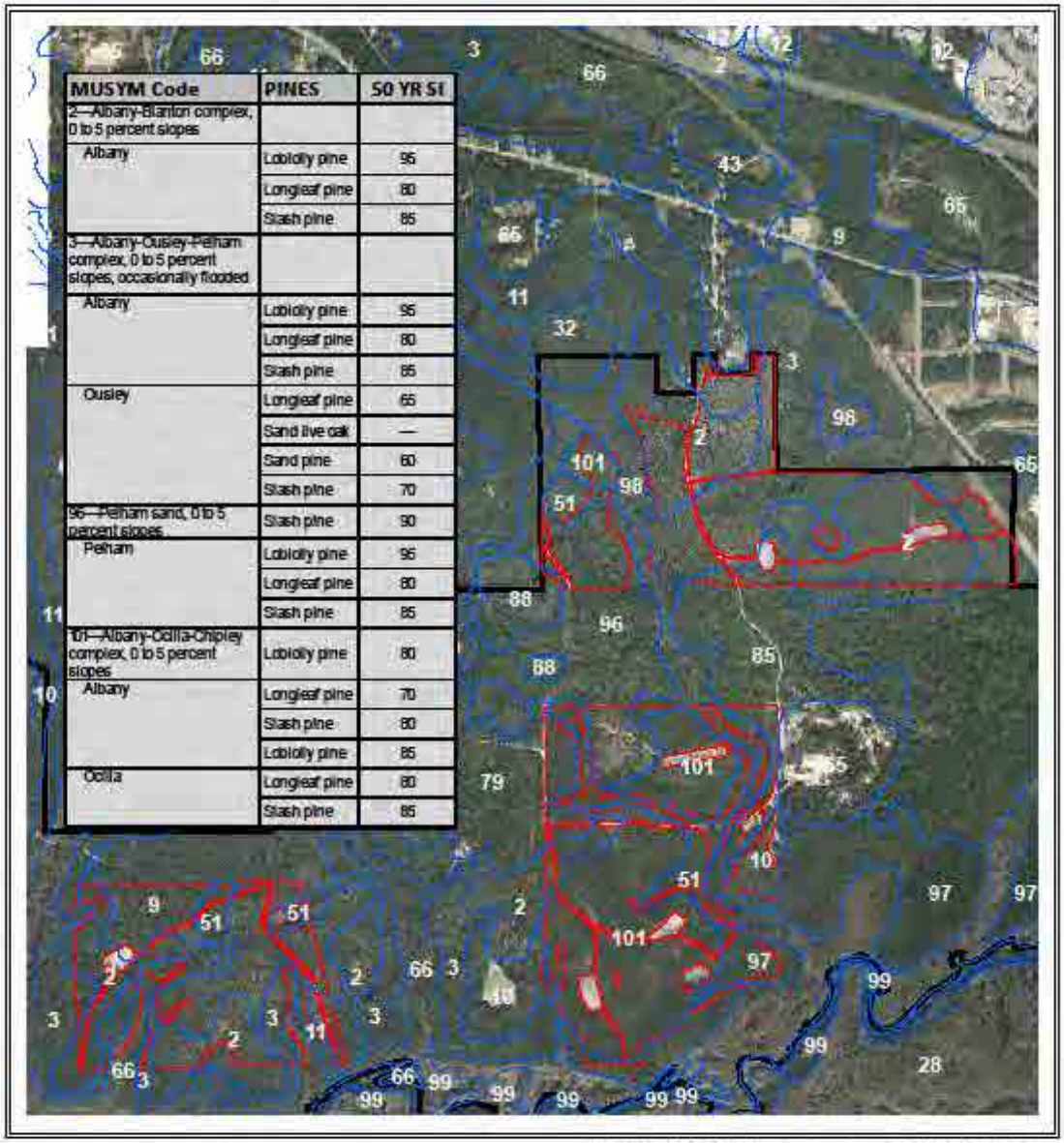
CRUISE MAPS
PINE/UPLAND ACRES - 1009.2 (MOL GIS)
SOIL TYPES AND SITE INDEX - USDA



MUSYM Code	PINES	50 YR SI
2—Albany-Blanton complex, 0 to 5 percent slopes		
Albany	Loblolly pine	95
	Longleaf pine	80
	Slash pine	85
3—Albany-Ousley-Pelham complex, 0 to 5 percent slopes, occasionally flooded		
Albany	Loblolly pine	95
	Longleaf pine	80
	Slash pine	85
Ousley	Longleaf pine	65
	Sand live oak	—
	Sand pine	60
	Slash pine	70
96—Pelham sand, 0 to 5 percent slopes	Slash pine	90
Pelham	Loblolly pine	95
	Longleaf pine	80
	Slash pine	85
101—Albany-Ocilla-Chipley complex, 0 to 5 percent slopes	Loblolly pine	80
Albany	Longleaf pine	70
	Slash pine	80
	Loblolly pine	85
Ocilla	Longleaf pine	80
	Slash pine	85

660 330 0 660 1,320
Feet

1:18,840

PROJECTION: GCS_North_American_1983_HARN_Meters
2013 Aerials

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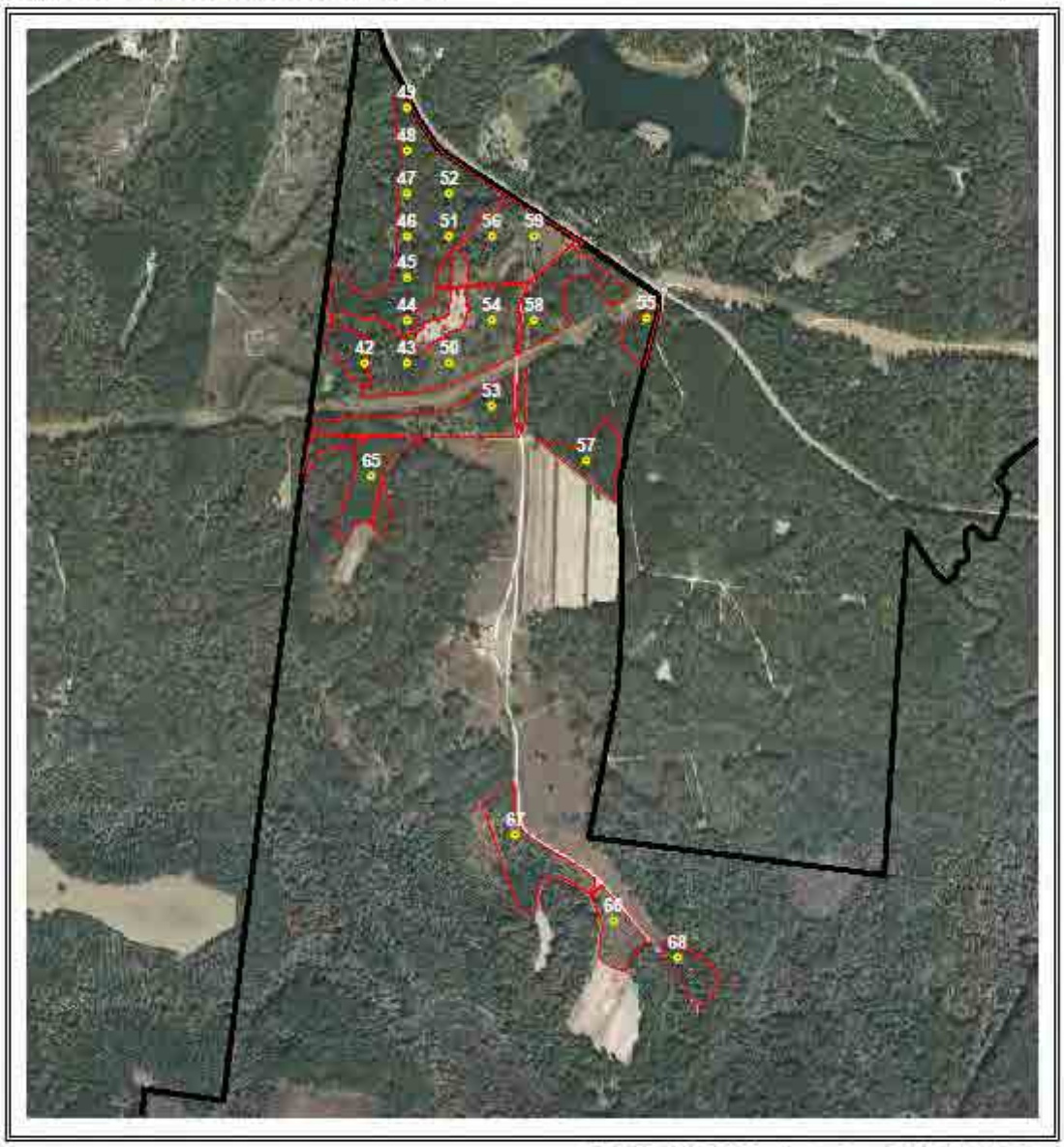
FWC 13/14-72 - JOE BUDD WMA
GADSEN CO., FL
CRUISE MAPS
MERCH 10 BAF
SUBMERCH & REGEN 1/100TH ACRE (11.8FT)



660 330 0 660 1,320
Feet

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2013 Aerials

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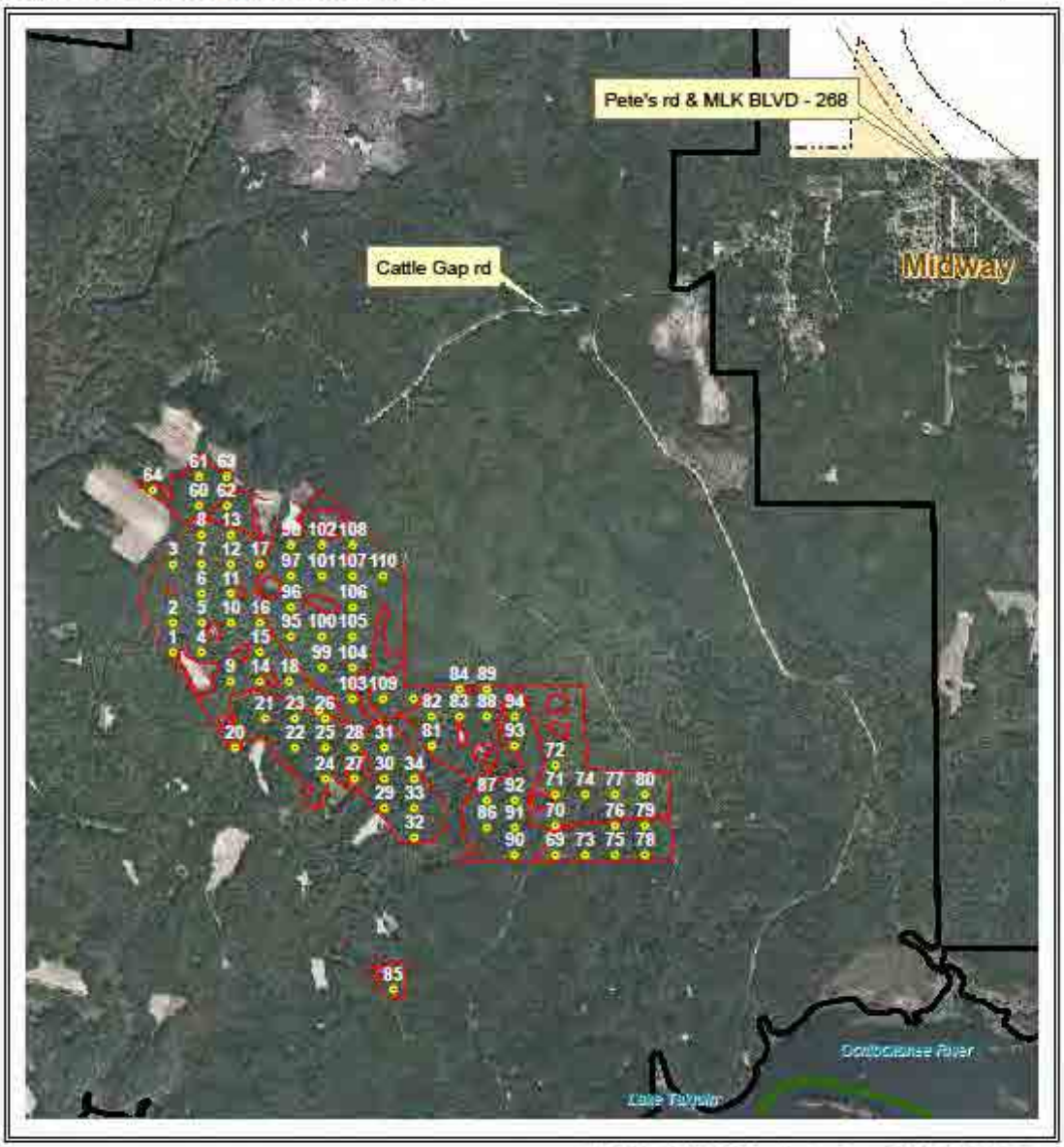
GADSEN CO., FL
CRUISE MAPS
MERCH 10 BAF
SUBMERCH & REGEN 1/100TH ACRE (11.8FT)



660330 0 660 1,320
Feet
1:25,192

PROJECTION: GCS_North_American_1983_HARN_Meters
2013 Aerials

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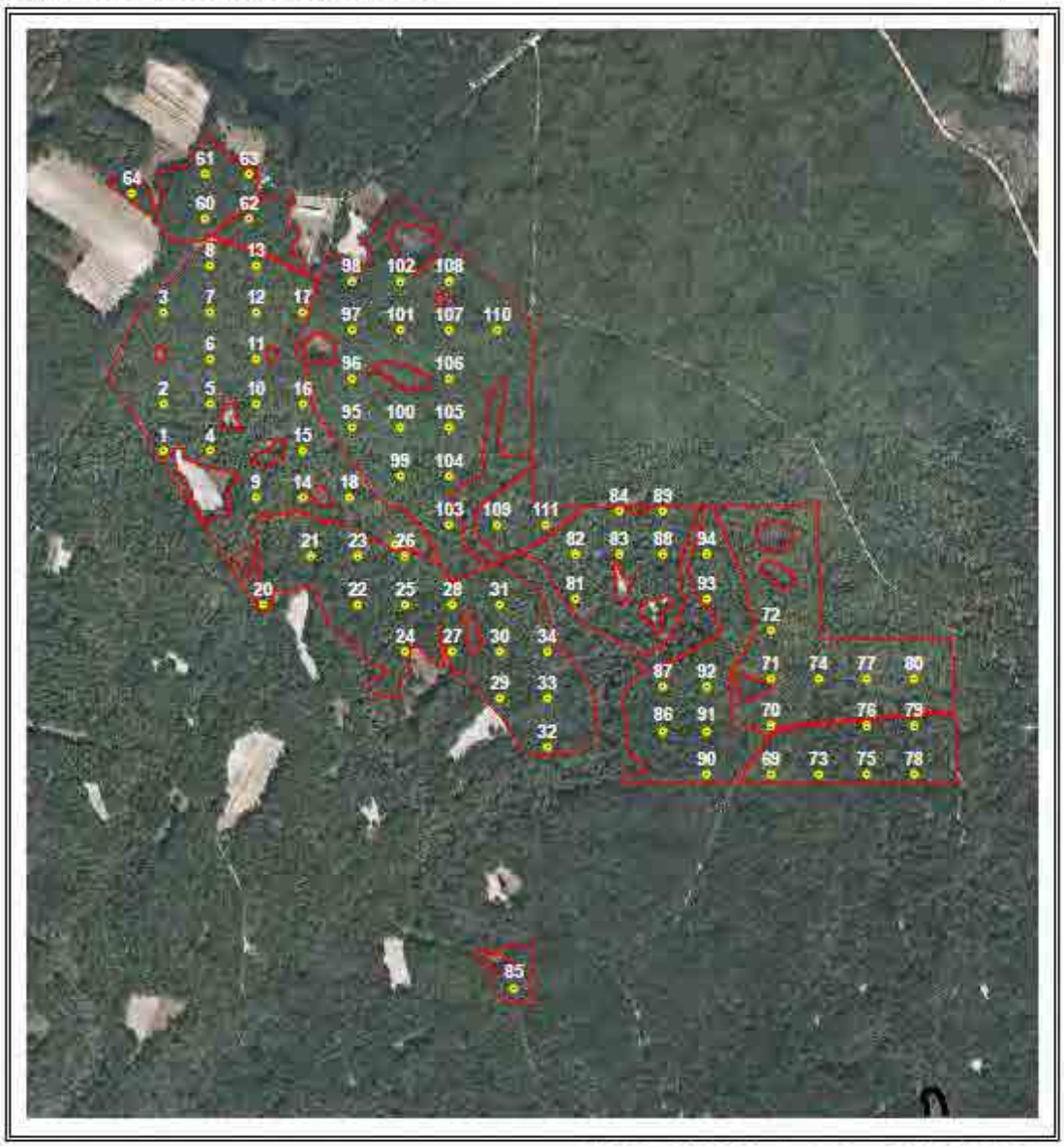
MERCH 10 BAF
SUBMERCH & REGEN 1/100TH ACRE (11.8FT)



660 330 0 660 1,320
Feet

1:15,840

PROJECTION: GCS_North_American_1983_HARN_Meters
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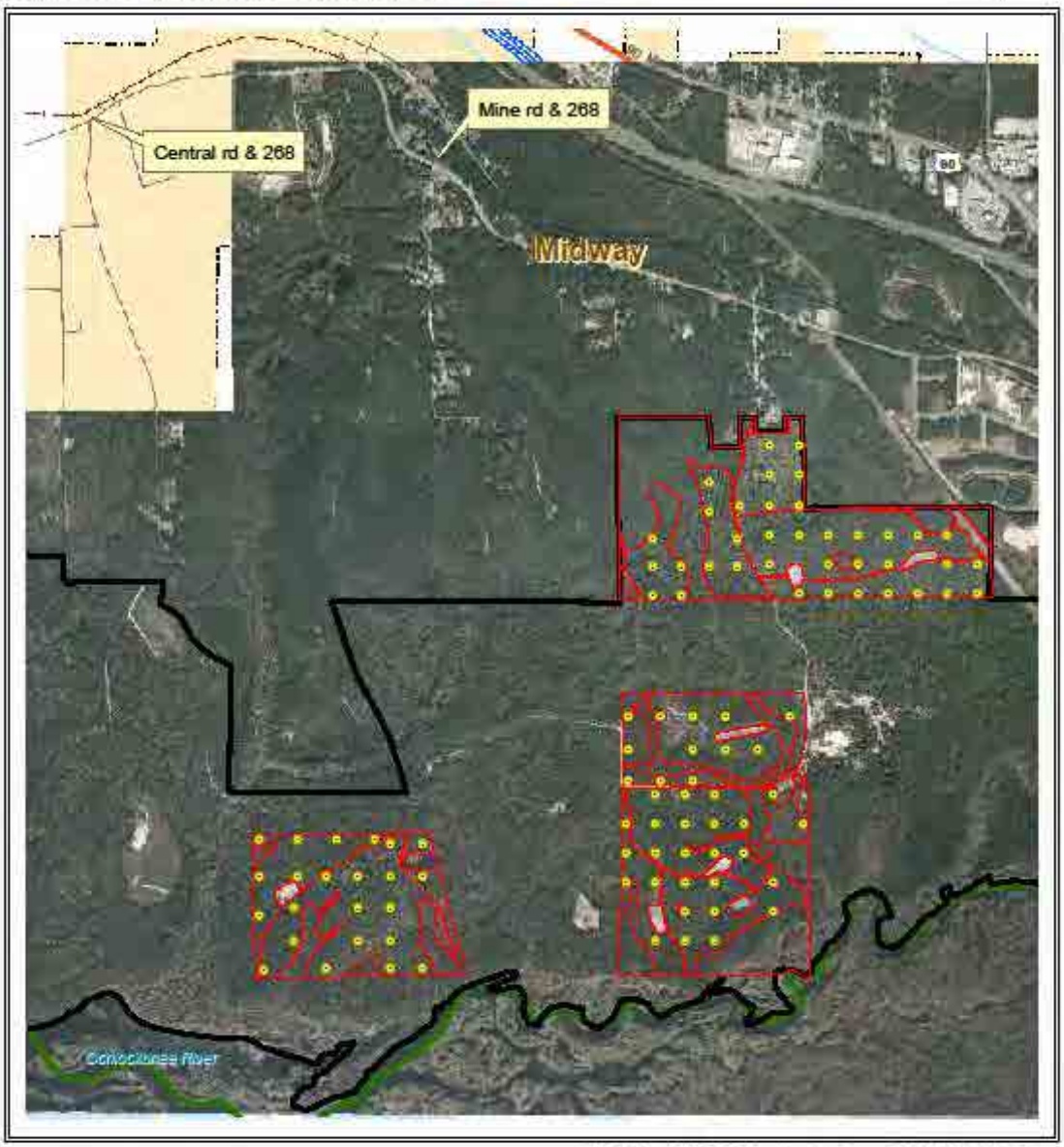
SUBMERCH & REGEN 1/100TH ACRE (11.8FT)



660 330 0 660 1,320
Feet
1:24,000

PROJECTION: GCS_North_American_1983_HARN_Meters
2013 Aerials

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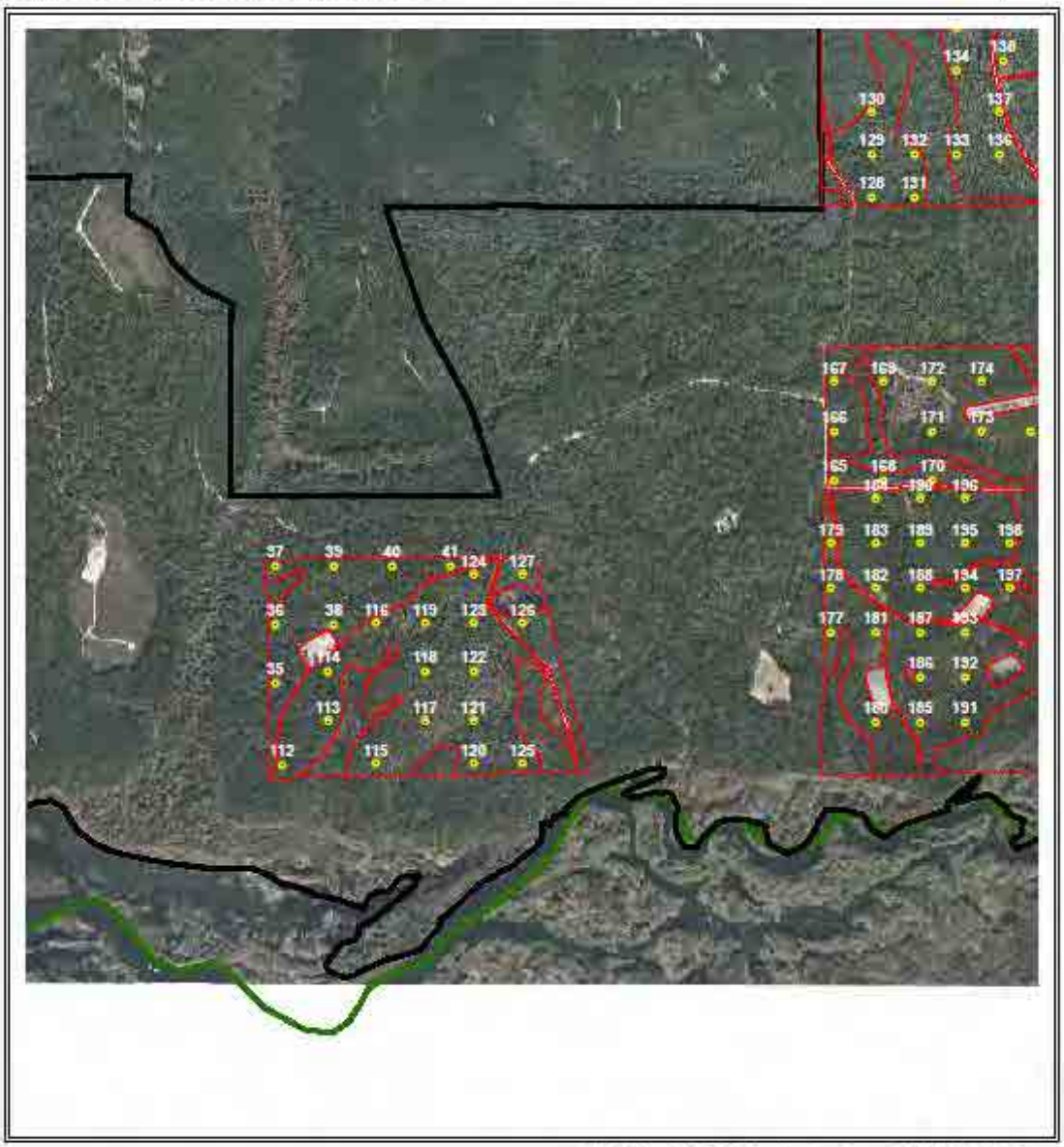
SUBMERCH & REGEN 1/100TH ACRE (11.8FT)



660 330 0 660 1,320
Feet

1:15,840

PROJECTION: GCS_North_American_1983_HARN_Meters
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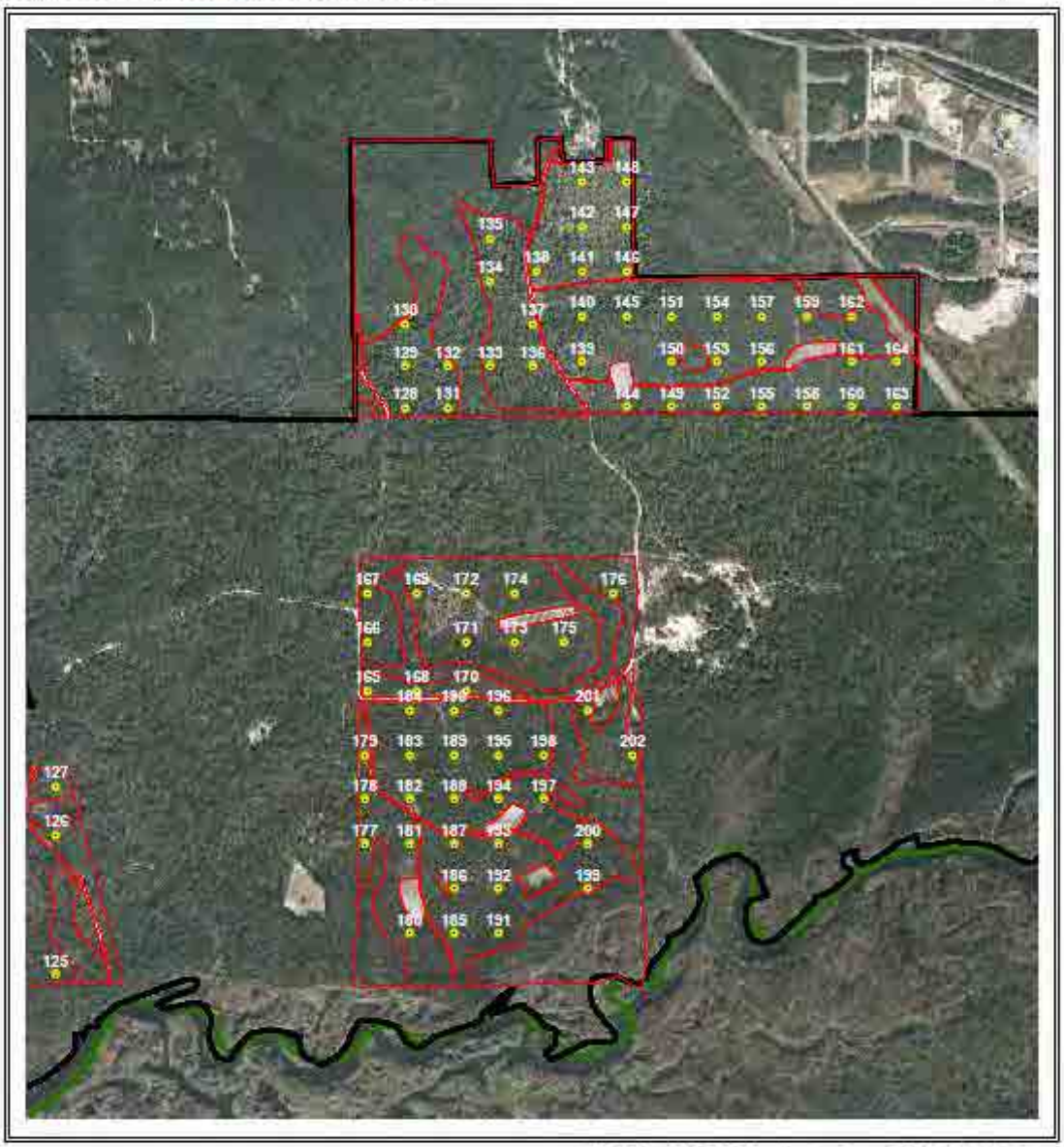
SUBMERCH & REGEN 1/100TH ACRE (11.8FT)



660 330 0 660 1,320
Feet

1:15,840

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CRUISE REPORTS

Joe Budd WMA

Pine Inventory 2014 - Summary

StandID	Acres	Mean TONS Totals	Mean BA PerAcre	Mean TONS PerAcre
1	49.9	3,134.2	67.3	62.8
1a	48.1	834.1	20	17.3
2	20.6	893.9	40	43.4
2a	1.6	191.2	120	116
3	22.8	498.1	40	21.9
3a	5.6	489.3	90	87.6
4	4	259.7	60	64.5
5	79.1	5,590.9	65.8	70.7
6	71.3	4,630.4	57.7	65
7	106.7	9,666.3	83.5	90.6
8	96	8,322.5	77.4	86.7
9	75.4	5,376.0	65.3	71.3
10	79.3	3,908.8	46.9	49.3
11	27.1	1,543.9	52.9	57
12	44.5	902.8	24	20.3
13	107.4	3,292.5	31.9	30.7
14	60.4	2,541.0	50.8	42.1
15	109.4	5,147.1	53.1	47
Total acres	1009.2	57,222.7		

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	1		Age
Plot Count:	11		26
Acres:	49.9		Dom/Co-dom HT
			74

StandID	1

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Loblolly					
Cull					
8	2.6	0.9	0.0	130.0	0.0
Cull Total	2.6	0.9	0.0	130.0	0.0
Pulpwood					
8	5.2	1.8	1.6	259.9	78.2
9	2.1	0.9	0.6	102.7	32.1
10	3.3	1.8	1.3	166.4	66.1
11	1.4	0.9	0.7	68.7	33.8
13	1.0	0.9	0.7	49.2	36.3
15	1.5	1.8	1.5	73.9	74.2
16	0.7	0.9	0.8	32.5	38.3
18	0.5	0.9	0.8	25.7	39.5
19	1.8	3.6	3.2	92.2	161.7
21	0.8	1.8	1.5	37.7	73.2
Pulpwood Total	18.2	15.5	12.7	909.0	633.4
Chip-N-Saw					
10	3.3	1.8	1.3	166.4	65.7
11	5.5	3.6	3.1	275.0	155.7
Chip-N-Saw Total	8.8	5.5	4.4	441.4	221.4
Sawtimber					
12	13.9	10.9	7.2	693.2	357.2
13	7.9	7.3	5.0	393.8	251.6
14	5.1	5.5	3.2	254.6	159.7
16	2.6	3.6	1.6	130.0	80.9
17	2.3	3.6	1.9	115.1	94.0
18	7.2	12.7	7.2	359.4	361.5
19	0.9	1.8	0.7	46.1	37.2
Sawtimber Total	39.9	45.5	26.9	1,992.2	1,342.1
Planted Loblolly Total	69.6	67.3	44.0	3,472.6	2,197.0
Planted Slash					
Sawtimber					
14	0.9	0.9	0.6	42.4	32.4

The Forestry Company 05/06/14

Sawtimber Total	0.9	0.9	0.6	42.4	32.4
Planted Slash Total	0.9	0.9	0.6	42.4	32.4
Natural Loblolly					
Repro					
0	309.1	0.0	0.0	15,425.7	0.0
Repro Total	309.1	0.0	0.0	15,425.7	0.0
Topwood					
0	0.0	0.0	18.1	0.0	904.8
Topwood Total	0.0	0.0	18.1	0.0	904.8
Pine Total	379.5	68.2	62.8	18,940.7	3,134.2
Grand Total	**379.5**	**68.2**	**62.8**	**18,940.7**	**3,134.2**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	2		Age
Plot Count:	4		75
Acres:	20.6		Dom/Co-dom HT
			70

StandID	2

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Natural Longleaf					
Chip-N-Saw					
11	3.8	2.5	2.4	78.1	49.3
Chip-N-Saw Total	3.8	2.5	2.4	78.1	49.3
Poles					
12	3.2	2.5	2.3	65.6	48.4
Poles Total	3.2	2.5	2.3	65.6	48.4
Sawtimber					
12	9.5	7.5	5.9	196.8	122.5
13	2.7	2.5	2.4	55.9	48.6
14	4.7	5.0	4.5	96.4	91.9
15	2.0	2.5	2.1	42.0	43.2
16	5.4	7.5	6.3	110.7	129.3
17	3.2	5.0	4.2	65.4	86.2
18	2.8	5.0	3.9	58.3	80.3
Sawtimber Total	30.3	35.0	29.2	625.3	602.1
Natural Longleaf Total	37.3	40.0	34.0	768.9	699.8
Topwood					
0	0.0	0.0	9.4	0.0	194.1
Topwood Total	0.0	0.0	9.4	0.0	194.1
Pine Total	37.3	40.0	43.4	768.9	893.9
Grand Total	**37.3**	**40.0**	**43.4**	**768.9**	**893.9**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	3		Age
Plot Count:	3		10*
Acres:	22.8		Dom/Co-dom HT
			46

StandID	3

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Longleaf					
Pulpwood					
4	38.2	3.3	1.2	869.3	26.5
6	34.0	6.7	2.9	772.7	66.1
7	37.4	10.0	6.0	851.5	135.6
8	9.5	3.3	2.0	217.3	45.4
9	7.5	3.3	2.0	171.7	46.4
10	6.1	3.3	1.7	139.1	38.5
11	15.2	10.0	6.1	344.8	139.6
Pulpwood Total	147.9	40.0	21.9	3,366.4	498.1
Planted Longleaf Total	147.9	40.0	21.9	3,366.4	498.1
Pine Total	147.9	40.0	21.9	3,366.4	498.1
Grand Total	**147.9**	**40.0**	**21.9**	**3,366.4**	**498.1**

*Age could range 5 years either way. This stand possibly planted twice in the last 15 years. Plots taken just happened to be void of Sub-merch.

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	4		Age
Plot Count:	1		80
Acres:	4		Dom/Co-dom HT
			87

StandID	4

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Natural Longleaf					
Pulpwood					
17	6.3	10.0	11.7	25.5	47.1
18	5.7	10.0	12.2	22.8	48.9
Pulpwood Total	12.0	20.0	23.9	48.3	96.0
Natural Longleaf Total	12.0	20.0	23.9	48.3	96.0
Natural Loblolly					
Sawtimber					
12	12.7	10.0	6.8	51.2	27.5
13	21.7	20.0	16.0	87.3	64.4
19	5.1	10.0	6.9	20.4	27.6
Sawtimber Total	39.5	40.0	29.7	159.0	119.4
Natural Loblolly Total	39.5	40.0	29.7	159.0	119.4
Topwood					
0	0.0	0.0	11.0	0.0	44.3
Topwood Total	0.0	0.0	11.0	0.0	44.3
Pine Total	51.5	60.0	64.5	207.3	259.7
Grand Total	**51.5**	**60.0**	**64.5**	**207.3**	**259.7**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	5		Age
Plot Count:	12		85
Acres:	79.1		Dom/Co-dom HT
			91

StandID	5

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Natural Longleaf					
Pulpwood					
4	9.5	0.8	0.5	755.2	36.7
7	9.4	2.5	2.3	739.8	184.3
9	1.9	0.8	0.9	149.2	67.3
11	1.3	0.8	0.9	99.9	74.2
17	0.5	0.8	0.8	41.8	67.0
Pulpwood Total	22.6	5.8	5.4	1,785.9	429.5
Chip-N-Saw					
9	5.7	2.5	2.2	447.5	170.5
10	12.2	6.7	5.9	966.7	468.9
11	3.8	2.5	2.4	299.6	189.1
Chip-N-Saw Total	21.7	11.7	10.5	1,713.8	828.5
Poles					
13	2.7	2.5	2.3	214.5	179.4
14	2.3	2.5	2.4	185.0	187.4
15	0.7	0.8	0.8	53.7	62.7
16	0.6	0.8	0.8	47.2	62.9
17	0.5	0.8	0.7	41.8	55.5
25	0.2	0.8	0.8	19.3	64.1
Poles Total	7.1	8.3	7.7	561.5	612.0
Sawtimber					
12	1.1	0.8	0.7	83.9	54.9
13	8.1	7.5	7.0	643.5	550.8
14	2.3	2.5	2.3	185.0	180.1
15	5.4	6.7	5.9	429.6	465.7
16	1.2	1.7	1.8	94.4	145.3
17	0.5	0.8	0.9	41.8	70.0
18	0.9	1.7	1.5	74.6	118.9
19	0.8	1.7	1.6	66.9	126.9
20	0.8	1.7	1.5	60.4	119.3
Sawtimber Total	21.2	25.0	23.2	1,680.2	1,831.7
Natural Longleaf Total	72.6	50.8	46.8	5,741.3	3,701.7

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Natural Loblolly					
Pulpwood					
7	6.2	1.7	1.3	493.2	106.5
8	4.8	1.7	1.6	377.6	127.9
11	1.3	0.8	0.8	99.9	60.8
Pulpwood Total	12.3	4.2	3.7	970.7	295.2
Poles					
15	1.4	1.7	1.6	107.4	126.3
16	0.6	0.8	0.9	47.2	72.4
Poles Total	2.0	2.5	2.5	154.6	198.7
Sawtimber					
12	1.1	0.8	0.6	83.9	45.0
13	0.9	0.8	0.8	71.5	59.5
14	0.8	0.8	0.7	61.7	52.8
15	1.4	1.7	1.7	107.4	132.6
16	0.6	0.8	0.5	47.2	36.5
18	0.5	0.8	0.9	37.3	73.3
20	0.4	0.8	0.8	30.2	60.9
28	0.2	0.8	0.9	15.4	69.0
30	0.2	0.8	0.8	13.4	61.7
Sawtimber Total	5.9	8.3	7.5	468.0	591.4
Repro					
0	8.3	0.0	0.0	659.1	0.0
Repro Total	8.3	0.0	0.0	659.1	0.0
Natural Loblolly Total	28.5	15.0	13.7	2,252.3	1,085.4
Topwood					
0	0.0	0.0	10.2	0.0	803.9
Topwood Total	0.0	0.0	10.2	0.0	803.9
Pine Total	101.1	65.8	70.7	7,993.7	5,590.9
Grand Total	**101.1**	**65.8**	**70.7**	**7,993.7**	**5,590.9**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	6.0		Age
Plot Count:	13.0		80
Acres:	71.3		Dom/Co-dom HT
			89

StandID	6.0

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Natural Longleaf					
Pulpwood					
7.0	2.9	0.8	0.8	205.1	54.3
8.0	2.2	0.8	0.8	157.0	57.6
13.0	0.8	0.8	0.8	59.5	56.2
Pulpwood Total	5.9	2.3	2.4	421.6	168.1
Chip-N-Saw					
9.0	1.7	0.8	0.7	124.1	50.4
11.0	2.3	1.5	1.5	166.1	106.2
Chip-N-Saw Total	4.1	2.3	2.2	290.2	156.7
Poles					
13.0	0.8	0.8	0.9	59.5	61.5
14.0	2.2	2.3	2.5	153.8	181.3
16.0	0.6	0.8	0.8	39.3	57.9
Poles Total	3.5	3.8	4.2	252.6	300.7
Sawtimber					
13.0	1.7	1.5	1.4	118.9	97.5
14.0	2.2	2.3	1.8	153.8	127.4
15.0	1.9	2.3	2.2	134.0	155.8
16.0	1.1	1.5	1.3	78.5	92.2
17.0	2.0	3.1	2.9	139.1	208.1
18.0	1.7	3.1	2.9	124.1	204.1
20.0	0.7	1.5	1.2	50.3	85.6
21.0	0.6	1.5	1.3	45.6	92.3
22.0	0.9	2.3	2.4	62.3	171.0
Sawtimber Total	12.7	19.2	17.3	906.7	1,234.0
Natural Longleaf Total	26.3	27.7	26.1	1,871.1	1,859.4
Natural Loblolly					
Cull					
13.0	0.8	0.8	0.0	59.5	0.0
28.0	0.2	0.8	0.0	12.8	0.0
Cull Total	1.0	1.5	0.0	72.3	0.0
Pulpwood					

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8.0	2.2	0.8	0.7	157.0	51.5
11.0	1.2	0.8	0.8	83.1	57.4
15.0	0.6	0.8	0.7	44.7	52.4
Pulpwood Total	4.0	2.3	2.3	284.8	161.2
Chip-N-Saw					
10.0	1.4	0.8	0.7	100.5	52.6
11.0	1.2	0.8	0.8	83.1	55.7
Chip-N-Saw Total	2.6	1.5	1.5	183.6	108.3
Sawtimber					
15.0	1.3	1.5	1.1	89.3	77.6
16.0	0.6	0.8	0.6	39.3	44.1
17.0	0.5	0.8	0.6	34.8	44.2
18.0	3.0	5.4	4.0	217.2	287.6
19.0	2.3	4.6	4.1	167.1	294.7
20.0	0.7	1.5	1.1	50.3	81.0
21.0	1.3	3.1	3.2	91.2	225.0
23.0	0.3	0.8	0.9	19.0	62.3
25.0	0.2	0.8	0.7	16.1	51.1
28.0	0.2	0.8	0.7	12.8	51.2
Sawtimber Total	10.3	20.0	17.1	736.9	1,218.8
Natural Loblolly Total	17.9	25.4	20.9	1,277.6	1,488.4
Natural Slash					
Poles					
14.0	0.7	0.8	0.7	51.3	52.0
Poles Total	0.7	0.8	0.7	51.3	52.0
Sawtimber					
15.0	0.6	0.8	0.6	44.7	46.0
18.0	0.4	0.8	0.7	31.0	52.6
21.0	1.0	2.3	2.1	68.4	152.4
23.0	0.3	0.8	0.7	19.0	53.2
24.0	0.2	0.8	0.7	17.4	53.3
Sawtimber Total	2.5	5.4	5.0	180.5	357.4
Natural Slash Total	3.3	6.2	5.7	231.8	409.4
Topwood					
0.0	0.0	0.0	12.3	0.0	873.3
Topwood Total	0.0	0.0	12.3	0.0	873.3
Pine Total	47.4	59.2	65.0	3,380.5	4,630.4
Grand Total	**47.4**	**59.2**	**65.0**	**3,380.5**	**4,630.4**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	7		Age
Plot Count:	17		80
Acres:	106.7		Dom/Co-dom HT
			90

StandID	7

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Natural Longleaf					
Pulpwood					
4	13.5	1.2	0.7	1,437.9	72.9
7	4.4	1.2	1.0	469.5	102.7
8	5.1	1.8	1.8	539.2	186.8
10	1.1	0.6	0.6	115.0	66.6
14	0.6	0.6	0.6	58.7	63.7
Pulpwood Total	24.6	5.3	4.6	2,620.4	492.7
Chip-N-Saw					
10	9.7	5.3	5.2	1,035.3	551.1
11	5.3	3.5	3.6	570.4	385.6
Chip-N-Saw Total	15.1	8.8	8.8	1,605.7	936.7
Poles					
12	2.2	1.8	1.8	239.6	187.5
13	4.5	4.1	4.2	476.5	447.8
14	0.6	0.6	0.6	58.7	59.5
15	0.5	0.6	0.7	51.1	71.5
17	0.4	0.6	0.6	39.8	60.1
18	0.7	1.2	1.3	71.0	139.7
Poles Total	8.8	8.8	9.1	936.7	966.0
Sawtimber					
12	11.2	8.8	6.5	1,198.2	689.3
13	12.1	11.2	10.0	1,293.3	1,064.7
14	12.1	12.9	12.3	1,291.2	1,307.9
15	4.8	5.9	5.3	511.3	562.5
16	2.9	4.1	3.9	314.5	412.0
17	1.5	2.4	1.8	159.2	194.8
18	1.0	1.8	1.4	106.5	150.7
19	0.9	1.8	1.6	95.6	173.7
20	0.5	1.2	0.9	57.5	98.0
21	0.5	1.2	1.1	52.2	113.7
23	0.6	1.8	1.6	65.2	166.7
Sawtimber Total	48.2	52.9	46.3	5,144.7	4,934.1

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Submerch					
3	5.9	0.3	0.0	627.4	0.0
Submerch Total	5.9	0.3	0.0	627.4	0.0
Natural Longleaf Total	102.5	76.2	68.7	10,934.9	7,329.5
Natural Loblolly					
Pulpwood					
8	1.7	0.6	0.6	179.7	63.8
14	0.6	0.6	0.6	58.7	68.2
Pulpwood Total	2.2	1.2	1.2	238.4	132.0
Sawtimber					
12	0.7	0.6	0.6	79.9	61.9
14	0.6	0.6	0.5	58.7	56.9
15	0.5	0.6	0.6	51.1	63.1
21	0.2	0.6	0.5	26.1	50.8
Sawtimber Total	2.0	2.4	2.2	215.8	232.8
Natural Loblolly Total	4.3	3.5	3.4	454.2	364.7
Natural Slash					
Poles					
16	0.4	0.6	0.7	44.9	72.0
19	0.3	0.6	0.6	31.9	60.4
Poles Total	0.7	1.2	1.2	76.8	132.4
Sawtimber					
15	1.0	1.2	1.0	102.3	104.5
16	0.4	0.6	0.5	44.9	52.7
17	0.7	1.2	1.1	79.6	120.2
Sawtimber Total	2.1	2.9	2.6	226.8	277.4
Natural Slash Total	2.8	4.1	3.8	303.6	409.8
Topwood					
0	0.0	0.0	14.6	0.0	1,562.2
Topwood Total	0.0	0.0	14.6	0.0	1,562.2
Pine Total	109.6	83.8	90.6	11,692.7	9,666.3
Grand Total	**109.6**	**83.8**	**90.6**	**11,692.7**	**9,666.3**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	8		Age
Plot Count:	19		80
Acres:	96		Dom/Co-dom HT
			88

StandID	8

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Natural Longleaf					
Pulpwood					
6	2.7	0.5	0.5	257.3	51.1
7	2.0	0.5	0.5	189.1	51.7
10	1.9	1.1	1.1	185.3	103.3
11	0.8	0.5	0.6	76.6	54.5
14	0.5	0.5	0.5	47.3	51.3
15	0.4	0.5	0.6	41.2	54.5
Pulpwood Total	8.3	3.7	3.8	796.7	366.3
Chip-N-Saw					
9	4.8	2.1	1.9	457.5	178.2
10	5.8	3.2	3.1	555.8	296.1
11	4.0	2.6	2.4	382.8	232.2
Chip-N-Saw Total	14.5	7.9	7.4	1,396.1	706.4
Poles					
13	0.6	0.5	0.5	54.8	47.7
16	1.1	1.6	1.4	108.6	138.3
17	0.7	1.1	1.1	64.1	107.3
Poles Total	2.4	3.2	3.1	227.5	293.3
Sawtimber					
12	8.0	6.3	5.5	772.0	530.8
13	6.3	5.8	5.4	603.0	522.4
14	9.8	10.5	9.3	945.3	891.2
15	3.0	3.7	3.4	288.2	329.6
16	7.9	11.1	10.5	759.9	1,004.6
17	2.3	3.7	3.6	224.4	346.3
18	1.2	2.1	1.7	114.4	161.9
19	1.3	2.6	2.6	128.3	248.1
20	0.7	1.6	1.6	69.5	149.7
21	1.3	3.2	3.1	126.0	296.1
22	0.4	1.1	1.0	38.3	97.9
23	0.2	0.5	0.5	17.5	49.0
29	0.1	0.5	0.4	11.0	43.0

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Sawtimber Total	42.7	52.6	48.7	4,097.7	4,670.6
Repro					
0	15.8	0.0	0.0	1,515.8	0.0
Repro Total	15.8	0.0	0.0	1,515.8	0.0
Natural Longleaf Total	83.7	67.4	62.9	8,033.8	6,036.5
Natural Loblolly					
Chip-N-Saw					
11	0.8	0.5	0.5	76.6	45.1
Chip-N-Saw Total	0.8	0.5	0.5	76.6	45.1
Sawtimber					
14	0.5	0.5	0.5	47.3	45.8
17	0.3	0.5	0.5	32.1	46.3
19	0.3	0.5	0.5	25.7	46.6
21	0.2	0.5	0.5	21.0	46.8
Sawtimber Total	1.3	2.1	1.9	126.0	185.5
Natural Loblolly Total	2.1	2.6	2.4	202.5	230.6
Natural Slash					
Pulpwood					
8	1.5	0.5	0.5	144.7	49.3
Pulpwood Total	1.5	0.5	0.5	144.7	49.3
Chip-N-Saw					
10	1.0	0.5	0.5	92.6	45.6
Chip-N-Saw Total	1.0	0.5	0.5	92.6	45.6
Poles					
17	0.3	0.5	0.6	32.1	53.6
21	0.4	1.1	1.1	42.0	103.3
Poles Total	0.8	1.6	1.6	74.1	156.9
Sawtimber					
12	0.7	0.5	0.5	64.3	52.1
15	0.4	0.5	0.5	41.2	48.1
16	0.8	1.1	1.1	72.4	106.8
17	0.3	0.5	0.6	32.1	53.6
19	0.5	1.1	1.1	51.3	102.7
21	0.4	1.1	1.1	42.0	103.3
Sawtimber Total	3.2	4.7	4.9	303.3	466.5
Natural Slash Total	6.4	7.4	7.5	614.7	718.4
Topwood					
0	0.0	0.0	13.9	0.0	1,337.0
Topwood Total	0.0	0.0	13.9	0.0	1,337.0
Pine Total	92.2	77.4	86.7	8,851.0	8,322.5
Grand Total	**92.2**	**77.4**	**86.7**	**8,851.0**	**8,322.5**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	9		Age
Plot Count:	15		87
Acres:	75.4		Dom/Co-dom HT
			103

StandID	9

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Natural Longleaf					
Pulpwood					
5	9.8	1.3	1.0	737.2	76.7
14	0.6	0.7	0.9	47.0	68.9
17	0.4	0.7	0.8	31.9	60.2
Pulpwood Total	10.8	2.7	2.7	816.1	205.8
Chip-N-Saw					
9	1.5	0.7	0.5	113.8	37.9
Chip-N-Saw Total	1.5	0.7	0.5	113.8	37.9
Poles					
14	1.2	1.3	1.3	94.0	100.2
15	0.5	0.7	0.6	41.0	47.8
16	1.0	1.3	1.5	72.0	109.7
17	0.4	0.7	0.8	31.9	58.0
18	0.8	1.3	1.3	56.9	96.5
19	0.3	0.7	0.8	25.5	58.7
20	0.6	1.3	1.4	46.1	107.9
Poles Total	4.9	7.3	7.7	367.3	578.8
Sawtimber					
12	0.8	0.7	0.6	64.0	47.2
13	2.2	2.0	1.7	163.6	125.3
14	2.5	2.7	2.1	188.1	157.6
15	2.7	3.3	3.1	204.8	231.7
16	2.4	3.3	2.9	180.0	222.1
17	1.7	2.7	2.8	127.5	212.3
18	1.9	3.3	3.0	142.2	228.5
19	1.4	2.7	2.5	102.1	185.5
21	0.3	0.7	0.6	20.9	48.6
Sawtimber Total	15.8	21.3	19.3	1,193.1	1,458.7
Natural Longleaf Total	33.0	32.0	30.3	2,490.4	2,281.3
Natural Loblolly					
Cull					
20	0.3	0.7	0.0	23.0	0.0

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Cull Total	0.3	0.7	0.0	23.0	0.0
Pulpwood					
5	24.4	3.3	2.0	1,843.0	149.5
6	3.4	0.7	0.3	256.0	24.8
10	1.2	0.7	0.6	92.2	45.4
22	0.3	0.7	0.8	19.0	59.4
Pulpwood Total	29.3	5.3	3.7	2,210.2	279.1
Chip-N-Saw					
10	1.2	0.7	0.6	92.2	46.7
11	1.0	0.7	0.6	76.2	43.7
Chip-N-Saw Total	2.2	1.3	1.2	168.3	90.5
Poles					
20	0.3	0.7	0.8	23.0	60.7
Poles Total	0.3	0.7	0.8	23.0	60.7
Sawtimber					
13	1.4	1.3	0.8	109.1	60.8
16	1.0	1.3	1.3	72.0	101.1
17	1.3	2.0	1.7	95.7	126.6
18	0.4	0.7	0.6	28.4	46.2
19	0.7	1.3	1.1	51.1	80.8
20	0.6	1.3	1.2	46.1	92.8
21	0.8	2.0	1.8	62.7	133.7
22	0.5	1.3	1.2	38.1	87.3
23	0.9	2.7	2.4	69.7	179.1
26	0.2	0.7	0.6	13.6	46.9
Sawtimber Total	7.8	14.7	12.7	586.3	955.3
Natural Loblolly Total	39.9	22.7	18.4	3,010.9	1,385.5
Natural Slash					
Pulpwood					
5	4.9	0.7	0.5	368.6	35.5
7	2.5	0.7	0.7	188.1	50.1
8	3.8	1.3	1.3	288.0	99.8
Pulpwood Total	11.2	2.7	2.5	844.6	185.4
Chip-N-Saw					
11	1.0	0.7	0.6	76.2	45.1
Chip-N-Saw Total	1.0	0.7	0.6	76.2	45.1
Poles					
13	0.7	0.7	0.6	54.5	47.4
18	0.4	0.7	0.6	28.4	48.3
20	0.3	0.7	0.6	23.0	48.5
Poles Total	1.4	2.0	1.9	106.0	144.2
Sawtimber					
14	0.6	0.7	0.8	47.0	56.8
17	0.4	0.7	0.8	31.9	58.0
19	0.3	0.7	0.4	25.5	29.1
21	0.8	2.0	1.6	62.7	121.1
23	0.5	1.3	1.2	34.8	91.4
27	0.2	0.7	0.5	12.6	36.1
Sawtimber Total	2.8	6.0	5.2	214.6	392.5

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Natural Slash Total	16.5	11.3	10.2	1,241.4	767.2
Topwood					
0	0.0	0.0	12.5	0.0	942.0
Topwood Total	0.0	0.0	12.5	0.0	942.0
Pine Total	89.4	66.0	71.3	6,742.7	5,376.0
Grand Total	**89.4**	**66.0**	**71.3**	**6,742.7**	**5,376.0**

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Joe Budd WMA

Pine Inventory 2014

StandID:	10		Age
Plot Count:	16		75
Acres:	79.3		Dom/Co-dom HT
			83

StandID	10

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Natural Longleaf					
Pulpwood					
7	2.3	0.6	0.5	185.4	38.9
9	1.4	0.6	0.6	112.2	44.5
Pulpwood Total	3.8	1.3	1.1	297.5	83.4
Chip-N-Saw					
9	4.2	1.9	1.7	336.5	137.1
11	2.8	1.9	1.8	225.2	144.4
Chip-N-Saw Total	7.1	3.8	3.6	561.7	281.5
Poles					
15	0.5	0.6	0.6	40.4	47.1
17	0.4	0.6	0.5	31.4	41.7
19	0.3	0.6	0.6	25.2	47.7
Poles Total	1.2	1.9	1.7	97.0	136.5
Sawtimber					
12	0.8	0.6	0.4	63.1	35.3
13	2.0	1.9	1.5	161.3	117.5
14	2.9	3.1	2.5	231.7	200.1
15	3.6	4.4	3.7	282.6	294.8
16	0.4	0.6	0.4	35.5	35.4
17	0.8	1.3	1.1	62.9	83.4
18	1.8	3.1	2.8	140.2	220.0
19	1.6	3.1	2.6	125.8	202.3
20	0.9	1.9	1.7	68.1	137.5
Sawtimber Total	14.8	20.0	16.7	1,171.2	1,326.3
Natural Longleaf Total	26.8	26.9	23.1	2,127.4	1,827.8
Natural Loblolly					
Pulpwood					
4	14.3	1.3	0.6	1,135.5	49.3
8	1.8	0.6	0.3	141.9	26.3
16	0.4	0.6	0.7	35.5	54.2
Pulpwood Total	16.6	2.5	1.6	1,313.0	129.9
Chip-N-Saw					

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10	5.7	3.1	2.7	454.2	214.5
11	0.9	0.6	0.6	75.1	48.0
Chip-N-Saw Total	6.7	3.8	3.3	529.3	262.5
Sawtimber					
12	0.8	0.6	0.6	63.1	46.8
13	0.7	0.6	0.4	53.8	33.8
14	1.8	1.9	1.5	139.0	119.2
15	0.5	0.6	0.5	40.4	39.8
18	1.1	1.9	1.0	84.1	80.6
20	0.3	0.6	0.6	22.7	45.8
21	0.3	0.6	0.6	20.6	45.8
Sawtimber Total	5.3	6.9	5.2	423.7	411.8
Repro					
0	18.8	0.0	0.0	1,486.4	0.0
Repro Total	18.8	0.0	0.0	1,486.4	0.0
Natural Loblolly Total	47.3	13.1	10.1	3,752.4	804.1
Natural Slash					
Pulpwood					
11	0.9	0.6	0.7	75.1	55.7
Pulpwood Total	0.9	0.6	0.7	75.1	55.7
Chip-N-Saw					
10	1.1	0.6	0.6	90.8	44.2
Chip-N-Saw Total	1.1	0.6	0.6	90.8	44.2
Sawtimber					
12	1.6	1.3	1.0	126.2	82.6
13	1.4	1.3	0.9	107.5	70.1
14	0.6	0.6	0.6	46.3	47.0
15	0.5	0.6	0.6	40.4	47.1
16	0.9	1.3	1.2	71.0	98.5
18	0.4	0.6	0.7	28.0	57.5
Sawtimber Total	5.3	5.6	5.1	419.4	402.8
Natural Slash Total	7.4	6.9	6.3	585.3	502.6
Topwood					
0	0.0	0.0	9.8	0.0	774.3
Topwood Total	0.0	0.0	9.8	0.0	774.3
Pine Total	81.6	46.9	49.3	6,465.1	3,908.8
Grand Total	**81.6**	**46.9**	**49.3**	**6,465.1**	**3,908.8**

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Pine Inventory 2014

StandID:	11		Age
Plot Count:	7		77
Acres:	27.1		Dom/Co-dom HT
			78

StandID	11

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Loblolly					
Poles					
20	0.7	1.4	1.3	17.8	35.8
Poles Total	0.7	1.4	1.3	17.8	35.8
Sawtimber					
14	1.3	1.4	1.3	36.2	35.1
15	1.2	1.4	1.3	31.6	35.3
Sawtimber Total	2.5	2.9	2.6	67.8	70.4
Planted Loblolly Total	3.2	4.3	3.9	85.5	106.2
Natural Longleaf					
Pulpwood					
7	5.3	1.4	1.1	144.9	30.4
Pulpwood Total	5.3	1.4	1.1	144.9	30.4
Poles					
14	1.3	1.4	1.4	36.2	36.7
17	0.9	1.4	1.2	24.6	32.6
Poles Total	2.2	2.9	2.6	60.8	69.3
Sawtimber					
14	2.7	2.9	2.2	72.5	60.1
15	2.3	2.9	2.4	63.1	64.5
16	1.0	1.4	1.4	27.7	37.0
17	1.8	2.9	2.9	49.1	78.2
19	0.7	1.4	1.2	19.7	32.7
Sawtimber Total	8.6	11.4	10.1	232.1	272.5
Natural Longleaf Total	16.2	15.7	13.7	437.8	372.2
Natural Loblolly					
Pulpwood					
8	4.1	1.4	1.3	110.9	34.6
Pulpwood Total	4.1	1.4	1.3	110.9	34.6
Chip-N-Saw					
11	6.5	4.3	4.0	176.0	108.1
Chip-N-Saw Total	6.5	4.3	4.0	176.0	108.1
Sawtimber					

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12	5.5	4.3	3.2	147.9	87.2
13	1.5	1.4	1.3	42.0	35.0
14	5.3	5.7	4.7	144.9	128.3
15	4.7	5.7	5.2	126.2	141.1
17	0.9	1.4	1.3	24.6	35.5
20	2.0	4.3	3.6	53.3	98.4
Sawtimber Total	19.9	22.9	19.4	538.9	525.4
Natural Loblolly Total	30.5	28.6	24.6	825.9	668.1
Natural Slash					
Sawtimber					
15	1.2	1.4	1.4	31.6	36.8
16	1.0	1.4	1.2	27.7	32.6
18	0.8	1.4	1.4	21.9	37.2
Sawtimber Total	3.0	4.3	3.9	81.2	106.6
Natural Slash Total	3.0	4.3	3.9	81.2	106.6
Topwood					
0	0.0	0.0	10.7	0.0	290.9
Topwood Total	0.0	0.0	10.7	0.0	290.9
Pine Total	52.8	52.9	57.0	1,430.4	1,543.9
Grand Total	**52.8**	**52.9**	**57.0**	**1,430.4**	**1,543.9**

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Pine Inventory 2014

StandID:	12		Age
Plot Count:	10		24
Acres:	44.5		Dom/Co-dom HT
			65

StandID	12

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Loblolly					
Pulpwood					
8	2.9	1.0	0.8	127.6	34.4
9	2.3	1.0	0.6	100.8	25.7
11	1.5	1.0	0.7	67.5	31.9
12	5.1	4.0	2.9	226.9	127.3
Pulpwood Total	11.7	7.0	4.9	522.9	219.3
Chip-N-Saw					
11	1.5	1.0	0.7	67.5	31.0
Chip-N-Saw Total	1.5	1.0	0.7	67.5	31.0
Sawtimber					
12	1.3	1.0	0.8	56.7	35.5
13	2.2	2.0	1.0	96.7	42.9
14	0.9	1.0	0.6	41.7	24.7
15	0.8	1.0	0.4	36.3	18.2
Sawtimber Total	5.2	5.0	2.7	231.4	121.4
Planted Loblolly Total	18.4	13.0	8.3	821.7	371.8
Planted Slash					
Pulpwood					
5	7.3	1.0	0.5	326.7	20.8
8	2.9	1.0	0.7	127.6	33.2
10	1.8	1.0	0.6	81.7	28.6
11	1.5	1.0	0.8	67.5	35.0
12	1.3	1.0	0.9	56.7	39.1
Pulpwood Total	14.8	5.0	3.5	660.3	156.6
Chip-N-Saw					
10	1.8	1.0	0.9	81.7	38.6
11	1.5	1.0	0.8	67.5	35.1
Chip-N-Saw Total	3.3	2.0	1.7	149.2	73.7
Sawtimber					
12	2.5	2.0	1.7	113.4	74.2
13	2.2	2.0	1.4	96.7	63.6
Sawtimber Total	4.7	4.0	3.1	210.1	137.8

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Planted Slash Total	22.9	11.0	8.3	1,019.5	368.1
Natural Slash					
Repro					
0	50.0	0.0	0.0	2,227.5	0.0
Repro Total	50.0	0.0	0.0	2,227.5	0.0
Natural Slash Total	50.0	0.0	0.0	2,227.5	0.0
Topwood					
0	0.0	0.0	3.7	0.0	163.0
Topwood Total	0.0	0.0	3.7	0.0	163.0
Pine Total	91.3	24.0	20.3	4,068.8	902.8
Grand Total	**91.3**	**24.0**	**20.3**	**4,068.8**	**902.8**

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Pine Inventory 2014

StandID:	13		Age
Plot Count:	27		23
Acres:	107.4		Dom/Co-dom HT
			63

StandID	13

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Loblolly					
Pulpwood					
10	0.7	0.4	0.2	72.9	24.6
11	1.1	0.7	0.7	120.5	73.4
12	0.5	0.4	0.3	50.6	30.4
Pulpwood Total	2.3	1.5	1.2	244.1	128.4
Planted Loblolly Total	2.3	1.5	1.2	244.1	128.4
Planted Slash					
Pulpwood					
6	1.9	0.4	0.3	202.6	34.5
7	4.2	1.1	0.9	446.5	98.1
8	12.7	4.4	3.8	1,367.4	410.0
9	5.0	2.2	2.0	540.2	213.8
10	2.7	1.5	1.4	291.7	146.4
11	2.2	1.5	1.5	241.1	156.9
12	0.5	0.4	0.4	50.6	40.9
14	0.3	0.4	0.4	37.2	41.2
Pulpwood Total	29.6	11.9	10.6	3,177.4	1,141.8
Chip-N-Saw					
9	7.5	3.3	2.9	810.3	306.7
10	9.5	5.2	4.6	1,021.0	492.6
11	7.9	5.2	4.6	843.8	489.3
Chip-N-Saw Total	24.9	13.7	12.0	2,675.2	1,288.6
Sawtimber					
12	2.8	2.2	1.6	303.9	169.6
13	2.0	1.9	1.4	215.8	146.3
14	0.3	0.4	0.3	37.2	33.3
15	0.3	0.4	0.3	32.4	33.4
Sawtimber Total	5.5	4.8	3.6	589.3	382.6
Planted Slash Total	60.0	30.4	26.2	6,441.8	2,813.0
Natural Slash					
Repro Total					
0	3.7	0.0	0.0	397.8	0.0

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Repro Total	3.7	0.0	0.0	397.8	0.0
Natural Slash Total	3.7	0.0	0.0	397.8	0.0
Topwood					
0	0.0	0.0	3.3	0.0	351.1
Topwood Total	0.0	0.0	3.3	0.0	351.1
Pine Total	66.0	31.9	30.7	7,083.7	3,292.5
Grand Total	**66.0**	**31.9**	**30.7**	**7,083.7**	**3,292.5**

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Pine Inventory 2014

StandID:	14		Age
Plot Count:	12		24
Acres:	60.4		Dom/Co-dom HT
			62

StandID	14

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Loblolly					
Pulpwood					
4	28.6	2.5	1.3	1,730.9	78.4
5	24.4	3.3	1.9	1,477.0	117.5
6	34.0	6.7	4.7	2,051.4	286.6
7	15.6	4.2	3.0	942.0	180.3
8	33.4	11.7	9.7	2,019.3	584.4
9	1.9	0.8	0.7	114.0	43.8
11	1.3	0.8	0.7	76.3	43.4
Pulpwood Total	139.2	30.0	22.1	8,410.8	1,334.4
Chip-N-Saw					
9	15.1	6.7	5.5	911.7	332.9
10	7.6	4.2	3.5	461.6	213.6
11	2.5	1.7	1.5	152.6	88.2
Chip-N-Saw Total	25.3	12.5	10.5	1,525.9	634.6
Sawtimber					
12	2.1	1.7	0.9	128.2	55.0
16	0.6	0.8	0.3	36.1	20.6
17	0.5	0.8	0.5	31.9	27.9
Sawtimber Total	3.2	3.3	1.7	196.2	103.5
Planted Loblolly Total	167.7	45.8	34.3	10,132.9	2,072.5
Planted Slash					
Pulpwood					
7	3.1	0.8	0.8	188.4	46.0
8	7.2	2.5	2.3	432.7	141.0
Pulpwood Total	10.3	3.3	3.1	621.1	187.0
Chip-N-Saw					
9	1.9	0.8	0.7	114.0	44.6
10	1.5	0.8	0.8	92.3	47.2
Chip-N-Saw Total	3.4	1.7	1.5	206.3	91.8
Planted Slash Total	13.7	5.0	4.6	827.4	278.8
Topwood					
0	0.0	0.0	3.1	0.0	189.7

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Topwood Total	0.0	0.0	3.1	0.0	189.7
Pine Total	181.4	50.8	42.1	10,960.3	2,541.0
Grand Total	**181.4**	**50.8**	**42.1**	**10,960.3**	**2,541.0**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	15		Age
Plot Count:	26		25
Acres:	109.4		Dom/Co-dom HT
			63

StandID	15

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Loblolly					
Pulpwood					
5	5.6	0.8	0.4	617.3	41.2
6	7.8	1.5	0.9	857.4	94.2
7	13.0	3.5	2.2	1,417.3	242.6
8	19.8	6.9	5.1	2,170.2	563.1
9	3.5	1.5	1.2	381.0	132.5
10	3.5	1.9	1.6	385.8	176.6
11	2.3	1.5	1.3	255.1	145.4
12	1.5	1.2	0.9	160.8	99.7
Pulpwood Total	57.1	18.8	13.7	6,244.8	1,495.3
Chip-N-Saw					
9	4.4	1.9	1.5	476.3	165.0
10	3.5	1.9	1.5	385.8	166.4
11	3.5	2.3	2.0	382.6	214.6
Chip-N-Saw Total	11.4	6.2	5.0	1,244.7	546.0
Sawtimber					
12	2.0	1.5	1.3	214.3	138.5
13	0.4	0.4	0.3	45.7	38.0
15	0.3	0.4	0.3	34.3	28.8
Sawtimber Total	2.7	2.3	1.9	294.3	205.3
Planted Loblolly Total	71.1	27.3	20.5	7,783.8	2,246.6
Planted Slash					
Pulpwood					
6	3.9	0.8	0.5	428.7	60.0
7	21.6	5.8	5.3	2,362.1	575.3
8	13.2	4.6	4.4	1,446.8	482.4
9	0.9	0.4	0.4	95.3	42.8
10	2.8	1.5	1.6	308.6	173.5
Pulpwood Total	42.4	13.1	12.2	4,641.5	1,334.0
Chip-N-Saw					
9	11.3	5.0	4.4	1,238.4	481.2
10	9.2	5.0	4.6	1,003.1	500.3

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11	1.7	1.2	1.1	191.3	122.1
Chip-N-Saw Total	22.2	11.2	10.1	2,432.8	1,103.7
Sawtimber					
12	1.0	0.8	0.6	107.2	65.1
13	0.4	0.4	0.3	45.7	30.0
15	0.3	0.4	0.3	34.3	30.1
Sawtimber Total	1.7	1.5	1.1	187.1	125.2
Planted Slash Total	66.4	25.8	23.4	7,261.4	2,562.8
Natural Loblolly					
Repro					
0	153.8	0.0	0.0	16,834.1	0.0
Repro Total	153.8	0.0	0.0	16,834.1	0.0
Natural Loblolly Total	153.8	0.0	0.0	16,834.1	0.0
Natural Slash					
Repro					
0	26.9	0.0	0.0	2,946.0	0.0
Repro Total	26.9	0.0	0.0	2,946.0	0.0
Natural Slash Total	26.9	0.0	0.0	2,946.0	0.0
Topwood					
0	0.0	0.0	3.1	0.0	337.6
Topwood Total	0.0	0.0	3.1	0.0	337.6
Pine Total	318.3	53.1	47.0	34,825.3	5,147.1
Grand Total	**318.3**	**53.1**	**47.0**	**34,825.3**	**5,147.1**

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Joe Budd WMA

Pine Inventory 2014

StandID:	1a		Age
Plot Count:	7		26
Acres:	48.1		Dom/Co-dom HT
			67

StandID	1a

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Loblolly					
Pulpwood					
18	0.8	1.4	1.2	38.9	56.9
19	0.7	1.4	1.2	34.9	56.4
21	1.2	2.9	2.3	57.1	111.6
22	1.6	4.3	3.3	78.1	156.8
23	1.0	2.9	2.3	47.6	110.9
Pulpwood Total	5.3	12.9	10.2	256.5	492.5
Sawtimber					
18	0.8	1.4	0.6	38.9	28.1
19	0.7	1.4	0.6	34.9	28.1
21	0.6	1.4	0.8	28.6	38.1
22	0.5	1.4	0.6	26.0	28.1
24	0.5	1.4	1.3	21.9	63.9
Sawtimber Total	3.1	7.1	3.9	150.2	186.4
Planted Loblolly Total	8.5	20.0	14.1	406.7	678.9
Topwood					
0	0.0	0.0	3.2	0.0	155.2
Topwood Total	0.0	0.0	3.2	0.0	155.2
Pine Total	8.5	20.0	17.3	406.7	834.1
Grand Total	**8.5**	**20.0**	**17.3**	**406.7**	**834.1**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	2a		Age
Plot Count:	1		16
Acres:	1.6		Dom/Co-dom HT
			75

StandID	2a

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Loblolly					
Pulpwood					
8	28.6	10.0	9.9	47.0	16.2
9	22.6	10.0	9.8	37.1	16.0
12	12.7	10.0	9.9	20.9	16.2
14	28.1	30.0	29.1	46.0	47.8
22	3.8	10.0	10.4	6.2	17.0
Pulpwood Total	95.9	70.0	69.0	157.2	113.1
Chip-N-Saw					
10	18.3	10.0	8.5	30.1	14.0
11	15.2	10.0	8.2	24.8	13.5
Chip-N-Saw Total	33.5	20.0	16.7	54.9	27.4
Sawtimber					
14	9.4	10.0	4.1	15.3	6.7
15	8.1	10.0	5.5	13.4	9.1
18	5.7	10.0	4.1	9.3	6.7
Sawtimber Total	23.2	30.0	13.7	38.0	22.5
Planted Loblolly Total	152.5	120.0	99.5	250.0	163.1
Topwood					
0	0.0	0.0	17.1	0.0	28.1
Topwood Total	0.0	0.0	17.1	0.0	28.1
Pine Total	152.5	120.0	116.6	250.0	191.2
Grand Total	**152.5**	**120.0**	**116.6**	**250.0**	**191.2**

The Forestry Company 05/06/14

Joe Budd WMA

Pine Inventory 2014

StandID:	3a		Age
Plot Count:	1		26
Acres:	5.6		Dom/Co-dom HT
			79

StandID	3a

Inventoried	Trees/Acre	Basal Area	Total Tons/Acre	Total Trees	Tons Total
Pine					
Planted Loblolly					
Pulpwood					
19	5.1	10.0	9.2	28.4	51.3
21	4.2	10.0	10.9	23.2	60.8
Pulpwood Total	9.2	20.0	20.1	51.6	112.2
Sawtimber					
17	6.3	10.0	5.5	35.4	31.0
18	17.0	30.0	17.8	94.9	99.5
21	4.2	10.0	4.1	23.2	22.9
24	3.2	10.0	4.1	17.8	22.9
26	2.7	10.0	4.1	15.2	22.9
Sawtimber Total	33.4	70.0	35.6	186.5	199.1
Planted Loblolly Total	42.6	90.0	55.7	238.1	311.3
Topwood					
0	0.0	0.0	31.9	0.0	178.0
Topwood Total	0.0	0.0	31.9	0.0	178.0
Pine Total	42.6	90.0	87.6	238.1	489.3
Grand Total	**42.6**	**90.0**	**87.6**	**238.1**	**489.3**

The Forestry Company 05/06/14

Joe Budd WMA
STATISTICAL RESULTS - TOTAL TONS

StandID	Product	Acres	Plot Count	Degrees of Freedom	Lower Limit	Mean TONS Totals	Upper Limit	Standard Deviation	Standard Error	Coefficient of Variation	Half Confidence Interval	Confidence Interval % Error	Prob %	Allow Error
1.0	ALL	49.9	11.0	10.0	2,189.3	3,134.2	4,079.2	1,406.2	424.0	44.9	944.9	30.1	95.0	20.0
2.0	ALL	20.6	4.0	3.0	-172.4	893.9	1,960.1	670.6	335.3	75.0	1,066.3	119.3	95.0	20.0
3.0	ALL	22.8	3.0	2.0	-531.1	498.1	1,527.3	417.2	240.9	83.8	1,029.2	206.6	95.0	20.0
5.0	ALL	79.1	12.0	11.0	3,761.5	5,590.9	7,420.4	2,878.5	831.0	51.5	1,829.4	32.7	95.0	20.0
6.0	ALL	71.3	13.0	12.0	3,189.5	4,630.4	6,071.3	2,383.8	661.2	51.5	1,440.9	31.1	95.0	20.0
7.0	ALL	106.7	17.0	16.0	7,542.9	9,666.3	11,789.7	4,128.9	1,001.4	42.7	2,123.4	22.0	95.0	20.0
8.0	ALL	96.0	19.0	18.0	6,703.7	8,322.5	9,941.2	3,357.7	770.3	40.3	1,618.8	19.5	95.0	20.0
9.0	ALL	75.4	15.0	14.0	4,001.5	5,376.0	6,750.5	2,481.4	640.7	46.2	1,374.5	25.6	95.0	20.0
10.0	ALL	79.3	16.0	15.0	3,009.5	3,908.8	4,808.1	1,687.3	421.8	43.2	899.3	23.0	95.0	20.0
11.0	ALL	27.1	7.0	6.0	853.2	1,543.9	2,234.6	746.6	282.2	48.4	690.7	44.7	95.0	20.0
12.0	ALL	44.5	10.0	9.0	619.6	902.8	1,186.0	395.8	125.2	43.8	283.2	31.4	95.0	20.0
13.0	ALL	107.4	27.0	26.0	2,648.5	3,292.5	3,936.5	1,627.6	313.2	49.4	644.0	19.6	95.0	20.0
14.0	ALL	60.4	12.0	11.0	1,699.4	2,541.0	3,382.6	1,324.3	382.3	52.1	841.6	33.1	95.0	20.0
15.0	ALL	109.4	26.0	25.0	4,147.0	5,147.1	6,147.3	2,475.6	485.5	48.1	1,000.1	19.4	95.0	20.0
1a	ALL	48.1	7.0	6.0	14.6	834.1	1,653.6	885.9	334.8	106.2	819.5	98.3	95.0	20.0

Stands 4, 2a and 3a are not listed because they contained only one plot per stand

TFC 05/06/14

GLOSSARY OF TERMS

Column Name	Description
Geographic Unit (ex. StandID)	The geographic unit statistics were performed on, generally a stand or a group of stands
Class Name	Class groups within a geographic unit
Species Group	Species groups within a geographic unit
Product	Product groups within a geographic unit
Acres	Area in acres of geographic unit
Plot Count	The sample size or number of cruise plots which fall inside each geographic unit
Degrees of Freedom	The number of values in the final calculation of the statistic that they are free to vary
Lower Limit	Lower limit of the confidence interval for the specified probability percent
Mean "Variable" per Acre or Totals	The average per acre or total values across all plots for the statistical variable of interest such as basal area or volume
Upper Limit	Upper limit of the confidence interval for the specified probability percent
Standard Deviation	A variable to express the quality of samples. It is a measure of the dispersion around the mean of the set of the numbers
Standard Error	A measure of variation among sample means, equal to the standard deviation divided by the square root of the sample size (i.e. plot count)
Coefficient of Variation	The ratio of the standard deviation to the mean (a normalized measure of dispersion of a probablity distribution, for comparison of different strata)
Half Confidence Interval	The difference between the mean and the lower or upper limit of the confidence interval
Confidence Interval % Error	The margin of error calculated as a ratio of the half confidence interval to the mean; also known as percent sampling error
Probability %	The confidence percent level used

04/28/14

SPECS AND TALLY

FWC 13/14-74 JOE BUDD WMA CRUISE SPECS
PINE TIMBER (ONLY) INVENTORY CRUISE

10 BAF PLOTS		MINUMUM		HIEGHT
PINE	MIN DBH	TOP (OB)	LENGTH	MEASUREMENT
PW	3.6	2"	16'	TOTAL HIEGHT (TIP)
POLES	11.0	6"	30'	MERCH, 5FT LENGTHS
CNS	8.6	6"	24'	MERCH, TO THE FT
SAW	11.6	8"	16'	MERCH, IN LOGS

*****EVERY MERCHANTABLE PINE TREE MUST HAVE A HIEGHT MEASUREMENT**

"FREE TO GROWN" TALLY - 100TH ACRE/11.8' (NESTED PLOT ON VOLUME PLOT)
AFTER TALLYING MERCH TREES, RECORD ALL SUB MERCH PINE STEMS
SUBMERCH - DBH TO 3.5" RECORD NORMALLY, USE TREE COUNT COLUMN FOR MULTPLY STEMS, ESTIMATE HTS
TALLY ANY STEMS THAT HAVE A DBH (STEMS 4.5FT AND TALLER)
REGENERATION - use "r" code column enter "1" for regen, less than 4.5ft, record specie and tree count only
enter the number of stems in the "no." column (right after specie column)
Slash/Loblolly must be 1ft high, tally all under 4.5 ft (stems with no dbh)
For Longleaf tally all under 4.5 ft (stems with no dbh)

PREMERCHANTABLE PINE STANDS - 100TH ACRE/11.8'
"ANY VIABLE PINE STAND OF THE TIMBER THAT IS "PREMERCHANTABLE"
RECORD SPECIE & DBH FOR EVERY TREE WITHIN THE 100TH ACRE PLOT - 11.8'
RECORD ATLEAST ONE HT FOR EVERY DBH/SPECIE COMBINATION

Site Index Measurement
Every 5th plot, first dom or co-dom tree to the right of the cruise line, if none present on 5th plot take on next plot
Tally specie, hieght and age - add 3 years for sub-dbh growth
Flag tree and write "SI TREE" on flagging

MISC.
All plots will be flagged with a minimum of 3 pieces of flagging:

1. 1st tree north of plot center - face knot towards plot center
2. Above or near plot center - cruiser intials and plot number on flagging
3. In ground at plot center

Plot Placement
Plots that fall near any "non pine" area must be moved 33' from edge - these areas include:
mapped out wetlands/ponds/canals, normally traveled maintained roads, etc - stand edges

Joe Budd WMA All cruise tally - Pine Inventory 2014

PlotID	Latitude	Longitude	Plot	Pg.	Tree	SpC	Num	Dbh	Hm	PN	Tree Product	Age	SI_Ht	Rp
1	302841.440	-843128.110	112	0	0									
1	302841.440	-843128.110	112	1	1	NLL	1	19.0	56.0	0	AutoAssign			
1	302841.440	-843128.110	112	1	2	NLL	1	22.0	48.0	0	AutoAssign			
1	302841.440	-843128.110	112	1	3	NLL	1	11.0	48.0	0	AutoAssign			
1	302841.440	-843128.110	112	1	4	NLL	1	21.0	48.0	0	AutoAssign			
1	302841.440	-843128.110	112	1	5	NLL	1	16.0	56.0	0	AutoAssign			
1	302841.440	-843128.110	112	1	6	NLL	1	21.0	32.0	0	AutoAssign			
1	302841.440	-843128.110	112	1	7	NLL	1	18.0	56.0	0	AutoAssign			
1	302841.440	-843128.110	112	1	8	NLL	1	21.0	56.0	0	AutoAssign			
2	302845.760	-843128.130	113	0	0									
2	302845.760	-843128.130	113	1	1	NLL	1	15.0	48.0	0	AutoAssign			
2	302845.760	-843128.130	113	1	2	NLL	1	16.0	48.0	0	AutoAssign			
2	302845.760	-843128.130	113	1	3	NLL	1	20.0	32.0	0	AutoAssign			
2	302845.760	-843128.130	113	1	4	NLL	1	15.0	48.0	0	AutoAssign			
2	302845.760	-843128.130	113	1	5	NLL	1	19.0	48.0	0	AutoAssign			
3	302854.390	-843128.170	85	0	0									
3	302854.390	-843128.170	85	1	1	NLL	1	12.0	56.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	2	NLL	1	21.0	64.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	3	NSL	1	12.0	56.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	4	NSL	1	8.0	65.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	5	NLL	1	17.0	56.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	6	NLL	1	14.0	40.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	7	NLL	1	15.0	32.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	8	NLL	1	6.0	65.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	9	NLL	1	9.0	41.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	10	NLL	1	16.0	64.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	11	NSL	1	16.0	56.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	12	NSL	1	17.0	56.0	0	AutoAssign			
3	302854.390	-843128.170	85	1	13	NSL	1	21.0	56.0	0	AutoAssign			
4	302841.460	-843123.110	111	0	0									
4	302841.460	-843123.110	111	1	1	NLL	1	29.0	40.0	0	AutoAssign			
5	302845.780	-843123.130	110	0	0									
5	302845.780	-843123.130	110	1	1	NLL	1	19.0	56.0	0	AutoAssign			
5	302845.780	-843123.130	110	1	2	NLL	1	16.0	56.0	0	AutoAssign			
5	302845.780	-843123.130	110	1	3	NLL	1	16.0	32.0	0	AutoAssign			
5	302845.780	-843123.130	110	1	4	NLL	1	16.0	48.0	0	AutoAssign			
5	302845.780	-843123.130	110	1	5	NLL	1	22.0	48.0	0	AutoAssign			
5	302845.780	-843123.130	110	1	6	NLL	1	16.0	64.0	0	AutoAssign			
5	302845.780	-843123.130	110	1	7	NLB	1	19.0	48.0	0	AutoAssign			
5	302845.780	-843123.130	110	1	8	NLB	1	21.0	48.0	0	AutoAssign			
5	302845.780	-843123.130	110	1	9	NLL	1	16.0	56.0	2	Poles			
6	302850.100	-843123.150	87	0	0									
6	302850.100	-843123.150	87	1	1	NLL	1	21.0	56.0	0	AutoAssign			
6	302850.100	-843123.150	87	1	2	NLL	1	17.0	40.0	0	AutoAssign			
6	302850.100	-843123.150	87	1	3	NLL	1	12.0	56.0	0	AutoAssign	75	90.0	
6	302850.100	-843123.150	87	1	4	NLL	1	16.0	48.0	0	AutoAssign			
6	302850.100	-843123.150	87	1	5	NLL	1	15.0	75.0	1	Pulpwood			
6	302850.100	-843123.150	87	1	6	NLL	1	17.0	56.0	0	AutoAssign			
6	302850.100	-843123.150	87	1	7	NLL	1	20.0	64.0	0	AutoAssign			
6	302850.100	-843123.150	87	1	8	NLL	1	13.0	48.0	0	AutoAssign			
6	302850.100	-843123.150	87	1	9	NLL	1	12.0	32.0	0	AutoAssign			
6	302850.100	-843123.150	87	1	10	NLL	1	12.0	48.0	0	AutoAssign			
7	302854.410	-843123.180	86	0	0									
7	302854.410	-843123.180	86	1	1	NLL	1	14.0	40.0	0	AutoAssign			
7	302854.410	-843123.180	86	1	2	NLL	1	14.0	48.0	0	AutoAssign			
7	302854.410	-843123.180	86	1	3	NLL	1	15.0	48.0	0	AutoAssign			

Joe Budd WMA All cruise tally - Pine Inventory 2014

7	302854.410	-843123.180	86	1	4	NLL	1	12.0	40.0	0	AutoAssign			
7	302854.410	-843123.180	86	1	5	NLL	1	10.0	55.0	0	AutoAssign			
7	302854.410	-843123.180	86	1	6	NLL	1	14.0	70.0	1	Pulpwood			
7	302854.410	-843123.180	86	1	7	NLL	1	16.0	40.0	0	AutoAssign			
7	302854.410	-843123.180	86	1	8	NLL	1	16.0	56.0	0	AutoAssign			
7	302854.410	-843123.180	86	1	9	NLL	1	13.0	40.0	0	AutoAssign			
7	302854.410	-843123.180	86	1	10	NLL	1	14.0	40.0	0	AutoAssign			
7	302854.410	-843123.180	86	1	11	NLL	1	9.0	48.0	0	AutoAssign			
8	302858.730	-843123.200	92	0	0									
8	302858.730	-843123.200	92	1	1	NLL	1	13.0	48.0	2	Poles	75	90.0	
8	302858.730	-843123.200	92	1	2	NLL	1	14.0	32.0	0	AutoAssign			
8	302858.730	-843123.200	92	1	3	NLL	1	14.0	48.0	0	AutoAssign			
8	302858.730	-843123.200	92	1	4	NLL	1	13.0	40.0	0	AutoAssign			
8	302858.730	-843123.200	92	1	5	NLL	1	14.0	32.0	0	AutoAssign			
8	302858.730	-843123.200	92	1	6	NLL	1	16.0	40.0	2	Poles			
9	302837.160	-843118.100	94	0	0									
9	302837.160	-843118.100	94	1	1	NLL	1	13.0	48.0	0	AutoAssign			
9	302837.160	-843118.100	94	1	2	NLL	1	16.0	56.0	0	AutoAssign			
9	302837.160	-843118.100	94	1	3	NLL	1	17.0	56.0	2	Poles			
9	302837.160	-843118.100	94	1	4	NLL	1	13.0	48.0	0	AutoAssign			
9	302837.160	-843118.100	94	1	5	NLL	1	13.0	48.0	0	AutoAssign			
9	302837.160	-843118.100	94	1	6	NLL	1	9.0	45.0	0	AutoAssign			
9	302837.160	-843118.100	94	1	7	NLB	1	14.0	48.0	0	AutoAssign			
9	302837.160	-843118.100	94	1	8	NLL	1	16.0	56.0	0	AutoAssign			
9	302837.160	-843118.100	94	1	9	NLL	1	16.0	48.0	0	AutoAssign			
9	302837.160	-843118.100	94	1	10	NLL	1	10.0	62.0	0	AutoAssign			
10	302845.800	-843118.140	109	0	0									
10	302845.800	-843118.140	109	1	1	NLL	1	17.0	56.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	2	NLL	1	16.0	32.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	3	NLL	1	16.0	48.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	4	NLL	1	18.0	40.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	5	NLL	1	10.0	65.0	1	Pulpwood			
10	302845.800	-843118.140	109	1	6	NLL	1	17.0	32.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	7	NLL	1	20.0	56.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	8	NLL	1	23.0	48.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	9	NLL	1	10.0	62.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	10	NLL	1	14.0	32.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	11	NLL	1	16.0	48.0	0	AutoAssign			
10	302845.800	-843118.140	109	1	12	NLB	1	17.0	48.0	0	AutoAssign			
11	302850.110	-843118.160	88	0	0									
11	302850.110	-843118.160	88	1	1	NLL	1	12.0	56.0	0	AutoAssign			
11	302850.110	-843118.160	88	1	2	NLL	1	13.0	56.0	0	AutoAssign			
11	302850.110	-843118.160	88	1	3	NLL	1	13.0	56.0	0	AutoAssign			
11	302850.110	-843118.160	88	1	4	NLL	1	15.0	56.0	0	AutoAssign			
11	302850.110	-843118.160	88	1	5	NLL	1	13.0	40.0	0	AutoAssign			
11	302850.110	-843118.160	88	1	6	NLL	1	17.0	64.0	0	AutoAssign			
11	302850.110	-843118.160	88	1	7	NLL	1	12.0	48.0	0	AutoAssign			
12	302854.430	-843118.180	89	0	0									
12	302854.430	-843118.180	89	1	1	NLL	1	14.0	40.0	0	AutoAssign			
12	302854.430	-843118.180	89	1	2	NLL	1	14.0	56.0	0	AutoAssign			
12	302854.430	-843118.180	89	1	3	NLL	1	14.0	56.0	0	AutoAssign			
12	302854.430	-843118.180	89	1	4	NLL	1	13.0	56.0	0	AutoAssign			
12	302854.430	-843118.180	89	1	5	NLL	1	17.0	48.0	0	AutoAssign			
12	302854.430	-843118.180	89	1	6	NLL	1	12.0	24.0	0	AutoAssign			
12	302854.430	-843118.180	89	1	7	NLL	1	14.0	32.0	0	AutoAssign			
12	302854.430	-843118.180	89	1	8	NLL	1	11.0	55.0	0	AutoAssign			
13	302858.750	-843118.200	91	0	0									
13	302858.750	-843118.200	91	1	1	NLL	1	16.0	40.0	0	AutoAssign			

13	302858.750	-843118.200	91	1	2	NLL	1	16.0	48.0	0	AutoAssign			
13	302858.750	-843118.200	91	1	3	NLL	1	19.0	40.0	0	AutoAssign			
13	302858.750	-843118.200	91	1	4	NLL	1	19.0	48.0	0	AutoAssign			
13	302858.750	-843118.200	91	1	5	NLL	1	16.0	32.0	0	AutoAssign			
14	302837.180	-843113.100	95	0	0									
14	302837.180	-843113.100	95	1	1	NLL	1	7.0	67.0	0	AutoAssign			
14	302837.180	-843113.100	95	1	2	NLL	1	15.0	48.0	0	AutoAssign			
14	302837.180	-843113.100	95	1	3	NLL	1	14.0	48.0	0	AutoAssign			
14	302837.180	-843113.100	95	1	4	NLL	1	14.0	48.0	0	AutoAssign			
14	302837.180	-843113.100	95	1	5	NLL	1	15.0	48.0	0	AutoAssign			
14	302837.180	-843113.100	95	1	6	NLL	1	14.0	56.0	0	AutoAssign			
14	302837.180	-843113.100	95	1	7	NLL	1	12.0	56.0	0	AutoAssign			
14	302837.180	-843113.100	95	1	8	NLL	1	13.0	48.0	0	AutoAssign			
15	302841.500	-843113.120	102	0	0									
15	302841.500	-843113.120	102	1	1	NLL	1	10.0	47.0	0	AutoAssign			
15	302841.500	-843113.120	102	1	2	NLL	1	12.0	40.0	0	AutoAssign	90	85.0	
15	302841.500	-843113.120	102	1	3	NLL	1	11.0	45.0	0	AutoAssign			
15	302841.500	-843113.120	102	1	4	NLL	1	14.0	48.0	0	AutoAssign			
15	302841.500	-843113.120	102	1	5	NLL	1	14.0	48.0	0	AutoAssign			
15	302841.500	-843113.120	102	1	6	NLL	1	17.0	56.0	2	Poles			
15	302841.500	-843113.120	102	1	7	NLL	1	14.0	48.0	0	AutoAssign			
15	302841.500	-843113.120	102	1	8	NLL	3			0	AutoAssign			1
16	302845.810	-843113.140	108	0	0									
16	302845.810	-843113.140	108	1	1	NLL	1	16.0	48.0	0	AutoAssign			
16	302845.810	-843113.140	108	1	2	NSL	1	15.0	48.0	0	AutoAssign			
16	302845.810	-843113.140	108	1	3	NSL	1	21.0	48.0	0	AutoAssign			
16	302845.810	-843113.140	108	1	4	NSL	1	10.0	46.0	0	AutoAssign			
17	302854.450	-843113.180	90	0	0									
17	302854.450	-843113.180	90	1	1	NLL	1	18.0	32.0	0	AutoAssign			
17	302854.450	-843113.180	90	1	2	NLL	1	12.0	40.0	0	AutoAssign			
17	302854.450	-843113.180	90	1	3	NLL	1	11.0	72.0	1	Pulpwood			
17	302854.450	-843113.180	90	1	4	NLL	1	16.0	40.0	0	AutoAssign			
17	302854.450	-843113.180	90	1	5	NLL	1	16.0	40.0	2	Poles			
17	302854.450	-843113.180	90	1	6	NLL	1	18.0	24.0	0	AutoAssign			
17	302854.450	-843113.180	90	1	7	NLL	1	14.0	48.0	0	AutoAssign			
17	302854.450	-843113.180	90	1	8	NLL	1	21.0	40.0	0	AutoAssign			
18	302837.200	-843108.110	101	0	0									
18	302837.200	-843108.110	101	1	1	NLL	1	10.0	70.0	1	Pulpwood			
18	302837.200	-843108.110	101	1	2	NSL	1	16.0	56.0	0	AutoAssign			
18	302837.200	-843108.110	101	1	3	NSL	1	19.0	56.0	0	AutoAssign			
18	302837.200	-843108.110	101	1	4	NSL	1	19.0	48.0	0	AutoAssign			
18	302837.200	-843108.110	101	1	5	NLL	1	12.0	32.0	0	AutoAssign			
18	302837.200	-843108.110	101	1	6	NSL	1	21.0	56.0	2	Poles			
18	302837.200	-843108.110	101	1	7	NLB	1	11.0	48.0	0	AutoAssign			
18	302837.200	-843108.110	101	1	8	NSL	1	21.0	48.0	2	Poles			
18	302837.200	-843108.110	101	1	9	NLL	1	10.0	47.0	0	AutoAssign			
18	302837.200	-843108.110	101	1	10	NSL	1	17.0	56.0	2	Poles			
18	302837.200	-843108.110	101	1	11	NLL	1	9.0	45.0	0	AutoAssign			
19	302832.900	-843103.090	98	0	0									
19	302832.900	-843103.090	98	1	1	NLL	1	11.0	45.0	0	AutoAssign			
19	302832.900	-843103.090	98	1	2	NLL	1	14.0	32.0	0	AutoAssign			
19	302832.900	-843103.090	98	1	3	NLL	1	10.0	45.0	0	AutoAssign			
19	302832.900	-843103.090	98	1	4	NLL	1	11.0	42.0	0	AutoAssign			
20	302827.210	-843117.320	93	0	0									
20	302827.210	-843117.320	93	1	1	NLB	1	17.0	48.0	0	AutoAssign			
20	302827.210	-843117.320	93	1	2	NLB	1	13.0	16.0	0	AutoAssign			
20	302827.210	-843117.320	93	1	3	NLB	1	10.0	65.0	1	Pulpwood			
20	302827.210	-843117.320	93	1	4	NLB	1	21.0	40.0	0	AutoAssign			

20	302827.210	-843117.320	93	1	5	NLB	1	20.0	48.0	0	AutoAssign			
20	302827.210	-843117.320	93	1	6	NLB	1	23.0	32.0	0	AutoAssign			
20	302827.210	-843117.320	93	1	7	NLB	1	18.0	48.0	0	AutoAssign			
20	302827.210	-843117.320	93	1	8	NLB	1	13.0	40.0	0	AutoAssign			
21	302831.650	-843112.230	96	0	0									
21	302831.650	-843112.230	96	1	1	NLB	1	21.0	48.0	0	AutoAssign			
21	302831.650	-843112.230	96	1	2	NLB	1	20.0	48.0	0	AutoAssign			
21	302831.650	-843112.230	96	1	3	NLL	1	18.0	40.0	0	AutoAssign			
21	302831.650	-843112.230	96	1	4	NLB	1	16.0	64.0	0	AutoAssign			
22	302827.250	-843107.100	121	0	0									
22	302827.250	-843107.100	121	1	1	NLB	1	10.0	52.0	0	AutoAssign			
22	302827.250	-843107.100	121	1	2	NLB	1	23.0	40.0	0	AutoAssign			
22	302827.250	-843107.100	121	1	3	NLB	1	26.0	48.0	0	AutoAssign			
22	302827.250	-843107.100	121	1	4	NLB	1	22.0	40.0	0	AutoAssign			
23	302831.670	-843107.120	97	0	0									
23	302831.670	-843107.120	97	1	1	NLL	1	21.0	48.0	0	AutoAssign	80	105.0	
23	302831.670	-843107.120	97	1	2	NLL	1	17.0	48.0	0	AutoAssign			
23	302831.670	-843107.120	97	1	3	NLB	1	19.0	32.0	0	AutoAssign			
23	302831.670	-843107.120	97	1	4	NLB	1	21.0	48.0	0	AutoAssign			
24	302822.850	-843101.970	114	0	0									
24	302822.850	-843101.970	114	1	1	NLB	1	20.0	72.0	2	Poles			
24	302822.850	-843101.970	114	1	2	NLB	1	19.0	48.0	0	AutoAssign			
24	302822.850	-843101.970	114	1	3	NSL	1	23.0	40.0	0	AutoAssign			
25	302827.270	-843101.990	115	0	0									
25	302827.270	-843101.990	115	1	1	NLL	1	16.0	48.0	0	AutoAssign			
25	302827.270	-843101.990	115	1	2	NLB	1	11.0	46.0	0	AutoAssign			
25	302827.270	-843101.990	115	1	3	NLB	1	5.0	38.0	0	AutoAssign			
25	302827.270	-843101.990	115	1	4	NLB	1	23.0	48.0	0	AutoAssign			
25	302827.270	-843101.990	115	1	5	NLB	1	22.0	92.0	1	Pulpwood			
26	302831.680	-843102.010	99	0	0									
26	302831.680	-843102.010	99	1	1	NLL	1	9.0	35.0	0	AutoAssign			
26	302831.680	-843102.010	99	1	2	NSL	1	13.0	48.0	2	Poles			
26	302831.680	-843102.010	99	1	3	NSL	1	20.0	48.0	2	Poles			
26	302831.680	-843102.010	99	1	4	NSL	1	19.0	24.0	0	AutoAssign			
26	302831.680	-843102.010	99	1	5	NLL	1	14.0	16.0	0	AutoAssign			
26	302831.680	-843102.010	99	1	6	NLL	1	15.0	16.0	0	AutoAssign			
27	302822.870	-843056.860	116	0	0									
27	302822.870	-843056.860	116	1	1	NSL	1	11.0	45.0	0	AutoAssign			
27	302822.870	-843056.860	116	1	2	NLL	1	17.0	64.0	0	AutoAssign			
27	302822.870	-843056.860	116	1	3	NLL	1	17.0	64.0	0	AutoAssign			
27	302822.870	-843056.860	116	1	4	NLL	1	14.0	94.0	1	Pulpwood			
27	302822.870	-843056.860	116	1	5	NLL	1	17.0	64.0	2	Poles			
27	302822.870	-843056.860	116	1	6	NLL	1	18.0	48.0	2	Poles			
27	302822.870	-843056.860	116	1	7	NLL	1	20.0	56.0	2	Poles			
27	302822.870	-843056.860	116	1	8	NLL	1	20.0	56.0	2	Poles			
28	302827.290	-843056.880	120	0	0									
28	302827.290	-843056.880	120	1	1	NLL	1	16.0	48.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	2	NLL	1	5.0	50.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	3	NLL	1	5.0	48.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	4	NLL	1	18.0	48.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	5	NSL	1	18.0	48.0	2	Poles			
28	302827.290	-843056.880	120	1	6	NSL	1	21.0	40.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	7	NSL	1	8.0	65.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	8	NSL	1	5.0	45.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	9	NSL	1	21.0	40.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	10	NSL	1	8.0	67.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	11	NSL	1	7.0	65.0	0	AutoAssign			
28	302827.290	-843056.880	120	1	12	NSL	1	21.0	32.0	0	AutoAssign			

29	302818.470	-843051.730	122	0	0									
29	302818.470	-843051.730	122	1	1	NLL	1	17.0	48.0	0	AutoAssign			
29	302818.470	-843051.730	122	1	2	NSL	1	27.0	32.0	0	AutoAssign			
29	302818.470	-843051.730	122	1	3	NLB	1	17.0	32.0	0	AutoAssign			
29	302818.470	-843051.730	122	1	4	NSL	1	23.0	48.0	0	AutoAssign			
29	302818.470	-843051.730	122	1	5	NLL	1	14.0	56.0	2	Poles			
29	302818.470	-843051.730	122	1	6	NLB	1	22.0	48.0	0	AutoAssign			
30	302822.890	-843051.750	117	0	0									
30	302822.890	-843051.750	117	1	1	NLL	1	14.0	48.0	2	Poles			
30	302822.890	-843051.750	117	1	2	NLB	1	20.0		10	Cull			
30	302822.890	-843051.750	117	1	3	NLB	1	5.0	55.0	0	AutoAssign			
30	302822.890	-843051.750	117	1	4	NLB	1	16.0	48.0	0	AutoAssign			
30	302822.890	-843051.750	117	1	5	NLB	1	17.0	48.0	0	AutoAssign			
30	302822.890	-843051.750	117	1	6	NLL	1	18.0	48.0	0	AutoAssign			
30	302822.890	-843051.750	117	1	7	NLL	1	15.0	48.0	0	AutoAssign			
30	302822.890	-843051.750	117	1	8	NLL	1	18.0	56.0	0	AutoAssign			
30	302822.890	-843051.750	117	1	9	NLL	1	13.0	40.0	0	AutoAssign			
30	302822.890	-843051.750	117	1	10	NLL	1	18.0	32.0	0	AutoAssign			
31	302827.300	-843051.770	119	0	0									
31	302827.300	-843051.770	119	1	1	NLL	1	14.0	56.0	0	AutoAssign			
31	302827.300	-843051.770	119	1	2	NLL	1	15.0	64.0	0	AutoAssign			
31	302827.300	-843051.770	119	1	3	NLL	1	15.0	64.0	0	AutoAssign	90	98.0	
31	302827.300	-843051.770	119	1	4	NLL	1	17.0	85.0	1	Pulpwood			
31	302827.300	-843051.770	119	1	5	NLL	1	19.0	48.0	0	AutoAssign			
31	302827.300	-843051.770	119	1	6	NLL	1	13.0	48.0	0	AutoAssign			
31	302827.300	-843051.770	119	1	7	NLL	1	15.0	48.0	0	AutoAssign			
31	302827.300	-843051.770	119	1	8	NLL	1	16.0	48.0	0	AutoAssign			
31	302827.300	-843051.770	119	1	9	NLL	1	14.0	32.0	0	AutoAssign			
32	302814.070	-843046.600	124	0	0									
32	302814.070	-843046.600	124	1	1	NSL	1	17.0	64.0	0	AutoAssign			
32	302814.070	-843046.600	124	1	2	NLL	1	19.0	64.0	0	AutoAssign			
32	302814.070	-843046.600	124	1	3	NLL	1	16.0	40.0	0	AutoAssign			
32	302814.070	-843046.600	124	1	4	NLL	1	16.0	48.0	2	Poles			
32	302814.070	-843046.600	124	1	5	NLL	1	19.0	32.0	0	AutoAssign			
32	302814.070	-843046.600	124	1	6	NLL	1	12.0	48.0	0	AutoAssign			
32	302814.070	-843046.600	124	1	7	NLL	1	16.0	72.0	2	Poles	90	105.0	
32	302814.070	-843046.600	124	1	8	NLL	1	15.0	48.0	2	Poles			
32	302814.070	-843046.600	124	1	9	NLB	1	23.0	64.0	0	AutoAssign			
32	302814.070	-843046.600	124	1	10	NLL	1	19.0	64.0	2	Poles			
32	302814.070	-843046.600	124	1	11	NSL	1	14.0	64.0	0	AutoAssign			
33	302818.490	-843046.620	123	0	0									
33	302818.490	-843046.620	123	1	1	NLL	1	18.0	48.0	2	Poles			
33	302818.490	-843046.620	123	1	2	NLL	1	14.0	48.0	0	AutoAssign			
33	302818.490	-843046.620	123	1	3	NLL	1	13.0	32.0	0	AutoAssign			
33	302818.490	-843046.620	123	1	4	NLL	1	19.0	40.0	0	AutoAssign			
33	302818.490	-843046.620	123	1	5	NLL	1	16.0	32.0	0	AutoAssign			
34	302822.910	-843046.640	118	0	0									
34	302822.910	-843046.640	118	1	1	NLB	1	5.0	40.0	0	AutoAssign			
34	302822.910	-843046.640	118	1	2	NLB	1	6.0	34.0	0	AutoAssign			
34	302822.910	-843046.640	118	1	3	NLB	1	5.0	40.0	0	AutoAssign			
34	302822.910	-843046.640	118	1	4	NLB	1	5.0	35.0	0	AutoAssign			
35	302754.380	-842743.920	188	0	0									
35	302754.380	-842743.920	188	1	1	PLB	1	20.0	48.0	2	Poles			
35	302754.380	-842743.920	188	1	2	NLB	1	20.0	40.0	0	AutoAssign			
35	302754.380	-842743.920	188	1	3	NLB	1	11.0	52.0	0	AutoAssign			
35	302754.380	-842743.920	188	1	4	NSL	1	16.0	40.0	0	AutoAssign	85	80.0	
35	302754.380	-842743.920	188	1	5	NLB	1	12.0	40.0	0	AutoAssign			
35	302754.380	-842743.920	188	1	6	NLB	1	17.0	48.0	0	AutoAssign			

36	302759.800	-842743.940	187	0	0									
36	302759.800	-842743.940	187	1	1	NLL	1	15.0	32.0	0	AutoAssign			
36	302759.800	-842743.940	187	1	2	NLB	1	11.0	52.0	0	AutoAssign			
36	302759.800	-842743.940	187	1	3	NLB	1	14.0	40.0	0	AutoAssign			
37	302805.220	-842743.970	186	0	0									
37	302805.220	-842743.970	186	1	1	NLB	1	15.0	48.0	0	AutoAssign			
37	302805.220	-842743.970	186	1	2	NSL	1	18.0	48.0	0	AutoAssign			
38	302759.820	-842737.670	192	0	0									
38	302759.820	-842737.670	192	1	1	NLL	1	15.0	48.0	0	AutoAssign			
38	302759.820	-842737.670	192	1	2	NLB	1	14.0	40.0	0	AutoAssign			
38	302759.820	-842737.670	192	1	3	NLB	1	20.0	40.0	0	AutoAssign			
38	302759.820	-842737.670	192	1	4	NLB	1	20.0	48.0	0	AutoAssign			
38	302759.820	-842737.670	192	1	5	NLL	1	17.0	40.0	2	Poles			
39	302805.250	-842737.690	185	0	0									
39	302805.250	-842737.690	185	1	1	NLL	1	17.0	56.0	0	AutoAssign			
39	302805.250	-842737.690	185	1	2	NLL	1	14.0	48.0	2	Poles			
39	302805.250	-842737.690	185	1	3	NLL	1	7.0	52.0	0	AutoAssign			
39	302805.250	-842737.690	185	1	4	NLL	1	14.0	40.0	0	AutoAssign			
39	302805.250	-842737.690	185	1	5	NLB	1	14.0	40.0	0	AutoAssign			
39	302805.250	-842737.690	185	1	6	PLB	1	15.0	48.0	0	AutoAssign			
39	302805.250	-842737.690	185	1	7	NLL	1	17.0	48.0	0	AutoAssign			
39	302805.250	-842737.690	185	1	8	NLB	1	12.0	48.0	0	AutoAssign			
39	302805.250	-842737.690	185	1	9	NLL	1	16.0	48.0	0	AutoAssign			
40	302805.270	-842731.420	184	0	0									
40	302805.270	-842731.420	184	1	1	NLL	1	19.0	40.0	0	AutoAssign			
40	302805.270	-842731.420	184	1	2	NLB	1	13.0	48.0	0	AutoAssign			
40	302805.270	-842731.420	184	1	3	NLL	1	14.0	32.0	0	AutoAssign			
40	302805.270	-842731.420	184	1	4	NLB	1	12.0	24.0	0	AutoAssign			
40	302805.270	-842731.420	184	1	5	NLB	1	15.0	48.0	0	AutoAssign			
40	302805.270	-842731.420	184	1	6	NLB	1	15.0	48.0	0	AutoAssign			
40	302805.270	-842731.420	184	1	7	NLB	1	15.0	48.0	0	AutoAssign			
40	302805.270	-842731.420	184	1	8	PLB	1	14.0	48.0	0	AutoAssign			
41	302805.290	-842725.150	183	0	0									
41	302805.290	-842725.150	183	1	1	NSL	1	15.0	48.0	0	AutoAssign	80	75.0	
41	302805.290	-842725.150	183	1	2	NLB	1	11.0	50.0	0	AutoAssign			
41	302805.290	-842725.150	183	1	3	NLB	1	14.0	48.0	0	AutoAssign			
41	302805.290	-842725.150	183	1	4	NLB	1	8.0	64.0	0	AutoAssign			
42	303058.160	-843232.310	69	0	0									
42	303058.160	-843232.310	69	1	1	PLB	1	22.0	51.0	1	Pulpwood			
43	303058.170	-843227.730	70	0	0									
43	303058.170	-843227.730	70	1	1	PLB	1	22.0	16.0	0	AutoAssign			
43	303058.170	-843227.730	70	1	2	PLB	1	21.0	56.0	1	Pulpwood			
43	303058.170	-843227.730	70	1	3	PLB	1	24.0	48.0	0	AutoAssign			
44	303102.130	-843227.750	71	0	0									
44	303102.130	-843227.750	71	1	1	PLB	1	12.0	40.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	2	PLB	1	19.0	16.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	3	PLB	1	13.0	85.0	1	Pulpwood			
44	303102.130	-843227.750	71	1	4	PLB	1	14.0	40.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	5	PLB	1	17.0	48.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	6	PLB	1	11.0	45.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	7	PLB	1	11.0	45.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	8	PLB	1	18.0	24.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	9	PLB	1	17.0	24.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	10	PLB	1	18.0	16.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	11	PLB	1	18.0	32.0	0	AutoAssign			
44	303102.130	-843227.750	71	1	12	NLB	26			0	AutoAssign			1
45	303106.080	-843227.770	72	0	0									
45	303106.080	-843227.770	72	1	1	PLB	1	17.0	78.0	1	Pulpwood			

45	303106.080	-843227.770	72	1	2	PLB	1	14.0	32.0	0	AutoAssign	24	75.0	
45	303106.080	-843227.770	72	1	3	PLB	1	11.0	42.0	0	AutoAssign			
45	303106.080	-843227.770	72	1	4	PLB	1	18.0	16.0	0	AutoAssign			
45	303106.080	-843227.770	72	1	5	PLB	1	18.0	68.0	1	Pulpwood			
45	303106.080	-843227.770	72	1	6	PLB	1	16.0	16.0	0	AutoAssign			
45	303106.080	-843227.770	72	1	7	PLB	1	12.0	32.0	0	AutoAssign			
45	303106.080	-843227.770	72	1	8	PLB	1	19.0	70.0	1	Pulpwood			
45	303106.080	-843227.770	72	1	9	PLB	1	18.0	32.0	0	AutoAssign			
45	303106.080	-843227.770	72	1	10	NLB	3			0	AutoAssign			1
46	303110.030	-843227.790	73	0	0									
46	303110.030	-843227.790	73	1	1	PLB	1	17.0	16.0	0	AutoAssign			
46	303110.030	-843227.790	73	1	2	PLB	1	16.0	24.0	0	AutoAssign			
47	303113.990	-843227.810	74	0	0									
47	303113.990	-843227.810	74	1	1	PLB	1	11.0	62.0	1	Pulpwood			
47	303113.990	-843227.810	74	1	2	PLB	1	14.0	32.0	0	AutoAssign			
47	303113.990	-843227.810	74	1	3	PLB	1	12.0	32.0	0	AutoAssign			
47	303113.990	-843227.810	74	1	4	PLB	1	12.0	32.0	0	AutoAssign			
47	303113.990	-843227.810	74	1	5	PLB	1	15.0	62.0	1	Pulpwood			
47	303113.990	-843227.810	74	1	6	PLB	1	10.0	35.0	0	AutoAssign			
48	303117.940	-843227.830	75	0	0									
48	303117.940	-843227.830	75	1	1	PLB	1	14.0	32.0	0	AutoAssign			
48	303117.940	-843227.830	75	1	2	PLB	1	14.0	48.0	0	AutoAssign			
48	303117.940	-843227.830	75	1	3	PLB	1	9.0	52.0	1	Pulpwood			
48	303117.940	-843227.830	75	1	4	PLB	1	13.0	40.0	0	AutoAssign			
48	303117.940	-843227.830	75	1	5	PLB	1	13.0	40.0	0	AutoAssign			
48	303117.940	-843227.830	75	1	6	PLB	1	12.0	40.0	0	AutoAssign			
49	303121.890	-843227.850	76	0	0									
49	303121.890	-843227.850	76	1	1	PLB	1	12.0	65.0	1	Pulpwood			
49	303121.890	-843227.850	76	1	2	PLB	1	10.0	45.0	0	AutoAssign			
49	303121.890	-843227.850	76	1	3	PLB	1	12.0	24.0	0	AutoAssign			
49	303121.890	-843227.850	76	1	4	PLB	1	10.0	60.0	1	Pulpwood			
49	303121.890	-843227.850	76	1	5	PLB	1	12.0	16.0	0	AutoAssign			
49	303121.890	-843227.850	76	1	6	PLB	1	16.0	65.0	1	Pulpwood			
49	303121.890	-843227.850	76	1	7	PLB	1	10.0	64.0	1	Pulpwood			
49	303121.890	-843227.850	76	1	8	PLB	1	8.0	30.0	10	Cull			
49	303121.890	-843227.850	76	1	9	PLB	1	12.0	32.0	0	AutoAssign			
49	303121.890	-843227.850	76	1	10	PLB	1	14.0	16.0	0	AutoAssign			
49	303121.890	-843227.850	76	1	11	PLB	1	12.0	32.0	0	AutoAssign			
49	303121.890	-843227.850	76	1	12	PLB	1	11.0	45.0	0	AutoAssign			
49	303121.890	-843227.850	76	1	13	PLB	1	8.0	62.0	0	AutoAssign			
50	303058.190	-843223.160	84	0	0									
50	303058.190	-843223.160	84	1	1	PLB	1	19.0	16.0	0	AutoAssign			
51	303110.050	-843223.220	78	0	0									
51	303110.050	-843223.220	78	1	1	PLB	1	17.0	32.0	0	AutoAssign			
51	303110.050	-843223.220	78	1	2	PLB	1	15.0	32.0	0	AutoAssign			
51	303110.050	-843223.220	78	1	3	PLB	1	15.0	32.0	0	AutoAssign			
51	303110.050	-843223.220	78	1	4	PLB	1	14.0	32.0	0	AutoAssign			
51	303110.050	-843223.220	78	1	5	PLB	1	18.0	16.0	0	AutoAssign			
51	303110.050	-843223.220	78	1	6	PLB	1	14.0	24.0	0	AutoAssign			
51	303110.050	-843223.220	78	1	7	PLB	1	16.0	16.0	0	AutoAssign			
51	303110.050	-843223.220	78	1	8	PLB	1	13.0	40.0	0	AutoAssign			
52	303114.000	-843223.240	77	0	0									
52	303114.000	-843223.240	77	1	1	PLB	1	14.0	40.0	0	AutoAssign	26	75.0	
52	303114.000	-843223.240	77	1	2	PLB	1	18.0	40.0	0	AutoAssign			
52	303114.000	-843223.240	77	1	3	PLB	1	15.0	40.0	0	AutoAssign			
52	303114.000	-843223.240	77	1	4	PLB	1	17.0	32.0	0	AutoAssign			
52	303114.000	-843223.240	77	1	5	PLB	1	13.0	24.0	0	AutoAssign			
52	303114.000	-843223.240	77	1	6	PLB	1	12.0	16.0	0	AutoAssign			

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52	303114.000	-843223.240	77	1	7	PLB	1	13.0	24.0	0	AutoAssign			
52	303114.000	-843223.240	77	1	8	PLB	1	18.0	32.0	0	AutoAssign			
52	303114.000	-843223.240	77	1	9	NLB	5			0	AutoAssign			1
53	303054.250	-843218.560	66	0	0									
53	303054.250	-843218.560	66	1	1	PLB	1	21.0	74.0	1	Pulpwood			
53	303054.250	-843218.560	66	1	2	PLB	1	21.0	24.0	0	AutoAssign			
53	303054.250	-843218.560	66	1	3	PLB	1	18.0	16.0	0	AutoAssign			
54	303102.160	-843218.600	83	0	0									
55	303102.400	-843201.900	82	0	0									
55	303102.400	-843201.900	82	1	1	PLB	1	15.0	70.0	1	Pulpwood			
55	303102.400	-843201.900	82	1	2	PLB	1	22.0	32.0	0	AutoAssign	27	85.0	
55	303102.400	-843201.900	82	1	3	PLB	1	18.0	32.0	0	AutoAssign			
55	303102.400	-843201.900	82	1	4	PLB	1	17.0	24.0	0	AutoAssign			
55	303102.400	-843201.900	82	1	5	PLB	1	19.0	16.0	0	AutoAssign			
55	303102.400	-843201.900	82	1	6	PLB	1	19.0	70.0	1	Pulpwood			
55	303102.400	-843201.900	82	1	7	PLB	1	18.0	24.0	0	AutoAssign			
56	303110.070	-843218.640	79	0	0									
56	303110.070	-843218.640	79	1	1	PLB	1	24.0	67.0	1	Pulpwood			
56	303110.070	-843218.640	79	1	2	PLB	1	24.0	66.0	1	Pulpwood			
56	303110.070	-843218.640	79	1	3	PLB	1	18.0	65.0	1	Pulpwood			
56	303110.070	-843218.640	79	1	4	PLB	1	19.0	65.0	1	Pulpwood			
56	303110.070	-843218.640	79	1	5	PLB	1	22.0	67.0	1	Pulpwood			
56	303110.070	-843218.640	79	1	6	PLB	1	23.0	66.0	1	Pulpwood			
57	303049.190	-843208.360	67	0	0									
57	303049.190	-843208.360	67	1	1	PLB	1	10.0	41.0	1	Pulpwood			
57	303049.190	-843208.360	67	1	2	PLB	1	11.0	55.0	1	Pulpwood			
57	303049.190	-843208.360	67	1	3	PSL	1	14.0	32.0	0	AutoAssign	27	62.0	
58	303102.180	-843214.030	81	0	0									
58	303102.180	-843214.030	81	1	1	PLB	1	17.0	60.0	1	Pulpwood			
58	303102.180	-843214.030	81	1	2	PLB	1	15.0	63.0	1	Pulpwood			
58	303102.180	-843214.030	81	1	3	PLB	1	13.0	60.0	1	Pulpwood			
58	303102.180	-843214.030	81	1	4	PLB	1	13.0	32.0	0	AutoAssign			
58	303102.180	-843214.030	81	1	5	PLB	1	21.0	65.0	1	Pulpwood			
59	303110.080	-843214.070	80	0	0									
60	302903.120	-843123.740	143	0	0									
60	302903.120	-843123.740	143	1	1	NLL	1	17.0	32.0	0	AutoAssign			
60	302903.120	-843123.740	143	1	2	NLL	1	12.0	40.0	0	AutoAssign			
60	302903.120	-843123.740	143	1	3	NLL	1	12.0	32.0	0	AutoAssign			
60	302903.120	-843123.740	143	1	4	NLL	1	18.0	32.0	0	AutoAssign			
61	302907.240	-843123.760	144	0	0									
61	302907.240	-843123.760	144	1	1	NLL	1	16.0	40.0	0	AutoAssign			
61	302907.240	-843123.760	144	1	2	NLL	1	17.0	48.0	0	AutoAssign			
61	302907.240	-843123.760	144	1	3	NLL	1	14.0	40.0	0	AutoAssign			
61	302907.240	-843123.760	144	1	4	NLL	1	16.0	48.0	0	AutoAssign			
61	302907.240	-843123.760	144	1	5	NLL	1	14.0	48.0	0	AutoAssign			
61	302907.240	-843123.760	144	1	6	NLL	1	11.0	50.0	0	AutoAssign			
61	302907.240	-843123.760	144	1	7	NLL	1	12.0	48.0	2	Poles			
62	302903.140	-843118.970	146	0	0									
62	302903.140	-843118.970	146	1	1	NLL	1	12.0	40.0	0	AutoAssign			
62	302903.140	-843118.970	146	1	2	NLL	1	13.0	48.0	0	AutoAssign			
62	302903.140	-843118.970	146	1	3	NLL	1	18.0	40.0	0	AutoAssign			
62	302903.140	-843118.970	146	1	4	NLL	1	15.0	40.0	0	AutoAssign			
62	302903.140	-843118.970	146	1	5	NLL	1	16.0	32.0	0	AutoAssign			
63	302907.260	-843118.990	145	0	0									
64	302905.400	-843131.630	142	0	0									
64	302905.400	-843131.630	142	1	1	PLB	1	11.0	42.0	0	AutoAssign	16	70.0	
64	302905.400	-843131.630	142	1	2	PLB	1	15.0	24.0	0	AutoAssign			
64	302905.400	-843131.630	142	1	3	PLB	1	18.0	16.0	0	AutoAssign			

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64	302905.400	-843131.630	142	1	4	PLB	1	22.0	82.0	1	Pulpwood			
64	302905.400	-843131.630	142	1	5	PLB	1	14.0	70.0	1	Pulpwood			
64	302905.400	-843131.630	142	1	6	PLB	1	14.0	74.0	1	Pulpwood			
64	302905.400	-843131.630	142	1	7	PLB	1	14.0	73.0	1	Pulpwood			
64	302905.400	-843131.630	142	1	8	PLB	1	9.0	70.0	1	Pulpwood			
64	302905.400	-843131.630	142	1	9	PLB	1	10.0	45.0	0	AutoAssign			
64	302905.400	-843131.630	142	1	10	PLB	1	8.0	70.0	0	AutoAssign			
64	302905.400	-843131.630	142	1	11	PLB	1	14.0	16.0	0	AutoAssign			
64	302905.400	-843131.630	142	1	12	PLB	1	12.0	72.0	1	Pulpwood			
65	303047.670	-843231.510	68	0	0									
65	303047.670	-843231.510	68	1	1	PLL	1	8.0	39.0	0	AutoAssign			
65	303047.670	-843231.510	68	1	2	PLL	1	11.0	46.0	1	Pulpwood			
65	303047.670	-843231.510	68	1	3	PLL	1	9.0	40.0	1	Pulpwood			
65	303047.670	-843231.510	68	1	4	PLL	1	7.0	38.0	0	AutoAssign			
65	303047.670	-843231.510	68	1	5	PLL	1	7.0	38.0	0	AutoAssign			
65	303047.670	-843231.510	68	1	6	PLL	1	11.0	40.0	1	Pulpwood			
65	303047.670	-843231.510	68	1	7	PLL	1	7.0	41.0	0	AutoAssign			
66	303006.440	-843205.200	64	0	0									
66	303006.440	-843205.200	64	1	1	PLL	1	6.0	27.0	0	AutoAssign			
66	303006.440	-843205.200	64	1	2	PLL	1	6.0	26.0	0	AutoAssign			
66	303006.440	-843205.200	64	1	3	PLL	1	4.0	20.0	0	AutoAssign			
67	303014.240	-843215.810	65	0	0									
67	303014.240	-843215.810	65	1	1	PLL	1	11.0	34.0	1	Pulpwood			
67	303014.240	-843215.810	65	1	2	PLL	1	10.0	32.0	1	Pulpwood			
68	303002.970	-843158.270	63	0	0									
68	303002.970	-843158.270	63	1	1	PLB	1	19.0	72.0	1	Pulpwood			
68	303002.970	-843158.270	63	1	2	PLB	1	21.0	16.0	0	AutoAssign			
68	303002.970	-843158.270	63	1	3	PLB	1	26.0	16.0	0	AutoAssign			
68	303002.970	-843158.270	63	1	4	PLB	1	24.0	16.0	0	AutoAssign			
68	303002.970	-843158.270	63	1	5	PLB	1	21.0	85.0	1	Pulpwood			
68	303002.970	-843158.270	63	1	6	PLB	1	17.0	24.0	0	AutoAssign			
68	303002.970	-843158.270	63	1	7	PLB	1	18.0	32.0	0	AutoAssign			
68	303002.970	-843158.270	63	1	8	PLB	1	18.0	16.0	0	AutoAssign			
68	303002.970	-843158.270	63	1	9	PLB	1	18.0	32.0	0	AutoAssign			
69	302811.590	-843022.490	148	0	0									
69	302811.590	-843022.490	148	1	1	NLL	1	13.0	48.0	0	AutoAssign			
69	302811.590	-843022.490	148	1	2	NLL	1	13.0	40.0	0	AutoAssign			
69	302811.590	-843022.490	148	1	3	NLL	1	11.0	52.0	0	AutoAssign			
69	302811.590	-843022.490	148	1	4	NLL	1	7.0	62.0	0	AutoAssign			
69	302811.590	-843022.490	148	1	5	NLL	1	9.0	38.0	0	AutoAssign			
70	302816.040	-843022.510	161	0	0									
70	302816.040	-843022.510	161	1	1	NLL	1	13.0	48.0	0	AutoAssign	75	82.0	
70	302816.040	-843022.510	161	1	2	NLL	1	18.0	40.0	0	AutoAssign			
70	302816.040	-843022.510	161	1	3	NLL	1	10.0	47.0	0	AutoAssign			
70	302816.040	-843022.510	161	1	4	NLL	1	11.0	75.0	1	Pulpwood			
70	302816.040	-843022.510	161	1	5	NLB	1	13.0	48.0	0	AutoAssign			
70	302816.040	-843022.510	161	1	6	NLL	1	9.0	50.0	0	AutoAssign			
70	302816.040	-843022.510	161	1	7	NLL	1	7.0	67.0	0	AutoAssign			
70	302816.040	-843022.510	161	1	8	NLL	1	10.0	47.0	0	AutoAssign			
70	302816.040	-843022.510	161	1	9	NLL	1	10.0	38.0	0	AutoAssign			
70	302816.040	-843022.510	161	1	10	NLL	1	10.0	50.0	0	AutoAssign			
70	302816.040	-843022.510	161	1	11	NLL	1	15.0	48.0	2	Poles			
70	302816.040	-843022.510	161	1	12	NLL	1	9.0	42.0	0	AutoAssign			
71	302820.500	-843022.530	157	0	0									
71	302820.500	-843022.530	157	1	1	NLL	1	10.0	40.0	0	AutoAssign			
71	302820.500	-843022.530	157	1	2	NLL	1	11.0	50.0	0	AutoAssign			
71	302820.500	-843022.530	157	1	3	NLL	1	12.0	40.0	0	AutoAssign			
71	302820.500	-843022.530	157	1	4	NLL	1	13.0	40.0	0	AutoAssign			

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71	302820.500	-843022.530	157	1	5	NLL	1	14.0	48.0	2	Poles	90	85.0	
72	302824.960	-843022.550	158	0	0									
72	302824.960	-843022.550	158	1	1	NLB	1	7.0	65.0	0	AutoAssign			
72	302824.960	-843022.550	158	1	2	NLL	1	14.0	48.0	0	AutoAssign			
72	302824.960	-843022.550	158	1	3	NLL	1	25.0	48.0	2	Poles			
72	302824.960	-843022.550	158	1	4	NLB	1	8.0	68.0	0	AutoAssign			
72	302824.960	-843022.550	158	1	5	NLB	1			0	AutoAssign			1
73	302811.610	-843017.330	149	0	0									
73	302811.610	-843017.330	149	1	1	NLL	1	20.0	48.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	2	NLL	1	10.0	48.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	3	NLL	1	9.0	68.0	1	Pulpwood			
73	302811.610	-843017.330	149	1	4	NLL	1	10.0	48.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	5	NLL	1	19.0	48.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	6	NLL	1	10.0	42.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	7	NLL	1	15.0	48.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	8	NLB	1	15.0	56.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	9	NLB	1	15.0	56.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	10	NLB	1	8.0	70.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	11	NLL	1	13.0	56.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	12	NLL	1	13.0	48.0	0	AutoAssign			
73	302811.610	-843017.330	149	1	13	NLL	1	13.0	48.0	0	AutoAssign			
74	302820.520	-843017.370	156	0	0									
74	302820.520	-843017.370	156	1	1	NLL	1	11.0	48.0	0	AutoAssign			
74	302820.520	-843017.370	156	1	2	NLL	1	15.0	56.0	0	AutoAssign			
74	302820.520	-843017.370	156	1	3	NLL	1	13.0	48.0	2	Poles			
74	302820.520	-843017.370	156	1	4	NLL	1	15.0	64.0	0	AutoAssign			
74	302820.520	-843017.370	156	1	5	NLL	1	14.0	48.0	0	AutoAssign			
74	302820.520	-843017.370	156	1	6	NLL	1	14.0	48.0	2	Poles			
74	302820.520	-843017.370	156	1	7	NLL	1	16.0	56.0	0	AutoAssign			
75	302811.620	-843012.180	151	0	0									
75	302811.620	-843012.180	151	1	1	NLB	1	28.0	56.0	0	AutoAssign			
75	302811.620	-843012.180	151	1	2	NLB	1	30.0	48.0	0	AutoAssign			
76	302816.080	-843012.200	150	0	0									
76	302816.080	-843012.200	150	1	1	NLL	1	16.0	48.0	2	Poles			
76	302816.080	-843012.200	150	1	2	NLL	1	14.0	48.0	2	Poles			
76	302816.080	-843012.200	150	1	3	NLB	1	16.0	24.0	0	AutoAssign			
76	302816.080	-843012.200	150	1	4	NLB	1	12.0	32.0	0	AutoAssign			
76	302816.080	-843012.200	150	1	5	NLL	1	17.0	56.0	0	AutoAssign			
76	302816.080	-843012.200	150	1	6	NLL	1	19.0	48.0	0	AutoAssign			
76	302816.080	-843012.200	150	1	7	NLB	1	20.0	48.0	0	AutoAssign			
77	302820.540	-843012.220	155	0	0									
77	302820.540	-843012.220	155	1	1	NLL	1	17.0	40.0	2	Poles			
77	302820.540	-843012.220	155	1	2	NLL	1	13.0	40.0	2	Poles			
77	302820.540	-843012.220	155	1	3	NLL	1	7.0	55.0	0	AutoAssign			
77	302820.540	-843012.220	155	1	4	NLL	1	13.0	40.0	0	AutoAssign			
77	302820.540	-843012.220	155	1	5	NLL	1	14.0	40.0	0	AutoAssign			
78	302811.640	-843007.020	152	0	0									
78	302811.640	-843007.020	152	1	1	NLB	1	18.0	64.0	0	AutoAssign	90	106.0	
78	302811.640	-843007.020	152	1	2	NLB	1	7.0	50.0	0	AutoAssign			
78	302811.640	-843007.020	152	1	3	NLB	1	16.0	64.0	2	Poles			
78	302811.640	-843007.020	152	1	4	NLB	1	11.0	67.0	1	Pulpwood			
78	302811.640	-843007.020	152	1	5	NLL	1	13.0	48.0	2	Poles			
78	302811.640	-843007.020	152	1	6	NLB	1	15.0	48.0	2	Poles			
78	302811.640	-843007.020	152	1	7	NLB	1	15.0	56.0	2	Poles			
78	302811.640	-843007.020	152	1	8	NLL	1	15.0	48.0	0	AutoAssign			
78	302811.640	-843007.020	152	1	9	NLL	1	15.0	40.0	0	AutoAssign			
78	302811.640	-843007.020	152	1	10	NLL	1	15.0	40.0	0	AutoAssign			
79	302816.100	-843007.040	153	0	0									

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79	302816.100	-843007.040	153	1	1	NLB	1	14.0	40.0	0	AutoAssign			
79	302816.100	-843007.040	153	1	2	NLL	1	13.0	56.0	0	AutoAssign			
79	302816.100	-843007.040	153	1	3	NLL	1	16.0	64.0	0	AutoAssign			
79	302816.100	-843007.040	153	1	4	NLL	1	20.0	40.0	0	AutoAssign			
80	302820.550	-843007.060	154	0	0									
80	302820.550	-843007.060	154	1	1	NLL	1	15.0	24.0	0	AutoAssign			
80	302820.550	-843007.060	154	1	2	NLL	1	18.0	48.0	0	AutoAssign			
80	302820.550	-843007.060	154	1	3	NLL	1	17.0	72.0	1	Pulpwood			
80	302820.550	-843007.060	154	1	4	NLL	1	4.0	35.0	0	AutoAssign			
80	302820.550	-843007.060	154	1	5	NLL	1	15.0	32.0	0	AutoAssign			
81	302827.840	-843043.650	133	0	0									
81	302827.840	-843043.650	133	1	1	NLB	1	21.0	64.0	0	AutoAssign			
81	302827.840	-843043.650	133	1	2	NLB	1	21.0	64.0	0	AutoAssign			
81	302827.840	-843043.650	133	1	3	NLB	1	21.0	48.0	0	AutoAssign			
81	302827.840	-843043.650	133	1	4	NLB	1	23.0	64.0	0	AutoAssign			
81	302827.840	-843043.650	133	1	5	NLB	1	19.0	64.0	0	AutoAssign			
82	302831.930	-843043.670	134	0	0									
82	302831.930	-843043.670	134	1	1	NLB	1	11.0	75.0	1	Pulpwood			
82	302831.930	-843043.670	134	1	2	NSL	1	21.0	40.0	0	AutoAssign			
82	302831.930	-843043.670	134	1	3	NSL	1	21.0	48.0	0	AutoAssign	80	85.0	
82	302831.930	-843043.670	134	1	4	NLB	1	15.0	16.0	0	AutoAssign			
82	302831.930	-843043.670	134	1	5	NLL	1	18.0	48.0	0	AutoAssign			
82	302831.930	-843043.670	134	1	6	NLL	1	15.0	40.0	0	AutoAssign			
82	302831.930	-843043.670	134	1	7	NLB	1	8.0	67.0	0	AutoAssign			
83	302831.950	-843038.940	131	0	0									
83	302831.950	-843038.940	131	1	1	NLL	1	16.0	40.0	0	AutoAssign			
83	302831.950	-843038.940	131	1	2	NLL	1	21.0	48.0	0	AutoAssign			
84	302836.040	-843038.960	130	0	0									
84	302836.040	-843038.960	130	1	1	NLL	1	14.0	64.0	2	Poles			
84	302836.040	-843038.960	130	1	2	NLL	1	13.0	64.0	2	Poles			
84	302836.040	-843038.960	130	1	3	NSL	1	21.0	48.0	0	AutoAssign			
84	302836.040	-843038.960	130	1	4	NSL	1	15.0	40.0	0	AutoAssign			
84	302836.040	-843038.960	130	1	5	NSL	1	23.0	48.0	0	AutoAssign			
85	302751.600	-843050.060	147	0	0									
85	302751.600	-843050.060	147	1	1	NLB	1	13.0	40.0	0	AutoAssign			
85	302751.600	-843050.060	147	1	2	NLB	1	13.0	40.0	0	AutoAssign			
85	302751.600	-843050.060	147	1	3	NLB	1	12.0	32.0	0	AutoAssign			
85	302751.600	-843050.060	147	1	4	NLL	1	18.0	87.0	1	Pulpwood			
85	302751.600	-843050.060	147	1	5	NLL	1	17.0	83.0	1	Pulpwood			
85	302751.600	-843050.060	147	1	6	NLB	1	19.0	32.0	0	AutoAssign			
86	302815.600	-843034.130	164	0	0									
86	302815.600	-843034.130	164	1	1	NLB	1	20.0	24.0	0	AutoAssign			
86	302815.600	-843034.130	164	1	2	NLB	1	18.0	40.0	0	AutoAssign			
86	302815.600	-843034.130	164	1	3	NLB	1	19.0	48.0	0	AutoAssign			
86	302815.600	-843034.130	164	1	4	NLB	1	19.0	32.0	0	AutoAssign			
86	302815.600	-843034.130	164	1	5	NLB	1	11.0	60.0	0	AutoAssign			
86	302815.600	-843034.130	164	1	6	NLB	1	10.0	55.0	0	AutoAssign			
86	302815.600	-843034.130	164	1	7	NLB	1	18.0	48.0	0	AutoAssign			
87	302819.690	-843034.150	165	0	0									
87	302819.690	-843034.150	165	1	1	NLB	1	19.0	40.0	0	AutoAssign			
87	302819.690	-843034.150	165	1	2	NLL	1	11.0	40.0	0	AutoAssign			
87	302819.690	-843034.150	165	1	3	NLB	1	18.0	32.0	0	AutoAssign			
87	302819.690	-843034.150	165	1	4	NLL	1	22.0	48.0	0	AutoAssign			
88	302831.960	-843034.210	132	0	0									
88	302831.960	-843034.210	132	1	1	NLL	1	21.0	32.0	0	AutoAssign			
88	302831.960	-843034.210	132	1	2	NLL	1	13.0	48.0	0	AutoAssign			
88	302831.960	-843034.210	132	1	3	NLL	1	14.0	48.0	0	AutoAssign			
89	302836.050	-843034.230	129	0	0									

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89	302836.050	-843034.230	129	1	1	NLL	1	17.0	48.0	0	AutoAssign			
89	302836.050	-843034.230	129	1	2	NLL	1	22.0	64.0	0	AutoAssign			
89	302836.050	-843034.230	129	1	3	NLL	1	15.0	48.0	0	AutoAssign			
89	302836.050	-843034.230	129	1	4	NLL	1	22.0	48.0	0	AutoAssign			
90	302811.530	-843029.380	162	0	0									
90	302811.530	-843029.380	162	1	1	NSL	1	14.0	48.0	2	Poles			
90	302811.530	-843029.380	162	1	2	NLB	1	18.0	24.0	0	AutoAssign			
90	302811.530	-843029.380	162	1	3	NLB	1	17.0	40.0	0	AutoAssign			
90	302811.530	-843029.380	162	1	4	NLB	1	13.0		10	Cull			
91	302815.620	-843029.400	163	0	0									
91	302815.620	-843029.400	163	1	1	NLL	1	14.0	16.0	0	AutoAssign			
91	302815.620	-843029.400	163	1	2	NLB	1	19.0	48.0	0	AutoAssign			
91	302815.620	-843029.400	163	1	3	NLB	1	18.0	24.0	0	AutoAssign			
91	302815.620	-843029.400	163	1	4	NLL	1	18.0	40.0	0	AutoAssign			
91	302815.620	-843029.400	163	1	5	NLB	1	18.0	48.0	0	AutoAssign			
91	302815.620	-843029.400	163	1	6	NLB	1	19.0	48.0	0	AutoAssign			
91	302815.620	-843029.400	163	1	7	NLB	1	18.0	40.0	0	AutoAssign			
91	302815.620	-843029.400	163	1	8	NLB	1	15.0	72.0	1	Pulpwood			
91	302815.620	-843029.400	163	1	9	NLL	1	17.0	64.0	0	AutoAssign			
91	302815.620	-843029.400	163	1	10	NLB	1	21.0	48.0	0	AutoAssign			
91	302815.620	-843029.400	163	1	11	NLB	1	15.0	56.0	0	AutoAssign			
92	302819.710	-843029.420	166	0	0									
92	302819.710	-843029.420	166	1	1	NLL	1	17.0	40.0	0	AutoAssign			
92	302819.710	-843029.420	166	1	2	NLL	1	11.0	65.0	0	AutoAssign			
92	302819.710	-843029.420	166	1	3	NLL	1	8.0	70.0	0	AutoAssign			
92	302819.710	-843029.420	166	1	4	NLL	1	18.0	48.0	0	AutoAssign			
92	302819.710	-843029.420	166	1	5	NLL	1	14.0	56.0	2	Poles			
92	302819.710	-843029.420	166	1	6	NLL	1	20.0	32.0	0	AutoAssign			
92	302819.710	-843029.420	166	1	7	NLL	1	17.0	40.0	0	AutoAssign	80	90.0	
92	302819.710	-843029.420	166	1	8	NLL	1	16.0	40.0	0	AutoAssign			
92	302819.710	-843029.420	166	1	9	NLL	1	13.0	70.0	1	Pulpwood			
92	302819.710	-843029.420	166	1	10	NLL	1	14.0	64.0	2	Poles			
92	302819.710	-843029.420	166	1	11	NLB	1	16.0	40.0	0	AutoAssign			
92	302819.710	-843029.420	166	1	12	NLL	1	13.0	40.0	0	AutoAssign			
93	302827.890	-843029.460	160	0	0									
93	302827.890	-843029.460	160	1	1	NLB	1	28.0		10	Cull			
93	302827.890	-843029.460	160	1	2	NLB	1	25.0	48.0	0	AutoAssign			
93	302827.890	-843029.460	160	1	3	NSL	1	18.0	48.0	0	AutoAssign			
93	302827.890	-843029.460	160	1	4	NSL	1	24.0	48.0	0	AutoAssign			
93	302827.890	-843029.460	160	1	5	NLB	1	28.0	48.0	0	AutoAssign			
94	302831.980	-843029.470	159	0	0									
94	302831.980	-843029.470	159	1	1	NLL	1	14.0	48.0	0	AutoAssign			
94	302831.980	-843029.470	159	1	2	NLL	1	18.0	48.0	0	AutoAssign			
94	302831.980	-843029.470	159	1	3	NLL	1	16.0	56.0	2	Poles			
94	302831.980	-843029.470	159	1	4	NLL	1	15.0	56.0	0	AutoAssign			
94	302831.980	-843029.470	159	1	5	NLL	1	9.0	48.0	0	AutoAssign			
94	302831.980	-843029.470	159	1	6	NLL	1	7.0	65.0	0	AutoAssign			
94	302831.980	-843029.470	159	1	7	NLL	1	20.0	40.0	0	AutoAssign			
94	302831.980	-843029.470	159	1	8	NLB	1	20.0	48.0	0	AutoAssign			
95	302843.680	-843107.830	107	0	0									
95	302843.680	-843107.830	107	1	1	NLL	1	4.0	22.0	0	AutoAssign			
95	302843.680	-843107.830	107	1	2	NLL	1	18.0	56.0	2	Poles			
95	302843.680	-843107.830	107	1	3	NLL	1	17.0	48.0	2	Poles			
95	302843.680	-843107.830	107	1	4	NLL	1	13.0	56.0	2	Poles			
95	302843.680	-843107.830	107	1	5	NLL	1	13.0	56.0	2	Poles	80	90.0	
96	302848.200	-843107.850	125	0	0									
96	302848.200	-843107.850	125	1	1	NLL	1	12.0	40.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	2	NLL	1	15.0	64.0	2	Poles			

96	302848.200	-843107.850	125	1	3	NLL	1	14.0	48.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	4	NLL	1	18.0	64.0	2	Poles			
96	302848.200	-843107.850	125	1	5	NLL	1	3.0	30.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	6	NLL	1	10.0	48.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	7	NLL	1	15.0	16.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	8	NLL	1	11.0	55.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	9	NLL	1	14.0	48.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	10	NLL	1	14.0	48.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	11	NLL	1	11.0	52.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	12	NLL	1	16.0	48.0	0	AutoAssign			
96	302848.200	-843107.850	125	1	13	NLL	1	12.0	64.0	2	Poles			
97	302852.720	-843107.870	138	0	0									
97	302852.720	-843107.870	138	1	1	NLL	1	16.0	24.0	0	AutoAssign			
97	302852.720	-843107.870	138	1	2	NLL	1	13.0	40.0	0	AutoAssign			
97	302852.720	-843107.870	138	1	3	NLL	1	10.0	50.0	0	AutoAssign			
97	302852.720	-843107.870	138	1	4	NLL	1	15.0	56.0	0	AutoAssign			
97	302852.720	-843107.870	138	1	5	NLL	1	15.0	56.0	0	AutoAssign	80	90.0	
97	302852.720	-843107.870	138	1	6	NLL	1	14.0	56.0	0	AutoAssign			
97	302852.720	-843107.870	138	1	7	NLL	1	14.0	48.0	0	AutoAssign			
97	302852.720	-843107.870	138	1	8	NLL	1	14.0	56.0	0	AutoAssign			
97	302852.720	-843107.870	138	1	9	NLB	1	14.0	48.0	0	AutoAssign			
98	302857.240	-843107.900	139	0	0									
98	302857.240	-843107.900	139	1	1	NLB	1	21.0	40.0	0	AutoAssign			
99	302839.180	-843102.580	103	0	0									
99	302839.180	-843102.580	103	1	1	NLL	1	12.0	48.0	2	Poles			
99	302839.180	-843102.580	103	1	2	NLL	1	7.0	48.0	0	AutoAssign			
99	302839.180	-843102.580	103	1	3	NLL	1	14.0	48.0	0	AutoAssign			
99	302839.180	-843102.580	103	1	4	NLL	1	14.0	48.0	0	AutoAssign			
99	302839.180	-843102.580	103	1	5	NLL	1	14.0	48.0	0	AutoAssign			
99	302839.180	-843102.580	103	1	6	NLL	1	12.0	48.0	0	AutoAssign			
99	302839.180	-843102.580	103	1	7	NLL	1	14.0	48.0	2	Poles			
99	302839.180	-843102.580	103	1	8	NLL	1	21.0	40.0	0	AutoAssign			
99	302839.180	-843102.580	103	1	9	NLL	1	19.0	48.0	0	AutoAssign			
99	302839.180	-843102.580	103	1	10	NLL	1	19.0	40.0	0	AutoAssign			
99	302839.180	-843102.580	103	1	11	NLL	1	12.0	48.0	2	Poles			
100	302843.700	-843102.600	106	0	0									
100	302843.700	-843102.600	106	1	1	NLL	1	13.0	48.0	0	AutoAssign			
100	302843.700	-843102.600	106	1	2	NLL	1	10.0	47.0	0	AutoAssign			
100	302843.700	-843102.600	106	1	3	NLL	1	17.0	32.0	0	AutoAssign			
100	302843.700	-843102.600	106	1	4	NLL	1	13.0	32.0	0	AutoAssign			
100	302843.700	-843102.600	106	1	5	NLL	1	20.0	40.0	0	AutoAssign			
100	302843.700	-843102.600	106	1	6	NLL	1	20.0	32.0	0	AutoAssign			
101	302852.740	-843102.640	137	0	0									
101	302852.740	-843102.640	137	1	1	NLL	1	10.0	48.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	2	NLL	1	13.0	64.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	3	NLL	1	13.0	64.0	2	Poles			
101	302852.740	-843102.640	137	1	4	NLL	1	16.0	64.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	5	NLL	1	13.0	48.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	6	NLL	1	14.0	48.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	7	NLL	1	16.0	64.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	8	NLL	1	12.0	24.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	9	NLL	1	11.0	60.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	10	NLL	1	14.0	48.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	11	NLL	1	13.0	56.0	0	AutoAssign			
101	302852.740	-843102.640	137	1	12	NLB	1	12.0	56.0	0	AutoAssign			
102	302857.260	-843102.670	140	0	0									
102	302857.260	-843102.670	140	1	1	NLL	1	14.0	48.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	2	NLL	1	21.0	48.0	0	AutoAssign			

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102	302857.260	-843102.670	140	1	3	NSL	1	15.0	32.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	4	NLL	1	14.0	48.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	5	NLL	1	8.0	65.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	6	NLL	1	15.0	48.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	7	NLL	1	12.0	32.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	8	NLL	1	15.0	48.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	9	NLL	1	13.0	40.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	10	NLL	1	16.0	40.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	11	NLL	1	15.0	48.0	0	AutoAssign			
102	302857.260	-843102.670	140	1	12	NLL	1	12.0	32.0	0	AutoAssign			
103	302834.680	-843057.330	100	0	0									
103	302834.680	-843057.330	100	1	1	NLB	1	14.0	80.0	1	Pulpwood			
103	302834.680	-843057.330	100	1	2	NSL	1	19.0	48.0	2	Poles			
103	302834.680	-843057.330	100	1	3	NSL	1	17.0	48.0	0	AutoAssign			
103	302834.680	-843057.330	100	1	4	NSL	1	16.0	40.0	0	AutoAssign			
103	302834.680	-843057.330	100	1	5	NLL	1	17.0	48.0	0	AutoAssign			
103	302834.680	-843057.330	100	1	6	NLL	1	14.0	24.0	0	AutoAssign			
103	302834.680	-843057.330	100	1	7	NLB	1	15.0	56.0	0	AutoAssign			
103	302834.680	-843057.330	100	1	8	NSL	1	16.0	64.0	2	Poles			
103	302834.680	-843057.330	100	1	9	NSL	1	17.0	48.0	0	AutoAssign			
103	302834.680	-843057.330	100	1	10	NSL	1	15.0	48.0	0	AutoAssign			
104	302839.200	-843057.350	104	0	0									
104	302839.200	-843057.350	104	1	1	NLL	1	10.0	60.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	2	NLL	1	14.0	56.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	3	NLL	1	8.0	67.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	4	NLL	1	14.0	40.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	5	NLL	1	13.0	40.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	6	NLL	1	18.0	40.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	7	NLL	1	12.0	24.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	8	NLL	1	12.0	40.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	9	NLL	1	15.0	48.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	10	NLL	1	15.0	48.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	11	NLL	1	12.0	32.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	12	NLL	1	17.0	32.0	0	AutoAssign			
104	302839.200	-843057.350	104	1	13	NLL	1	14.0	48.0	0	AutoAssign			
105	302843.720	-843057.370	105	0	0									
105	302843.720	-843057.370	105	1	1	NLL	1	19.0	48.0	0	AutoAssign			
105	302843.720	-843057.370	105	1	2	NLL	1	13.0	40.0	0	AutoAssign			
105	302843.720	-843057.370	105	1	3	NLL	1	13.0	48.0	0	AutoAssign			
105	302843.720	-843057.370	105	1	4	NLL	1	14.0	48.0	0	AutoAssign			
105	302843.720	-843057.370	105	1	5	NLL	1	23.0	32.0	0	AutoAssign			
105	302843.720	-843057.370	105	1	6	NLL	1	13.0	48.0	0	AutoAssign			
105	302843.720	-843057.370	105	1	7	NLL	1	23.0	48.0	0	AutoAssign			
105	302843.720	-843057.370	105	1	8	NLL	1	14.0	70.0	1	Pulpwood			
106	302848.240	-843057.390	126	0	0									
106	302848.240	-843057.390	126	1	1	NLL	1	13.0	40.0	2	Poles			
106	302848.240	-843057.390	126	1	2	NLL	1	12.0	24.0	0	AutoAssign			
106	302848.240	-843057.390	126	1	3	NLL	1	14.0	48.0	0	AutoAssign			
106	302848.240	-843057.390	126	1	4	NLL	1	12.0	40.0	0	AutoAssign			
106	302848.240	-843057.390	126	1	5	NLL	1	4.0	48.0	0	AutoAssign			
106	302848.240	-843057.390	126	1	6	NLL	1	12.0	40.0	0	AutoAssign			
106	302848.240	-843057.390	126	1	7	NLL	1	13.0	56.0	2	Poles			
106	302848.240	-843057.390	126	1	8	NLL	1	8.0	67.0	0	AutoAssign			
106	302848.240	-843057.390	126	1	9	NLL	1	13.0	64.0	2	Poles			
107	302852.760	-843057.420	136	0	0									
107	302852.760	-843057.420	136	1	1	NLL	1	11.0	67.0	0	AutoAssign			
107	302852.760	-843057.420	136	1	2	NLL	1	12.0	24.0	0	AutoAssign			
107	302852.760	-843057.420	136	1	3	NLL	1	14.0	48.0	0	AutoAssign			

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107	302852.760	-843057.420	136	1	4	NLL	1	14.0	48.0	0	AutoAssign			
107	302852.760	-843057.420	136	1	5	NLL	1	13.0	40.0	0	AutoAssign			
108	302857.280	-843057.440	141	0	0									
108	302857.280	-843057.440	141	1	1	NLL	1	17.0	32.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	2	NLL	1	13.0	48.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	3	NLL	1	10.0	65.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	4	NLL	1	15.0	40.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	5	NLL	1	10.0	62.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	6	NLL	1	13.0	48.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	7	NLL	1	15.0	40.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	8	NLL	1	13.0	48.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	9	NLL	1	12.0	40.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	10	NLL	1	13.0	48.0	0	AutoAssign			
108	302857.280	-843057.440	141	1	11	NLL	1	13.0	48.0	0	AutoAssign			
109	302834.700	-843052.100	127	0	0									
109	302834.700	-843052.100	127	1	1	NLL	1	13.0	48.0	2	Poles			
109	302834.700	-843052.100	127	1	2	NLL	1	18.0	40.0	0	AutoAssign			
109	302834.700	-843052.100	127	1	3	NLL	1	12.0	32.0	0	AutoAssign			
110	302852.780	-843052.190	135	0	0									
110	302852.780	-843052.190	135	1	1	NLL	1	13.0	32.0	0	AutoAssign			
110	302852.780	-843052.190	135	1	2	NLL	1	13.0	32.0	0	AutoAssign			
110	302852.780	-843052.190	135	1	3	NLL	1	10.0	48.0	0	AutoAssign			
110	302852.780	-843052.190	135	1	4	NLL	1	11.0	55.0	0	AutoAssign			
110	302852.780	-843052.190	135	1	5	NLL	1	14.0	64.0	0	AutoAssign			
110	302852.780	-843052.190	135	1	6	NLL	1	12.0	32.0	0	AutoAssign			
111	302834.720	-843046.870	128	0	0									
111	302834.720	-843046.870	128	1	1	NLL	1	7.0	60.0	0	AutoAssign			
111	302834.720	-843046.870	128	1	2	NLL	1	16.0	56.0	0	AutoAssign	80	90.0	
111	302834.720	-843046.870	128	1	3	NLL	1	18.0	32.0	0	AutoAssign			
111	302834.720	-843046.870	128	1	4	NLL	1	10.0	48.0	0	AutoAssign			
111	302834.720	-843046.870	128	1	5	NLL	1	16.0	40.0	0	AutoAssign			
111	302834.720	-843046.870	128	1	6	NLL	1	10.0	70.0	1	Pulpwood			
111	302834.720	-843046.870	128	1	7	NLL	1	23.0	48.0	0	AutoAssign			
111	302834.720	-843046.870	128	1	8	NLL	1	11.0	50.0	0	AutoAssign			
111	302834.720	-843046.870	128	1	9	NLB	1	8.0	72.0	0	AutoAssign			
112	302746.810	-842743.160	189	0	0									
112	302746.810	-842743.160	189	1	1	NSL	1	12.0	40.0	0	AutoAssign			
112	302746.810	-842743.160	189	1	2	NSL	1	11.0	75.0	1	Pulpwood			
112	302746.810	-842743.160	189	1	3	NSL	1	12.0	40.0	0	AutoAssign			
113	302750.860	-842738.310	191	0	0									
113	302750.860	-842738.310	191	1	1	NLB	1	16.0	82.0	1	Pulpwood			
113	302750.860	-842738.310	191	1	2	NSL	1	13.0	24.0	0	AutoAssign			
113	302750.860	-842738.310	191	1	3	NSL	1	16.0	40.0	0	AutoAssign			
113	302750.860	-842738.310	191	1	4	NLB	1	21.0	48.0	0	AutoAssign			
113	302750.860	-842738.310	191	1	5	NSL	1	13.0	40.0	0	AutoAssign			
114	302755.400	-842738.330	190	0	0									
114	302755.400	-842738.330	190	1	1	NLB	1	14.0	40.0	0	AutoAssign			
114	302755.400	-842738.330	190	1	2	NLB	1	18.0	40.0	0	AutoAssign			
114	302755.400	-842738.330	190	1	3	NLB	1	10.0	45.0	0	AutoAssign			
114	302755.400	-842738.330	190	1	4	NLB	1	10.0	50.0	0	AutoAssign			
114	302755.400	-842738.330	190	1	5	NLB	1	11.0	55.0	0	AutoAssign			
115	302746.910	-842733.070	197	0	0									
116	302759.950	-842733.100	193	0	0									
116	302759.950	-842733.100	193	1	1	NLL	1	12.0	40.0	0	AutoAssign			
116	302759.950	-842733.100	193	1	2	NLL	1	11.0	40.0	0	AutoAssign			
116	302759.950	-842733.100	193	1	3	NLL	1	11.0	45.0	0	AutoAssign			
116	302759.950	-842733.100	193	1	4	NLL	1	13.0	48.0	0	AutoAssign	80	88.0	
116	302759.950	-842733.100	193	1	5	NLL	1	18.0	48.0	0	AutoAssign			

116	302759.950	-842733.100	193	1	6	NLL	1	9.0	50.0	0	AutoAssign			
116	302759.950	-842733.100	193	1	7	NLL	1	11.0	52.0	0	AutoAssign			
116	302759.950	-842733.100	193	1	8	NLL	1	14.0	48.0	0	AutoAssign			
117	302750.890	-842727.810	196	0	0									
117	302750.890	-842727.810	196	1	1	NLL	1	17.0	32.0	0	AutoAssign			
117	302750.890	-842727.810	196	1	2	NLL	1	15.0	48.0	0	AutoAssign			
117	302750.890	-842727.810	196	1	3	NLL	1	15.0	48.0	0	AutoAssign			
118	302755.430	-842727.830	195	0	0									
118	302755.430	-842727.830	195	1	1	NLL	1	14.0	40.0	2	Poles			
118	302755.430	-842727.830	195	1	2	NLL	1	16.0	40.0	0	AutoAssign			
118	302755.430	-842727.830	195	1	3	NLL	1	9.0	60.0	1	Pulpwood			
118	302755.430	-842727.830	195	1	4	NLB	1	4.0	35.0	0	AutoAssign			
118	302755.430	-842727.830	195	1	5	NLB	1	10.0	48.0	0	AutoAssign			
119	302759.970	-842727.850	194	0	0									
119	302759.970	-842727.850	194	1	1	NLL	1	19.0	32.0	0	AutoAssign			
119	302759.970	-842727.850	194	1	2	NLL	1	19.0	32.0	0	AutoAssign			
119	302759.970	-842727.850	194	1	3	NLB	1	20.0	48.0	0	AutoAssign			
120	302746.940	-842722.560	198	0	0									
120	302746.940	-842722.560	198	1	1	NLL	1	10.0	38.0	0	AutoAssign			
120	302746.940	-842722.560	198	1	2	NLL	1	9.0	45.0	0	AutoAssign			
120	302746.940	-842722.560	198	1	3	NLL	1	14.0	32.0	0	AutoAssign	70	78.0	
121	302750.910	-842722.560	200	0	0									
121	302750.910	-842722.560	200	1	1	NLL	1	10.0	50.0	1	Pulpwood			
121	302750.910	-842722.560	200	1	2	NLL	1	14.0	32.0	0	AutoAssign			
121	302750.910	-842722.560	200	1	3	NLL	1	20.0	48.0	0	AutoAssign			
121	302750.910	-842722.560	200	1	4	NLL	1	12.0	32.0	0	AutoAssign			
121	302750.910	-842722.560	200	1	5	NLL	1	11.0	50.0	0	AutoAssign			
121	302750.910	-842722.560	200	1	6	NLL	1	19.0	40.0	0	AutoAssign			
122	302755.450	-842722.580	201	0	0									
122	302755.450	-842722.580	201	1	1	NLL	1	16.0	48.0	2	Poles			
122	302755.450	-842722.580	201	1	2	NLL	1	13.0	48.0	0	AutoAssign			
122	302755.450	-842722.580	201	1	3	NLL	1	16.0	32.0	0	AutoAssign			
122	302755.450	-842722.580	201	1	4	NLL	1	19.0	48.0	2	Poles			
122	302755.450	-842722.580	201	1	5	NLL	1	15.0	32.0	0	AutoAssign			
122	302755.450	-842722.580	201	1	6	NLL	1	17.0	40.0	0	AutoAssign			
123	302759.990	-842722.600	202	0	0									
123	302759.990	-842722.600	202	1	1	NLL	1	6.0	38.0	0	AutoAssign			
123	302759.990	-842722.600	202	1	2	NLL	1	19.0	48.0	0	AutoAssign			
123	302759.990	-842722.600	202	1	3	NLL	1	15.0	48.0	2	Poles			
123	302759.990	-842722.600	202	1	4	NLB	1	18.0	16.0	0	AutoAssign			
123	302759.990	-842722.600	202	1	5	NLL	1	15.0	48.0	0	AutoAssign			
124	302804.530	-842722.620	182	0	0									
124	302804.530	-842722.620	182	1	1	NLB	1	15.0	40.0	0	AutoAssign			
124	302804.530	-842722.620	182	1	2	NLL	1	18.0	40.0	0	AutoAssign			
124	302804.530	-842722.620	182	1	3	NLL	1	17.0	40.0	2	Poles			
124	302804.530	-842722.620	182	1	4	NLB	1	13.0	32.0	0	AutoAssign			
124	302804.530	-842722.620	182	1	5	NLB	1	14.0	40.0	0	AutoAssign			
124	302804.530	-842722.620	182	1	6	NLB	1	8.0	38.0	0	AutoAssign			
124	302804.530	-842722.620	182	1	7	NLB	1	12.0	52.0	0	AutoAssign			
125	302746.960	-842717.310	199	0	0									
125	302746.960	-842717.310	199	1	1	NLL	1	13.0	24.0	0	AutoAssign			
125	302746.960	-842717.310	199	1	2	NLL	1	18.0	32.0	0	AutoAssign			
125	302746.960	-842717.310	199	1	3	NLL	1	13.0	32.0	0	AutoAssign			
125	302746.960	-842717.310	199	1	4	NLL	1	15.0	32.0	0	AutoAssign			
126	302800.000	-842717.350	180	0	0									
126	302800.000	-842717.350	180	1	1	NSL	1	16.0	64.0	0	AutoAssign			
126	302800.000	-842717.350	180	1	2	NSL	1	18.0	64.0	0	AutoAssign			
126	302800.000	-842717.350	180	1	3	NLL	1	18.0	48.0	0	AutoAssign			

126	302800.000	-842717.350	180	1	4	NLL	1	20.0	48.0	0	AutoAssign			
126	302800.000	-842717.350	180	1	5	NLL	1	20.0	40.0	0	AutoAssign			
126	302800.000	-842717.350	180	1	6	NLB	3			0	AutoAssign			1
127	302804.540	-842717.370	181	0	0									
127	302804.540	-842717.370	181	1	1	NSL	1	15.0	48.0	0	AutoAssign			
127	302804.540	-842717.370	181	1	2	NLL	1	7.0	52.0	0	AutoAssign			
127	302804.540	-842717.370	181	1	3	NSL	1	14.0	48.0	0	AutoAssign			
127	302804.540	-842717.370	181	1	4	NSL	1	10.0	45.0	0	AutoAssign			
127	302804.540	-842717.370	181	1	5	NLL	1	13.0	32.0	0	AutoAssign			
127	302804.540	-842717.370	181	1	6	NLB	1	14.0	40.0	0	AutoAssign			
127	302804.540	-842717.370	181	1	7	NLB	1	10.0	40.0	0	AutoAssign			
128	302839.750	-842639.870	37	0	0									
128	302839.750	-842639.870	37	1	1	PLB	1	12.0	60.0	1	Pulpwood			
128	302839.750	-842639.870	37	1	2	PLB	1	11.0	33.0	0	AutoAssign	24	63.0	
128	302839.750	-842639.870	37	1	3	PLB	1	14.0	24.0	0	AutoAssign			
128	302839.750	-842639.870	37	1	4	PLB	1	8.0	56.0	0	AutoAssign			
129	302843.700	-842639.880	34	0	0									
129	302843.700	-842639.880	34	1	1	PLB	1	15.0	16.0	0	AutoAssign			
129	302843.700	-842639.880	34	1	2	PLB	1	11.0	53.0	1	Pulpwood			
129	302843.700	-842639.880	34	1	3	PSL	1	8.0	50.0	0	AutoAssign			
130	302847.650	-842639.900	33	0	0									
130	302847.650	-842639.900	33	1	1	PLB	1	12.0	40.0	1	Pulpwood			
130	302847.650	-842639.900	33	1	2	PSL	1	5.0	28.0	0	AutoAssign			
130	302847.650	-842639.900	33	1	3	PSL	1	10.0	42.0	1	Pulpwood			
131	302839.760	-842635.290	36	0	0									
131	302839.760	-842635.290	36	1	1	PLB	1	13.0	16.0	0	AutoAssign			
131	302839.760	-842635.290	36	1	2	PLB	1	12.0	57.0	1	Pulpwood			
132	302843.710	-842635.310	35	0	0									
132	302843.710	-842635.310	35	1	1	PLB	1	13.0	24.0	0	AutoAssign			
132	302843.710	-842635.310	35	1	2	PLB	1	12.0	55.0	1	Pulpwood			
133	302843.730	-842630.740	12	0	0									
133	302843.730	-842630.740	12	1	1	PSL	1	13.0	32.0	0	AutoAssign			
133	302843.730	-842630.740	12	1	2	PSL	1	12.0	60.0	1	Pulpwood			
133	302843.730	-842630.740	12	1	3	PSL	1	13.0	32.0	0	AutoAssign			
134	302851.630	-842630.770	9	0	0									
134	302851.630	-842630.770	9	1	1	PLB	1	9.0	42.0	1	Pulpwood			
135	302855.580	-842630.790	8	0	0									
135	302855.580	-842630.790	8	1	1	PSL	1	12.0	40.0	0	AutoAssign			
135	302855.580	-842630.790	8	1	2	PSL	1	12.0	24.0	0	AutoAssign			
136	302843.740	-842626.170	11	0	0									
136	302843.740	-842626.170	11	1	1	PSL	1	11.0	37.0	0	AutoAssign			
136	302843.740	-842626.170	11	1	2	PSL	1	11.0	53.0	1	Pulpwood			
136	302843.740	-842626.170	11	1	3	PLB	1	12.0	40.0	0	AutoAssign			
136	302843.740	-842626.170	11	1	4	NSL	1			0	AutoAssign			1
137	302847.690	-842626.190	10	0	0									
137	302847.690	-842626.190	10	1	1	PSL	1	10.0	43.0	0	AutoAssign	23	68.0	
137	302847.690	-842626.190	10	1	2	NSL	4			0	AutoAssign			1
138	302852.510	-842625.780	7	0	0									
138	302852.510	-842625.780	7	1	1	PLB	1	11.0	67.0	1	Pulpwood			
138	302852.510	-842625.780	7	1	2	PSL	1	12.0	32.0	0	AutoAssign			
138	302852.510	-842625.780	7	1	3	PSL	1	15.0	40.0	0	AutoAssign			
138	302852.510	-842625.780	7	1	4	PSL	1	13.0	32.0	0	AutoAssign			
138	302852.510	-842625.780	7	1	5	PSL	1	10.0	42.0	0	AutoAssign			
139	302844.140	-842620.900	13	0	0									
139	302844.140	-842620.900	13	1	1	PSL	1	10.0	48.0	0	AutoAssign			
139	302844.140	-842620.900	13	1	2	PSL	1	11.0	45.0	0	AutoAssign			
139	302844.140	-842620.900	13	1	3	PSL	1	9.0	45.0	0	AutoAssign			
139	302844.140	-842620.900	13	1	4	PSL	1	11.0	40.0	0	AutoAssign			

140	302848.330	-842620.910	14	0	0									
140	302848.330	-842620.910	14	1	1	PSL	1	11.0	42.0	0	AutoAssign			
140	302848.330	-842620.910	14	1	2	PSL	1	7.0	60.0	0	AutoAssign			
140	302848.330	-842620.910	14	1	3	PSL	1	9.0	60.0	1	Pulpwood			
141	302852.520	-842620.930	6	0	0									
141	302852.520	-842620.930	6	1	1	PSL	1	12.0	70.0	1	Pulpwood			
141	302852.520	-842620.930	6	1	2	PSL	1	11.0	52.0	0	AutoAssign			
141	302852.520	-842620.930	6	1	3	PSL	1	13.0	40.0	0	AutoAssign			
141	302852.520	-842620.930	6	1	4	PSL	1	8.0	65.0	0	AutoAssign			
141	302852.520	-842620.930	6	1	5	PSL	1	14.0	40.0	0	AutoAssign			
142	302856.710	-842620.950	5	0	0									
142	302856.710	-842620.950	5	1	1	PSL	1	11.0	34.0	0	AutoAssign			
142	302856.710	-842620.950	5	1	2	PSL	1	11.0	57.0	1	Pulpwood			
142	302856.710	-842620.950	5	1	3	PSL	1	10.0	58.0	1	Pulpwood			
142	302856.710	-842620.950	5	1	4	PSL	1	11.0	37.0	0	AutoAssign	24	58.0	
143	302900.900	-842620.970	4	0	0									
143	302900.900	-842620.970	4	1	1	PSL	1	12.0	32.0	0	AutoAssign			
143	302900.900	-842620.970	4	1	2	PSL	1	8.0	52.0	0	AutoAssign			
143	302900.900	-842620.970	4	1	3	PSL	1	9.0	46.0	0	AutoAssign			
144	302839.970	-842616.030	29	0	0									
144	302839.970	-842616.030	29	1	1	PSL	1	8.0	52.0	0	AutoAssign			
144	302839.970	-842616.030	29	1	2	PSL	1	9.0	40.0	0	AutoAssign			
145	302848.350	-842616.070	15	0	0									
146	302852.540	-842616.090	1	0	0									
146	302852.540	-842616.090	1	1	1	PSL	1	10.0	42.0	0	AutoAssign			
146	302852.540	-842616.090	1	1	2	PSL	1	11.0	65.0	0	AutoAssign			
146	302852.540	-842616.090	1	1	3	PSL	1	14.0	72.0	1	Pulpwood			
147	302856.720	-842616.100	2	0	0									
147	302856.720	-842616.100	2	1	1	PSL	1	11.0	46.0	0	AutoAssign			
147	302856.720	-842616.100	2	1	2	PSL	1	10.0	42.0	0	AutoAssign			
147	302856.720	-842616.100	2	1	3	PSL	1	11.0	45.0	0	AutoAssign			
148	302900.910	-842616.120	3	0	0									
148	302900.910	-842616.120	3	1	1	PSL	1	10.0	46.0	1	Pulpwood			
148	302900.910	-842616.120	3	1	2	PSL	1	7.0	35.0	0	AutoAssign			
148	302900.910	-842616.120	3	1	3	PSL	1	13.0	32.0	0	AutoAssign			
148	302900.910	-842616.120	3	1	4	PSL	1	10.0	48.0	0	AutoAssign			
149	302839.980	-842611.190	28	0	0									
149	302839.980	-842611.190	28	1	1	PLB	1	10.0	45.0	1	Pulpwood			
149	302839.980	-842611.190	28	1	2	PSL	1	8.0	28.0	0	AutoAssign			
149	302839.980	-842611.190	28	1	3	NSL	1			0	AutoAssign			1
150	302844.170	-842611.210	30	0	0									
150	302844.170	-842611.210	30	1	1	PSL	1	11.0	44.0	0	AutoAssign	22	65.0	
150	302844.170	-842611.210	30	1	2	PSL	1	10.0	42.0	0	AutoAssign			
150	302844.170	-842611.210	30	1	3	PSL	1	8.0	60.0	0	AutoAssign			
150	302844.170	-842611.210	30	1	4	PSL	1	8.0	59.0	0	AutoAssign			
150	302844.170	-842611.210	30	1	5	PSL	1	10.0	45.0	0	AutoAssign			
151	302848.360	-842611.220	16	0	0									
151	302848.360	-842611.220	16	1	1	PSL	1	8.0	65.0	0	AutoAssign			
151	302848.360	-842611.220	16	1	2	PSL	1	9.0	61.0	1	Pulpwood			
151	302848.360	-842611.220	16	1	3	PSL	1	11.0	42.0	0	AutoAssign	23	67.0	
152	302840.000	-842606.340	27	0	0									
152	302840.000	-842606.340	27	1	1	PSL	1	8.0	57.0	0	AutoAssign			
152	302840.000	-842606.340	27	1	2	PSL	1	11.0	48.0	0	AutoAssign			
152	302840.000	-842606.340	27	1	3	PSL	1	6.0	56.0	0	AutoAssign			
153	302844.190	-842606.360	31	0	0									
153	302844.190	-842606.360	31	1	1	PSL	1	10.0	45.0	0	AutoAssign			
153	302844.190	-842606.360	31	1	2	PSL	1	10.0	45.0	0	AutoAssign			
153	302844.190	-842606.360	31	1	3	PSL	1	9.0	38.0	0	AutoAssign			

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153	302844.190	-842606.360	31	1	4	PSL	1	11.0	38.0	0	AutoAssign			
153	302844.190	-842606.360	31	1	5	PSL	1	11.0	65.0	1	Pulpwood			
154	302848.380	-842606.380	17	0	0									
154	302848.380	-842606.380	17	1	1	PSL	1	8.0	67.0	0	AutoAssign			
154	302848.380	-842606.380	17	1	2	PSL	1	11.0	76.0	1	Pulpwood			
154	302848.380	-842606.380	17	1	3	PSL	1	9.0	47.0	0	AutoAssign			
155	302840.010	-842601.500	26	0	0									
156	302844.200	-842601.510	32	0	0									
156	302844.200	-842601.510	32	1	1	PSL	1	9.0	48.0	0	AutoAssign			
156	302844.200	-842601.510	32	1	2	PSL	1	10.0	47.0	0	AutoAssign			
156	302844.200	-842601.510	32	1	3	PSL	1	10.0	45.0	0	AutoAssign			
156	302844.200	-842601.510	32	1	4	PSL	1	12.0	32.0	0	AutoAssign			
156	302844.200	-842601.510	32	1	5	PSL	1	8.0	67.0	0	AutoAssign			
157	302848.390	-842601.530	18	0	0									
157	302848.390	-842601.530	18	1	1	PSL	1	13.0	24.0	0	AutoAssign			
157	302848.390	-842601.530	18	1	2	PSL	1	12.0	24.0	0	AutoAssign			
158	302840.030	-842556.650	25	0	0									
158	302840.030	-842556.650	25	1	1	PSL	1	9.0	65.0	1	Pulpwood			
158	302840.030	-842556.650	25	1	2	PSL	1	9.0	36.0	0	AutoAssign	23	58.0	
158	302840.030	-842556.650	25	1	3	PSL	1	10.0	42.0	0	AutoAssign			
159	302848.410	-842556.680	19	0	0									
159	302848.410	-842556.680	19	1	1	PSL	1	9.0	60.0	1	Pulpwood			
159	302848.410	-842556.680	19	1	2	PSL	1	12.0	40.0	0	AutoAssign			
159	302848.410	-842556.680	19	1	3	PSL	1	10.0	42.0	0	AutoAssign			
159	302848.410	-842556.680	19	1	4	PSL	1	8.0	58.0	0	AutoAssign			
159	302848.410	-842556.680	19	1	5	PSL	1	8.0	56.0	0	AutoAssign			
160	302840.040	-842551.800	24	0	0									
160	302840.040	-842551.800	24	1	1	PSL	1	10.0	45.0	0	AutoAssign			
160	302840.040	-842551.800	24	1	2	PSL	1	7.0	65.0	0	AutoAssign			
160	302840.040	-842551.800	24	1	3	PSL	1	10.0	70.0	1	Pulpwood			
161	302844.230	-842551.820	21	0	0									
161	302844.230	-842551.820	21	1	1	PSL	1	9.0	43.0	0	AutoAssign			
161	302844.230	-842551.820	21	1	2	PSL	1	9.0	60.0	1	Pulpwood			
161	302844.230	-842551.820	21	1	3	PSL	1	10.0	70.0	1	Pulpwood			
161	302844.230	-842551.820	21	1	4	PSL	1	13.0	40.0	0	AutoAssign	23	68.0	
161	302844.230	-842551.820	21	1	5	PSL	1	12.0	32.0	0	AutoAssign			
162	302848.420	-842551.840	20	0	0									
162	302848.420	-842551.840	20	1	1	PSL	1	9.0	56.0	1	Pulpwood			
162	302848.420	-842551.840	20	1	2	PSL	1	11.0	39.0	0	AutoAssign			
163	302840.060	-842546.960	23	0	0									
163	302840.060	-842546.960	23	1	1	PSL	1	11.0	67.0	1	Pulpwood			
163	302840.060	-842546.960	23	1	2	PSL	1	10.0	45.0	0	AutoAssign			
163	302840.060	-842546.960	23	1	3	PSL	1	9.0	42.0	0	AutoAssign			
164	302844.250	-842546.970	22	0	0									
164	302844.250	-842546.970	22	1	1	PLB	1	12.0	57.0	1	Pulpwood			
165	302813.460	-842643.820	55	0	0									
165	302813.460	-842643.820	55	1	1	PLB	1	9.0	47.0	0	AutoAssign			
165	302813.460	-842643.820	55	1	2	PLB	1	9.0	43.0	0	AutoAssign			
165	302813.460	-842643.820	55	1	3	PLB	1	8.0	65.0	0	AutoAssign			
165	302813.460	-842643.820	55	1	4	PLB	1	8.0	65.0	0	AutoAssign			
165	302813.460	-842643.820	55	1	5	PLB	1	8.0	60.0	0	AutoAssign			
165	302813.460	-842643.820	55	1	6	PLB	1	6.0	53.0	0	AutoAssign			
165	302813.460	-842643.820	55	1	7	PLB	1	10.0	45.0	0	AutoAssign			
165	302813.460	-842643.820	55	1	8	PLB	1	10.0	45.0	0	AutoAssign			
166	302818.030	-842643.840	167	0	0									
166	302818.030	-842643.840	167	1	1	PLB	1	9.0	63.0	1	Pulpwood			
166	302818.030	-842643.840	167	1	2	PLB	1	10.0	42.0	0	AutoAssign			
166	302818.030	-842643.840	167	1	3	PLB	1	12.0	16.0	0	AutoAssign			

166	302818.030	-842643.840	167	1	4	PLB	1	8.0	62.0	0	AutoAssign			
166	302818.030	-842643.840	167	1	5	PLB	1	9.0	40.0	0	AutoAssign			
166	302818.030	-842643.840	167	1	6	PLB	1	7.0	56.0	0	AutoAssign			
166	302818.030	-842643.840	167	1	7	PLB	1	10.0	45.0	0	AutoAssign			
167	302822.600	-842643.860	168	0	0									
167	302822.600	-842643.860	168	1	1	PLB	1	8.0	62.0	0	AutoAssign			
167	302822.600	-842643.860	168	1	2	PLB	1	8.0	60.0	0	AutoAssign			
167	302822.600	-842643.860	168	1	3	PLB	1	6.0	56.0	0	AutoAssign			
167	302822.600	-842643.860	168	1	4	PLB	1	8.0	58.0	0	AutoAssign			
167	302822.600	-842643.860	168	1	5	PLB	1	8.0	60.0	0	AutoAssign			
167	302822.600	-842643.860	168	1	6	PLB	1	11.0	63.0	1	Pulpwood			
167	302822.600	-842643.860	168	1	7	PLB	1	6.0	55.0	0	AutoAssign			
168	302813.470	-842638.540	57	0	0									
168	302813.470	-842638.540	57	1	1	PLB	1	5.0	32.0	0	AutoAssign			
169	302822.610	-842638.580	169	0	0									
169	302822.610	-842638.580	169	1	1	PLB	1	8.0	60.0	0	AutoAssign			
169	302822.610	-842638.580	169	1	2	PLB	1	8.0	57.0	0	AutoAssign			
169	302822.610	-842638.580	169	1	3	PLB	1	11.0	45.0	0	AutoAssign			
169	302822.610	-842638.580	169	1	4	PLB	1	9.0	42.0	0	AutoAssign			
169	302822.610	-842638.580	169	1	5	PLB	1	7.0	56.0	0	AutoAssign			
169	302822.610	-842638.580	169	1	6	PLB	1	11.0	48.0	0	AutoAssign			
169	302822.610	-842638.580	169	1	7	PLB	1	10.0	46.0	0	AutoAssign			
169	302822.610	-842638.580	169	1	8	PLB	1	8.0	57.0	0	AutoAssign			
170	302813.490	-842633.250	58	0	0									
170	302813.490	-842633.250	58	1	1	PLB	1	7.0	51.0	0	AutoAssign			
170	302813.490	-842633.250	58	1	2	PLB	1	7.0	50.0	0	AutoAssign			
170	302813.490	-842633.250	58	1	3	PLB	1	7.0	44.0	0	AutoAssign			
170	302813.490	-842633.250	58	1	4	PLB	1	6.0	43.0	0	AutoAssign			
170	302813.490	-842633.250	58	1	5	PLB	1	8.0	53.0	0	AutoAssign	24	53.0	
171	302818.060	-842633.270	170	0	0									
171	302818.060	-842633.270	170	1	1	PLB	1	9.0	45.0	0	AutoAssign			
171	302818.060	-842633.270	170	1	2	PLB	1	9.0	46.0	0	AutoAssign			
172	302822.630	-842633.290	174	0	0									
172	302822.630	-842633.290	174	1	1	PLB	1	5.0	45.0	0	AutoAssign			
172	302822.630	-842633.290	174	1	2	PLB	1	6.0	45.0	0	AutoAssign			
172	302822.630	-842633.290	174	1	3	PLB	1	5.0	38.0	0	AutoAssign			
172	302822.630	-842633.290	174	1	4	PLB	1	6.0	48.0	0	AutoAssign			
173	302818.070	-842627.980	171	0	0									
173	302818.070	-842627.980	171	1	1	PSL	1	8.0	62.0	0	AutoAssign			
173	302818.070	-842627.980	171	1	2	PSL	1	10.0	49.0	0	AutoAssign	24	70.0	
173	302818.070	-842627.980	171	1	3	PSL	1	9.0	45.0	0	AutoAssign			
173	302818.070	-842627.980	171	1	4	PSL	1	7.0	60.0	0	AutoAssign			
173	302818.070	-842627.980	171	1	5	PSL	1	8.0	60.0	0	AutoAssign			
173	302818.070	-842627.980	171	1	6	PSL	1	8.0	65.0	0	AutoAssign			
174	302822.640	-842628.000	173	0	0									
174	302822.640	-842628.000	173	1	1	PLB	1	4.0	34.0	0	AutoAssign			
174	302822.640	-842628.000	173	1	2	PLB	1	4.0	35.0	0	AutoAssign			
174	302822.640	-842628.000	173	1	3	PLB	1	5.0	48.0	0	AutoAssign			
174	302822.640	-842628.000	173	1	4	PLB	1	9.0	38.0	0	AutoAssign			
174	302822.640	-842628.000	173	1	5	PLB	1	6.0	48.0	0	AutoAssign			
174	302822.640	-842628.000	173	1	6	PLB	1	4.0	41.0	0	AutoAssign			
175	302818.090	-842622.700	172	0	0									
175	302818.090	-842622.700	172	1	1	PLB	1	8.0	58.0	0	AutoAssign			
175	302818.090	-842622.700	172	1	2	PLB	1	9.0	45.0	0	AutoAssign			
175	302818.090	-842622.700	172	1	3	PLB	1	6.0	55.0	0	AutoAssign			
175	302818.090	-842622.700	172	1	4	PLB	1	8.0	60.0	0	AutoAssign			
176	302822.680	-842617.430	179	0	0									
176	302822.680	-842617.430	179	1	1	PLB	1	16.0	16.0	0	AutoAssign			

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176	302822.680	-842617.430	179	1	2	PLB	1	12.0	32.0	0	AutoAssign			
176	302822.680	-842617.430	179	1	3	PLB	1	17.0	24.0	0	AutoAssign			
177	302759.230	-842644.090	52	0	0									
177	302759.230	-842644.090	52	1	1	PSL	1	7.0	63.0	0	AutoAssign			
177	302759.230	-842644.090	52	1	2	PSL	1	9.0	47.0	0	AutoAssign	26	70.0	
177	302759.230	-842644.090	52	1	3	PSL	1	8.0	65.0	0	AutoAssign			
177	302759.230	-842644.090	52	1	4	PSL	1	8.0	63.0	0	AutoAssign			
177	302759.230	-842644.090	52	1	5	NSL	4			0	AutoAssign			1
178	302803.390	-842644.100	51	0	0									
178	302803.390	-842644.100	51	1	1	PLB	1	6.0	42.0	0	AutoAssign			
178	302803.390	-842644.100	51	1	2	PLB	1	6.0	45.0	0	AutoAssign			
178	302803.390	-842644.100	51	1	3	PLB	1	8.0	55.0	0	AutoAssign			
178	302803.390	-842644.100	51	1	4	PLB	1	7.0	48.0	0	AutoAssign			
178	302803.390	-842644.100	51	1	5	PLB	1	6.0	40.0	0	AutoAssign			
178	302803.390	-842644.100	51	1	6	PLB	1	11.0	40.0	0	AutoAssign			
179	302807.550	-842644.120	54	0	0									
179	302807.550	-842644.120	54	1	1	PSL	1	10.0	50.0	0	AutoAssign			
179	302807.550	-842644.120	54	1	2	PSL	1	8.0	55.0	0	AutoAssign			
179	302807.550	-842644.120	54	1	3	PSL	1	10.0	71.0	1	Pulpwood			
180	302750.920	-842639.240	38	0	0									
180	302750.920	-842639.240	38	1	1	PLB	1	10.0	75.0	1	Pulpwood			
180	302750.920	-842639.240	38	1	2	PLB	1	12.0	40.0	0	AutoAssign			
180	302750.920	-842639.240	38	1	3	PLB	1	12.0	40.0	0	AutoAssign			
180	302750.920	-842639.240	38	1	4	PLB	1	11.0	75.0	1	Pulpwood			
180	302750.920	-842639.240	38	1	5	PLB	1	8.0	70.0	0	AutoAssign			
180	302750.920	-842639.240	38	1	6	PLB	1	10.0	51.0	0	AutoAssign			
180	302750.920	-842639.240	38	1	7	PLB	1	11.0	55.0	0	AutoAssign			
180	302750.920	-842639.240	38	1	8	PLB	1	15.0	32.0	0	AutoAssign			
180	302750.920	-842639.240	38	1	9	PLB	1	9.0	45.0	0	AutoAssign			
180	302750.920	-842639.240	38	1	10	NLB	18			0	AutoAssign			1
181	302759.240	-842639.270	53	0	0									
181	302759.240	-842639.270	53	1	1	PSL	1	10.0	45.0	0	AutoAssign			
181	302759.240	-842639.270	53	1	2	PSL	1	7.0	55.0	0	AutoAssign			
181	302759.240	-842639.270	53	1	3	PSL	1	9.0	45.0	0	AutoAssign			
181	302759.240	-842639.270	53	1	4	PSL	1	10.0	45.0	0	AutoAssign			
181	302759.240	-842639.270	53	1	5	PSL	1	7.0	60.0	0	AutoAssign			
181	302759.240	-842639.270	53	1	6	PSL	1	10.0	40.0	0	AutoAssign			
182	302803.400	-842639.290	50	0	0									
182	302803.400	-842639.290	50	1	1	PLB	1	7.0	35.0	0	AutoAssign			
182	302803.400	-842639.290	50	1	2	NLB	9			0	AutoAssign			1
183	302807.560	-842639.310	178	0	0									
183	302807.560	-842639.310	178	1	1	PSL	1	9.0	68.0	1	Pulpwood			
183	302807.560	-842639.310	178	1	2	PSL	1	15.0	32.0	0	AutoAssign			
183	302807.560	-842639.310	178	1	3	PSL	1	8.0	67.0	0	AutoAssign			
183	302807.560	-842639.310	178	1	4	PSL	1	8.0	68.0	0	AutoAssign			
183	302807.560	-842639.310	178	1	5	PSL	1	13.0	32.0	0	AutoAssign			
184	302811.720	-842639.320	56	0	0									
184	302811.720	-842639.320	56	1	1	PLB	1	9.0	53.0	1	Pulpwood			
184	302811.720	-842639.320	56	1	2	PLB	1	5.0	30.0	0	AutoAssign			
184	302811.720	-842639.320	56	1	3	PLB	1	7.0	34.0	0	AutoAssign			
185	302750.940	-842634.430	39	0	0									
185	302750.940	-842634.430	39	1	1	PLB	1	7.0	60.0	0	AutoAssign			
185	302750.940	-842634.430	39	1	2	PLB	1	9.0	37.0	0	AutoAssign			
185	302750.940	-842634.430	39	1	3	PLB	1	8.0	52.0	0	AutoAssign			
185	302750.940	-842634.430	39	1	4	PLB	1	8.0	60.0	0	AutoAssign			
185	302750.940	-842634.430	39	1	5	PLB	1	9.0	58.0	1	Pulpwood			
185	302750.940	-842634.430	39	1	6	PLB	1	11.0	45.0	0	AutoAssign			
186	302755.100	-842634.440	42	0	0									

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186	302755.100	-842634.440	42	1	1	PLB	1	7.0	53.0	0	AutoAssign			
186	302755.100	-842634.440	42	1	2	PLB	1	7.0	45.0	0	AutoAssign			
186	302755.100	-842634.440	42	1	3	PLB	1	10.0	31.0	0	AutoAssign	25	55.0	
186	302755.100	-842634.440	42	1	4	PLB	1	8.0	56.0	0	AutoAssign			
186	302755.100	-842634.440	42	1	5	PLB	1	7.0	42.0	0	AutoAssign			
186	302755.100	-842634.440	42	1	6	PLB	1	8.0	45.0	0	AutoAssign			
187	302759.260	-842634.460	48	0	0									
187	302759.260	-842634.460	48	1	1	PSL	1	9.0	39.0	0	AutoAssign			
187	302759.260	-842634.460	48	1	2	PSL	1	9.0	40.0	0	AutoAssign			
187	302759.260	-842634.460	48	1	3	PSL	1	6.0	52.0	0	AutoAssign			
187	302759.260	-842634.460	48	1	4	NSL	3			0	AutoAssign			1
188	302803.420	-842634.480	49	0	0									
188	302803.420	-842634.480	49	1	1	PLB	1	8.0	58.0	0	AutoAssign			
188	302803.420	-842634.480	49	1	2	PLB	1	9.0	40.0	0	AutoAssign			
188	302803.420	-842634.480	49	1	3	PLB	1	11.0	60.0	1	Pulpwood			
188	302803.420	-842634.480	49	1	4	PLB	1	10.0	60.0	1	Pulpwood			
188	302803.420	-842634.480	49	1	5	PLB	1	10.0	40.0	0	AutoAssign			
189	302807.580	-842634.490	177	0	0									
189	302807.580	-842634.490	177	1	1	PSL	1	9.0	48.0	0	AutoAssign			
189	302807.580	-842634.490	177	1	2	PSL	1	11.0	55.0	0	AutoAssign	24	75.0	
189	302807.580	-842634.490	177	1	3	PSL	1	10.0	50.0	0	AutoAssign			
189	302807.580	-842634.490	177	1	4	PSL	1	10.0	65.0	1	Pulpwood			
189	302807.580	-842634.490	177	1	5	PSL	1	7.0	62.0	0	AutoAssign			
189	302807.580	-842634.490	177	1	6	PSL	1	7.0	62.0	0	AutoAssign			
190	302811.740	-842634.510	59	0	0									
190	302811.740	-842634.510	59	1	1	PSL	1	8.0	65.0	0	AutoAssign			
190	302811.740	-842634.510	59	1	2	PSL	1	10.0	67.0	1	Pulpwood			
190	302811.740	-842634.510	59	1	3	PSL	1	9.0	47.0	0	AutoAssign			
190	302811.740	-842634.510	59	1	4	PSL	1	9.0	45.0	0	AutoAssign			
191	302750.950	-842629.610	40	0	0									
191	302750.950	-842629.610	40	1	1	PSL	1	7.0	59.0	0	AutoAssign			
191	302750.950	-842629.610	40	1	2	PLB	1	10.0	35.0	0	AutoAssign			
191	302750.950	-842629.610	40	1	3	PLB	1	9.0	63.0	1	Pulpwood			
191	302750.950	-842629.610	40	1	4	PLB	1	8.0	60.0	0	AutoAssign			
191	302750.950	-842629.610	40	1	5	PLB	1	12.0	65.0	1	Pulpwood			
191	302750.950	-842629.610	40	1	6	PLB	1	11.0	60.0	1	Pulpwood			
191	302750.950	-842629.610	40	1	7	PLB	1	8.0	65.0	0	AutoAssign			
191	302750.950	-842629.610	40	1	8	NLB	2			0	AutoAssign			1
192	302755.110	-842629.630	41	0	0									
192	302755.110	-842629.630	41	1	1	PLB	1	8.0	47.0	0	AutoAssign			
192	302755.110	-842629.630	41	1	2	PLB	1	8.0	48.0	0	AutoAssign			
192	302755.110	-842629.630	41	1	3	PLB	1	7.0	42.0	0	AutoAssign			
192	302755.110	-842629.630	41	1	4	PLB	1	8.0	50.0	0	AutoAssign			
193	302759.270	-842629.650	47	0	0									
193	302759.270	-842629.650	47	1	1	PLB	1	11.0	35.0	0	AutoAssign	25	53.0	
193	302759.270	-842629.650	47	1	2	PLB	1	8.0	50.0	0	AutoAssign			
193	302759.270	-842629.650	47	1	3	PLB	1	7.0	52.0	0	AutoAssign			
193	302759.270	-842629.650	47	1	4	NLB	6			0	AutoAssign			1
194	302803.430	-842629.660	46	0	0									
194	302803.430	-842629.660	46	1	1	PSL	1	8.0	63.0	0	AutoAssign			
194	302803.430	-842629.660	46	1	2	PSL	1	8.0	65.0	0	AutoAssign			
194	302803.430	-842629.660	46	1	3	PSL	1	9.0	45.0	0	AutoAssign			
194	302803.430	-842629.660	46	1	4	PSL	1	10.0	48.0	0	AutoAssign			
194	302803.430	-842629.660	46	1	5	PSL	1	10.0	48.0	0	AutoAssign			
194	302803.430	-842629.660	46	1	6	PSL	1	7.0	60.0	0	AutoAssign			
194	302803.430	-842629.660	46	1	7	PSL	1	8.0	63.0	0	AutoAssign			
195	302807.590	-842629.680	176	0	0									
195	302807.590	-842629.680	176	1	1	PSL	1	9.0	48.0	0	AutoAssign			

195	302807.590	-842629.680	176	1	2	PSL	1	7.0	57.0	0	AutoAssign			
195	302807.590	-842629.680	176	1	3	PSL	1	8.0	62.0	0	AutoAssign			
195	302807.590	-842629.680	176	1	4	PSL	1	9.0	43.0	0	AutoAssign			
195	302807.590	-842629.680	176	1	5	PSL	1	7.0	58.0	0	AutoAssign			
195	302807.590	-842629.680	176	1	6	PSL	1	7.0	55.0	0	AutoAssign			
196	302811.750	-842629.700	60	0	0									
196	302811.750	-842629.700	60	1	1	PLB	1	9.0	35.0	0	AutoAssign			
196	302811.750	-842629.700	60	1	2	PLB	1	5.0	37.0	0	AutoAssign			
197	302803.450	-842624.850	45	0	0									
197	302803.450	-842624.850	45	1	1	PSL	1	9.0	48.0	0	AutoAssign			
197	302803.450	-842624.850	45	1	2	PSL	1	12.0	40.0	0	AutoAssign			
197	302803.450	-842624.850	45	1	3	PSL	1	7.0	63.0	0	AutoAssign			
197	302803.450	-842624.850	45	1	4	PSL	1	10.0	48.0	0	AutoAssign			
197	302803.450	-842624.850	45	1	5	PSL	1	8.0	60.0	0	AutoAssign			
197	302803.450	-842624.850	45	1	6	PSL	1	11.0	48.0	0	AutoAssign			
197	302803.450	-842624.850	45	1	7	PSL	1	8.0	68.0	0	AutoAssign			
198	302807.610	-842624.870	175	0	0									
198	302807.610	-842624.870	175	1	1	PSL	1	10.0	48.0	0	AutoAssign			
198	302807.610	-842624.870	175	1	2	PSL	1	7.0	65.0	0	AutoAssign			
198	302807.610	-842624.870	175	1	3	PSL	1	11.0	50.0	0	AutoAssign			
198	302807.610	-842624.870	175	1	4	PSL	1	10.0	48.0	0	AutoAssign			
198	302807.610	-842624.870	175	1	5	PSL	1	7.0	58.0	0	AutoAssign			
198	302807.610	-842624.870	175	1	6	PSL	1	10.0	48.0	0	AutoAssign			
199	302755.140	-842620.010	43	0	0									
199	302755.140	-842620.010	43	1	1	PSL	1	12.0	32.0	0	AutoAssign			
199	302755.140	-842620.010	43	1	2	PSL	1	9.0	45.0	0	AutoAssign			
199	302755.140	-842620.010	43	1	3	PSL	1	10.0	45.0	0	AutoAssign			
199	302755.140	-842620.010	43	1	4	PSL	1	10.0	48.0	0	AutoAssign			
199	302755.140	-842620.010	43	1	5	PSL	1	6.0	40.0	0	AutoAssign			
199	302755.140	-842620.010	43	1	6	PSL	1	9.0	40.0	0	AutoAssign			
199	302755.140	-842620.010	43	1	7	PSL	1	7.0	60.0	0	AutoAssign			
200	302759.300	-842620.020	44	0	0									
200	302759.300	-842620.020	44	1	1	PLB	1	11.0	48.0	0	AutoAssign			
200	302759.300	-842620.020	44	1	2	PLB	1	12.0	48.0	0	AutoAssign			
200	302759.300	-842620.020	44	1	3	PLB	1	13.0	48.0	0	AutoAssign			
200	302759.300	-842620.020	44	1	4	PLB	1	9.0	42.0	0	AutoAssign			
200	302759.300	-842620.020	44	1	5	PLB	1	10.0	45.0	0	AutoAssign			
200	302759.300	-842620.020	44	1	6	PLB	1	12.0	40.0	0	AutoAssign			
200	302759.300	-842620.020	44	1	7	PLB	1	11.0	45.0	0	AutoAssign			
200	302759.300	-842620.020	44	1	8	PLB	1	8.0	60.0	0	AutoAssign			
200	302759.300	-842620.020	44	1	9	PLB	1	8.0	62.0	0	AutoAssign			
200	302759.300	-842620.020	44	1	10	NLB	5			0	AutoAssign			1
201	302811.780	-842620.070	61	0	0									
201	302811.780	-842620.070	61	1	1	PLB	1	8.0	28.0	0	AutoAssign			
201	302811.780	-842620.070	61	1	2	PLB	1	8.0	45.0	0	AutoAssign			
201	302811.780	-842620.070	61	1	3	PLB	1	12.0	55.0	1	Pulpwood			
201	302811.780	-842620.070	61	1	4	PLB	1	10.0	56.0	1	Pulpwood			
201	302811.780	-842620.070	61	1	5	PLB	1	12.0	56.0	1	Pulpwood			
201	302811.780	-842620.070	61	1	6	PLB	1	10.0	58.0	1	Pulpwood			
201	302811.780	-842620.070	61	1	7	PLB	1	8.0	55.0	0	AutoAssign			
201	302811.780	-842620.070	61	1	8	PLB	1	9.0	56.0	1	Pulpwood			
201	302811.780	-842620.070	61	1	9	PLB	1	6.0	30.0	0	AutoAssign			
201	302811.780	-842620.070	61	1	10	PLB	1	10.0	54.0	1	Pulpwood			
201	302811.780	-842620.070	61	1	11	PLB	1	11.0	57.0	1	Pulpwood			
202	302807.640	-842615.240	62	0	0									
202	302807.640	-842615.240	62	1	1	PSL	1	7.0	60.0	0	AutoAssign			
202	302807.640	-842615.240	62	1	2	PSL	1	10.0	70.0	1	Pulpwood			

VOLUME/TABLES REFERENCE

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CRUISE WORKUP/TAPER EQUATION - REFERENCE

CPln.:SandPineNat:n=150 (235) CPln.:SlashPinePln:n=872 (243) CPln.:SlashPineNat:n=2046 (246) CPln.:LongIfPineNat:n=842 (251) CPln.:LobPinePln:n=397 (264) CPln.:LobPineNat:n=1315 (268)	Taper functions 235-268 were derived by Ray Souter for Forest Inventory and Analysis (FIA) and apply to specific species and physiographic regions.
PlantedLLf-PMRC (227)	Proprietary PMRC Taper Functions from the SE US
Sand pine (34)-FC	Clark, Alexander, R. A. Souter, and B. E. Schlaegel. 1991. Stem profile equations for southern tree species. USDA FS, South Eastern Forest Experiment Station Res. Pap. SE-282. 113 pp.

CPln - Coastal Plain
n = ###, number of study samples
(###) Tcruise reference number
Form Class 78

TFC 005/06/14

Taper and Volume Prediction in Southern Tree Species

Dr. Ray A. Souter
FORESTECH INTERNATIONAL, LLC
January 23, 2003

Developed for USDA Forest Service
September 22, 1999

Introduction

A segmented profile equation for southern tree species is described below. A sequence of figures describes three possible segments. The combinations of these segments can be used to describe an entire stem profile from ground line to total height (the profile predicts stem diameter as a function of continuous heights measured from the ground line). As an example, outside bark (ob) diameters can be predicted as a function of total height, if the segments described by Figures 1, 2 and 3 are combined.

The function uses observed diameter at breast height (dbh), observed diameter at 17.3' above ground, observed total height, and taper parameters estimated from some set of stem measurement data. Breast height is 4.5' above ground. 17.3' is referred to as Girard's form class height - being a reference height to the top of the first merchantable log. Girard's form class is the ratio of inside bark (ib) diameter at the 17.3' reference height to diameter (ob) at breast height. This measure of form has been used to advantage in other studies, though is not the only measure in common use.

The results of parameter estimation, and accompanying volume prediction summaries from the system of models are not presented here, but are on file with the USDA Forest Service in Asheville, NC and Athens, GA. The estimates of the taper parameters were obtained through the use of two sets of taper measurements collected and provided by the USDA Forest Service Southern Forest Research Station, Athens Forestry Sciences Laboratory. One set was collected by Region 8 of the USDA Forest Service, and it forms the basis of volume measurements currently used in their timber sales. The other data was collected by the Forest Inventory and Analysis Research Work Unit (FIA) located in Asheville, North Carolina, and forms the basis of volume estimates produced in their timber resource surveys for southern states.

The model described is based on methodologies developed in previous studies. One study is described in a series of publications that presents taper and volume estimates for southern tree species, and contains basically similar segment definitions and taper model formulations. Another is the product of proprietary analyses of stem taper for selected western tree species, and uses a method of parameter prediction based on tree size (dbh and height) that allows taper parameters to vary among trees. Currently, the model that is based on dbh and total height described here is being developed for use by FIA in future surveys. A list of species and USDA Forest Service species codes that will be modeled are included in the Appendix, FIA Taper Models: Data Description.

There are 58 individual species, and 6 species groups that were fitted, across 7 distinct geographic areas and combined southwide. When a species was observed in only a single geographic area, it was not duplicated in the southwide set of model coefficients. All model parameter estimates were stored in a Microsoft Access database.

The tables in the appendix indicate the species that were used along with an indication of the total number of trees with taper measurements. Taper parameters and their relationships with dbh and total height were fitted to all the trees of a species or species group, southwide. Auxillary models that include form class prediction and bark thickness predictions were fitted southwide, and by geographic area.

Diameter Prediction for a Specified Height

Diameter as a function of height is provided for each of the three figures that follow, also associated captions corresponding to each figure explain some of the symbols used. Corresponding volumes can be calculated by integrating the predicted diameter squared over a suitably defined range of heights. Heights corresponding to particular diameters can be determined by inverting the diameter-height relationship. All of these estimates can be analytically produced, so the formulas may easily be incorporated into computer programs.

The individual diameter equations as functions of height above ground and various indicator variables, and model parameters are provided as:

$$d = \left\{ D_{17.3}^2 \left[\begin{array}{c} I_{a_1} \left(\frac{H-h}{H-17.3}\right)^{q_1} + \\ I_{a_2}\, a_1^{(q_2-q_1)} \left(\frac{H-h}{H-17.3}\right)^{q_2} + \\ (1-I_{a_1}-I_{a_2})\, a_1^{(q_1-q_3)}\, a_2^{(q_2-q_3)} \left(\frac{H-h}{H-17.3}\right)^{q_3} \end{array} \right] \right\}^{.5}$$

Figure 1: Taper model for use at heights between 17.3' and total tree height, H. Parameters, are predicted as functions of observed dbh (ob) and total tree height. The diameter at 17.3', $D_{17.3}$, is provided, and the diameter at total height is assumed to be 0.

$$d = \left\{ D_{17.3}^2 \left[1 + c_{17} \left(\frac{17.3-h}{17.3-4.5}\right)^p \right] \right\}^{.5}$$

Figure 2: Taper model for use at heights between 4.5' and 17.3'. The parameter, p, is predicted as a function of dbh (ob) and total tree height. The flare parameter c_{17} is not predicted, but is calculated using the diameters at 4.5' and 17.3' that are provided, $D_{4.5}$ and $D_{17.3}$, respectively.

$$d = \left\{ D_{4.5}^2 \left[\begin{array}{c} (1-I_J)(1+c\,J^{(r-s)}\left(\frac{4.5-h}{4.5}\right)^s) + \\ I_J\,(1+c\left(\frac{4.5-h}{4.5}\right)^r) \end{array} \right] \right\}^{.5}$$

Figure 3: Taper model for use at heights between ground line and 4.5'. Parameters, J, r, s, and c, are predicted as functions of dbh (ob) and total tree height. Ground line diameter, D_0, is not measured but predicted with the flare parameter, c, and the provided diameter, $D_{4.5}$.

The following figures specifically define the taper, or diameter-height relationship.

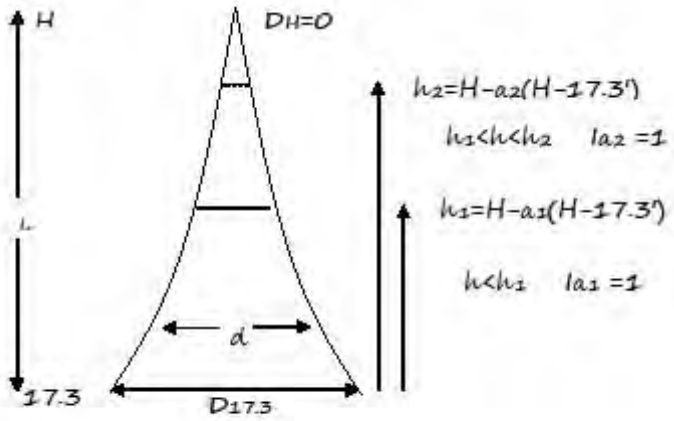

Figure 1:

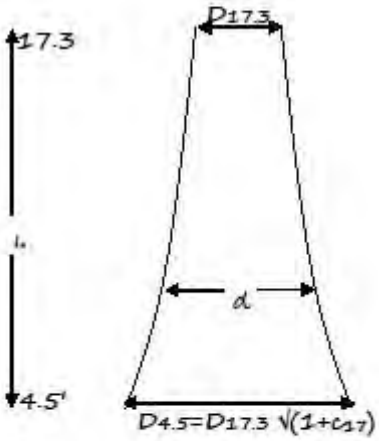

Figure 2:

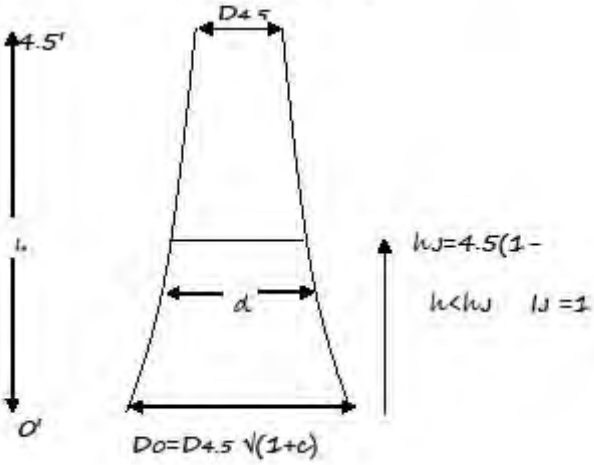

Figure 3:

The complete form for diameter as a function of height that is based on the segments in Figures 1, 2 and 3 follows:

Both outside-bark (ob) and inside-bark (ib) diameters could be estimated with appropriate taper

$$d = \left\{ \begin{array}{ll} D^2_{17.3} \left[\begin{array}{c} I_{a_1} \left(\frac{H-h}{H-17.3}\right)^{q_1} + \\ I_{a_2}\, a_1^{(q_1-q_2)} \left(\frac{H-h}{H-17.3}\right)^{q_2} + \\ (1-I_{a_1}-I_{a_2})\, a_1^{(q_1-q_3)}\, a_2^{(q_2-q_3)} \left(\frac{H-h}{H-17.3}\right)^{q_3} \end{array} \right] & if\ (17.3' < h \le H) \\ D^2_{17.3} \left[1 + c_{17} \left(\frac{17.3-h}{17.3-4.5}\right)^{p} \right] & if\ (4.5' < h \le 17.3') \\ D^2_{4.5} \left[\begin{array}{c} (1-I_J)(1+c\, J^{(r-s)} \left(\frac{4.5-h}{4.5}\right)^{r}) + \\ I_J (1+c \left(\frac{4.5-h}{4.5}\right)^{r}) \end{array} \right] & if\ (0 \le h \le 4.5') \end{array} \right\}^{.5} \qquad \text{eq.1}$$

parameters, and measured reference diameters. A number of measurements needs to be available for every tree, these being dbh (ob and ib), diameter (ob and ib) at 17.3', and total height. Of course in practice, these measurements can not be expected to be available. However, using just a measured dbh (ob) and the total height, adequate taper estimates and associated volume estimates can be produced that exhibit little bias across dbh and tree height classes

Using these two measurements, the other required values can be estimated accurately enough to provide useful average profiles. This is possible because of regular and predictable relationships among individual tree measures. Dbh (ib) can be precisely estimated using a linear function of dbh (ob). Form class diameter (ib) can be reasonably estimated using dbh (ob) and total height.

Taper Parameters

With the stem segments as defined, a total of ten parameters are used to modify a particular realization of stem form. Shape parameters are q_1, q_2, q_3, p, s, and r; the basal flare parameter is c; and join-point parameters are a_1, a_2, and J. Each parameter is allowed to vary as a function of dbh and total height.

Shape and flare parameters are predicted as functions of tree size, with the general form:
parameter = f(α + β g(Height) + γ DBH),
where f( ) is either the identity or exponential function, and g( ) is either the identity or logarithmic function, depending on the particular parameter of interest. Estimates for particular combinations of tree sizes should always be greater than 0.

Join-point parameters are predicted similarly but utilizing a logistic transformation to restrict the range of the parameter to (0,1):
Join point = 1/(1 + exp(-(α + β ln(Height) + γ DBH))).
(a_2 is restricted to the range (0, a_1) by multiplying the logistic function by a_1).
Join points are referenced as a proportion of the distance from the top of a section to the base of a section, 0 indicating the section's top height, and 1 indicating the base height.

Each parameter is predicted with unique sets of coefficients, (α , β , γ), with some of the estimated coefficients possibly being 0.

Parameters and model forms associated with Figure 1:

```
q1=(aq1+bq1*(tht)+cq1*dbh);
a1=1/(1+exp(-(aa1+ba1*log(tht)+ca1*dbh)));
q2=(aq2.+bq2*(tht)+cq2*dbh);
a2=(1/(1+exp(-(aa2+ba2*log(tht)+ca2*dbh))))*a1;
q3=(aq3+bq3*(tht)+cq3*dbh);
```

Parameters and model form associated with Figure 2:

```
p=exp(ap+bp*(tht)+cp*dbh);
```

Parameters and model forms associated with Figure 3:

```
J=1/(1+exp(-(aJ+bJ*log(tht)+cJ*dbh)));
s=(as+bs*(tht)+cs*dbh);
r=(ar+br*(tht)+cr*dbh);
c=(ac+bc*log(tht)+cc*dbh);
```

While the above systems of taper parameters are described for outside bark diameter measurements, completely analogous parameters are used for inside bark diameter predictions, where dbh in the equations would refer to an inside bark dbh. Parameters would be subscripted with "o" or "i" to indicate the appropriate system.

Cubic-Foot Volume Between Two Specified Heights

Using the segments described, inside bark diameter (inches) is estimated to a specified height above ground (feet) with equation 1. Observed dbh (ib), diameter (ib) at 17.3', and total height ($D_{4.5}$, $D_{17.3}$, and H, respectively) are used in prediction. In practice, all these measurements are not available. However, only the dbh (ob) and total height need be measured. Using these two measurements the other required values can be estimated accurately enough to provide useful average profiles. In particular, $D_{4.5}$ is estimated from dbh; $D_{17.3}$ is estimated from dbh and H. Once an average profile is predicted, the volume (ft^3 ib) contained in the stem between any two given heights (say L and U) can be calculated by integrating estimated diameter squared over the range of heights (the constant k=.005454154 is used to provide cubic-foot estimates when diameter is measured in inches and height is measured in feet).

$$V = k\int_L^U \left(d^2\right)dh$$

Integrating is straightforward, as each stem segment is treated independently, but care is required to determine where the limits of integration are in relation to the join-point heights. For instance if volume between the ground, L= 0, and the total height, U=H, is desired then volume would be calculated as:

$$V = k\left(\int_{L=0}^{H_J}\left(d^2\right)dh + \int_{H_J}^{4.5}\left(d^2\right)dh + \int_{4.5}^{17.3}\left(d^2\right)dh + \int_{17.3}^{H_1}\left(d^2\right)dh + \int_{H_1}^{H_2}\left(d^2\right)dh + \int_{H_2}^{U=H}\left(d^2\right)dh\right)$$

A simple algorithm can be used to determine a set of limits of integration for each section that is appropriate for the desired volume. Using the useful result that when the limits of integration are equal for any section then the calculated volume in that section is zero, the desired volume is the sum of the volumes from the sections.

First calculate the join-point heights.

$$H_J = 4.5(1-J)$$
$$H_1 = H - a_1(H-17.3)$$
$$H_2 = H - a_2(H-17.3)$$

Now determine segment limits of integration.

$$U_J = \min(\max(U,0),H_J) \quad L_J = \min(U_J,\max(L,0))$$
$$U_1 = \min(\max(U,H_J),4.5) \quad L_1 = \min(U_1,\max(L,H_J))$$
$$U_2 = \max(\min(U,17.3),4.5) \quad L_2 = \min(U_2,\max(L,4.5))$$
$$U_3 = \max(\min(U,H_1),17.3) \quad L_3 = \min(U_3,\max(L,17.3))$$
$$U_4 = \max(\min(U,H_2),H_1) \quad L_4 = \min(U_4,\max(L,H_1))$$
$$U_5 = \max(\min(U,H),H_2) \quad L_5 = \min(U_5,\max(L,H_2))$$

Volume is now calculated as:

$$V = k\left(\int_{L_J}^{U_J}\left(d^2\right)dh + \int_{L_1}^{U_1}\left(d^2\right)dh + \int_{L_2}^{U_2}\left(d^2\right)dh + \int_{L_3}^{U_3}\left(d^2\right)dh + \int_{L_4}^{U_4}\left(d^2\right)dh + \int_{L_5}^{U_5}\left(d^2\right)dh\right)$$

$$V = k\left\{\begin{array}{l} D_{4.5}^2\left\{(U_J - L_J) + \frac{4.5c}{r+1}\left[\left(\frac{4.5-L_J}{4.5}\right)^{(r+1)} - \left(\frac{4.5-U_J}{4.5}\right)^{(r+1)}\right]\right\} \\ + D_{4.5}^2\left\{(U_1 - L_1) + \frac{4.5c}{s+1}J^{(r-s)}\left[\left(\frac{4.5-L_1}{4.5}\right)^{(s+1)} - \left(\frac{4.5-U_1}{4.5}\right)^{(s+1)}\right]\right\} \\ + D_{17.3}^2(U_2 - L_2) + (D_{4.5}^2 - D_{17.3}^2)\frac{12.8}{p+1}\left[\left(\frac{17.3-L_2}{12.8}\right)^{(p+1)} - \left(\frac{17.3-U_2}{12.8}\right)^{(p+1)}\right] \\ + D_{17.3}^2\frac{H-17.3}{q_1+1}\left[\left(\frac{H-L_3}{H-17.3}\right)^{(q_1+1)} - \left(\frac{H-U_3}{H-17.3}\right)^{(q_1+1)}\right] \\ + D_{17.3}^2\frac{H-17.3}{q_2+1}a_1^{(q_1-q_2)}\left[\left(\frac{H-L_4}{H-17.3}\right)^{(q_2+1)} - \left(\frac{H-U_4}{H-17.3}\right)^{(q_2+1)}\right] \\ + D_{17.3}^2\frac{H-17.3}{q_3+1}a_1^{(q_1-q_2)}a_2^{(q_2-q_3)}\left[\left(\frac{H-L_5}{H-17.3}\right)^{(q_3+1)} - \left(\frac{H-U_5}{H-17.3}\right)^{(q_3+1)}\right] \end{array}\right\} \qquad eq.2$$

Board-Foot Volume Between Two Specified Heights

Board-foot volumes may also be calculated using standard formulae based on scaling-end diameters. By merchandizing a stem, or calculating the diameters (ib) at various heights, a log rule, such as the International 1/4" rule, can be applied. For instance, with the basis of 4' sections and the predicted scaling-diameters at the top of each section, board-foot volumes can be summed for the merchantable stem section using predicted taper rates. As an approximation, some default rate of taper for a 16' log may be used along with a log-rule formula with the scaling-end diameter estimated. These scaling diameters then can be used with any of the most commonly used log scaling formulas, including Doyle, Scribner and International ¼.

Additional functionality allows the estimation of board-foot volume attributable to various products. When a merchantable height is specified as either some specific height or the height to some specific top-diameter (in which case the merchantable height is estimated per the following equation 3), the number of logs of specified lengths can be calculated for various products. Calculations can check that some merchantability specification is met for each log, including product-specific factors like minimum and maximum log length, minimum scaling-end diameters, trim allowance, etc.. Accounting for both a stump height and the log length allows the scaling diameters of each log to be estimated with equation 1.

Height Prediction for a Specified Diameter

Using the segments described, height above ground (feet) to a specified inside bark diameter (inches) can be estimated with the equation obtained by inverting the diameter as a function of height equation.

$$h=\begin{cases} H-(H-17.3)\left(a_1^{(q_2-q_1)}a_2^{(q_1-q_2)}\left(\frac{d^2}{D_{17.3}^2}\right)\right)^{\frac{1}{q_2}} & \text{if } \left(D_{17.3}^2 a_1^{(q_1-q_2)}a_2^{q_2} > d^2 \geq 0\right) \\ H-(H-17.3)\left(a_1^{(q_2-q_1)}\left(\frac{d^2}{D_{17.3}^2}\right)\right)^{\frac{1}{q_2}} & \text{if } \left(D_{17.3}^2 a_1^{q_1} > d^2 \geq D_{17.3}^2 a_1^{(q_1-q_2)}a_2^{q_2}\right) \\ H-(H-17.3)\left(\frac{d^2}{D_{17.3}^2}\right)^{\frac{1}{q_1}} & \text{if } \left(D_{17.3}^2 > d^2 \geq D_{17.3}^2 a_1^{q_1}\right) \\ 17.3-12.8\left(\frac{d^2-D_{17.3}^2}{D_{4.5}^2-D_{17.3}^2}\right)^{\frac{1}{p}} & \text{if } \left(D_{4.5}^2 > d^2 \geq D_{17.3}^2\right) \\ 4.5-4.5\left(\left(\frac{d^2}{D_{4.5}^2}-1\right)\frac{1}{cJ^{(r-p)}}\right)^{\frac{1}{p}} & \text{if } \left(D_{4.5}^2(1+cJ^r) > d^2 \geq D_{4.5}^2\right) \\ 4.5-4.5\left(\left(\frac{d^2}{D_{4.5}^2}-1\right)\frac{1}{c}\right)^{\frac{1}{r}} & \text{if } \left(D_{4.5}^2(1+c) > d^2 \geq D_{4.5}^2(1+cJ^r)\right) \\ 0 & \text{if } \left(d^2 \geq D_{4.5}^2(1+c)\right) \end{cases} \qquad \text{eq.3}$$

Observed dbh (ib), diameter (ib) at 17.3', and total height ($D_{4.5}$, $D_{17.3}$, and H, respectively) are used in prediction. Again, in practice, all these measurements are not available. However, only the dbh (ob) and H need be measured.

Auxiliary Variable Prediction

Auxillary models that include form class prediction and bark thickness predictions were fitted southwide, and by geographic area.

Auxiliary variables used to estimate taper include:

1) Dbh (ib) from dbh (ob), (dibdbh, dobdbh)
2) Diameter at 17.3' (ib) from diameter at 17.3' (ob), (dib173, dob173)
3) Diameter at 17.3' (ob) from diameter at 17.3' (ib), (dob173, dib173)
4) Diameter at 17.3' (ib) from dbh (ob), and total height, (dib173, dobdbh, tht)
5) Diameter at 17.3' (ob) from dbh (ob), and total height, (dob173, dobdbh, tht)

With model forms, respectively;

1) dibdbh=adibdbh+bdibdbh*dobdbh+adibdsz*dsize+bdibdsz*dsize*dobdbh;
dsize is an indicator for sawtimber sizes; =1 if dbh class>=9" for softwoods, >=11" for hardwoods.
Parameters are adibdbh, bdibdbh, adibdsz, and bdibdsz.

2) dib173=adibf+bdibf*dob173+adibfsz*dsize+bdibfsz*dsize*dob173;
Parameters are adibf, bdibf, adibfsz, and bdibfsz.

3) dob173=adobf+bdobf*dib173+adobfsz*dsize+bdobfsz*dsize*dib173;
Parameters are adobf, bdobf, adobfsz, and bdobfsz.

4) dib173=dbh/(1+exp(-(edib17th+(cdib17th+ndib17th*indicsd)*dbh
+ldib17th*log(tht)**2+mdib17th*indicsh +ddib17th*log(tht)+idib17th*dbh*log(tht))));
size indicator used are indicsh=(tht<30); indicsd=(dbh<=8);
Parameters are edib17th, cdib17th, ndib17th, ldib17th, mdib17th, ddib17th, and idib17th.

5) dob173=dbh/(1+exp(-(edob17th+(cdob17th+ndob17th*indicsd)*dbh
+ldob17th*log(tht)**2+mdob17th*indicsh+ddob17th*log(tht)+idob17th*dbh*log(tht))));
Parameters are edob17th, cdob17th, ndob17th, ldob17th, mdob17th, ddob17th, and idob17th.

Stem Weight of Wood and Bark Between Two Specified Heights

Weight of wood and bark for the portion of a stem between two specified heights may be calculated. Georgia Forestry Research Papers 79 and 60 (Clark and Saucier; Clark, Saucier and McNab, respectively) contain useful models that may be used to achieve this calculation. Stem weight of wood and bark based on dbh and height to a 4"-ob top can be calculated (cf. Table 33, GFRP 79), as well as the comparable inside-bark volume of wood (cf. Table 59, GFRP 79). The ratio of these two values, calculated for the stem from a .5' stump to the 4"-ob top height, can be used to produce an average weight-density that should be applicable to the entire stem with little error. This weight-density ratio would then multiply a predicted volume inside-bark (page 8 equation 2 above) between any two specified heights above ground to produce the associated weight of wood and bark. A variable weight-density, i.e. a density that changes with position within the stem from stump to tip, is implied by those models presented, and can be inferred for various sections of a stem by allowing the top-diameter to vary as a function of height using the prediction from the taper model (pg.5 equation1, above) together with the predicted volume (pg 8 eq. 2, above).

Appendix
FIA Taper Models: Data Description

FIA Taper Models: Species

Species name	Origin	Count
Individual Species		
American Beech	Combined	360
American Holly	Combined	53
Ash	Combined	332
Atlantic White Cedar	Combined	167
Baldcypress	Combined	163
Basswood	Combined	197
Birch	Combined	337
Black Cherry	Combined	103
Black Locust	Combined	347
Black Oak	Combined	938
Black Walnut	Combined	129
Buckeye	Combined	104
Cherrybark Oak	Combined	201
Chestnut Oak	Combined	1415
Eastern White Pine	Combined	525
Elm	Combined	408
Flowering Dogwood	Combined	43
Hackberry	Combined	159
Hemlock	Combined	290
Hickory	Combined	1643
Laurel Oak	Combined	474
Live Oak	Combined	96
Loblolly Pine	Natural	7564
Loblolly Pine	Planted	1349
Loblolly-Bay	Combined	48
Longleaf Pine	Natural	3709
Lowland Blackgum	Combined	876
Northern Red Oak	Combined	975
Other Scrub Oaks	Combined	229
Overcup Oak	Combined	139
Pitch Pine	Combined	341
Pond Pine	Combined	892
Pondcypress	Combined	350
Individual Species		
Post Oak	Combined	347
Red Cedar	Combined	215
Red Maple	Combined	1275
Sand Pine	Natural	283
Scarlet Oak	Combined	980
Shortleaf Pine	Natural	3789
Slash Pine	Natural	4193
Slash Pine	Planted	1559
Southern Magnolia	Combined	69
Southern Red Oak	Combined	873
Spruce Pine	Combined	98
Sugar Maple	Combined	77
Swamp Chestnut Oak	Combined	191
Sweetbay	Combined	245
Sweetgum	Combined	2265
Sycamore	Combined	331
Table Mountain Pine	Combined	138
Upland Blackgum	Combined	487
Virginia Pine	Combined	1610
Water Oak	Combined	702
Water Tupelo	Combined	258
White Oak	Combined	2517
Willow Oak	Combined	306
Yellow Birch	Combined	31
Yellow-poplar	Combined	2049
		Total 50061
Grouped Species		
Four Major Pines	Natural	19255
Hard Hardwoods	Combined	14018
Other Pines	Natural	3357
Red Oaks	Combined	5397
Soft Hardwoods	Combined	9345
White Oaks	Combined	4847

FIA Taper Models: Species and Geographic Regions

Geographic Region 9:Southwide

Species name	Origin
American Beech	Combined
Ash	Combined
Birch	Combined
Black Cherry	Combined
Black Locust	Combined
Black Oak	Combined
Black Walnut	Combined
Cherrybark Oak	Combined
Chestnut Oak	Combined
Eastern White Pine	Combined
Elm	Combined
Flowering Dogwood	Combined
Four Major Pines	Natural
Hackberry	Combined
Hard Hardwoods	Combined
Hickory	Combined
Loblolly Pine	Natural
Loblolly Pine	Planted
Longleaf Pine	Natural
Lowland Blackgum	Combined
Northern Red Oak	Combined
Other Pines	Natural
Post Oak	Combined
Red Cedar	Combined
Red Maple	Combined
Red Oaks	Combined
Scarlet Oak	Combined
Shortleaf Pine	Natural
Slash Pine	Natural
Slash Pine	Planted
Soft Hardwoods	Combined
Southern Magnolia	Combined
Southern Red Oak	Combined
Spruce Pine	Combined
Swamp Chestnut Oak	Combined
Sweetbay	Combined
Sweetgum	Combined
Sycamore	Combined
Table Mountain Pine	Combined
Upland Blackgum	Combined
Virginia Pine	Combined
Water Oak	Combined
White Oak	Combined
White Oaks	Combined
Willow Oak	Combined
Yellow-poplar	Combined

Geographic Region 1:Coastal Plain

Species name	Origin
American Beech	Combined
American Holly	Combined
Ash	Combined
Atlantic White Cedar	Combined
Baldcypress	Combined
Birch	Combined
Black Cherry	Combined
Black Oak	Combined
Cherrybark Oak	Combined
Chestnut Oak	Combined
Elm	Combined
Four Major Pines	Natural
Hackberry	Combined
Hard Hardwoods	Combined
Hickory	Combined
Laurel Oak	Combined
Live Oak	Combined
Loblolly Pine	Natural
Loblolly Pine	Planted
Loblolly-Bay	Combined
Longleaf Pine	Natural
Lowland Blackgum	Combined
Northern Red Oak	Combined
Other Pines	Natural
Other Scrub Oaks	Combined
Pond Pine	Combined
Pondcypress	Combined
Post Oak	Combined
Red Cedar	Combined
Red Maple	Combined
Red Oaks	Combined
Sand Pine	Natural
Scarlet Oak	Combined
Shortleaf Pine	Natural
Slash Pine	Natural
Slash Pine	Planted
Soft Hardwoods	Combined
Southern Magnolia	Combined
Southern Red Oak	Combined
Spruce Pine	Combined
Swamp Chestnut Oak	Combined
Sweetbay	Combined
Sweetgum	Combined
Sycamore	Combined
Upland Blackgum	Combined
Virginia Pine	Combined
Water Oak	Combined
Water Tupelo	Combined
White Oak	Combined
White Oaks	Combined
Willow Oak	Combined
Yellow-poplar	Combined

Geographic Region 2:Piedmont

Species name	Origin
American Beech	Combined
Ash	Combined
Birch	Combined
Black Cherry	Combined
Black Locust	Combined
Black Oak	Combined
Black Walnut	Combined
Cherrybark Oak	Combined
Chestnut Oak	Combined
Eastern White Pine	Combined
Elm	Combined
Four Major Pines	Natural
Hackberry	Combined
Hard Hardwoods	Combined
Hickory	Combined
Loblolly Pine	Natural
Loblolly Pine	Planted
Longleaf Pine	Natural
Lowland Blackgum	Combined
Northern Red Oak	Combined
Other Pines	Natural
Post Oak	Combined
Red Cedar	Combined
Red Maple	Combined
Red Oaks	Combined
Scarlet Oak	Combined
Shortleaf Pine	Natural
Soft Hardwoods	Combined
Southern Red Oak	Combined
Swamp Chestnut Oak	Combined
Sweetgum	Combined
Sycamore	Combined
Upland Blackgum	Combined
Virginia Pine	Combined
Water Oak	Combined
White Oak	Combined
White Oaks	Combined
Willow Oak	Combined
Yellow-poplar	Combined

Geographic Region 3:Appalachian

Species name	Origin
American Beech	Combined
Ash	Combined
Basswood	Combined
Birch	Combined
Black Cherry	Combined
Black Locust	Combined
Black Oak	Combined
Black Walnut	Combined
Buckeye	Combined
Chestnut Oak	Combined
Eastern White Pine	Combined
Elm	Combined
Four Major Pines	Natural
Hard Hardwoods	Combined
Hemlock	Combined
Hickory	Combined
Loblolly Pine	Natural
Northern Red Oak	Combined
Other Pines	Natural
Pitch Pine	Combined
Red Cedar	Combined
Red Maple	Combined
Red Oaks	Combined
Scarlet Oak	Combined
Shortleaf Pine	Natural
Soft Hardwoods	Combined
Southern Red Oak	Combined
Sugar Maple	Combined
Sweetgum	Combined
Sycamore	Combined
Table Mountain Pine	Combined
Upland Blackgum	Combined
Virginia Pine	Combined
White Oak	Combined
White Oaks	Combined
Yellow Birch	Combined
Yellow-poplar	Combined

Geographic Region 4:Upper Coastal Plain

Species name	Origin
Four Major Pines	Natural
Hard Hardwoods	Combined
Hickory	Combined
Loblolly Pine	Natural
Post Oak	Combined
Red Oaks	Combined
Shortleaf Pine	Natural
Soft Hardwoods	Combined
Sweetgum	Combined
White Oak	Combined
White Oaks	Combined

Geographic Region 5:Deep South

Species name	Origin
American Beech	Combined
Cherrybark Oak	Combined
Elm	Combined
Four Major Pines	Natural
Hard Hardwoods	Combined
Hickory	Combined
Loblolly Pine	Natural
Longleaf Pine	Natural
Other Pines	Natural
Post Oak	Combined
Red Maple	Combined
Red Oaks	Combined
Shortleaf Pine	Natural
Slash Pine	Natural
Slash Pine	Planted
Soft Hardwoods	Combined
Southern Magnolia	Combined
Southern Red Oak	Combined
Spruce Pine	Combined
Sweetbay	Combined
Sweetgum	Combined
Sycamore	Combined
Upland Blackgum	Combined
Water Oak	Combined
White Oak	Combined
White Oaks	Combined
Willow Oak	Combined
Yellow-poplar	Combined

Geographic Region 6:Arkansas

Species name	Origin
Black Oak	Combined
Four Major Pines	Natural
Hard Hardwoods	Combined
Hickory	Combined
Loblolly Pine	Natural
Northern Red Oak	Combined
Post Oak	Combined
Red Oaks	Combined
Shortleaf Pine	Natural
Soft Hardwoods	Combined
Upland Blackgum	Combined
White Oak	Combined
White Oaks	Combined

Geographic Region 7:Delta

Species name	Origin
Black Oak	Combined
Elm	Combined
Hackberry	Combined
Hard Hardwoods	Combined
Hickory	Combined
Overcup Oak	Combined
Red Oaks	Combined
Soft Hardwoods	Combined
Southern Red Oak	Combined
Sweetgum	Combined
White Oak	Combined
White Oaks	Combined

Data does not support a separate model for the species/region

CODE	Species Name	Region	Pulpwood Number Sample Trees	Pulpwood D.b.h. Avg.	Pulpwood D.b.h. Range	Pulpwood Total Height Avg.	Pulpwood Total Height Range	Pulpwood Form Class Avg.	Pulpwood Form Class Range	Sawtimber Number Sample Trees	Sawtimber D.b.h. Avg.	Sawtimber D.b.h. Range	Sawtimber Total Height Avg.	Sawtimber Total Height Range	Sawtimber Form Class Avg.	Sawtimber Form Class Range
			Count	Inches		Feet		%		Count	Inches		Feet		%	
043	Atlantic White Cedar Combined	9:Southwide	79	6.8	5.1- 8.4	50.7	31.0- 76.0	78	53- 91	88	12.3	8.6- 24.1	63.2	35.0- 89.0	75	58- 91
043	Atlantic White Cedar Combined	1:Coastal Plain	79	6.8	5.1- 8.4	50.7	31.0- 76.0	78	53- 91	88	12.3	8.8- 24.1	63.3	35.0- 89.0	75	58- 91
060	Red Cedar Combined	9:Southwide	133	6.5	5.0- 8.4	35.8	22.0- 52.0	63	40- 83	82	10.4	8.5- 19.2	46.5	26.0- 67.0	72	43- 89
060	Red Cedar Combined	1:Coastal Plain	30	7.2	5.0- 8.4	37.8	28.0- 52.0	66	40- 83	22	10.4	8.5- 19.2	44.3	26.0- 62.0	70	51- 87
060	Red Cedar Combined	2:Piedmont	79	6.2	5.0- 8.4	35.4	25.0- 50.0	63	41- 83	53	10.6	8.5- 15.7	48.2	33.0- 67.0	75	45- 89
060	Red Cedar Combined	3:Appalachian Mountains	24	6.8	5.5- 8.4	35.6	22.0- 47.0	61	45- 80	7	9.4	8.7- 10.8	40.1	31.0- 48.0	61	43- 74
107	Sand Pine Natural	9:Southwide	150	6.8	5.0- 8.4	48.8	29.0- 69.0	77	42- 92	133	10.7	8.5- 18.4	58.4	32.0- 88.0	79	51- 93
107	Sand Pine Natural	1:Coastal Plain	150	6.8	5.0- 8.4	48.8	29.0- 69.0	77	42- 92	133	10.7	8.5- 18.4	58.4	32.0- 88.0	79	51- 93
110	Shortleaf Pine Natural	9:Southwide	1195	8.7	5.0- 8.4	48.7	24.0- 76.9	70	39- 89	2574	13.0	8.5- 24.2	67.5	28.0-110.5	79	41- 93
110	Shortleaf Pine Natural	1:Coastal Plain	216	6.6	5.0- 8.4	42.2	24.0- 67.0	68	40- 89	269	11.9	8.5- 21.7	61.9	32.0- 96.0	78	54- 93
110	Shortleaf Pine Natural	2:Piedmont	765	8.7	5.0- 8.4	46.4	25.0- 75.0	69	40- 89	1166	11.9	8.5- 23.8	62.6	28.0-110.5	77	41- 93
110	Shortleaf Pine Natural	3:Appalachian Mountains	110	6.9	5.0- 8.4	48.5	28.0- 74.0	70	39- 88	289	12.9	8.5- 22.9	71.0	35.0-107.1	80	60- 92
110	Shortleaf Pine Natural	4:Upper Coastal Plain	6	7.0	5.8- 8.4	66.4	50.8- 78.0	79	75- 83	128	13.9	8.7- 22.5	78.3	59.1-106.1	82	72- 90
110	Shortleaf Pine Natural	5:Deep South	62	6.6	5.0- 8.4	54.4	35.8- 71.8	75	57- 84	250	14.1	8.5- 24.2	79.9	38.2-106.5	82	64- 91
110	Shortleaf Pine Natural	6:Arkansas	36	7.0	5.2- 8.4	56.3	46.3- 66.8	78	67- 83	472	15.8	8.8- 22.8	71.2	32.8- 96.0	82	64- 91
111	Slash Pine Planted	9:Southwide	1086	6.7	5.0- 8.4	51.2	27.0- 79.0	69	40-100	473	10.2	8.5- 19.1	66.0	36.0-110.0	75	54- 90
111	Slash Pine Planted	1:Coastal Plain	872	6.7	5.0- 8.4	51.0	27.0- 75.0	69	40-100	356	9.9	8.5- 17.4	64.2	36.0- 98.0	75	54- 90
111	Slash Pine Planted	2:Piedmont	8	6.7	5.8- 8.4	47.8	45.0- 50.0	75	70- 78	.	.	. - .	.	. - .	.	. - .
111	Slash Pine Planted	5:Deep South	208	6.6	5.0- 8.4	52.4	28.0- 79.0	69	44- 81	117	11.0	8.5- 19.1	71.6	44.0-110.0	76	64- 88
111	Slash Pine Natural	9:Southwide	2075	6.5	5.0- 8.4	47.4	25.0- 82.0	67	40- 87	2118	11.9	8.5- 23.8	68.5	30.0-108.0	76	54- 92
111	Slash Pine Natural	1:Coastal Plain	2046	6.5	5.0- 8.4	47.3	25.0- 82.0	67	40- 87	1996	11.9	8.5- 23.8	67.7	30.0-108.0	76	54- 92
111	Slash Pine Natural	2:Piedmont	2	6.4	6.0- 6.8	29.0	28.0- 30.0	48	40- 57	.	.	. - .	.	. - .	.	. - .
111	Slash Pine Natural	5:Deep South	27	6.8	5.1- 8.3	56.8	44.3- 73.0	71	63- 77	132	13.8	8.5- 21.4	80.4	43.6-101.8	79	69- 87
115	Spruce Pine Combined	9:Southwide	12	7.0	5.1- 8.2	57.2	39.0- 65.0	79	69- 89	86	14.4	8.5- 22.7	80.9	46.0-107.0	82	70- 89
115	Spruce Pine Combined	1:Coastal Plain	5	7.7	6.7- 9.2	56.8	39.0- 65.0	79	69- 83	33	14.9	8.7- 22.7	81.5	46.0-107.0	81	70- 88
115	Spruce Pine Combined	5:Deep South	7	6.6	5.1- 7.7	57.4	51.4- 64.6	79	71- 89	53	14.1	8.5- 22.2	80.5	61.9- 98.9	83	74- 89
121	Longleaf Pine Natural	9:Southwide	933	6.8	5.0- 8.4	51.0	27.0- 81.0	73	43- 90	2776	12.3	8.5- 26.4	68.1	29.0- 99.3	78	42- 93
121	Longleaf Pine Natural	1:Coastal Plain	842	6.8	5.0- 8.4	50.5	27.0- 81.0	72	43- 90	2405	12.2	8.5- 26.4	65.2	29.0- 96.0	78	42- 93
121	Longleaf Pine Natural	2:Piedmont	26	6.6	5.0- 8.4	49.0	29.0- 79.0	72	48- 87	102	13.3	8.5- 19.3	71.1	30.0- 98.1	79	44- 87
121	Longleaf Pine Natural	5:Deep South	65	7.0	5.5- 8.4	59.4	36.9- 77.2	78	58- 86	269	15.5	8.5- 22.2	72.2	41.5- 99.3	80	53- 89
123	Table Mountain Pine Combined	9:Southwide	73	6.5	5.0- 8.3	42.2	22.0- 59.0	75	47- 88	65	11.2	8.5- 17.4	51.5	25.0- 68.8	77	42- 89
123	Table Mountain Pine Combined	2:Piedmont	1	6.0	6.0- 6.0	33.0	33.0- 33.0	65	65- 65	.	.	. - .	.	. - .	.	. - .
123	Table Mountain Pine Combined	3:Appalachian Mountains	72	6.5	5.0- 8.3	42.3	22.0- 59.0	75	47- 88	65	11.2	8.5- 17.4	51.5	25.0- 68.8	77	42- 89
126	Pitch Pine Combined	9:Southwide	101	6.9	5.0- 8.4	41.8	24.0- 74.8	68	46- 82	240	12.9	8.5- 22.2	60.3	29.0-103.0	78	44- 90
126	Pitch Pine Combined	2:Piedmont	21	6.9	5.3- 8.4	32.0	24.0- 60.0	61	46- 76	11	10.8	8.5- 15.0	39.8	33.0- 47.0	69	61- 79
126	Pitch Pine Combined	3:Appalachian Mountains	80	6.9	5.0- 8.4	44.3	24.0- 74.8	69	47- 82	229	13.0	8.5- 22.2	61.3	29.0-103.0	77	44- 90
128	Pond Pine Combined	9:Southwide	317	6.8	5.0- 8.4	44.2	26.0- 71.0	68	40- 84	575	12.2	8.5- 22.0	60.8	30.0- 87.0	75	40- 91
128	Pond Pine Combined	1:Coastal Plain	314	6.8	5.0- 8.4	44.2	26.0- 71.0	68	40- 84	569	12.1	8.5- 22.0	60.8	30.0- 87.0	75	40- 91
128	Pond Pine Combined	2:Piedmont	3	8.4	5.0- 7.3	43.0	39.0- 48.0	71	66- 79	6	13.6	8.8- 20.5	61.8	47.0- 76.0	77	72- 80
129	Eastern White Pine Combined	9:Southwide	138	6.7	5.0- 8.4	47.3	28.0- 73.7	73	45- 88	387	15.4	8.5- 30.6	78.0	37.0-149.8	77	61- 89
129	Eastern White Pine Combined	1:Coastal Plain	1	7.9	7.9- 7.9	50.0	50.0- 50.0	78	78- 78	.	.	. - .	.	. - .	.	. - .
129	Eastern White Pine Combined	2:Piedmont	8	6.5	5.5- 8.3	40.3	31.0- 54.0	65	48- 78	29	14.2	8.8- 20.0	63.8	44.0- 84.0	74	62- 82
129	Eastern White Pine Combined	3:Appalachian Mountains	129	6.7	5.0- 8.4	47.7	28.0- 73.7	74	45- 88	358	15.4	8.5- 30.6	79.2	37.0-149.8	78	61- 89
131	Loblolly Pine Planted	9:Southwide	797	6.7	5.0- 8.4	47.3	22.2- 77.1	66	13- 87	552	11.5	8.5- 22.5	68.6	38.1- 96.0	76	51- 92
131	Loblolly Pine Planted	1:Coastal Plain	397	6.8	5.0- 8.4	48.1	25.0- 77.1	67	42- 83	353	12.3	8.5- 22.5	71.1	38.1- 98.0	78	51- 92
131	Loblolly Pine Planted	2:Piedmont	385	6.6	5.0- 8.4	45.4	22.2- 75.0	66	13- 87	199	10.1	8.5- 15.0	64.1	44.0- 89.0	76	64- 90
131	Loblolly Pine Planted	3:Appalachian Mountains	15	6.4	5.1- 8.1	48.5	41.0- 56.0	66	52- 75	.	.	. - .	.	. - .	.	. - .
131	Loblolly Pine Natural	9:Southwide	2100	6.8	5.0- 8.4	48.7	24.0- 80.4	69	39- 92	5484	13.7	8.5- 38.3	73.1	28.0-132.2	77	41- 93
131	Loblolly Pine Natural	1:Coastal Plain	1315	6.8	5.0- 8.4	48.7	24.0- 80.4	70	39- 92	3650	13.5	8.5- 38.3	72.9	30.0-128.8	77	43- 93
131	Loblolly Pine Natural	2:Piedmont	679	6.7	5.0- 8.4	48.1	26.0- 75.0	68	40- 88	1309	13.2	8.5- 33.6	70.9	28.0-125.2	77	42- 90
131	Loblolly Pine Natural	3:Appalachian Mountains	65	6.9	5.1- 8.4	49.5	29.0- 75.0	69	45- 81	27	11.0	8.6- 15.7	61.8	45.0- 79.0	77	58- 84
131	Loblolly Pine Natural	4:Upper Coastal Plain	.	.	. - .	.	. - .	.	. - .	90	15.8	9.0- 22.5	78.2	57.8-105.4	78	66- 89
131	Loblolly Pine Natural	5:Deep South	41	7.1	5.4- 8.4	56.2	42.8- 71.5	73	55- 84	335	15.9	8.5- 29.5	81.4	33.0-132.2	80	41- 93
131	Loblolly Pine Natural	6:Arkansas	.	.	. - .	.	. - .	.	. - .	73	17.5	9.4- 24.8	80.1	59.6-104.5	79	72- 89
132	Virginia Pine Combined	9:Southwide	813	6.7	5.0- 8.4	49.0	25.0- 82.0	75	43- 98	797	11.3	8.5- 21.6	64.2	29.0-100.0	79	45- 94
132	Virginia Pine Combined	1:Coastal Plain	61	6.8	5.0- 8.4	51.4	27.0- 76.0	78	42- 93	73	10.9	8.5- 18.3	65.8	38.0- 84.0	79	59- 90
132	Virginia Pine Combined	2:Piedmont	534	6.6	5.0- 8.4	48.5	26.0- 82.0	74	42- 95	438	11.0	8.5- 21.6	62.0	32.0- 96.0	78	45- 91
132	Virginia Pine Combined	3:Appalachian Mountains	218	6.8	5.0- 8.4	49.7	25.0- 76.8	76	41- 96	251	11.9	8.5- 21.1	66.3	29.0-100.0	79	45- 94
132	Virginia Pine Combined	4:Upper Coastal Plain	.	.	. - .	.	. - .	.	. - .	85	12.2	8.2- 16.8	72.8	57.3- 84.6	80	74- 87
221	Baldcypress Combined	9:Southwide	41	6.9	5.0- 8.3	51.8	30.0- 69.0	72	43- 88	122	15.5	8.6- 21.5	78.3	35.0-108.3	73	60- 86
221	Baldcypress Combined	1:Coastal Plain	41	6.9	5.0- 8.3	51.8	30.0- 69.0	72	43- 88	122	15.5	8.6- 21.5	78.3	35.0-108.3	73	60- 86
222	Pondcypress Combined	9:Southwide	129	6.9	5.1- 8.4	47.8	22.0- 71.4	62	43- 83	221	12.1	8.5- 26.6	64.8	30.0- 93.0	69	50- 85
222	Pondcypress Combined	1:Coastal Plain	129	6.9	5.1- 8.4	47.8	22.0- 71.4	62	43- 83	221	12.1	8.5- 26.6	64.8	30.0- 93.0	69	50- 85

			Pulpwood										Sawtimber									
			Number Sample Trees	D.b.h.			Total Height			Form Class			Number Sample Trees	D.b.h.			Total Height			Form Class		
CODE	Species Name	Region		Avg.	Range		Avg.	Range		Avg.	Range			Avg.	Range		Avg.	Range		Avg.	Range	
			Count	Inches			Feet			%			Count	Inches			Feet			%		
260	Hemlock Combined	9:Southwide	70	8.9	5.0- 8.4		47.5	27.0- 91.4		68	40- 88		220	17.3	8.8- 48.7		80.8	44.0-134.8		78	51- 92	
260	Hemlock Combined	2:Piedmont	1	5.0	5.0- 5.0		34.0	34.0- 34.0		52	52- 52		1	27.6	27.6- 27.6		126.0	126.0-126.0		82	82- 82	
260	Hemlock Combined	3:Appalachian Mountains	69	7.0	5.1- 8.4		47.7	27.0- 91.4		68	40- 88		219	17.5	8.8- 48.7		80.8	44.0-134.8		78	51- 92	
316	Red Maple Combined	9:Southwide	711	7.4	5.0-10.4		52.4	29.0- 88.3		71	42- 88		564	15.0	10.5- 41.8		71.1	40.0-114.0		76	45- 94	
316	Red Maple Combined	1:Coastal Plain	275	7.5	5.0-10.4		52.1	29.0- 78.0		71	42- 88		231	14.7	10.5- 41.8		68.6	40.0- 95.0		75	45- 91	
316	Red Maple Combined	2:Piedmont	226	7.4	5.0-10.4		50.8	29.0- 79.0		69	41- 87		146	14.9	10.5- 38.6		67.4	41.0- 97.0		75	61- 94	
316	Red Maple Combined	3:Appalachian Mountains	203	7.3	5.0-10.4		53.9	32.0- 88.3		73	42- 88		186	15.7	10.5- 33.0		75.9	44.0-114.0		78	61- 90	
316	Red Maple Combined	5:Deep South	7	9.4	8.0-10.4		71.3	60.5- 85.4		79	73- 85		21	13.6	10.9- 16.8		77.7	64.4- 90.3		79	69- 88	
318	Sugar Maple Combined	9:Southwide	37	7.6	5.1-10.3		52.2	27.0- 75.0		72	53- 86		40	14.9	10.6- 29.7		69.5	51.0- 91.0		78	69- 84	
318	Sugar Maple Combined	1:Coastal Plain	-	-	- -		-	- -		-	- -		1	12.5	12.5- 12.5		82.0	82.0- 82.0		94	84- 94	
318	Sugar Maple Combined	2:Piedmont	-	-	- -		-	- -		-	- -		3	13.9	11.0- 16.1		60.0	58.0- 62.0		79	71- 81	
318	Sugar Maple Combined	3:Appalachian Mountains	37	7.6	5.1-10.3		52.2	27.0- 75.0		72	53- 86		36	15.1	10.6- 29.7		68.8	51.0- 91.0		78	69- 87	
330	Buckeye Combined	9:Southwide	41	7.4	5.0-10.4		49.8	30.0- 77.6		68	42- 82		63	15.8	10.5- 30.1		77.0	43.0-109.1		79	60- 89	
330	Buckeye Combined	3:Appalachian Mountains	41	7.4	5.0-10.4		49.8	30.0- 77.6		68	42- 82		63	15.8	10.5- 30.1		77.0	43.0-109.1		79	60- 89	
370	Birch Combined	9:Southwide	163	7.6	5.0-10.4		59.2	24.0- 96.0		74	46- 92		174	15.2	10.5- 29.1		76.5	48.0-106.2		78	60- 90	
370	Birch Combined	1:Coastal Plain	18	8.6	6.2-10.0		54.8	34.0- 75.0		72	56- 81		27	15.7	10.5- 25.2		70.9	55.0- 88.0		75	63- 86	
370	Birch Combined	2:Piedmont	41	7.6	5.2-10.4		57.3	37.0- 77.0		68	51- 85		55	16.9	10.5- 28.1		75.7	55.0- 95.0		78	63- 88	
370	Birch Combined	3:Appalachian Mountains	104	7.4	5.0-10.4		60.7	24.0- 96.0		77	46- 92		92	14.1	10.6- 26.2		78.5	48.0-106.2		80	60- 90	
371	Yellow Birch Combined	9:Southwide	26	7.8	5.6-10.2		57.2	43.0- 74.0		78	47- 88		25	19.7	10.5- 38.0		71.0	48.0- 88.0		81	63- 93	
371	Yellow Birch Combined	3:Appalachian Mountains	26	7.8	5.6-10.2		57.2	43.0- 74.0		78	47- 88		25	19.7	10.5- 38.0		71.0	48.0- 88.0		81	63- 93	
400	Hickory Combined	9:Southwide	655	7.7	5.0-10.4		55.5	24.0- 89.0		68	40- 89		988	15.0	10.5- 33.8		79.2	26.0-126.0		78	45- 91	
400	Hickory Combined	1:Coastal Plain	141	7.5	5.0-10.4		51.4	29.0- 76.0		67	40- 89		156	14.9	10.5- 29.1		74.9	43.0-120.0		77	45- 89	
400	Hickory Combined	2:Piedmont	216	7.8	5.0-10.4		56.6	31.0- 89.0		68	41- 87		278	14.3	10.5- 33.3		76.7	45.0-126.0		78	61- 91	
400	Hickory Combined	3:Appalachian Mountains	233	7.6	5.0-10.4		54.4	24.0- 87.0		68	41- 83		262	15.6	10.5- 33.8		81.6	26.0-122.0		78	61- 91	
400	Hickory Combined	4:Upper Coastal Plain	2	7.2	6.8- 7.6		54.8	53.6- 56.0		72	70- 74		42	14.7	10.6- 19.3		82.6	67.9-100.3		81	72- 88	
400	Hickory Combined	5:Deep South	23	8.6	6.0-10.4		64.4	54.5- 70.8		69	61- 76		69	15.1	10.5- 21.2		82.2	60.1-109.4		78	67- 87	
400	Hickory Combined	6:Arkansas	24	8.0	6.2-10.3		68.5	47.3- 88.9		74	63- 81		129	15.0	10.5- 21.2		81.6	61.3- 99.6		78	67- 89	
400	Hickory Combined	7:Delta	16	8.0	5.4-10.4		61.9	45.3- 76.8		72	58- 79		52	14.9	11.0- 20.8		81.5	61.0-112.2		78	70- 85	
460	Hackberry Combined	9:Southwide	46	8.3	5.1-10.4		54.6	28.0- 78.7		68	44- 80		113	17.1	10.6- 29.0		77.6	52.9-105.9		77	55- 90	
460	Hackberry Combined	1:Coastal Plain	23	8.3	5.1-10.4		54.2	28.0- 76.0		69	46- 79		16	15.6	11.2- 24.3		73.3	59.0- 96.0		78	60- 90	
460	Hackberry Combined	2:Piedmont	4	8.0	6.5- 9.5		54.0	43.0- 63.0		67	60- 71		7	14.2	10.6- 16.4		70.6	61.0- 88.0		68	62- 76	
460	Hackberry Combined	3:Appalachian Mountains	5	7.1	5.7- 8.4		42.8	32.0- 48.0		54	44- 65		1	10.8	10.8- 10.8		58.0	58.0- 58.0		75	75- 75	
460	Hackberry Combined	5:Deep South	5	8.6	6.1- 9.8		60.5	52.4- 78.7		75	67- 80		3	12.7	11.8- 14.0		72.4	62.7- 80.9		81	77- 85	
460	Hackberry Combined	7:Delta	9	8.8	7.1-10.2		59.1	49.3- 68.5		72	60- 78		86	17.8	10.6- 29.0		79.4	52.9-105.9		77	55- 88	
491	Flowering Dogwood Combined	9:Southwide	43	6.2	5.1- 9.6		33.7	22.0- 47.0		53	38- 78		-	-	- -		-	- -		-	- -	
491	Flowering Dogwood Combined	1:Coastal Plain	18	6.5	5.3- 9.0		32.2	22.0- 45.0		57	40- 78		-	-	- -		-	- -		-	- -	
491	Flowering Dogwood Combined	2:Piedmont	11	5.8	5.3- 6.8		33.4	30.0- 42.0		53	39- 69		-	-	- -		-	- -		-	- -	
491	Flowering Dogwood Combined	3:Appalachian Mountains	14	6.2	5.1- 9.7		35.7	27.0- 47.0		50	41- 64		-	-	- -		-	- -		-	- -	
521	Common Persimmon Combined	9:Southwide	34	6.7	5.0- 9.1		45.6	28.0- 83.0		63	42- 81		7	13.3	10.7- 17.5		67.4	58.0- 78.0		75	64- 82	
521	Common Persimmon Combined	1:Coastal Plain	14	6.5	5.0- 9.9		43.5	28.0- 60.0		64	42- 77		4	14.3	10.7- 17.5		69.0	62.0- 79.0		76	69- 82	
521	Common Persimmon Combined	2:Piedmont	15	7.2	5.0- 9.1		50.5	30.0- 83.0		65	43- 81		3	11.9	11.3- 12.3		65.3	58.0- 71.0		72	64- 77	
521	Common Persimmon Combined	3:Appalachian Mountains	5	6.0	5.5- 6.7		38.8	30.0- 47.0		54	47- 62		-	-	- -		-	- -		-	- -	
531	American Beech Combined	9:Southwide	119	8.0	5.1-10.3		52.4	30.0- 78.0		72	43- 90		241	16.5	10.5- 35.0		73.8	47.0-110.0		81	60- 93	
531	American Beech Combined	1:Coastal Plain	23	8.0	5.1-10.1		49.5	30.0- 66.0		69	43- 86		32	17.2	10.7- 25.2		74.0	56.0- 92.0		80	61- 93	
531	American Beech Combined	2:Piedmont	27	7.8	5.4-10.2		50.3	32.0- 72.0		71	52- 86		44	17.8	10.6- 31.2		73.1	54.0-102.0		78	60- 93	
531	American Beech Combined	3:Appalachian Mountains	47	7.7	5.1-10.2		49.7	30.0- 78.0		71	46- 90		91	17.0	10.5- 35.0		72.7	47.0-110.0		78	63- 90	
531	American Beech Combined	5:Deep South	22	9.0	7.3-10.3		64.1	55.5- 70.8		76	73- 88		74	14.6	10.8- 19.8		75.9	57.5- 91.0		85	75- 93	
540	Ash Combined	9:Southwide	183	7.5	5.0-10.4		56.1	30.0- 93.0		70	41- 86		150	15.0	10.5- 27.8		77.9	44.0-134.0		76	61- 89	
540	Ash Combined	1:Coastal Plain	98	7.5	5.0-10.4		57.6	35.0- 80.0		72	41- 86		77	15.5	10.5- 25.0		81.8	53.0-128.0		76	64- 89	
540	Ash Combined	2:Piedmont	54	7.6	5.0-10.2		55.8	32.0- 93.0		68	51- 81		46	13.8	10.5- 26.7		73.4	56.0- 94.0		75	61- 87	
540	Ash Combined	3:Appalachian Mountains	32	7.4	5.0-10.2		52.3	30.0- 73.0		68	42- 84		27	15.5	10.5- 27.8		74.6	44.0-134.0		78	69- 85	
555	Loblolly-Bay Combined	9:Southwide	39	7.0	5.1- 9.7		46.5	30.0- 59.0		67	49- 77		9	11.8	10.5- 14.7		84.0	53.0- 93.0		72	63- 80	
555	Loblolly-Bay Combined	1:Coastal Plain	39	7.0	5.1- 9.7		46.5	30.0- 59.0		67	49- 77		9	11.8	10.5- 14.7		84.0	53.0- 93.0		72	63- 80	
591	American Holly Combined	9:Southwide	40	7.3	5.0-10.4		36.1	25.0- 47.0		64	44- 84		15	13.7	10.5- 16.3		53.3	37.0- 67.0		76	63- 86	
591	American Holly Combined	1:Coastal Plain	36	7.3	5.0-10.4		36.6	25.0- 47.0		64	44- 84		13	13.7	10.5- 16.3		53.3	37.0- 67.0		76	63- 86	
591	American Holly Combined	2:Piedmont	4	7.8	6.8- 8.5		32.6	28.0- 39.0		59	44- 72		-	-	- -		-	- -		-	- -	
602	Black Walnut Combined	9:Southwide	75	7.8	5.1-10.4		50.5	33.0- 71.0		68	48- 82		54	14.1	10.5- 21.8		67.9	48.0- 99.0		74	63- 87	
602	Black Walnut Combined	1:Coastal Plain	4	8.4	5.6-10.3		54.5	44.0- 62.0		65	58- 71		4	15.7	11.2- 21.8		62.8	57.0- 68.0		75	71- 80	
602	Black Walnut Combined	2:Piedmont	27	7.8	5.2- 9.7		50.1	38.0- 65.0		66	48- 78		19	13.6	10.5- 19.5		62.2	54.0- 88.0		72	63- 85	
602	Black Walnut Combined	3:Appalachian Mountains	44	7.5	5.1-10.4		50.3	33.0- 71.0		69	48- 82		31	14.0	10.6- 19.7		72.1	48.0- 99.0		75	65- 87	

CODE	Species Name	Region	Pulpwood Number Sample Trees	Pulpwood D.b.h. Avg.	Pulpwood D.b.h. Range	Pulpwood Total Height Avg.	Pulpwood Total Height Range	Pulpwood Form Class Avg.	Pulpwood Form Class Range	Sawtimber Number Sample Trees	Sawtimber D.b.h. Avg.	Sawtimber D.b.h. Range	Sawtimber Total Height Avg.	Sawtimber Total Height Range	Sawtimber Form Class Avg.	Sawtimber Form Class Range
			Count	Inches		Feet		%		Count	Inches		Feet		%	
611	Sweetgum Combined	9:Southwide	1040	7.6	5.0-10.4	56.7	27.0-103.0	68	43- 91	1225	15.1	10.5- 32.6	84.4	45.0-128.0	77	54- 90
611	Sweetgum Combined	1:Coastal Plain	567	7.6	5.0-10.4	56.2	27.0-103.0	69	43- 91	640	14.6	10.5- 32.6	80.0	46.0-128.0	77	54- 90
611	Sweetgum Combined	2:Piedmont	428	7.5	5.0-10.4	56.5	30.0-101.4	68	43- 87	342	14.8	10.5- 28.6	84.6	45.0-121.6	78	59- 93
611	Sweetgum Combined	3:Appalachian Mountains	11	8.0	6.1-10.2	60.5	42.0- 77.0	67	48- 77	11	13.4	10.5- 21.6	84.0	62.0-112.8	76	65- 81
611	Sweetgum Combined	4:Upper Coastal Plain	5	8.3	6.5-10.0	63.5	44.4- 74.1	72	70- 74	85	14.8	11.2- 20.2	87.4	64.8-115.0	76	71- 87
611	Sweetgum Combined	5:Deep South	22	8.7	5.9-10.4	66.7	54.8- 84.8	73	60- 81	93	14.9	10.5- 20.7	87.2	63.0-114.4	78	64- 85
611	Sweetgum Combined	7:Delta	7	8.5	7.3- 9.8	72.9	63.1- 85.9	74	68- 78	104	20.0	10.8- 32.0	105.7	67.7-127.9	79	67- 88
621	Yellow-poplar Combined	9:Southwide	710	7.9	5.0-10.4	61.6	22.0-103.0	72	42- 91	1335	15.6	10.5- 39.5	88.3	42.0-135.4	78	59- 92
621	Yellow-poplar Combined	1:Coastal Plain	130	7.9	5.0-10.4	59.9	35.0- 91.0	74	44- 85	301	15.5	10.5- 31.4	83.7	52.0-117.0	77	59- 87
621	Yellow-poplar Combined	2:Piedmont	346	8.0	5.0-10.4	62.1	36.0-103.0	72	42- 91	606	15.4	10.5- 39.5	86.4	51.0-135.0	77	62- 93
621	Yellow-poplar Combined	3:Appalachian Mountains	224	7.8	5.0-10.4	61.9	22.0-102.0	71	46- 90	337	15.9	10.5- 31.3	93.1	42.0-135.4	79	61- 89
621	Yellow-poplar Combined	4:Upper Coastal Plain	.	.	. - .	.	. - .	.	. - .	23	27.4	11.4- 24.0	101.9	79.7-119.1	81	78- 85
621	Yellow-poplar Combined	5:Deep South	10	7.8	5.7-10.3	65.1	55.6- 83.7	78	75- 81	55	15.2	10.9- 23.0	93.9	67.4-109.4	81	72- 88
621	Yellow-poplar Combined	7:Delta	.	.	. - .	.	. - .	.	. - .	34	17.0	11.9- 21.1	98.8	76.1-114.0	78	73- 84
651	Cucumbertree Combined	9:Southwide	14	7.7	5.1-10.4	56.6	41.0- 96.4	74	55- 88	15	14.8	10.6- 22.0	80.1	61.0-106.0	76	61- 87
651	Cucumbertree Combined	2:Piedmont	1	5.1	5.1- 5.1	41.0	41.0- 41.0	69	69- 69	1	19.6	19.6- 19.6	76.0	76.0- 76.0	74	74- 74
651	Cucumbertree Combined	3:Appalachian Mountains	13	7.9	5.3-10.4	58.6	51.0- 96.4	74	55- 88	14	14.5	10.6- 22.0	80.4	61.0-106.0	76	61- 87
652	Southern Magnolia Combined	9:Southwide	20	7.8	5.1-10.3	53.4	36.0- 76.1	71	42- 83	49	15.5	10.5- 24.3	84.5	38.5- 79.8	76	64- 89
652	Southern Magnolia Combined	1:Coastal Plain	8	8.0	5.7-10.3	45.4	38.0- 52.0	65	42- 76	25	15.8	10.7- 24.3	80.3	43.0- 77.0	75	64- 87
652	Southern Magnolia Combined	3:Appalachian Mountains	5	8.2	5.1- 8.1	52.0	36.0- 64.0	72	66- 77	1	12.6	12.6- 12.6	69.0	69.0- 69.0	79	78- 78
652	Southern Magnolia Combined	5:Deep South	7	8.9	7.5-10.0	63.5	53.4- 76.1	78	75- 83	23	13.2	10.5- 16.6	69.0	38.5- 79.8	80	74- 89
653	Sweetbay Combined	9:Southwide	124	7.6	5.0-10.3	54.3	30.0- 90.5	71	53- 86	121	13.9	10.5- 27.4	68.4	45.0- 89.8	73	60- 89
653	Sweetbay Combined	1:Coastal Plain	106	7.6	5.0-10.1	52.5	30.0- 73.5	70	53- 85	98	14.1	10.5- 27.4	67.1	45.0- 89.8	72	60- 89
653	Sweetbay Combined	5:Deep South	18	8.7	6.8- 9.9	64.4	42.5- 80.5	77	68- 86	22	13.2	10.5- 16.5	74.2	61.9- 84.9	77	69- 81
680	Mulberry Combined	9:Southwide	10	7.7	5.8- 9.9	37.6	31.0- 46.0	61	40- 88	8	15.2	10.6- 20.7	49.4	38.0- 58.0	65	51- 75
680	Mulberry Combined	1:Coastal Plain	5	8.4	5.8- 7.3	38.4	31.0- 42.0	59	40- 70	.	.	. - .	.	. - .	.	. - .
680	Mulberry Combined	2:Piedmont	4	9.0	8.0- 9.8	38.0	34.0- 46.0	65	51- 88	8	15.2	10.6- 20.7	49.4	38.0- 58.0	65	51- 75
680	Mulberry Combined	3:Appalachian Mountains	1	9.0	9.0- 9.0	42.0	42.0- 42.0	51	51- 51	.	.	. - .	.	. - .	.	. - .
691	Water Tupelo Combined	9:Southwide	166	7.3	5.0-10.4	57.5	30.0- 85.0	64	45- 84	92	16.0	10.5- 26.4	82.2	49.0-107.0	66	46- 78
691	Water Tupelo Combined	1:Coastal Plain	163	7.3	5.0-10.4	57.2	30.0- 85.0	64	45- 84	89	16.1	10.5- 26.4	82.5	49.0-107.0	65	46- 78
691	Water Tupelo Combined	5:Deep South	3	8.8	8.2- 9.4	73.3	68.1- 76.1	70	67- 72	3	12.8	12.2- 13.8	74.5	73.9- 75.7	70	60- 78
693	Upland Blackgum Combined	9:Southwide	186	7.7	5.0-10.4	47.8	25.0- 74.6	67	42- 84	301	15.0	10.5- 28.2	72.3	35.0-130.6	75	60- 87
693	Upland Blackgum Combined	1:Coastal Plain	30	7.7	5.2-10.4	48.7	31.0- 65.0	68	52- 81	35	13.7	10.6- 22.4	67.1	43.0-100.0	74	61- 85
693	Upland Blackgum Combined	2:Piedmont	65	7.2	5.0-10.3	43.0	25.0- 67.0	63	42- 84	37	14.8	10.7- 22.2	65.2	49.0- 84.0	74	62- 82
693	Upland Blackgum Combined	3:Appalachian Mountains	51	7.5	5.0-10.2	44.7	30.0- 67.4	65	43- 80	83	15.9	10.5- 28.2	71.3	35.0-130.6	74	60- 83
693	Upland Blackgum Combined	5:Deep South	17	8.9	7.7-10.4	64.3	54.2- 72.4	74	66- 84	48	15.8	10.5- 20.4	74.9	57.1- 87.7	75	69- 87
693	Upland Blackgum Combined	6:Arkansas	23	8.4	6.6-10.4	59.6	38.8- 74.6	72	59- 80	98	15.4	10.5- 21.2	76.4	57.9- 90.5	75	66- 85
694	Lowland Blackgum Combined	9:Southwide	359	7.6	5.0-10.4	49.6	26.0- 84.0	64	40- 88	517	14.5	10.5- 32.7	73.8	41.0-105.0	73	56- 87
694	Lowland Blackgum Combined	1:Coastal Plain	357	7.6	5.0-10.4	49.6	26.0- 84.0	64	40- 88	502	14.4	10.5- 32.7	72.9	41.0-105.0	72	56- 86
694	Lowland Blackgum Combined	2:Piedmont	2	6.1	5.2- 7.0	47.0	47.0- 47.0	73	67- 79	14	18.8	13.1- 27.1	87.4	72.0-102.0	78	63- 87
694	Lowland Blackgum Combined	5:Deep South	.	.	. - .	.	. - .	.	. - .	1	11.8	11.8- 11.8	74.1	74.1- 74.1	80	80- 80
731	Sycamore Combined	9:Southwide	126	8.0	5.0-10.4	61.5	28.0- 86.0	75	43- 88	205	15.1	10.5- 26.6	85.4	52.0-123.9	77	60- 94
731	Sycamore Combined	1:Coastal Plain	64	7.6	5.0-10.4	59.8	28.0- 86.0	76	62- 86	46	13.8	10.5- 23.9	78.4	59.0-112.0	76	64- 86
731	Sycamore Combined	2:Piedmont	28	7.9	5.1- 9.9	61.5	44.0- 79.0	74	54- 84	97	15.9	10.6- 26.6	90.2	57.0-115.0	78	62- 94
731	Sycamore Combined	3:Appalachian Mountains	18	8.8	6.8-10.4	60.6	42.0- 78.7	68	43- 82	15	17.6	10.6- 24.9	74.9	52.0-123.9	72	60- 81
731	Sycamore Combined	5:Deep South	16	8.7	6.3-10.3	73.3	57.3- 83.7	80	76- 88	47	13.9	10.5- 18.0	87.3	75.8-100.4	79	71- 86
740	Cottonwood Combined	9:Southwide	4	7.5	5.3-10.1	67.3	55.0- 88.0	72	63- 80	19	18.3	10.7- 36.4	90.2	63.0-115.0	78	65- 84
740	Cottonwood Combined	1:Coastal Plain	3	6.8	5.3- 8.3	60.3	55.0- 65.0	69	63- 80	6	22.3	13.4- 36.4	98.2	86.0-115.0	78	76- 80
740	Cottonwood Combined	2:Piedmont	1	10.1	10.1-10.1	88.0	88.0- 88.0	80	80- 80	7	16.5	10.7- 23.9	89.7	63.0-108.0	77	65- 84
740	Cottonwood Combined	3:Appalachian Mountains	.	.	. - .	.	. - .	.	. - .	6	16.9	11.2- 20.5	82.7	63.0- 93.0	74	65- 84
762	Black Cherry Combined	9:Southwide	68	7.4	5.0-10.4	52.1	29.0-105.0	71	40- 88	87	14.1	10.6- 21.8	68.4	40.0- 97.4	78	60- 87
762	Black Cherry Combined	1:Coastal Plain	18	7.4	5.1-10.3	49.6	36.0- 69.0	70	51- 80	7	14.3	10.6- 21.4	56.0	40.0- 73.0	74	63- 87
762	Black Cherry Combined	2:Piedmont	19	7.2	5.2-10.1	49.3	34.0- 62.0	70	46- 83	4	14.3	11.8- 19.6	64.3	59.0- 70.0	78	75- 81
762	Black Cherry Combined	3:Appalachian Mountains	31	7.4	5.0-10.4	55.9	29.0-105.0	72	40- 86	26	14.0	10.7- 21.8	72.4	43.0- 97.4	78	60- 86
802	White Oak Combined	9:Southwide	1060	7.7	5.0-10.4	53.5	25.0- 92.6	70	40- 90	1457	15.5	10.5- 44.4	76.0	40.0-110.3	76	56- 93
802	White Oak Combined	1:Coastal Plain	296	7.6	5.0-10.4	51.9	29.0- 79.2	70	42- 88	280	15.2	10.5- 44.4	72.5	43.0-101.8	79	60- 92
802	White Oak Combined	2:Piedmont	474	7.7	5.0-10.4	53.5	25.0- 80.0	69	41- 89	551	15.1	10.5- 37.5	74.8	47.0-107.0	76	62- 89
802	White Oak Combined	3:Appalachian Mountains	218	7.6	5.0-10.4	52.4	25.0- 89.4	69	40- 90	299	16.0	10.5- 32.5	75.7	40.0-109.1	76	56- 90
802	White Oak Combined	4:Upper Coastal Plain	4	8.4	6.4- 9.9	62.3	55.5- 68.5	76	75- 78	40	15.5	11.3- 20.7	83.0	62.2-110.3	81	69- 90
802	White Oak Combined	5:Deep South	30	8.3	6.6-10.4	66.7	51.8- 92.6	75	67- 82	82	15.4	10.5- 22.8	84.0	57.0-101.2	80	68- 89
802	White Oak Combined	6:Arkansas	29	7.8	5.2-10.2	62.3	43.1- 84.3	74	65- 83	154	15.7	10.6- 21.0	80.3	57.3- 98.9	79	67- 87
802	White Oak Combined	7:Delta	14	7.9	5.5- 9.9	59.9	48.5- 74.6	74	67- 84	51	17.0	11.0- 22.2	79.7	60.1- 99.6	81	68- 93
804	Swamp White Oak Combined	9:Southwide	9	7.5	5.4-10.3	51.8	40.0- 62.0	68	59- 73	8	15.0	10.5- 19.8	74.0	64.0- 89.0	75	64- 85
804	Swamp White Oak Combined	1:Coastal Plain	9	7.5	5.4-10.3	51.8	40.0- 62.0	68	59- 73	7	15.0	10.5- 19.8	75.3	64.0- 89.0	75	64- 85
804	Swamp White Oak Combined	2:Piedmont	.	.	. - .	.	. - .	.	. - .	1	15.2	15.2- 15.2	65.0	65.0- 65.0	74	74- 74

CODE	Species Name	Region	Pulpwood Number Sample Trees	Pulpwood D.b.h. Avg.	Pulpwood D.b.h. Range	Pulpwood Total Height Avg.	Pulpwood Total Height Range	Pulpwood Form Class Avg.	Pulpwood Form Class Range	Sawtimber Number Sample Trees	Sawtimber D.b.h. Avg.	Sawtimber D.b.h. Range	Sawtimber Total Height Avg.	Sawtimber Total Height Range	Sawtimber Form Class Avg.	Sawtimber Form Class Range
			Count	Inches		Feet		%		Count	Inches		Feet		%	
806	Scarlet Oak Combined	9:Southwide	420	7.6	5.0-10.4	53.2	30.0- 86.0	71	43- 93	560	15.1	10.5- 31.1	74.6	34.0-109.5	79	44- 90
806	Scarlet Oak Combined	1:Coastal Plain	15	7.5	5.5-10.2	55.3	43.0- 71.0	74	59- 90	19	15.1	10.7- 27.7	72.5	54.0- 87.0	79	67- 84
808	Scarlet Oak Combined	2:Piedmont	157	7.7	5.0-10.4	54.6	33.0- 86.0	71	46- 93	225	15.0	10.5- 31.1	73.2	49.0- 95.0	79	61- 90
806	Scarlet Oak Combined	3:Appalachian Mountains	248	7.5	5.0-10.4	52.2	30.0- 82.0	70	43- 93	279	15.2	10.5- 30.9	75.2	34.0-109.5	79	44- 90
806	Scarlet Oak Combined	4:Upper Coastal Plain	.	.	. - .	.	. - .	.	. - .	87	15.8	11.4- 20.6	78.3	65.0- 91.1	80	66- 88
812	Southern Red Oak Combined	9:Southwide	336	7.7	5.0-10.4	50.3	28.0- 83.0	66	40- 83	547	15.3	10.5- 48.9	72.3	41.0-111.0	75	57- 88
812	Southern Red Oak Combined	1:Coastal Plain	175	7.7	5.0-10.4	47.3	28.0- 83.0	65	42- 83	137	15.4	10.5- 49.9	66.0	41.0- 92.0	73	61- 85
812	Southern Red Oak Combined	2:Piedmont	115	7.4	5.0-10.4	52.3	30.0- 81.0	66	40- 83	223	15.0	10.5- 36.1	72.2	48.0-111.0	74	60- 88
812	Southern Red Oak Combined	3:Appalachian Mountains	23	7.8	5.1-10.1	49.2	35.0- 73.0	63	43- 79	34	14.7	10.6- 20.8	72.1	56.0-101.7	74	61- 86
812	Southern Red Oak Combined	4:Upper Coastal Plain	3	8.6	8.3- 9.3	65.7	64.2- 66.5	73	72- 76	29	15.7	12.8- 20.5	74.4	67.5- 92.3	77	74- 81
812	Southern Red Oak Combined	5:Deep South	14	8.9	6.3-10.4	64.7	49.6- 76.8	72	61- 81	52	15.6	10.9- 26.0	78.8	53.4-100.2	76	57- 88
812	Southern Red Oak Combined	6:Arkansas	.	.	. - .	.	. - .	.	. - .	30	15.1	12.0- 18.8	81.6	73.1- 91.8	75	68- 80
812	Southern Red Oak Combined	7:Delta	8	7.9	6.0- 9.4	58.9	51.9- 63.1	69	66- 72	32	17.4	11.2- 24.8	76.2	60.4- 91.7	78	65- 87
813	Cherrybark Oak Combined	9:Southwide	94	8.0	5.1-10.4	59.2	34.0- 84.0	73	54- 87	107	16.6	10.5- 38.3	82.2	39.0-108.0	77	61- 85
813	Cherrybark Oak Combined	1:Coastal Plain	82	8.0	5.1-10.4	57.4	34.0- 84.0	73	54- 86	59	15.8	10.5- 26.0	79.0	39.0-108.0	78	61- 84
813	Cherrybark Oak Combined	2:Piedmont	4	8.1	6.9-10.1	67.0	47.0- 67.0	67	62- 71	10	23.5	10.5- 38.3	86.1	55.0-108.0	76	64- 81
813	Cherrybark Oak Combined	5:Deep South	8	8.7	7.5- 9.9	66.8	56.9- 82.5	74	60- 87	38	15.9	10.6- 21.4	86.3	65.5-107.4	79	64- 85
820	Laurel Oak Combined	9:Southwide	224	7.6	5.0-10.4	50.3	28.0- 78.0	70	42- 89	250	16.0	10.5- 35.3	68.2	35.0-111.0	75	58- 90
820	Laurel Oak Combined	1:Coastal Plain	222	7.6	5.0-10.4	50.4	28.0- 78.0	71	42- 89	244	16.0	10.5- 35.3	68.1	35.0-111.0	75	58- 90
820	Laurel Oak Combined	2:Piedmont	2	5.0	5.0- 5.0	38.5	38.0- 39.0	59	56- 62	6	14.5	11.4- 15.9	74.3	67.0- 84.0	76	71- 78
822	Overcup Oak Combined	9:Southwide	17	9.0	5.9-10.1	55.1	40.0- 64.7	68	53- 77	122	20.9	10.5- 35.1	85.5	52.7-117.2	77	65- 92
822	Overcup Oak Combined	1:Coastal Plain	3	9.3	5.9- 9.6	46.7	40.0- 52.0	66	58- 74	8	22.4	14.8- 33.2	78.4	56.0- 98.0	72	69- 82
822	Overcup Oak Combined	2:Piedmont	.	.	. - .	.	. - .	.	. - .	7	14.8	12.1- 19.2	67.9	64.0- 72.0	77	74- 80
822	Overcup Oak Combined	5:Deep South	4	9.4	9.0-10.0	61.2	56.8- 64.7	70	66- 75	6	12.1	11.3- 13.0	61.4	52.7- 72.4	73	70- 82
822	Overcup Oak Combined	7:Delta	10	9.0	7.4-10.1	55.2	48.4- 62.0	68	51- 77	101	20.6	10.5- 35.1	88.4	55.5-117.2	77	65- 92
825	Swamp Chestnut Oak Combined	9:Southwide	118	7.4	5.0-10.4	49.7	29.0- 72.0	71	47- 82	73	14.5	10.5- 24.6	69.5	49.0- 94.0	74	60- 88
825	Swamp Chestnut Oak Combined	1:Coastal Plain	115	7.4	5.0-10.4	49.8	29.0- 72.0	71	50- 82	60	14.1	10.5- 24.2	68.8	50.0- 94.0	74	60- 88
825	Swamp Chestnut Oak Combined	2:Piedmont	2	9.1	7.9-10.2	55.5	54.0- 57.0	64	59- 69	13	16.1	10.9- 24.6	72.7	49.0- 94.0	75	64- 86
825	Swamp Chestnut Oak Combined	3:Appalachian Mountains	1	8.1	8.1- 8.1	32.0	32.0- 32.0	47	47- 47	.	.	. - .	.	. - .	.	. - .
826	Chinkapin Oak Combined	9:Southwide	13	9.0	6.8-10.4	51.5	30.0- 84.0	72	52- 85	8	15.4	10.8- 33.7	58.0	44.0- 84.0	74	64- 83
826	Chinkapin Oak Combined	1:Coastal Plain	1	8.3	8.3- 8.3	30.0	30.0- 30.0	52	52- 52	.	.	. - .	.	. - .	.	. - .
826	Chinkapin Oak Combined	3:Appalachian Mountains	12	9.1	6.8-10.4	53.3	40.0- 84.0	74	60- 85	8	15.4	10.8- 33.7	58.0	44.0- 84.0	74	64- 83
827	Water Oak Combined	9:Southwide	299	7.7	5.0-10.4	53.2	27.0- 90.0	72	43- 90	405	14.9	10.5- 30.1	76.4	42.0-106.0	78	59- 91
827	Water Oak Combined	1:Coastal Plain	239	7.7	5.0-10.4	51.2	27.0- 75.0	71	41- 90	230	14.7	10.5- 25.3	70.4	42.0- 99.9	76	59- 90
827	Water Oak Combined	2:Piedmont	39	7.3	5.0-10.2	59.3	35.0- 90.0	74	51- 89	72	14.4	10.7- 30.1	81.6	60.0-100.1	80	67- 87
827	Water Oak Combined	5:Deep South	20	8.7	6.6-10.1	65.4	53.4- 75.1	78	69- 83	101	15.3	10.5- 21.6	86.4	65.2-106.0	80	73- 91
827	Water Oak Combined	7:Delta	1	6.6	6.6- 6.6	55.3	55.3- 55.3	76	76- 76	.	.	. - .	.	. - .	.	. - .
831	Willow Oak Combined	9:Southwide	106	8.0	5.0-10.4	55.5	29.0- 83.2	69	47- 86	200	16.3	10.5- 37.9	82.2	48.0-113.0	77	64- 89
831	Willow Oak Combined	1:Coastal Plain	54	8.1	5.0-10.4	53.5	35.0- 70.0	70	47- 86	119	16.7	10.5- 28.7	83.2	48.0-113.0	77	64- 89
831	Willow Oak Combined	2:Piedmont	28	7.3	5.0-10.4	48.1	29.0- 82.0	64	47- 79	23	17.6	10.7- 37.9	76.6	49.0-105.0	78	70- 84
831	Willow Oak Combined	3:Appalachian Mountains	1	7.7	7.7- 7.7	60.0	60.0- 60.0	84	84- 84	.	.	. - .	.	. - .	.	. - .
831	Willow Oak Combined	5:Deep South	23	8.7	6.2-10.4	69.1	52.4- 83.2	74	65- 90	50	14.6	10.5- 19.2	81.5	62.0-104.8	79	68- 88
831	Willow Oak Combined	6:Arkansas	.	.	. - .	.	. - .	.	. - .	8	17.4	15.2- 18.7	86.4	76.2- 93.8	79	75- 83
832	Chestnut Oak Combined	9:Southwide	585	7.6	5.0-10.4	52.5	23.0- 89.1	70	40- 88	830	15.5	10.5- 34.0	71.5	36.0-115.6	77	40- 89
832	Chestnut Oak Combined	1:Coastal Plain	12	8.1	5.3-10.4	58.1	43.0- 69.0	73	51- 85	13	14.2	10.6- 19.6	70.4	53.0- 92.0	77	69- 89
832	Chestnut Oak Combined	2:Piedmont	198	7.6	5.0-10.4	52.2	23.0- 81.0	69	40- 88	293	14.8	10.5- 33.5	67.9	36.0- 99.0	77	57- 87
832	Chestnut Oak Combined	3:Appalachian Mountains	377	7.6	5.0-10.4	52.5	28.0- 89.1	70	43- 87	503	16.1	10.5- 34.0	73.4	36.0-115.6	77	40- 89
832	Chestnut Oak Combined	4:Upper Coastal Plain	.	.	. - .	.	. - .	.	. - .	20	15.1	11.8- 18.7	78.9	64.9- 81.8	79	76- 83
832	Chestnut Oak Combined	6:Arkansas	.	.	. - .	.	. - .	.	. - .	1	13.0	13.0- 13.0	82.6	82.6- 82.6	78	78- 78
833	Northern Red Oak Combined	9:Southwide	310	7.6	5.0-10.4	57.3	28.0-101.0	74	47- 90	665	16.5	10.5- 34.4	76.7	39.0-118.1	78	61- 92
833	Northern Red Oak Combined	1:Coastal Plain	16	7.8	5.0-10.0	58.7	40.0- 82.0	74	61- 90	28	14.5	10.5- 28.2	77.4	49.0-105.0	77	66- 89
833	Northern Red Oak Combined	2:Piedmont	78	7.9	5.0-10.4	57.9	37.0- 81.0	73	59- 86	125	15.7	10.5- 33.4	76.0	54.0-103.0	77	62- 87
833	Northern Red Oak Combined	3:Appalachian Mountains	186	7.7	5.0-10.4	56.1	28.0-101.0	73	47- 88	375	17.1	10.5- 34.4	78.4	39.0-118.1	78	61- 92
833	Northern Red Oak Combined	6:Arkansas	29	7.8	5.6-10.4	62.5	48.7- 82.7	77	69- 83	124	15.7	10.5- 21.3	80.1	52.5-102.7	80	68- 98
833	Northern Red Oak Combined	7:Delta	1	7.9	7.9- 7.9	62.2	62.2- 62.2	71	72- 72	13	19.3	12.6- 24.2	82.0	62.7- 94.7	79	70- 85
835	Post Oak Combined	9:Southwide	215	7.9	5.0-10.4	47.9	27.0- 83.5	68	41- 85	332	14.0	10.5- 25.3	65.8	36.0- 90.4	78	56- 89
835	Post Oak Combined	1:Coastal Plain	83	7.8	5.0-10.4	45.1	27.0- 81.0	67	48- 85	75	13.7	10.5- 24.4	59.8	44.0- 80.0	75	56- 88
835	Post Oak Combined	2:Piedmont	97	8.0	5.1-10.4	48.4	27.0- 83.5	67	41- 82	128	13.7	10.5- 25.3	64.2	36.0- 89.0	76	65- 89
835	Post Oak Combined	3:Appalachian Mountains	10	8.3	6.6-10.4	49.5	41.0- 62.0	68	59- 75	5	15.3	11.5- 17.6	48.8	41.0- 55.0	68	60- 78
835	Post Oak Combined	4:Upper Coastal Plain	7	7.9	5.9- 9.8	59.1	49.7- 64.8	75	68- 81	16	14.3	10.6- 21.0	77.6	66.7- 81.0	78	72- 85
835	Post Oak Combined	5:Deep South	15	9.0	7.0-10.1	51.4	40.0- 56.8	73	60- 80	43	14.3	10.6- 18.9	68.2	52.5- 79.8	78	67- 87
835	Post Oak Combined	6:Arkansas	.	.	. - .	.	. - .	.	. - .	40	14.8	12.0- 18.1	74.0	61.5- 90.4	77	70- 83
835	Post Oak Combined	7:Delta	3	8.5	7.5- 9.8	60.5	54.9- 66.0	77	74- 80	25	14.4	11.3- 18.4	70.9	58.0- 80.5	80	70- 86

CODE	Species Name	Region	Pulpwood Number Sample Trees	Pulpwood D.b.h. Avg.	Pulpwood D.b.h. Range	Pulpwood Total Height Avg.	Pulpwood Total Height Range	Pulpwood Form Class Avg.	Pulpwood Form Class Range	Sawtimber Number Sample Trees	Sawtimber D.b.h. Avg.	Sawtimber D.b.h. Range	Sawtimber Total Height Avg.	Sawtimber Total Height Range	Sawtimber Form Class Avg.	Sawtimber Form Class Range
			Count	Inches		Feet		%		Count	Inches		Feet		%	
837	Black Oak Combined	9:Southwide	321	7.7	5.0-10.4	54.4	28.0- 86.0	67	40- 86	617	15.5	10.5- 28.7	76.6	42.0-115.7	76	59- 87
837	Black Oak Combined	1:Coastal Plain	13	7.9	5.9-10.3	55.5	40.0- 77.0	72	55- 82	32	14.8	10.5- 24.3	73.3	49.0- 94.0	75	59- 86
837	Black Oak Combined	2:Piedmont	127	8.0	5.0-10.4	54.1	28.0- 77.1	66	41- 80	178	14.4	10.5- 27.8	72.4	45.0-109.0	74	60- 87
837	Black Oak Combined	3:Appalachian Mountains	149	7.5	5.0-10.4	53.7	29.0- 86.0	68	40- 84	257	15.9	10.5- 28.7	78.4	42.0-115.7	76	60- 87
837	Black Oak Combined	6:Arkansas	24	7.8	5.3-10.1	59.3	40.3- 76.2	71	58- 79	122	16.1	10.9- 21.1	79.2	54.9- 99.8	76	66- 87
837	Black Oak Combined	7:Delta	8	7.7	5.8- 9.8	54.4	44.6- 66.2	74	60- 86	27	17.7	11.5- 24.9	79.5	63.1- 93.0	78	66- 83
838	Live Oak Combined	9:Southwide	36	8.2	5.1-10.1	43.4	25.0- 58.0	64	48- 79	60	17.0	10.6- 33.1	60.3	34.0- 86.0	69	42- 88
838	Live Oak Combined	1:Coastal Plain	36	8.2	5.1-10.1	43.4	25.0- 58.0	64	48- 79	60	17.0	10.6- 33.1	60.3	34.0- 86.0	69	42- 88
899	Other Scrub Oaks Combined	9:Southwide	206	7.4	5.0-10.4	35.8	25.0- 60.0	59	39- 81	22	12.4	10.5- 17.4	47.3	34.0- 60.0	72	48- 87
899	Other Scrub Oaks Combined	1:Coastal Plain	184	7.4	5.0-10.4	35.8	25.0- 54.0	59	39- 81	19	12.5	10.5- 17.4	47.2	38.0- 59.0	73	48- 87
899	Other Scrub Oaks Combined	2:Piedmont	21	7.2	5.2- 9.1	35.4	26.0- 60.0	57	40- 67	3	11.9	10.6- 13.3	47.7	34.0- 60.0	67	53- 76
899	Other Scrub Oaks Combined	3:Appalachian Mountains	1	7.3	7.3- 7.3	27.0	27.0- 27.0	44	44- 44	.	.	.	.	.	.	.
901	Black Locust Combined	9:Southwide	208	7.5	5.0-10.4	53.1	27.0- 91.3	65	41- 85	139	14.5	10.5- 25.8	77.5	42.0-110.3	73	44- 84
901	Black Locust Combined	1:Coastal Plain	4	8.4	5.6-10.4	40.8	33.0- 44.0	62	51- 70	4	13.8	11.2- 18.3	58.0	52.0- 60.0	70	63- 77
901	Black Locust Combined	2:Piedmont	43	7.3	5.0-10.3	50.7	30.0- 75.0	67	43- 85	12	14.5	10.9- 24.0	72.4	51.0- 93.0	71	65- 78
901	Black Locust Combined	3:Appalachian Mountains	161	7.5	5.0-10.4	54.0	27.0- 91.3	65	41- 81	123	14.5	10.5- 25.8	78.6	42.0-110.3	73	44- 84
950	Basswood Combined	9:Southwide	71	7.8	5.0-10.4	66.0	33.0-100.5	78	49- 92	126	16.4	10.7- 27.3	89.8	63.5-132.0	81	61- 90
950	Basswood Combined	1:Coastal Plain	6	8.6	7.0- 9.9	57.8	51.0- 69.0	74	68- 80	3	16.7	13.8- 20.0	74.0	68.0- 78.0	70	64- 75
950	Basswood Combined	2:Piedmont	4	8.2	5.8-10.4	61.3	49.0- 75.0	78	76- 81	8	18.3	11.2- 27.3	77.5	66.0- 92.0	76	61- 85
950	Basswood Combined	3:Appalachian Mountains	61	7.8	5.0-10.4	65.9	33.0-100.5	76	49- 92	117	16.3	10.7- 23.8	90.9	63.5-132.0	82	68- 90
970	Elm Combined	9:Southwide	159	7.8	5.0-10.4	51.9	28.0- 79.0	69	42- 94	249	15.9	10.5- 34.3	77.0	43.0-112.5	77	59- 92
970	Elm Combined	1:Coastal Plain	16	7.7	5.3-10.4	51.8	34.9- 73.0	72	48- 86	51	15.3	10.5- 29.8	73.2	45.0-100.0	76	62- 92
970	Elm Combined	2:Piedmont	78	7.7	5.0-10.4	50.6	28.0- 79.0	67	42- 94	82	15.7	10.6- 34.3	73.4	43.0-102.3	76	59- 87
970	Elm Combined	3:Appalachian Mountains	16	7.1	5.1- 9.7	46.9	39.0- 60.0	65	43- 75	19	15.5	10.6- 20.7	67.3	49.0- 85.0	76	60- 87
970	Elm Combined	5:Deep South	6	8.8	8.6- 9.0	65.4	55.5- 69.9	77	71- 81	33	13.9	10.6- 18.9	74.0	54.4- 86.1	81	68- 91
970	Elm Combined	7:Delta	11	9.0	7.4-10.2	62.2	46.0- 74.7	72	66- 78	84	16.7	10.7- 28.4	85.4	61.2-112.5	78	65- 88
999	Miscellaneous Combined	9:Southwide	293	6.8	5.0-10.4	42.1	22.0- 70.0	62	40- 86	30	13.0	10.7- 18.6	60.0	42.0- 78.0	72	53- 86
999	Miscellaneous Combined	1:Coastal Plain	78	7.2	5.0-10.4	41.8	30.0- 61.0	62	40- 85	6	11.4	10.8- 12.4	56.3	45.0- 68.0	75	51- 81
999	Miscellaneous Combined	2:Piedmont	81	6.4	5.0-10.2	39.9	24.0- 63.0	60	40- 77	5	12.6	10.7- 14.2	57.6	42.0- 68.0	67	53- 73
999	Miscellaneous Combined	3:Appalachian Mountains	134	6.9	5.0-10.4	43.5	22.0- 70.0	63	40- 86	19	13.6	10.8- 18.6	61.8	43.0- 78.0	73	61- 86
011	Four Major Pines Natural	9:Southwide	6303	6.7	5.0- 8.4	48.2	24.0- 82.0	69	39- 92	12955	13.0	8.5- 38.3	69.7	26.0-132.2	78	41- 93
011	Four Major Pines Natural	1:Coastal Plain	4416	6.7	5.0- 8.4	48.1	24.0- 82.0	69	39- 92	8310	12.3	8.5- 38.3	69.1	29.0-128.8	77	42- 93
011	Four Major Pines Natural	2:Piedmont	1472	6.7	5.0- 8.4	47.2	25.0- 79.0	69	40- 89	2577	12.6	8.5- 35.6	67.1	26.0-125.2	77	41- 91
011	Four Major Pines Natural	3:Appalachian Mountains	175	6.9	5.0- 8.4	48.9	26.0- 75.0	70	39- 86	316	12.7	8.5- 22.9	70.2	35.0-107.1	80	56- 92
011	Four Major Pines Natural	4:Upper Coastal Plain	8	7.0	5.8- 8.4	66.4	50.8- 76.9	79	75- 83	218	14.7	8.7- 22.5	78.2	57.8-106.1	81	68- 90
011	Four Major Pines Natural	5:Deep South	195	6.9	5.0- 8.4	56.8	35.8- 77.2	75	57- 86	986	14.5	8.5- 29.5	78.4	33.0-132.2	80	41- 93
011	Four Major Pines Natural	6:Arkansas	36	7.0	5.2- 8.4	58.3	46.3- 66.5	76	67- 83	545	16.0	8.8- 24.8	72.4	32.8-104.5	82	64- 91
013	Other Pines Natural	9:Southwide	1465	6.7	5.0- 8.4	47.2	22.0- 82.0	73	40- 96	1892	11.9	8.5- 22.7	62.6	25.0-107.0	77	40- 94
013	Other Pines Natural	1:Coastal Plain	530	6.8	5.0- 8.4	48.4	28.0- 78.0	72	40- 95	804	11.9	8.5- 22.7	61.7	30.0-107.0	76	40- 93
013	Other Pines Natural	2:Piedmont	558	6.6	5.0- 8.4	47.9	24.0- 82.0	74	41- 95	455	11.0	8.5- 21.6	61.5	32.0- 96.0	78	45- 91
013	Other Pines Natural	3:Appalachian Mountains	370	6.7	5.0- 8.4	47.1	22.0- 76.8	74	41- 86	545	12.3	8.5- 22.2	62.4	25.0-103.0	78	42- 94
013	Other Pines Natural	4:Upper Coastal Plain	.	.	.	.	.	.	.	35	12.2	9.2- 16.8	72.6	57.5- 84.6	80	74- 87
013	Other Pines Natural	5:Deep South	7	6.6	5.1- 7.7	57.4	51.4- 64.6	79	71- 89	53	14.1	8.5- 22.2	80.5	61.9- 98.9	83	74- 89
082	White Oaks Combined	9:Southwide	2017	7.7	5.0-10.4	52.4	23.0- 92.6	70	40- 90	2830	15.5	10.5- 44.4	73.6	36.0-117.2	78	40- 93
082	White Oaks Combined	1:Coastal Plain	519	7.6	5.0-10.4	50.4	27.0- 78.2	70	42- 88	443	14.9	10.5- 44.4	69.9	43.0-101.8	77	56- 92
082	White Oaks Combined	2:Piedmont	769	7.7	5.0-10.4	52.5	23.0- 90.0	69	40- 89	993	14.8	10.5- 37.5	71.2	36.0-101.0	77	57- 89
082	White Oaks Combined	3:Appalachian Mountains	613	7.6	5.0-10.4	52.4	25.0- 89.4	70	40- 90	815	16.1	10.5- 34.0	73.9	36.0-115.6	77	40- 90
082	White Oaks Combined	4:Upper Coastal Plain	11	8.1	5.8- 9.9	60.4	49.7- 68.5	76	68- 81	76	15.2	10.6- 21.0	80.8	62.2-110.3	80	69- 90
082	White Oaks Combined	5:Deep South	49	8.9	6.6-10.4	61.6	40.0- 92.6	74	60- 82	131	14.9	10.5- 22.8	77.8	52.5-101.2	79	67- 89
082	White Oaks Combined	6:Arkansas	29	7.8	5.2-10.2	62.3	43.1- 84.3	74	65- 83	195	15.5	10.6- 21.0	79.0	57.3- 98.9	79	67- 87
082	White Oaks Combined	7:Delta	27	8.3	5.5-10.1	58.2	48.4- 74.6	72	52- 84	177	16.7	10.5- 35.1	83.5	55.5-117.2	79	65- 93
083	Red Oaks Combined	9:Southwide	2253	7.7	5.0-10.4	51.1	25.0-101.0	69	39- 93	3144	15.3	10.5- 48.9	74.2	34.0-118.1	77	42- 92
083	Red Oaks Combined	1:Coastal Plain	1111	7.7	5.0-10.4	47.9	25.0- 84.0	68	39- 90	997	15.5	10.5- 48.9	69.8	34.0-115.0	75	42- 90
083	Red Oaks Combined	2:Piedmont	543	7.6	5.0-10.4	52.7	26.0- 90.0	69	40- 92	816	15.0	10.5- 38.3	73.1	34.0-111.0	77	53- 90
083	Red Oaks Combined	3:Appalachian Mountains	469	7.6	5.0-10.4	53.5	27.0-101.0	71	41- 93	693	16.2	10.5- 34.4	76.6	34.0-118.1	78	44- 92
083	Red Oaks Combined	4:Upper Coastal Plain	10	8.2	5.8- 9.8	61.2	49.7- 66.5	75	68- 81	82	15.5	10.6- 21.0	78.6	65.0- 92.8	78	68- 86
083	Red Oaks Combined	5:Deep South	80	8.8	6.2-10.4	63.8	40.0- 83.2	74	60- 87	224	15.2	10.5- 28.0	81.4	52.5-107.4	79	57- 91
083	Red Oaks Combined	6:Arkansas	29	7.6	5.6-10.4	62.5	46.7- 82.7	77	69- 83	202	15.5	10.5- 21.3	79.4	52.5-102.7	78	68- 89
083	Red Oaks Combined	7:Delta	11	7.9	6.0- 9.8	59.3	51.9- 66.0	72	66- 80	70	16.7	11.2- 24.8	75.4	58.0- 94.7	78	65- 87
091	Spruce-Fir Combined	9:Southwide	10	6.4	5.5- 7.8	35.1	27.0- 41.0	65	50- 73	12	10.3	8.8- 13.2	40.0	30.0- 46.0	73	50- 85
091	Spruce-Fir Combined	3:Appalachian Mountains	10	6.4	5.5- 7.8	35.1	27.0- 41.0	65	50- 73	12	10.3	8.8- 13.2	40.0	30.0- 46.0	73	50- 85

CODE	Species Name	Region	Pulpwood Number Sample Trees	Pulpwood D.b.h. Avg.	Pulpwood D.b.h. Range	Pulpwood Total Height Avg.	Pulpwood Total Height Range	Pulpwood Form Class Avg.	Pulpwood Form Class Range	Sawtimber Number Sample Trees	Sawtimber D.b.h. Avg.	Sawtimber D.b.h. Range	Sawtimber Total Height Avg.	Sawtimber Total Height Range	Sawtimber Form Class Avg.	Sawtimber Form Class Range
			Count	Inches		Feet		%		Count	Inches		Feet		%	
300	Soft Hardwoods Combined	9:Southwide	4231	7.6	5.0-10.4	54.8	22.0-105.0	69	40- 94	5114	15.3	10.5- 41.8	80.7	35.0-135.4	76	45- 94
300	Soft Hardwoods Combined	1:Coastal Plain	1923	7.6	5.0-10.4	53.4	26.0-103.0	68	40- 91	2059	14.7	10.5- 41.8	76.2	40.0-128.0	75	45- 92
300	Soft Hardwoods Combined	2:Piedmont	1295	7.5	5.0-10.4	54.0	24.0-103.0	68	40- 94	1337	15.2	10.5- 39.5	82.7	41.0-155.0	77	53- 94
300	Soft Hardwoods Combined	3:Appalachian Mountains	847	7.4	5.0-10.4	54.9	22.0-105.0	70	40- 92	932	15.9	10.5- 38.0	83.1	35.0-135.4	78	60- 93
300	Soft Hardwoods Combined	4:Upper Coastal Plain	5	8.3	6.5-10.0	63.2	44.4- 74.1	72	70- 74	57	15.9	11.2- 24.0	99.2	79.7-119.1	79	71- 87
300	Soft Hardwoods Combined	5:Deep South	111	8.7	5.7-10.4	66.7	42.5- 95.4	78	60- 86	329	14.2	10.5- 23.0	81.7	38.5-114.4	79	60- 91
300	Soft Hardwoods Combined	6:Arkansas	23	8.4	6.6-10.4	58.6	38.9- 74.6	72	59- 80	88	15.4	10.5- 21.2	78.4	57.9- 90.5	75	66- 85
300	Soft Hardwoods Combined	7:Delta	27	8.8	7.1-10.2	63.9	46.0- 85.9	72	60- 78	308	18.7	10.6- 32.0	91.4	52.9-127.9	78	55- 88
500	Hard Hardwoods Combined	9:Southwide	5943	7.7	5.0-10.4	52.5	22.0-101.0	69	39- 93	8075	15.5	10.5- 48.9	75.2	26.0-134.0	77	40- 94
500	Hard Hardwoods Combined	1:Coastal Plain	1919	7.6	5.0-10.4	49.2	22.0- 84.0	68	39- 90	1715	15.4	10.5- 48.9	71.2	34.0-128.0	76	42- 94
500	Hard Hardwoods Combined	2:Piedmont	1785	7.7	5.0-10.4	53.3	23.0- 93.0	68	39- 92	2330	14.9	10.5- 38.3	73.0	34.0-126.0	77	51- 93
500	Hard Hardwoods Combined	3:Appalachian Mountains	1899	7.5	5.0-10.4	53.3	24.0-101.0	69	40- 93	2422	15.9	10.5- 35.0	76.3	26.0-134.0	77	40- 92
500	Hard Hardwoods Combined	4:Upper Coastal Plain	16	8.1	5.8- 9.9	60.7	49.7- 68.5	75	68- 81	184	15.3	10.6- 21.0	80.5	62.2-110.3	80	68- 90
500	Hard Hardwoods Combined	5:Deep South	159	8.5	6.0-10.4	64.4	40.0- 92.6	74	60- 88	515	15.1	10.5- 28.0	80.9	52.5-109.4	80	57- 91
500	Hard Hardwoods Combined	6:Arkansas	106	7.9	5.2-10.4	63.1	40.3- 88.9	74	58- 83	608	15.6	10.6- 21.3	80.1	52.5-102.7	79	67- 89
500	Hard Hardwoods Combined	7:Delta	59	8.1	5.4-10.4	58.8	44.6- 76.6	72	51- 86	301	17.8	10.5- 35.1	81.9	55.5-117.2	78	65- 93

Data does not support a separate model for the species/region

UNITED STATES DEPARTMENT OF AGRICULTURE - USDA - WEB SOIL SURVEY

http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

MUSYM Code	PINES	50 YR SI
2—Albany-Blanton complex, 0 to 5 percent		
Albany	Loblolly pine	95
	Longleaf pine	80
	Slash pine	85
3—Albany-Ousley-Pelham complex, 0 to 5 percent slopes, occasionally flooded		
Albany	Loblolly pine	95
	Longleaf pine	80
	Slash pine	85
Ousley	Longleaf pine	65
	Sand live oak	—
	Sand pine	60
	Slash pine	70
21—Dothan-Fuquay-Cowarts complex, 8 to 15 percent slopes		
Dothan	Loblolly pine	94
	Longleaf pine	70
	Slash pine	89
	Loblolly pine	90
	Longleaf pine	75
77—Bonifay-Fuquay complex, 0 to 5 percent slopes		
Bonifay	Loblolly pine	80
	Longleaf pine	65
	Slash pine	80
Fuquay	Loblolly pine	101
	Longleaf pine	67
	Slash pine	95
79—Hurricane and Chipley soils, 0 to 3 percent slopes	Slash pine	85
Hurricane	Loblolly pine	85
	Longleaf pine	80
	Slash pine	85
Chipley		
	Loblolly pine	80
	Longleaf pine	65
80—Foxworth-Lakeland complex, 0 to 5 percent slopes	Slash pine	80
Foxworth	Loblolly pine	80
	Longleaf pine	65
	Slash pine	80
Lakeland		
	Loblolly pine	92
	Longleaf pine	75

MUSYM Code	PINES	50 YR SI
96—Pelham sand, 0 to 5 percent	Slash pine	90
Pelham	Loblolly pine	95
	Longleaf pine	80
	Slash pine	85
101—Albany-Ocilla-Chipley complex, 0 to 5 percent slopes	Loblolly pine	80
Albany	Longleaf pine	70
	Slash pine	80
	Loblolly pine	85
Ocilla	Longleaf pine	80
	Slash pine	85

TFC 05/06/14

13.13 GRASI Memo of Agreement

MEMORANDUM OF AGREEMENT BETWEEN
THE PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE FOR
INSTALLATIONS, ENVIRONMENT AND LOGISTICS
PENTAGON, WASHINGTON, D.C. 20330
AND
FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION
TALLAHASSEE, FL 32399
FOR THE PROVISION OF MILITARY TRAINING ON STATE LANDS

THIS MEMORANDUM OF AGREEMENT (hereafter, the "Agreement") is made and entered into by and between Office of the Principal Deputy Assistant Secretary of the Air Force for Installations, Environment and Logistics (hereinafter, "Air Force") and Florida Fish and Wildlife Conservation Commission (hereinafter, "Commission").

WITNESSETH:

WHEREAS, the Air Force, in order to successfully accomplish mission requirements has a need for expanded training opportunities in Northwest Florida beyond the current Department of Defense lands and training areas, and

WHEREAS, the Commission is responsible for managing, protecting, maintaining, and developing over 1.4 million acres of state conservation land ("Commission Lead-Managed Lands"), and

WHEREAS, the Parties have mutually concluded that it is desirable, practicable, and beneficial for the Parties to enter this Agreement to the mutual benefit of both and the goal is to work together in an effort to enhance both Parties' ability to carry out their respective missions.

NOW, THEREFORE, BE IT AGREED THAT:

1. Military training operations on the Commission Lead-Managed Lands in Northwest Florida can be compatible for both Parties without unreasonable impacts to resources if conducted with the proper planning and coordination.
2. Commission staff and Air Force personnel will work together to develop a detailed "Annual Operations Plan" that:

    a. Establishes a-framework through which military training exercises may be conducted on State-owned Commission Lead-Managed Lands. This framework may include other appropriate instruments within the jurisdiction of both Parties.
    b. Identifies number and locations of compatible available sites in the Northwest Florida region, to be defined as "training sites".
    c. Provides detailed maps showing boundaries delineating training areas.
    d. Details limitations of liability between the parties.
    e. Estimates the frequency of use of the sites.
    f. Indicates the types of compatible training allowed and the training activities that are expected to be prohibited.
    g. Establishes procedures for requesting, cancelling, coordinating and notification of the use of training sites.

h. Identifies options for compensation or reimbursement for the Commission providing lands for training through cash payment or in-kind services.

i. Establishes a feedback mechanism to assess the usefulness of the training site for the Air Force and the impact, if any, upon the mission of the Commission.

j. Identifies and clarifies the Air Force's responsibility with regard to the National Environmental Policy Act (NEPA).

EXECUTION OF THIS AGREEMENT:

3. This Agreement shall become effective upon the date last signed below, and shall remain in full force and effect until cancelled by mutual agreement of the Parties, or upon the provision of at least sixty (60) days advance written notice from the Party desiring to terminate this Agreement to the other Party. Upon becoming effective, this Agreement shall supersede all previous agreements between the Parties on the same subject.
4. Unless a notice of change of address is given, any and all notices shall be delivered to the parties at the following addresses:

Commission

Mike Brooks
Section Leader
Wildlife and Habitat Management Section
620 South Meridian Street
Tallahassee, Florida 32399-1600
(850) 488-3831

Air Force

Kathleen I. Ferguson, P.E.
Principal Deputy Assistant Secretary
(Installations, Environment & Logistics)
Pentagon, Washington, D.C.
(703) 697-6300

IN WITNESS WHEREOF, authorized representatives of the Parties have affixed their signatures hereto, in recognition and acceptance of the terms, conditions and obligations set forth and or assumed under this Agreement.

Florida Fish and Wildlife Conservation Commission:

Nick Wiley, Executive Director for

DATE: 3-25-13

Department of the Air Force:

Kathleen I. Ferguson, P.E.
Principal Deputy Assistant Secretary
(Installations, Environment & Logistics)
Pentagon, Washington, D.C.

DATE:_____

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY
Commission Attorney

h. Identifies options for compensation or reimbursement for the Commission providing lands for training through cash payment or in-kind services.

i. Establishes a feedback mechanism to assess the usefulness of the training site for the Air Force and the impact, if any, upon the mission of the Commission.

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Florida Fish and Wildlife Conservation Commission:

_____
Nick Wiley, Executive Director

DATE:_____

Department of the Air Force:

Kathleen I. Ferguson
Kathleen I. Ferguson, P.E.
Acting Assistant Secretary
(Installations, Environment & Logistics)
Pentagon, Washington, D.C.

MAR 22 2013

DATE:_____

13.14 FWC Apiary Policy

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Apiary Policy

Division of Habitat and Species Conservation

Issued by:
Terrestrial Habitat Conservation and Restoration Section
9/1/2010

DIVISION OF HABITAT AND SPECIES CONSERVATION POLICY

Issued September 2010

SUBJECT: APIARY SITES ON FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION WILDLIFE MANAGEMENT AREAS AND WILDLIFE AND ENVIRONMENTAL AREAS

STATEMENT OF PURPOSE: It is the intent of this policy to determine which Florida Fish and Wildlife Conservation Commission (FWC) Wildlife Management Areas or Wildlife and Environmental Areas (WMA/WEA) may have apiary sites, and provides direction on site location, management and administration of said apiaries.

Definitions

Apiary – A place where bees and beehives are kept, especially a place where bees are raised for their honey.

Apiary Site – An area set aside on a WMA/WEA for the purpose of allowing a beekeeper to locate beehives on a single location established by contract between the beekeeper and FWC.

Apiary Wait List – An apiary wait list will be maintained by the Terrestrial Habitat Conservation and Restoration (THCR) Section Leader's Office based on applications received from interested beekeepers. Only qualified apiarists will be added to the list. To become qualified the new apiarist must submit an application form and meet the criteria below under the section titled "Apiary Wait List and Apiary Applications."

Beekeeper/Apiarist – A person who keeps honey bees for the purposes of securing commodities such as honey, beeswax, pollen, pollinating hives and vegetative cuttings, raising queens and bees for sale to other farmers and/or for purposes satisfying natural scientific curiosity.

Best Management Practices – The Florida Department of Agriculture & Consumer Services (FDACS, Division of Plant Industry (DPI), Apiary Inspection Section, P.O. Box 147100, Gainesville, FL 32614-7100) provides Best Management Practices (BMP) for maintaining European Honey Bee colonies and FWC expects apiarists to follow the BMP.

Hive/Colony – Means any Langstroth type structure with movable frames intended for the housing of a bee colony. A hive typically consists of a high body hive box with cover, honey frames, brood chambers and a bottom board and may have smaller super hive boxes stacked on top for the excess honey storage. A hive/colony includes one queen, bees, combs, honey, pollen and brood and may have additional supers stacked on top of a high body hive box.

2

Establishment of Apiary Sites on WMA/WEA

During the development of an individual WMA/WEA Management Plan, apiaries will be reconsidered under the multiple use concept as a possible use to be allowed on the area. "Approved" uses are deemed to be in concert with the purposes for state acquisition, with the Conceptual State Lands Management Plan, and with the FWC agency mission, goals, and objectives as expressed in the agency strategic plan and priorities documents. Items to consider when making this determination can also include:

- Were apiaries present on the area prior to acquisition?
- Are there suitable available sites on the WMA/WEA?
- Will the apiary assist in restoration of an onsite FWC or offsite (adjacent landowner) citrus grove or other agricultural operation?

For those WMA/WEAs that have not considered apiaries in their Management Plan, upon approval of this policy Regional Staff will work with the Conservation Acquisition and Planning (CAP) staff and FWCP Section leadership to determine if apiaries are an approved use on the area. If apiaries are considered an approved use then a request will be made to the Division of State Lands to allow this use as part of an amended Management Plan. This request will be made through the FWCP's Section Leader's office and coordinated by the CAP.

Determination of apiary site locations on WMA/WEAs should be done using the following guidelines:

- Apiary sites should be situated so as to be at least one half mile from WMA/WEA property boundary lines, and at least one mile from any other known apiary site. Exceptions to this requirement must be reviewed by the Area Biologist and presented to the FWCP Section Leader for approval.

- Site should be relatively level, fairly dry, and not be prone to flooding when bees would normally be present.

- Site should be accessible by roads which allow reasonable transfer of hives to the site by vehicle.

- If a site is to be located near human activity, such as, an agricultural field, food plot, wildlife opening, campsites, etc., or if the site may be manipulated by machinery at a time when bees would be present, then the apiary site should be located at a minimum of 150 to 200 yards from the edge of that activity. This will ensure minimal disturbance to the bees and minimize incidents with an angry hive on the area.

- It is preferable to have apiary sites located adjacent to or off roads whenever possible. If traditional apiary sites were located on roads and the Area Biologist determines that the site will not impact use of the road by others, then it will be allowed.
- FWC Area Biologist shall select apiary site(s) and the site(s) selected should not require excessive vegetation clearing (removal of large trees, dense shrubs) or ground disturbance (including fill).

WMA/WEA Staff Responsibilities

Area Biologist on WMAs/WEAs with approved apiary sites will forward a GIS shapefile depicting all the apiary site polygons, including a name or number with coordinates for each apiary site, to the THCB Contract Manager.

Area Biologist will monitor each apiary site no less than once a year to determine if the beekeeper is abiding by the contract requirements. If violations are noted, staff should bring them to the attention of the beekeeper for correction. If violations continue, staff should notify the THCB Contract Manager who will determine if or what additional action is warranted.

Area Biologist will establish and maintain firebreaks around the apiary site to ensure the apiary site is ready when a planned burn is scheduled.

Area Biologist will advise the beekeeper of burn plans, road work, gate closures, or other site conditions and management activities that may affect the beekeeper's ability to manage or access the apiary site.

Area Biologist is not responsible to ensure access roads are in condition suitable for beekeepers to access their hives with anything other than a four wheeled drive vehicle. (The site of the apiary may be high and dry, but the roads accessing them may be difficult to impossible to get a two wheeled drive vehicle into during extreme weather, e.g., heavy rainfall events.)

Apiary Wait List and Apiary Application

An electronic wait list for apiary sites will be maintained by the THCB's Contract Manager for each WMA/WEA. To be placed on the wait list, an interested beekeeper must submit an apiary application form to the contract manager (See Enclosed Application Form). Each applicant will be considered based on the following criteria:

- Proof of a valid registration with the FDACS/DPI
- Proof of payment of outstanding special inspection fees for existing sites
- A validated history of being an apiary manager
- Three references that can attest to the applicant's beekeeping experience

If an apiary site is becomes available on a WMA/WEA and there are beekeepers on the waiting list interested in that particular area, those individuals meeting the criteria above will be given preference. If there is more than one beekeeper meeting the criteria with their name on the list then a random drawing will be held by the FWC Contract Manager to determine who will receive the site. Beekeepers on the waiting list will be notified in writing of the random drawing's date/location and will be invited to attend. The individual's name selected during the drawing will be awarded the contract.

Apiary agreements are non transferable. Each agreement serves as a contract between a specific individual or company and FWC, and the rights and responsibilities covered by an individual agreement cannot be transferred.

Contracts

Apiary contracts are for five (5) years and renewals are contingent upon a satisfactory performance evaluation by Area Biologist and concurrence of the IPUB Section Leader. Approval is based on apiarist performance, adherence to rules and regulations and general cooperation. If an Area Biologist decides an apiarist whose contract is expiring is unacceptable he may recommend not approving the new contract. If this transpires then the wait list process using random selection will be used. If there is no apiarist on a current wait list then the apiarists who are in good standing with existing contracts will be notified to see if any want to be put on the wait list for the drawing. If none are interested then the site will be put on hold pending a valid request.

Pricing of Apiary Site(s)

Cost of each apiary site will be $40 annually which will include up to 50 beehives. Additional beehives will be charged at the rate of $40 per 50 beehives.

Pricing examples:

- A beekeeper is leasing 2 apiary sites with up to 100 beehives - the fee per year is $80
- A beekeeper is leasing 3 apiary sites with up to 200 beehives - the fee per year is $160

Note: The maximum number of hives/colonies allowed on an apiary site will be at the discretion of the apiarist. However, the apiarist is strongly recommended to follow the BMP as recommended by the FDACS/DPI. In addition to providing the BMP, FDACS/DPI's management has recommended 50 hives per site in pine and cypress stands and no more than 100 hives per site in areas with bottomland resources. However, FWC will not dictate the number of hives on a site unless they create land management issues.

Bear Depredation Control at Apiary Site(s)

Beekeepers are required to consult with the WMA/WEA Area Biologist to see if electric fencing is required for their apiary sites. If the Area Biologist requires electric fencing then the

Beekeepers shall construct and maintain electric fences for each apiary site. Numerous electric fence designs have been used to varying success and FWC as a courtesy provides an electric fence technical information bulletin with each Agreement. This bulletin is attached in order to assist the Beekeeper and/or provide a design that has been proven to be reasonable effective.

SUBJECT MATTER REFERENCES

Apiary Inspection Law - Chapter 586, Florida Statutes (see http://www.leg.state.fl.us/Statutes/), Rule Chapter 5B-53, Florida Administrative Code (see www.flrules.org).

The Board of Trustees of the Internal Improvement Trust Fund - Recommended Apiary Agreement Guidelines For Apiaries & Revisions to an Agreement for Apiary Activities on State Lands on September 24, 1986
S:\HSF\FEURGAMERY.BAC\GUP.POLICY\illiasupport@dos.state.fl.us_20110501_111445.pdf

Senate Resolution 650, September 21, 2006: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:sr650ats.txt.pdf

Attachments

Sample Apiary Agreement W/Attachments (Map Placeholder & Electric Fence Bulletin)

Sample Apiary Site Application Form W/Mission Statement

Best Management Practices for Maintaining European Honey Bee Colonies

Sample of Bandern Selection Process Procedure

APPROVED:

_____

Division Director or Designee

DATE: _____

6

APIARY AGREEMENT

AGREEMENT FOR APIARY ACTIVITIES ON STATE LANDS

THIS AGREEMENT is made by and between the Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street, Tallahassee, FL 32399-1600, hereinafter known as "the COMMISSION" and [Insert Name and Address of Apiarist Here], telephone number [Insert Phone Number of Apiarist Here], hereinafter known as "the USER."

WITNESSETH

In consideration of the mutual promises to be kept by each and the payments to be made by the USER, the parties agree as follows:

1. TERM. This Agreement will begin [Insert date here] or the date signed by both parties, whichever is later, and will end five (5) years from the date of execution. Issuance of a new five (5) year Agreement is contingent upon satisfactory performance evaluation by the Area Biologist and approval of the THCR Section Leader.

2. The COMMISSION Agrees:

   a. To provide apiary sites on state lands, which will be identified by the COMMISSION staff and located on the property identified in (2)(f) below.

   b. To provide technical assistance for hive placing, if requested by Area Biologist, at sites made available under this Agreement.

   c. To allow the USER to place a total number of [Insert number of hive boxes here] hive boxes on the COMMISSION managed property at the apiary site(s).

3. The USER Agrees:

   a. To pay [Insert Total Dollars Here] on or before the execution date of this Agreement and each year thereafter on or before anniversary date of the original contract execution date, with check or money order payable to the Florida Fish and Wildlife Conservation Commission. All payments shall be remitted to: The Florida Fish and Wildlife Conservation Commission, Finance and Budget Grp., Accounting Section, PO Box 6150, Tallahassee, FL 32399-6150, and a copy of the check to: The Florida Fish and Wildlife Conservation Commission, Terrestrial Habitat Conservation and Restoration Section, Attn: Section Leader, 620 South Meridian Street, Tallahassee, Florida 32399-1600.

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b. To have no more than [Insert Number of Hive boxes here] hive boxes on the property at one time

c. To comply with the Florida Honey Certification and Exemption Law, Chapter 586, Florida Statutes, and Rule 5B-54, Florida Administrative Code, and all other applicable federal, state, or local laws, rules or ordinances

d. To not damage, cut or remove any trees in the course of preparing for or conducting operations under this Agreement

e. To repair within 30 days of occurrence any damage to roads, trails, fences, bridges, ditches, or other public property caused by USER's operations under this Agreement based on discretion of the COMMISSION to ensure the WMA/WEA management goals are met. All repairs will be coordinated with the Area Biologist to ensure management goals are met. If USER does not comply within the 30 day requirement, then the COMMISSION may use a third party to perform the repairs and charge the USER accordingly

f. To report any forest fires observed and to prevent forest fires during the course of operations under this Agreement

g. To abide by all WMA/WEA rules and regulations in addition to those in this Agreement

h. To notify the Area Biologist within 24 hours when a bear depredation event occurs.

i. To post their name on an agreed upon location at each site covered by this Agreement or otherwise use an identifying system that is approved by the Area Biologist

j. To furnish proof of general liability insurance prior to starting any activities on state property or within 30 days of execution of this Agreement, whichever is earlier, and proof of annual renewal of the general liability insurance policy prior to or upon expiration date of the policy. The USER shall maintain continuous general liability insurance throughout the term of this Agreement for no less than $400,000 for bodily injury and $100,000 for property damage for each occurrence. Such a policy shall name the COMMISSION as the Certificate Holder. The USER's current certificate of insurance shall contain a provision that the insurance will not be canceled for any reason during the term of this Agreement except after thirty (30) days written notice to the COMMISSION.

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k. To be liable for all damage to persons or property resulting from operations under this Agreement, and to release, acquit, indemnify, save and hold harmless the COMMISSION, its officers, agents, employees and representatives from any and all claims, losses, damages, injuries and liabilities whatsoever, whether for personal injury or otherwise, resulting from, arising out of or in any way connected with activities under this Agreement or activities occurring from any other source not under this Agreement and the USER further agrees to assume all risk of loss and liabilities incidental to any natural or artificial conditions occurring on state lands covered by this Agreement.

l. To construct and maintain electric fences, if required by the Area Biologist at the Area Biologist's discretion, to provide protection of apiaries from black bear depredation consistent with the technical information bulletin attached to this agreement, and if so required, to maintain an open buffer around the fencing of five (5) feet or more. (See Attachment 1.1)

m. To remove all personal property from the site within thirty (30) days of termination or expiration of this Agreement. The USER understands that after this time, all the USER'S personal property remaining on the WMA/WEA shall be deemed abandoned and become the property of the COMMISSION, which will be utilized or disposed of at the sole discretion of the COMMISSION, and that reasonable storage and/or disposal fees and/or costs may be charged to the USER.

4. The parties mutually agree:

a. This Agreement is not transferable.

b. The USER's failure to submit payment by the due date established herein may result in cancellation of the Agreement by the COMMISSION.

c. The USER's failure to submit proof of general liability insurance or proof of annual renewal in compliance with (3.l.j) above may result in cancellation of this Agreement by the COMMISSION.

d. This Agreement shall be in effect for a period of five (5) years and issuance of a new agreement will be contingent upon a satisfactory performance evaluation and approval of the Area Biologist and HER Section Leader.

e. Each apiary site shall be situated so as to be at least one half (1/2) mile inward from state property lines and there shall be at least one (1) mile separation between sites. Exceptions to this rule must be reviewed by Area Biologist.

presented to and approved by the Terrestrial Habitat Conservation and Restoration Section Leader.

f. The property covered by this Agreement is described as follows: That the property sites (Forest Area Name) Wildlife Management Area are represented by Attachment A.

g. In accordance with Section 287.134, Florida Statutes, an entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid, proposal or reply on a contract to provide goods or services to any public entity; may not submit a bid, proposal or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant with any public entity; and may not transact business with a public entity.

h. As part of the consideration of this Agreement, the parties hereby waive trial by jury in action brought by either party pertaining to any matter whatsoever arising out of or in any way connected with this Agreement. Exclusive venue for all judicial actions pertaining to this Agreement is in Leon County, Florida.

i. This Agreement may be terminated by the COMMISSION upon thirty (30) days written notice to the USER in the event the continuation of the agency activities are found to be incompatible with the COMMISSION's management plans or for any other reason at the sole discretion of the COMMISSION.

This Area Intentionally Left Blank

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IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year last below written.

USER SIGNATURE

Date

Witness

Witness

FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION

Mike Brooks, Section Leader
Terrestrial Habitat Conservation and Restoration

Date

Approved as to form and legality

Commission Attorney

Date _____

AGREEMENT

ATTACHMENT 1

Use of Electric Fencing to Exclude Bears And Prevent Property Damage

Florida Fish and Wildlife Conservation Commission
Technical Information Bulletin (2001)

Electric fencing has proven effective in deterring bears from entering landfills, apiaries (beehives), livestock pens, gardens, orchards, and other high value properties. Numerous electrical fence designs have been used with varying degrees of success. Design, quality of construction, and proper maintenance determine the effectiveness of an electric fence. The purpose of this technical bulletin is to assist the property owner in understanding and implementing this tool in order to exclude and prevent damage caused by black bears.

Understanding Electric Fencing

Electric fencing provides an electrical shock when an animal comes into contact with the electrically charged wires of the fence. People unfamiliar with electric fencing often are afraid that it will injure, permanently damage, or kill an unidentified object that contacts the fence. **This is not true!** A properly constructed electric fence is safe to people, pets, and bears.

Components of Electric Fencing

An electric fence is composed of four main elements: a charger, fence posts, wire, and the ground rod.

Fence Charger: On a small scale electric fence (like that typically needed for bear exclusion), the largest cost is normally the fence charger. A fence charger's job is to send an electrical pulse into the wire of the fence. Contrary to popular belief, there is not a continuous charge of electricity running through the fence. Instead the charger sends a short pulse or burst of electricity through the fence. The intensity and duration of the electrical pulse varies with the type of charger or controller unit. Chargers with a high-voltage, short duration burst capacity are the best because they are harder to ground out by grass and weeds. These types are also the safest, because, even though the voltage is high (5 kilovolts) the duration of the burst is very short (2/10,000 of a second) (Fitzgerald, 1984).

Two basic energy sources for chargers are batteries (12 volt automotive type) and household current (110 volt). Battery-type chargers are typically cheaper to purchase but require more maintenance because of the necessity of charging the battery. The advantage of a battery powered charger is that it can be used in a remote location where 110 volt current is not available. Most units that are powered by a fully charged 12 volt deep cycle batteries can last three weeks before needing a charge. Addition of a solar trickle charger will help prolong the duration of effective charge in 12 volt batteries.

Fence Posts. On small scale fences, the posts are normally the second largest expense involved in construction. Therefore, when planning an electric fence it is a good idea to utilize existing fencing in order to save money. If an existing fence is available, posts will need to be placed around the area needing protection. Posts may be wood, metal, plastic, or fiberglass. Wood and metal posts will need to have plastic insulators attached to them which prevent the electric wire from touching the post causing it to ground out. Plastic and fiberglass posts do not need insulators, the wire may be affixed directly to these posts. Wood and metal posts are typically more expensive and require the added expense of insulators, however, they are more durable and generally require less maintenance.

Wire. Fourteen to seventeen gauge wire is the most common size range used in electric fencing. Heavier wire (a lower gauge number) is more expensive but carries current with less resistance and is more durable (Hilderand, 1984).

The two most common types of wire are galvanized and aluminum. Galvanized wire is simply a steel wire with a zinc coating to prevent rust, which makes the wire last longer. Some wire is more galvanized than others. The difference in amount of zinc coating that is around the core steel wire is measured in three classes. A class I galvanization means the wire has a thinner coating of zinc than a class II galvanization. Class III galvanized wire has the heaviest zinc coating and will last longer than the class I and class II wire (Hilderand, 1984). In general, the cost of galvanized wire increases as the class or amount of galvanization increases.

Aluminum wire is typically more expensive than the galvanized wire. Some advantages of aluminum wire are: it will not rust, it conducts electricity four times better, and it weighs one third less than steel wire.

The Ground Rod. The ground is an often overlooked, but critical part of an electric fence. Without a good ground, electricity will not flow through the wire. When an animal touches a charged wire, the body of the animal completes the electrical circuit and the animal "feels the "shock". The current must travel from the charger through the wire to the animal and then back through the ground to the charger if the animal is to feel the shock. The soil acts as the return "wire" (ground) in the circuit. However, the

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bird was to land on a charged wire without touching the soil the bird would not complete the circuit and would be unaffected (FitzGerald, 1984). Some fence configurations use actual grounded wires within the fence to enhance the grounding system.

The ground may be a commercial ground rod or a copper tube or pipe driven six to eight feet into the soil. Copper is expensive, so a copper coated steel pipe or any other good conducting metal pipe will work also. Very dry soil can effect the ability to create a good ground and has sometimes been a problem during drought conditions. Pipe may be a better choice than a solid rod during drought conditions, because water may be poured down the ground pipe to improve the ground. Some fence configurations use wires as the grounding system, rather than relying solely on the soil as a ground.

Recommended Electric Fence to Deter Black Bears

Conditions at fence sites will vary and will determine what the most effective fence configuration will be. Commission biologists welcome the opportunity to visit sites and provide custom tailored advice on constructing an effective electric fence. The following recommendation will cover most situations with low to moderate pressure from black bears. Use a five strand aluminum wire fence that is 40 inches high with wire spacing every eight inches apart using the previously mentioned wood grounding system (see figure 1). The wire closest to the ground level (the lowest wire) should be a charged or "hot" wire. The second wire should be grounded. The third wire should be hot. The fourth wire should be grounded and the fifth wire should be hot. If using metal or wood posts, insulators must be used to keep the hot wires from grounding out. The cost of this type of electric fence utilizing fiberglass posts and a 110 volt fence charger is approximately $200 for a 40' x 40' area (160 linear feet of fence).

Materials

1 - 1,312 foot roll (1/4 mile) 14 gauge aluminum electric fence wire
1 - 50 foot roll 12 gauge insulated wire
20 - 4 foot 5/8 inch dia fiberglass fence posts
5 - plastic gate handles
1 - 110 volt fence charger
1 - 10 foot ground pipe
4 - plastic electric fence signs

Installation: These instructions are for a square shape fence exclusion, but the process would be very similar for other applications. Drive 4 corner posts 1 foot deep into ground and stake with guy wires. Clip, rake, and keep clear any vegetation in a 15 inch wide strip under the fence and apply herbicide. Attach and stretch the aluminum wire at 8 inch increments starting 8 inches from ground level. A loop of wire should be left on each wire at the first corner post. Once the wire has been stretched around the outside of all the corner posts back to the first post a plastic gate handle should be attached to each wire and the gate handles should be attached to each

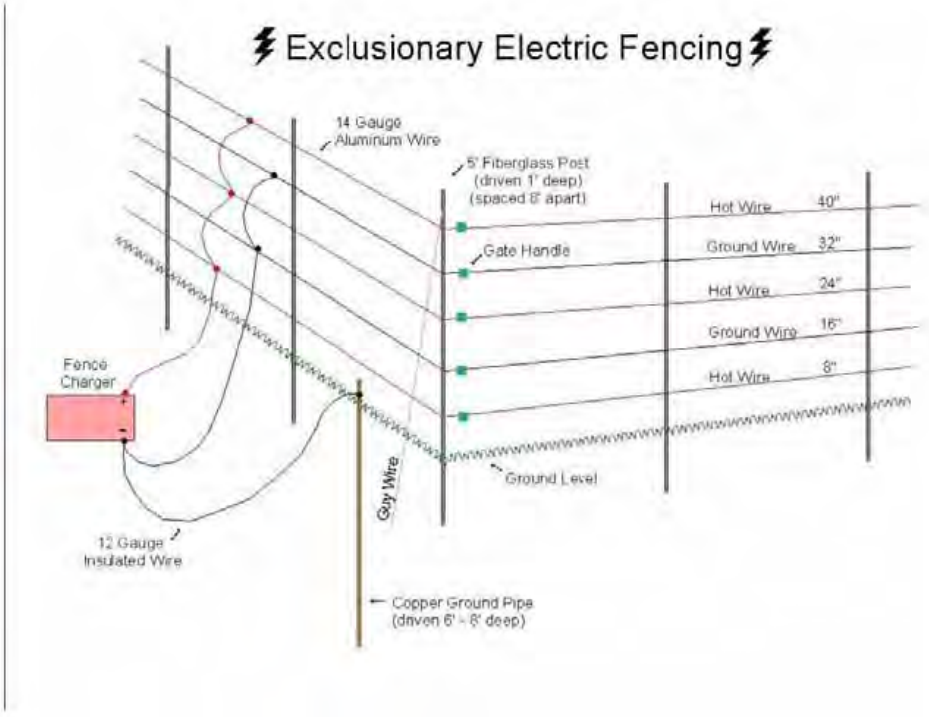
corresponding loop on the first corner post. Drive in the remaining 16 posts to the same depth at 8-foot intervals between corner posts. Secure each of the five wires to each of the posts with additional wire. Attach four plastic electric fence signs (one on each side) to the top wire of the fence. Attach a 12 gauge stranded insulated wire to the positive terminal of the fence charger and attach it to the first, third, and fifth wires of the fence. Attach another 12 gauge insulated wire to the negative terminal of the charger and attach this wire to the ground pipe which has been driven into the ground 6 to 8 feet deep. Attach another 12 gauge insulated wire from the negative terminal of the charger to the second and fourth wires on the fence. Plug the charger into a 110 volt power supply and the fence is in operation.

Tips to improve the effectiveness of your electric fence to deter black bears

1. If using a 12 volt fence charger, ensure that the battery is charged, check every two weeks.
2. Make sure terminals on the charger and battery are free of corrosion.
3. Make sure hot wires are not being grounded out by tall weeds, fallen tree branches, broken insulators, etc.
4. If fence wires have been broken and repaired, make sure wires are corrosion free where they have been spliced together. Also, tighten the fence at each corner post as wires that have been spliced and are loose make poor connections.
5. Be sure to take vegetation from under and around the outside of the fence as this may act as an insulator.
6. To improve the ground around the perimeter of the fence add a piece of 24-inch chicken wire laying on the ground around the outside of the fence. This should be connected to ground.
7. Dump pounds of drought proof water down the ground pipe and around the ground pipe to improve the ground. Digging a 3 inch deep 3 inch diameter hole around the ground pipe and back filling with rock salt will also improve the ground. Additional ground pipes may also be added to portions of the fence farthest from the charger.
8. To ensure that the bear solidly contacts the charged portion of the fence, a bait like bacon strips, a can of sardines, or foil with peanut butter may be attached to one of the top hot wires. Make sure these do not contact the ground, thus shorting out the fence.
9. When protecting a special structure (like a shed or catch house), the fence should be placed 3 to 5 feet away from the structure (rather than on it) so that the bear encounters the fence before reaching the attractant.
10. Protect the fence charger from the elements by covering it with a plastic bucket or a wooden box.
11. Place plastic electric fence signs around the perimeter of your fence to improve visibility and to warn other people.

LITERATURE CITED

FitzGerald, James (1984), *The Best Fences.* Storey Publishing Bulletin A-92, Pownal, Vermont. p. 14-16.



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AGREEMENT
ATTACHMENT 2

Place Holder for Map

Of

Apiary Locations

At

WMA/WEA

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APIARY SITE APPLICATION FORM

Florida Fish and Wildlife
Conservation Commission

RETURN TO [illegible]

Name Telephone Number

Mailing Address

City/State County Zip Code

Physical Address (if different from Mailing Address) _____

Company Name

Email Address

Requested Wildlife Management Area and Hunting Unit (see Apiary Site Application attached to the WMA/WFA Apiary Permit)

WMA/WFA County Hunting Unit

WMA/WFA County Hunting Unit

WMA/WFA County Hunting Unit

WMA/WFA County Hunting Unit

Number of Hives Requested Permanent Seasonal

Member of Beekeepers Association Yes No

Number of Hives in Number

Name of Beekeepers Association

Are you registered with the Florida Department of Agriculture and Consumer Services, Division of Plant Industry (FDACS-DPI) _____Yes _____No _____N/A (Yes, please provide proof)

Are you current with your annual hive registration with FDACS-DPI Yes No N/A (Yes, please provide proof)

Do you follow the recommended Best Management Practices for the Honey Bee? Yes No

(Yes, please provide a copy of your completed plan)

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[illegible]

References: [illegible]

[illegible]

MISSION STATEMENT

Management

Of

Florida Fish and Wildlife Conservation Commission's

Wildlife Management Areas

And

Wildlife and Environmental Areas

The mission of the Florida Fish and Wildlife Conservation Commission (FWC) is to manage fish and wildlife resources for their long-term well-being and the benefit of the people. To aid in accomplishing this mission, one of FWC's management goals is to manage fire-adapted natural communities on our Wildlife Management and Environmental Areas (WMA/WEA) to support healthy populations of the plants and animals characteristic of each natural community. In order to achieve this goal various habitat management techniques are used. These include prescribed burning, applications of herbicides and mechanical treatment of vegetation. These management efforts will take place at various times and locations on each of the FWC's WMA/WEAs. Staff on each WMA/WEA will work with and make users aware of these activities when necessary. Users must be aware and accept that these activities are necessary for the proper management of the area.

Note: This document is included as an attachment with each Application and executed Contract.

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FDACS/DPI's BMP

Florida Department of Agriculture & Consumer Services

BEST MANAGEMENT PRACTICES FOR

MAINTAINING EUROPEAN HONEY BEE COLONIES

1. Beekeepers will maintain a valid registration with the Florida Department of Agriculture and Consumer Services Division of Plant Industry (FDACS/DPI), and be current with any and all special inspection fees.

2. A Florida apiary may be deemed as European Honey Bee with a minimum 10% random sample of colonies using the EABIS (East African Bee Identification System) and/or the computer assisted morphometric procedure (i.e., Universal system for the detection of Africanized Honey Bees [AHB] [USDA ID]) or other approved methods by FDACS on a yearly basis or as requested.

3. Honey bee colonies if swarms or splits should be queened with production queens or queen cells from CHB breeder queens following Florida's Best Management Practices.

4. Florida beekeepers are discouraged from collecting swarms that cannot be immediately requeened from EHB queen producers.

5. Florida Beekeepers should practice good swarm prevention techniques to prevent an abundance of virgin queens and then requeening with available AHB drones that carry the defensive trait.

6. Maintain all EHB colonies via strong, healthy population conditions to avoid swarm takeover/ swarms of AHB.

7. Do not allow any weak or empty colonies to exist in an Apiary, as they may be a target for AHB swarms.

8. Recommend re-queening with European stock every six months unless using marked or clipped queens and having in possession a bill of sale from an EHB Queen Producer.

9. Immediately re-queen with a European Queen if previously installed clipped or marked queen is found missing.

10. Maintain some European drone source colony (250 square inches of drone comb) for every 10 colonies in order to reduce supersedure queens mating with AHB drones.

11. To protect public safety and reduce beekeeping liability, do not site apiaries in proximity of fenced or confined animals, students, the elderly, general public, drivers on public roadways, or visitors where this may have a higher likelihood of occurring.

12. Treat all honey bees with respect.

2:

RANDOM

SELECTION PROCESS

FOR VACANT APIARY SITE

When an apiary site becomes available the following procedure is used to randomly select the next apiarist (beekeeper) for an available apiary site on a WMA or WEA. Only those who have been evaluated and deemed qualified to be an apiarist on a WMA/WEA through the Apiary Application process will be eligible for the selection process. The steps below will be followed by the THCR Contract Manager when a site becomes available to be filled by a qualified apiarist

1. The THCR Contract Manager will maintain an "Apiary Wait List Folder" on the THCR SharePoint for each WMA/WEA with apiary sites.

2. A wait list is either created or updated when an Apiary Application(s) is received by the THCR Contract Manager from a qualified apiarist.

3. Upon receipt of an apiary site application, the THCR Contract Manager will review the WMA/WEA folder to see if there is an "Apiary Wait List"

4. If a list exists then the qualified applicant will be added to the list

5. When an apiary site becomes available if there are more than one qualified apiarist then these apiarists will be contacted by certified letter to determine their interest

6. The letter will request a response within 30 working days to make them eligible for the random drawing

7. If there is no response or is negative then that apiarist will not be included in the random drawing and the name will be removed "from the waiting list".

8. If only one apiarist responds positively to the certified letter then the available site will be awarded to that interested apiarist

9. If there are no apiarists on a wait list or all responses are negative then apiarists who currently have site(s) under Agreement and where not on the waiting list will be contacted to see if any have interest in the available site. If more than one responds then the random drawing process will be used to determine who will be awarded the site.

10. Steps to be performed by the TICR Contract Manager to execute the random selection for an available apiary site are listed below.

a. The names of each interested apiarist will be entered on a 1" X 2" piece of paper and folded in half*.

b. The pieces of paper will be inserted into a "black film canister" which has a snap top and placed into a container and stored up prior to the selection.

c. A non-biased person will be selected to reach into the box (which will be held above the selection person's eyesight) and randomly select one of the canisters.

d. The canister will be opened by the person performing the selection and the name is read aloud for those in attendance. Everyone in attendance will sign a witness sheet.

e. The apiarist whose name is selected will be awarded the available site.

f. A new Agreement will be developed by the TICR Contract Manager.

*A new apiary application must be submitted once requestor's name is removed from a waiting list.

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13.15 Operation Plan Fiscal Year 2014 - 2015

Fiscal year 2015 Projects: 7268

Activity	Title	Man Days	Salary	FuelCost	Other	Total	Units
100	Administration	5.00	$1,089.90	$91.25	$3,000.00	$4,181.15	0
101	Project inspection	3.00	$653.94	$54.75	$0.00	$708.69	0
103	Meetings	11.00	$2,397.78	$200.75	$1,000.00	$3,598.53	0
104	Budget/purchasing/accounting	3.00	$653.94	$54.75	$0.00	$708.69	0
128	New Vehicle and Equipment Purchases	3.00	$653.94	$54.75	$22,000.00	$22,708.69	2
140	Report writing/editing/manuscript preparation	7.00	$1,525.86	$127.75	$0.00	$1,653.61	0
150	Personnel management	10.00	$2,179.80	$182.50	$1,000.00	$3,362.30	0
182	Data management	6.00	$1,307.88	$109.50	$500.00	$1,917.38	0
185	GIS	15.00	$3,269.70	$273.75	$500.00	$4,043.45	0
200	Resource Management	0.00	$0.00	$0.00	$5,600.00	$5,600.00	0
201	Cultural resource management	2.00	$435.96	$36.50	$500.00	$972.46	0
202	Timber management	25.00	$5,449.50	$456.25	$500.00	$6,405.75	545
203	Tree and shrub planting	10.00	$2,179.80	$182.50	$1,000.00	$3,362.30	70
204	Resource planning	41.00	$8,937.18	$748.25	$0.00	$9,685.43	0
206	Prescribed burning - growing season	25.00	$5,449.50	$456.25	$1,000.00	$6,905.75	1500
207	Prescribed burning - dormant season	20.00	$4,359.60	$365.00	$91,100.00	$95,824.60	2500
208	Firebreaks	10.00	$2,179.80	$182.50	$1,000.00	$3,362.30	20
212	Exotic plant control (chemical)	6.00	$1,307.88	$109.50	$1,000.00	$2,417.38	15
215	Hydrology Management	10.00	$2,179.80	$182.50	$1,500.00	$3,862.30	0
218	Water level management	0.00	$0.00	$0.00	$0.00	$0.00	0
221	Animal surveys	18.00	$3,923.64	$328.50	$2,000.00	$6,252.14	8
228	Inland aerial surveys	4.00	$871.92	$73.00	$0.00	$944.92	0
235	Vegetation and plant surveys	3.00	$653.94	$54.75	$27,000.00	$27,708.69	0
281	Other resource management	0.00	$0.00	$0.00	$0.00	$0.00	0
282	Herbaceous seeding	18.00	$3,923.64	$328.50	$5,000.00	$9,252.14	40
288	Nuisance animal complaints	0.00	$0.00	$0.00	$0.00	$0.00	0
289	Native vegetation management (mechanical)	24.00	$5,231.52	$438.00	$45,683.00	$51,352.52	125
290	Native vegetation management (chemical)	6.00	$1,307.88	$109.50	$1,000.00	$2,417.38	15
291	Technical assistance	4.00	$871.92	$73.00	$0.00	$944.92	0
294	Program coordination and implementation	28.00	$6,103.44	$511.00	$1,000.00	$7,614.44	0
295	Biological data collection, analysis, and reporting	15.00	$3,269.70	$273.75	$1,000.00	$4,543.45	0
311	Boundary signs	2.00	$435.96	$36.50	$500.00	$972.46	0
312	Informational signs	3.00	$653.94	$54.75	$0.00	$708.69	0
320	Outreach and education	5.00	$1,089.90	$91.25	$500.00	$1,681.15	0
341	Public use administration (hunting)	15.00	$3,269.70	$273.75	$7,395.00	$10,938.45	0
350	Customer service support	3.00	$653.94	$54.75	$1,000.00	$1,708.69	0

Activity Title	Man Days	Salary	FuelCost	Other	Total	Units
920 FEM -- buildings/structures	18.00	$3,923.64	$328.50	$38,800.00	$43,052.14	5
922 FEM -- custodial functions	0.00	$0.00	$0.00	$0.00	$0.00	0
923 FEM -- vehicles/equipment	25.00	$5,449.50	$456.25	$13,400.00	$19,305.75	0
925 FEM -- boating access	2.00	$435.96	$36.50	$0.00	$472.46	1
926 FEM -- roads/bridges	22.00	$4,795.56	$401.50	$17,620.00	$22,817.06	10
928 FEM -- fences	8.00	$1,743.84	$146.00	$1,200.00	$3,089.84	0
All totals	435.00	$94,821.30	$7,938.75	$294,298.00	$397,058.05	4856

Land Management Uniform Cost Accounting Council

Uniform Land Management Cost Categories and Subcategories

1. Resource Management

a. Exotic Species Control. -- Invasive exotic plant and animal removal activities and costs for inventorying, planning, preparing, executing, evaluating, monitoring and reporting. Also includes equipment, chemicals, protective clothing and supplies. Includes nuisance native feral animal and plant control.

b. Prescribed Burning. -- Prescribed burning activities and costs for assessing, planning, preparing, executing, evaluating and reporting. Also includes equipment, protective clothing and supplies.

c. Cultural Resource Management. -- Management activities and costs for assessing, planning, executing, evaluating and reporting, and for all maintenance, restoration or monitoring activities for prehistoric and historic sites, features and collection objects.

d. Timber Management. -- Activities and costs related to the establishment of a stand of potentially merchantable timber, harvest of merchantable timber, and cultural treatments intended primarily to improve the growth and overall health of a stand of merchantable timber. Also includes activities and costs related to the cutting of merchantable timber in natural community and habitat restoration projects.

e. Hydrological Management. -- Hydrological management and restoration activities and costs for assessing, monitoring, planning, preparing, executing, evaluating and reporting. Includes water level management, repair, removal or back-filling of ditches, canals, berms and dams. Also includes water quality and water quantity monitoring.

f. Other. -- All other resource management activities and costs not captured in other specific subcategories. Examples include natural community and habitat restoration through other techniques; plant, animal or biological community survey, monitoring and research; listed species management; technical assistance; and evaluating and commenting on resource impacts to parks.

2. Administration

a. Central Office/Headquarters. -- Headquarters units conducting general administration of land under management by the agency. Includes upper management direction, administration and fiscal, budget, personnel, purchasing and record keeping required for operations oversight and specific programs. Includes all duties unless they specifically relate to other categories or subcategories.

b. Districts/Regions. -- Sub-state administrative districts or regions conducting general administration of the properties under their management. Includes all duties, unless they specifically relate to other categories or subcategories. General operating costs of district or region administrative facilities are included.

c. Units/Projects. -- Conducting general administration duties at a specific management unit (state park, state forest, state wildlife management area, etc.). Includes supervisory duties, fiscal and record keeping duties, and any other duties that do not specifically relate to other categories or subcategories. General operating costs for the property, such as utilities, telephones and garbage collection, are included.

3. Support

a. Land Management Planning. -- Developing land management plans required by Sec. 253.034, F.S. Includes researching and compiling plan information, materials and maps, coordinating planning activities, conducting review activities (internal reviews, public meetings, advisory group meetings, ARC, etc.), and promulgating draft plans and final plans.

b. Land Management Reviews. -- Planning, organizing and conducting land management reviews by teams created under Sec. 259.036, F.S. Includes preparing and responding to land management review reports. Also includes similar work conducted as part of internal agency land management reviews.

c. Training/Staff Development. -- Staff training and development costs incurred in any facet of the agency's land management activities.

d. Vehicle Purchase. -- Acquisition of any vehicle purchased primarily for land management purposes or to support any category of land management activity by the agency.

e. Vehicle Operation and Maintenance. -- Costs of operating and upkeep of any vehicle used by the agency to support any category of land management activity.

f. Other. -- Any other support activity or cost not captured by other categories or subcategories.

4. Capital Improvements

a. New Facility Construction. -- Use of Fixed Capital Outlay (FCO) or other budget authority for all new facility design and construction activities. Includes new roads, parking and all other infrastructure.

b. Facility Maintenance. -- Use of Fixed Capital Outlay (FCO) or other budget authority for all repairs or renovations to existing facilities, roads or other infrastructure. Also includes ADA accessibility improvements and renovations.

5. Visitor Services/Recreation

a. Information/Education Programs. -- Interpretive, environmental education and marketing programs that explain or promote the agency's mission or instill in visitors an understanding and appreciation for Florida's natural and cultural resources and their proper use and care. Includes signs, brochures, maps and other public information materials that are produced or disseminated.

b. Operations. -- Includes the non-administrative and non-support costs involved in providing public access to lands. Includes all actions required to manage visitor activities in a way to ensure safe and enjoyable use by the public. Includes routine maintenance, cleaning and other work required to provide safe and efficient utilization of facilities and resources that support visitor use and recreation. Includes protection activities required by staff to safeguard natural and cultural resources, facilities, material, staff and visitors.

6. Law Enforcement

The provision of all activities for enforcing criminal, conservation and boating laws on land, freshwater and marine environments and all costs associated with these services. Includes the provision of uniform patrol. Includes overt and covert criminal investigations. Includes regulation of commercial wildlife trade. Also includes the direction and administration of all law enforcement programs and activities, and all associated costs.

Land Management Uniform Accounting Council and FWC Activity Code Groupings

Resource Management

Exotic Species Control

210 Exotic species control
211 Exotic plant control (mechanical)
212 Exotic plant control (chemical)

Prescribed Burning

205 Prescribed burning
206 Prescribed burning C growing season (April 1 to September 30)
207 Prescribed burning C dormant season (October 1 to March 31)
208 Firebreaks

Cultural Resource Management

201 Cultural resource management

Timber Management

202 Timber management

Hydrological Management

215 Hydrology management
216 Dams, dikes, levees
217 Canals
218 Water level management
194 Lake restoration

Other

185 GIS
186 Biometrics
200 RESOURCE MANAGEMENT
203 Tree and shrub planting
213 Wildlife management
214 Listed Species management
219 Upland restoration
282 Herbaceous seeding
283 Clearings
289 Native vegetation management (mechanical)
290 Native vegetation management (chemical)
221 Animal surveys
228 Inland aerial surveys
235 Vegetation and plant surveys
250 MONITORING AND ASSESSMENTS
252 Biomedical monitoring
253 Ecological monitoring
256 Habitat monitoring analysis
263 Nest box monitoring
264 Population demographics
295 Biological data collection, analysis, and reporting
275 Permits and authorizations

276 Commission rule development and review
277 Relocation
278 CITES tags
281 Other resource management
284 Feeding/watering
285 Nest structures
286 Population control
287 Stocking enhancements/population augmentation
288 Nuisance animal complaints
293 Mortality investigations
294 Program coordination and implementation C inter- and intra-agency coordination and program implementation at the section, bureau, or division level
296 Habitat protection technical assistance
750 URTD assessment
789 Site Preparation – GCR
790 Irrigation – GCR
791 Seed Collection – Hand
792 Seed Collection – Mechanical
793 Herbicide Maintenance Treatment

Administration

Central Office/Headquarters

100 ADMINISTRATION C administrative tasks, including preparation of forms, word processing, photocopying, filing, and other clerical/secretarial duties.
104 Budget/purchasing/accounting

Districts/Regions

See Location code

Units/Projects

See Location code

Support

Land Management Planning

103 Meetings C includes workshops, conferences, staff, and other meetings.
204 Resource planning

Land Management Reviews

209 Land Management Reviews
101 Project inspection C field inspections of projects.

Training/Staff Development

150 PERSONNEL MANAGEMENT C recruitment, hiring, training, counseling, and supervising.

Vehicle Purchase

128 New Vehicle and Equipment Purchase

Vehicle Operation and Maintenance

923 FEM C vehicles/equipment

Other

140 REPORT WRITING/EDITING/MANUSCRIPT PREPARATION
141 Grant applications
180 SYSTEMS ADMINISTRATION AND MANAGEMENT
182 Data management
184 Metadata development and management
187 IT
188 Web development
721 Geospatial analysis techniques
191 Stamp design coordination
226 Human dimensions surveys

Capitol Improvements

New Facility Construction

910 New facility construction C buildings/structures
912 New construction C roads/bridges
913 New construction C trails
914 New construction C fences

Facility Maintenance

920 Facility and equipment maintenance (FEM) C buildings/structures
921 FEM C utilities
922 FEM C custodial functions
925 FEM C boating access
926 FEM C roads/bridges
927 FEM C trails
928 FEM C fences

Visitor Services/Recreation

Information/Education Programs

145 Technical bulletin

Operations

311 Boundary signs
312 Informational signs
320 Outreach and education C attending or developing educational or informational materials or events for the public
327 Becoming an Outdoor Woman C enhancement
331 Wings Over Florida
339 Range safety operations
341 Public use administration (hunting)
342 Public use administration (non-hunting)
350 Customer service support C disseminating written or verbal information or assistance to the public
700 STUDIES
740 EVALUATIONS AND ASSESSMENTS

Law Enforcement

FWC Activity Code Numeric Listing

100 ADMINISTRATION C administrative tasks, including preparation of forms, word processing, photocopying, filing, and other clerical/secretarial duties.
101 Project inspection C field inspections of projects.
103 Meetings C includes workshops, conferences, staff, and other meetings.
104 Budget/purchasing/accounting
128 New Vehicle and Equipment Purchase
140 REPORT WRITING/EDITING/MANUSCRIPT PREPARATION
141 Grant applications
145 Technical bulletin
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218 Water level management
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721 Geospatial analysis techniques 740 EVALUATIONS AND ASSESSMENTS
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920 Facility and equipment maintenance (FEM) C buildings/structures
921 FEM C utilities
922 FEM C custodial functions
923 FEM C vehicles/equipment
925 FEM C boating access
926 FEM C roads/bridges
927 FEM C trails
928 FEM C fences

13.16 Arthropod Control Plan

Florida Department of Agriculture and Consumer Services
Division of Agricultural Environmental Services

ARTHROPOD MANAGEMENT PLAN - PUBLIC LANDS

ADAM H. PUTNAM
COMMISSIONER

Section 369.4111, F.S.
Telephone: (850) 617-7997

For use in documenting an Arthropod Control Pan for lands designated by the State of Florida or any political subdivision thereof as being environmentally sensitive and biologically highly productive therein. Fill this form out if control work is necessary or planned.

Name of Designated Land:
Joe Budd Wildlife Management Area (JBWMA)

Is Control Work Necessary: ☒ Yes ☐ No

Location:
5300 Highbridge Road, Quincy, FL 32351

Land Management Agency:
Florida Fish and Wildlife Conservation Commission

Are Arthropod Surveillance Activities Necessary? ☒ Yes ☐ No
If "Yes", please explain:

Arthropod surveillance is necessary only if there is probable and/or immediate threat to public safety/animal health or if there is a public health emergency declared by the Florida Department of Health (FDOH), per Chapter 388.

Which Surveillance Techniques Are Proposed?
Please Check All That Apply:

☒ Landing Rate Counts ☒ Light Traps ☐ Sentinel Chickens

☒ Citizen Complaints ☒ Larval Dips ☐ Other

If "Other", please explain:

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Arthropod Species for Which Control is Proposed:
Mosquitos (all species)

Proposed Larval Control:

Proposed larval monitoring procedure:

Are post treatment counts being obtained: ☒ Yes ☐ No

Biological Control of Larvae:

Might predacious fish be stocked: ☐ Yes ☒ No

Other biological controls that might be used:

Material to be Used for Larvaciding Applications:

(Please Check All That Apply:)

☒ Bti

☒ Bs

☐ Methoprene

☐ Non-Petroleum Surface Film

☐ Other, please specify:

Please specify the following for each larvacide:

Chemical or Common name:

☒ Ground ☒ Aerial

Rate of application:

Method of application:

Chemical or Common name: Vectolex WDG and Vectobac 12AS Typically these are the biological larvicides we use on Public Lands.

Rate of Application: Consistent with Label instructions

Method of application: Larviciding of the Joe Budd WMA, its rivers, creeks, lakes and ponds is prohibited, unless approved in writing by the FWC land manager or designee, treatment shall only be conducted in case of an emergency, as declared by the FL Department of Health, per Chapter 388. Standing pools of water may be treated if survillance techniques approved in this

plan indicate a need. Any larviciding on the JBWMA will require written approval from the FWC land manager or his designee. Gadsden County Mosquito Control (GCMC) position: we will most likely not ever larvicide on this property unless there is a public health emergency declared by FDOH.

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Proposed Adult Mosquito Control:

Aerial adulticiding ☒ Yes ☐ No

Ground adulticiding ☒ Yes ☐ No

Please specify the following for each adulticide:

Chemical or common name: Aerial: Dibrom Ground: Permethrin or Malathion

Rate of application: Consistent with label instructions

Method of application: Aerial adulticiding shall only be done in case of an emergency, as declared by FL Department of Health per Chapter 388. Ground adulticiding will only be conducted whenever surveillance techniques described in this plan indicate a need and after obtaining written approval from the FWC land manager or his designee. The District will have to show an immediate need to increase control activities due to an immediate threat to public saftey. GCMC's position: we will most likely not ever use adulticide on this property unless there is a public health emergency declared by FDOH.

Proposed Modifications for Public Health Emergency Control: Arthroped control agency may request special exception to this plan during a threat to public or animal health declared by State Health Officer or Commissioner of Agriculture.

Proposed Notification Procedure for Control Activities:

District will notify the land manager or his designee if surveilance techniques described in this plan indicate a need for additional control activities. GCMC's position: We will need to address aerial fly patterns to be treated in the event of an emergency prior to flights.

Records:

Are records being kept in accordance with Chapter 388, F.S.:

☒ Yes ☐ No

Records Location: Gadsden County Department of Mosquito Control. Post Office Box 1799 Quincy, FL 32353

How long are records maintained: 7 years

Vegetation Modification:

What trimming or altering of vegetation to conduct surveillance or treatment is proposed?
None

Proposed Land Modifications:

Is any land modification, i.e., rotary ditching, proposed:

No. GCMC's position: if FWC would so chose to investigate the areas of source reduction of standing water and routine ditch maintenance for water runoff, mosquito habitat could be altered in a positive way.

Include proposed operational schedules for water fluctuations:
None Proposed

List any periodic restrictions, as applicable, for example peak fish spawning times.

When bee yards are occupied, ground and aerial spraying needs to be conducted after dark to minimize adverse effects to honey bees. Inform bee keepers in advance of any application or spraying.

Proposed Modification of Aquatic Vegetation:

None. GCMC's position: if FWC would so chose to investigate areas of aquatic weeds blocking water flow, this too can reduce breeding spots for mosquitoes.

Land Manager Comments:

All control activites on Joe Budd WMA must be approved by the FWC land manager or designee. The district must show the need to increase control activitos due to an immediate threat to public safety.

Arthropod Control Agency Comments:

Most, if not all, control activities performed from GCMC on this property will be due to a declared public health emergency by FDOH. This district will interact and assist Joe Budd WMA with plans of source reduction if the area so wishes.

Signature of Lands Manager or Representative Date

Joe R. Wells 12/22/14
Signature of Mosquito Control Director / Manager Date
PH10399

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13.17 Gadsden County Letter of Compliance with Local Government Comprehensive Plan

COMMISSIONERS:

ERIC HINSON
District 1
ANTHONY O. VIEGBESIE, PhD
District 2
GENE MORGAN
District 3
BRENDA A. HOLT
District 4
SHERRIE TAYLOR
District 5

GADSDEN COUNTY
BOARD OF COUNTY COMMISSIONERS
EDWARD J. BUTLER
GADSDEN COUNTY GOVERNMENTAL COMPLEX
Planning and Community Development

Robert Presnell
County Administrator

David Weiss
County Attorney

Allara Mills Gutcher, AICP
Director

June 30, 2015

Dylan Imlah
Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Land Conservation and Planning
620 S. Meridian Street
Tallahassee, Florida 32399

Mr. Alden,

I have reviewed the management plan for the Joe Budd Wildlife Management Area and find the proposed activities to be consistent with the Goals, Objectives and Policies of the Gadsden County Comprehensive Plan. The subject area is designated as "Conservation" and "Agriculture-3" on the county's Future Land Use Map. "Conservation" allows for limited residential uses with minimal disturbance, Silviculture activities in accordance with Best Management Practices, and recreation uses. The "Agriculture-3" category allows for agriculture uses and larger-lot residential uses, churches, cemeteries, recreation, and historic and public uses. Gadsden County currently does not have zoning adopted.

Please contact me if you need anything further.

Best Regards,

Allara Mills Gutcher, AICP
Director, Planning and Community Development

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