TM 901

RESOURCE MANAGEMENT GUIDE

INVENTORY SUMMARY

		Compartment:	13
Jackson-Washington State Forest		Tract:	9
Forester:	Scott Funk	Date:	7/27/09

ACREAGE IN:

Commercial Forest	64	Total B.A./ Acre	115.3
Non-Commercial		B.A. Saplings	16.8
Recreation Use		B.A. Sawtimber	74.3
Permanent Openings		B.A. Poles	14.5
Other Uses		B.A. Culls	9.7
TOTAL AREA	64		

(Estimated Tract Volumes for Commercial Forest Area-Bd.Ft., Doyle Rule)

SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
American beech	6,240	18,390	24,630
blackgum	4,740	1,400	6,140
black oak	7,610	38,750	46,360
chestnut oak	34,340	66,480	100,820
northern red oak	7,400	0	7,400
pignut hickory	1,150	25,710	26,860
red maple	1,310	1,100	2,410
scarlet oak	1,430	5,430	6,860
shagbark hickory	0	660	660
sugar maple	4,400	16,090	20,490
Virginia pine	11,900	0	11,900
white ash	0	1,480	1,480
white oak	3,400	77,820	81,220
yellow-poplar	11,330	12,240	23,570
TRACT TOTALS	95,250	265,550	360,800
PER ACRE TOTALS	1,488	4,149	5,638

PREVIOUS CRUISE DATA

DATE:	12/19/84	GROWING STOCK	HARVEST STOCK	TOTAL VOLUME
PER ACRE TOTALS		5,406	1,413	6,819
DATE:	04/04/77	GROWING STOCK	HARVEST STOCK	TOTAL VOLUME
PER ACRE TOTALS		2,104	2,538	4,642

RESOURCE MANAGEMENT GUIDE

Jackson-Washington State Forest — Compartment 13 Tract 09
Forester: Scott Funk — Date: 7/27/09
Management Cycle End Year 2032 — Management Cycle Length 23 years

Location

This tract is located in section 20&21&28 T3N R5E, Gibson Township, Washington County. This tract is located approximately 8.5 miles North of Salem. This mileage was a straight line measurement from center to center on Arc Gis.

General Description

This 64 acre tract contains oak-hickory and oak-hickory chestnut oak; it contains some really nice quality oak. The linden looper in 2004-2005 caused significant mortality in the chestnut oak giving it a low basal area, therefore a low harvest stock volume for this tract. Hurricane Ike in September 2008 caused a lot of storm damage throughout the tract. The western portion of this tract that was acquired most recently was cut heavy prior to state ownership.

History

Approximately 80 acres of land in section 20 was purchased from Leon, Judith D., R., B., Zink on the 25th day of November 1996, only 7.4 acres approximately is included in the current tract. On April 29th 1963 Thomas and Grace Bane, Harry Eugene Bane, and Jewel Bane sold several tracts to the state, one of which was 40 acres and 28 of which is in compartment 13 tract 9. Approximately 80 acres in section 28 was purchased from Garnet Fawbush on January 12th 1960 and roughly 27 acres of this is within compartment 13 tract 9. On 4/4/77 David Pearson wrote a management guide stating that compartment 13 tract 9 had a total of 264,581 bdft, 4,642 bdft per acre and a harvest volume of 2,538 bdft per acre. In April 29th, 1983 Dwayne Sieg had a timber sale in compartment 13 tracts 6, 9, and 14 for a total of 160 acres and 172,605 bdft, with chestnut oak, black oak, and white oak as the leading volume species. On 12/19/84 Dwayne Sieg wrote a management guide stating that compartment 13 tract 9 had 308,133 bdft, 6,819 bdft per acre and a harvest volume of 1,413 bdft per acre. On 5/27/01 Eric Johnson changed the tract boundary and updated tract acreage for GIS.

Landscape Context

The surrounding landscape is mostly state owned forestland and the block the tract lies within is approximately 1,620 acres according to Arc Gis. The block of state forest land to the west is approximately 1,020 acres according to Arc Gis. There are a lot of farmland, pasture and crop fields to the east, northeast and southwest of the tract. There are several watershed protection lakes and wildlife ponds. There are many residences along the public roads. There hasn't been mush expansion near this tract within the last ten years, but approximately 10 miles southwest, Salem has seen a lot of growth and expansion.

Topography, Geology and Hydrology
The topography in the west section of this tract contains a semi steep sloped valley with slopes that average from 5 to 25% with a max of 35%. The middle section of this tract has a flat gently sloping to steep slope that averages from 5 to 38% with a max of 60%. The east section of the tract has semi steep rolling ridges with slopes averaging between 15 and 30% with a max of 40%. The elevation changes from 750 feet to approximately 850 feet. The geology is shale bedrock in the bottoms and siltstone with sandstone mixed in on the ridge lines. The hydrology is a mapped intermittent stream that flows southeast into Apple Lake, which flows into Elk Creek, which flows north into the Muscatatuck River.

Soils
Gilpin silt loam (GID2) (15.86 acres) 12 to 18 percent slope; eroded, it's a moderately deep soil and well drained found on upland side slopes. Gilpin silt loam has a northern red oak site index of 80.

Berks-Weikert Complex (BhF) (43.15 acres) 25 to 75 percent slope; well drained soil on the upland side slopes. Both soils are very intermixed so they are mapped as one. Berks has a northern red oak site index of 70, Weikert has a northern red oak site index of 64, and both have black oak site index of 50.

Burnside silt loam (Bu) (3.87 acres) occasionally flooded; well drained and bottom land is moderately well drained. Available water capacity and permeability is both moderate. Soil is well suited for trees while plant competition is moderate and seedlings do well if competing vegetation is controlled. Burnside silt loam has a yellow poplar site index of 95 and an eastern cottonwood site index of 105.

Cuba Silt Loam (Cu) (0.52 acres) frequently flooded; slopes range from 0 to 3 percent. Very acidic soil and is formed mainly along streams and waterways, mainly suited for crops such as corn and soybeans. Native vegetation is mixed hardwoods and permeability is moderate with very little runoff. No site index was found.

Steff silt loam (Sf) (0.60 acres) frequently flooded; moderately well drained soil is found in the bottom land, usually flooded during winter and spring. Available water capacity is very high and the permeability is moderate. This soil is well suited for trees, but plant competition is severe, trees grow well if vegetation is controlled. Steff silt loam has a yellow poplar site index of 107, black oak 88, and sweetgum 100.

Access
This tract can be accessed off of State road 39 onto Rutherford Hollow road to the junction with Bane Hollow road, head west on Bane Hollow approximately 2 miles to a gravel parking lot on the southside of the road. Fire access road #930 heads uphill out of the gravel lot to the top of the ridge, the western end of the tract borders this road. Access around the tract is good, the entire tract boundary has an old road bed for easy access around the outside of the tract and access within the tract is okay, re-use the old

skid trails down the ridge spines to collect the trees. The Knobstone trail also runs through the south east section and would have to be shut down for harvest operations.

Boundary
The entire tract boundary is surrounded by other state owned forest land. The entire tract boundary is identified by a road bed that had been cut in the past as the boundary line.

Wildlife

Wildlife Habitat Feature Tract Summary

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Legacy Trees *					
11"+ DBH	571.5		1282	711	
20"+ DBH	190.5		247	56	
Snags (All species)					
5"+ DBH	254	444.5	681	427	236
9"+ DBH	190.5	381	565	375	184
19"+ DBH	31.75	63.5	173	141	109
Cavity Trees (All species)					
7"+ DBH	254	381	1422	1168	1041
11"+ DBH	190.5	254	1108	918	854
19"+ DBH	31.75	63.5	306	274	243

* Species Include: AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO

This tract exceeded all above maintenance level in all three categories, mainly because of the linden looper outbreak in 2004 -2005. The dead snags were almost all chestnut oaks of medium to large diameters making excellent roosting sites for the Indiana bat. I saw several deer on this tract, all the dense thick greenbrier makes for good bedding and browse for the deer. There is also Apple Lake in the far southeast corner of the tract where there are a lot of dead snags and water, which is real good for wildlife. There is a beaver living in the lake as I found chewed off trees.

Communities
This tract is mostly dry upland oak hickory with chestnut oak and some mixed hardwoods and Virginia pine. In the far southeast corner is wet mesic bottom land that is close to Apple Lake. Invasive species include siltgrass in the road beds and multiflora rose bush mixed within the greenbriar. The Natural Heritage Database review found no endangered plant species or wildlife within or near this tract.

Forest Condition
The overall condition of this tract is rather poor because of the linden looper outbreak in 2004-2005. A lot of big dead chestnut oaks stand on this tract, there should have been a

salvage harvest on this tract to collect those trees before they became too decomposed, but the good thing is that it makes great roosting sites for the Indiana Bat. The inventory information is a total of 360,790 bdft, 265,540 bdft of growing stock, and 95,250 of harvest stock. The per acre volumes are a total of 5,680 bdft, growing stock is 4,180 bdft, and harvest stock of 1,500 bdft per acre. The pre-harvest stocking is 73% and the projected post-harvest stocking level is 64%.

Recreation
The primary recreational use for this tract is hunting, walking, hiking, and mushroom hunting as the Knobstone trail runs through the east to south east section of this tract.

Cultural
There were no cultural sites found within this tract.

Tract Subdivision Description and Prescription

Mixed Hardwoods (11.04 acres)

Most of this area consists of sugar maple, red maple, American beech, white ash, yellow poplar, white oak, chestnut oak, northern red oak, black oak, pignut hickory, and shagbark hickory. These areas have a low basal area due to past logging from when it was private land and from the linden looper outbreak. These areas consist of small, medium, and large sawtimber throughout the tract. The proposed management for these areas is to leave all sawtimber trees due to low basal area. Perform an understory /midstory thinning to allow sunlight to the forest floor to let the oak regenerate and allow the overstory to become seed trees. In other areas where there is no oak regeneration occurring, I'd perform a co-dominant thinning to help release the young desirable dominant overstory species. The average sawtimber basal area for the mixed hardwoods forest type is 62 sq. ft. per acre.

Virginia Pine (6.48 acres)

These areas consisted of Virginia pine, red maple, black oak, and yellow poplar. The understory consisted of sugar maple, red maple, and American beech. This stand of trees is mostly made up of sawtimber sized trees with a few poles. The proposed management for these areas is to harvest all Virginia pine/red maple and create an opening. Leave all other hardwoods such as, black oak and yellow poplar as seed trees and try to salvage some of the storm damaged trees. There is some oak regeneration on the forest floor, so hopefully this can turn back into an oak stand. The average sawtimber basal area for the Virginia pine forest type is 75 sq. ft. per acre.

Oak-Hickory (37.62 acres)

The major over-story species consisted of black oak, chestnut oak, scarlet oak, northern red oak, white oak, pignut hickory, and shagbark hickory within this tract. Most of these areas were sawtimber sized trees with some quality/prime white oaks, quality black oaks,

and quality chestnut oaks. The proposed management for the areas with low basal area is to do a co-dominant thinning to release the dominant desirable crop trees, and do TSI to the midstory and understory to allow sunlight to the forest floor. There was a lot of oak regeneration in most of these plots throughout the tract. For the areas with average to high basal area I propose a harvest on all over mature, damaged, heart rot or storm damaged trees to release the desirable crop trees. There was one area in the north central portion of the tract that had unbelievable oak regeneration occurring, some several feet high, I recommend creating an opening in this area by removing the overstory carefully and allowing the oak to regenerate. The average sawtimber basal area for the oak hickory forest type is 76 sq. ft. per acre.

Oak-Hickory-Chestnut Oak (8.34 acres)

The major overstory species within this area is chestnut oak with a few scattered white oak, black oak, and pignut hickory. This area consists of sawtimber sized trees with a few quality chestnut oaks within the tract. A few of these plots had a very good amount of oak regeneration on the forest floor and some a few feet high. The areas with low basal area I propose doing TSI work and a co-dominant thinning to release desired crop trees and to let sunlight to the forest floor for oak regeneration. The areas with average to high basal area, I propose a thinning of the poor formed and damaged chestnut oak to help release the desired crop trees. The past harvest on this tract definitely made a difference in releasing the oak species, because there are some large diameter oaks and a lot of nice oak regeneration occurring on this tract. The average sawtimber basal area for the oak hickory chestnut oak forest type is 88 sq. ft. per acre.

Tract Prescription and Proposed Activities

The inventory conducted in the summer of 2009 estimates the 64 acres of commercial forest on this tract contains a total of 360,790 board feet of volume. Out of that amount, 95,250 board feet was estimated as harvest stock and 265,540 board feet was estimated as growing stock. On a per acre basis, the harvest stock is 1,500 board feet and the growing stock is 4,180 board feet for a combined total of 5,680 board feet. The overall proposed management for this tract is an intermediate thinning with small group openings throughout the tract. In the areas with low basal area, I propose a thinning from below on the co-dominant and suppressed trees to help release the dominant sawtimber sized trees and allow sunlight to the forest floor for oak regeneration to occur. In the areas with average to high basal area I propose a selective thin and harvest of mature, heart rot damage, storm damage, and poorly formed trees to release all the desirable future crop trees. Stands with over-mature trees, Virginia pine stands, beech-maple stands, damaged trees and areas with high potential for oak regeneration are where small group openings will take place. Following the harvest, timber stand improvement should be done to release any crop trees that did not get released during the harvest. Finish opening up any regeneration openings that did not occur during harvest. Remove any midstory or understory species where there is high potential for oak regeneration. There are a high number of dead snags on this tract due to the linden looper outbreak, so wildlife and the Indiana bat have a lot of good nesting sites. There is also a lake at the far south east corner of the tract with a lot of dead snags nearby, which is very beneficial for wildlife.

In approximately 20 years following the harvest and timber stand improvement, another inventory will be done on the tract to see if another harvest is possible.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Mark harvest and sell timber	2010
Post-Harvest TSI	2012
Inventory and Management Guide	2032

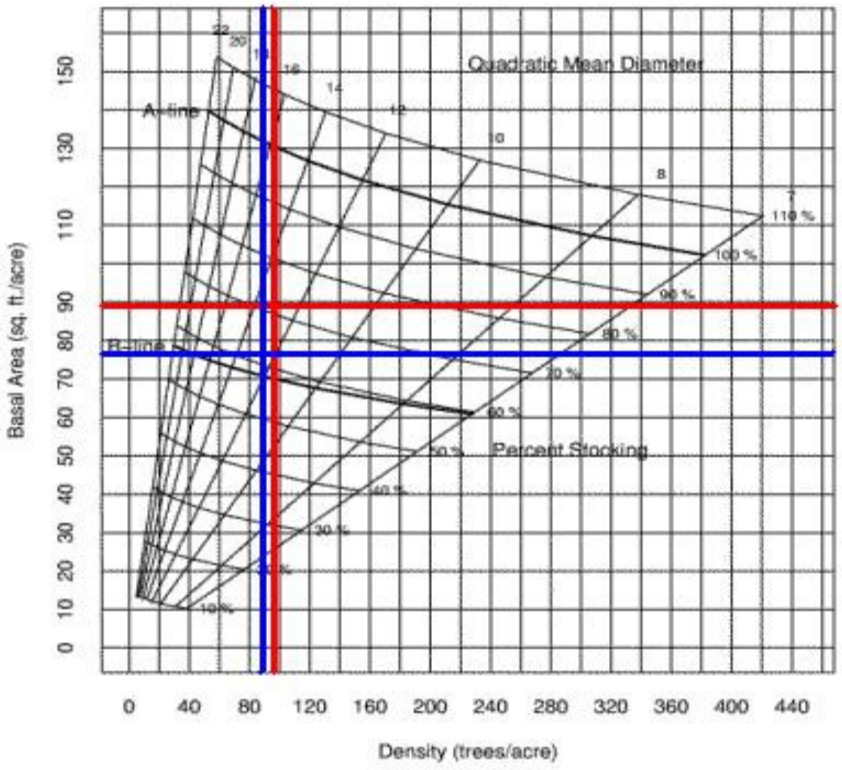
Attachments

- A topo map of the tract created via GIS that delineates the tract subdivisions and pertinent features of tract (roads, trails, wildlife pond, etc.)
- A map showing the soil types in the tract
- An aerial photo of the tract created via GIS that delineates the tract subdivisions
- A stocking guide chart with the tract level, and each stand level stocking condition plotted and identified.

To submit a comment on this document, click on the following link:
http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

You **must** indicate "Jackson-Washington C13 T9" in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered.

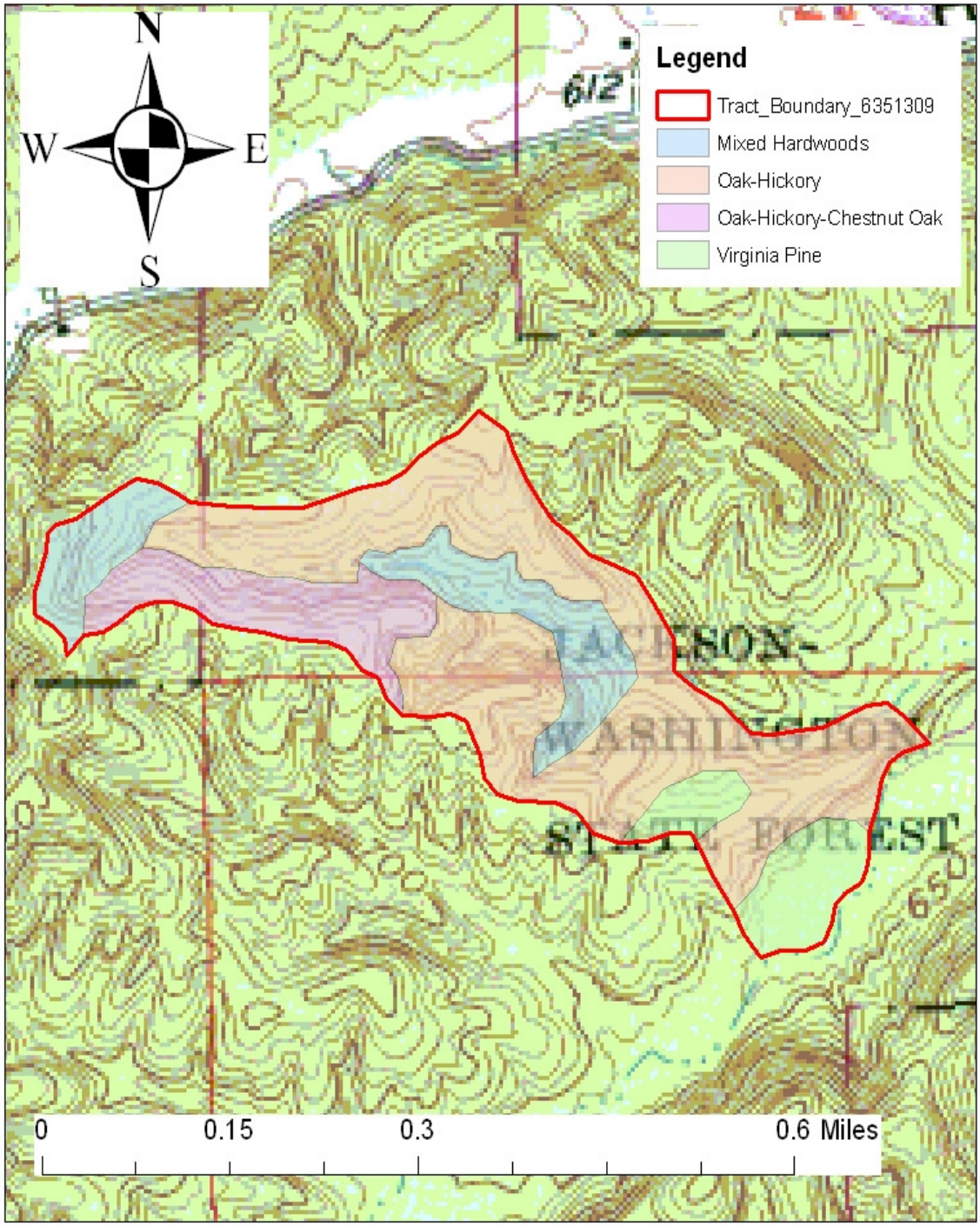
JWSF Resource Management Plan
Compartment 13 Tract 9 Stocking Guide
7/27/09 Inventory
64 acres



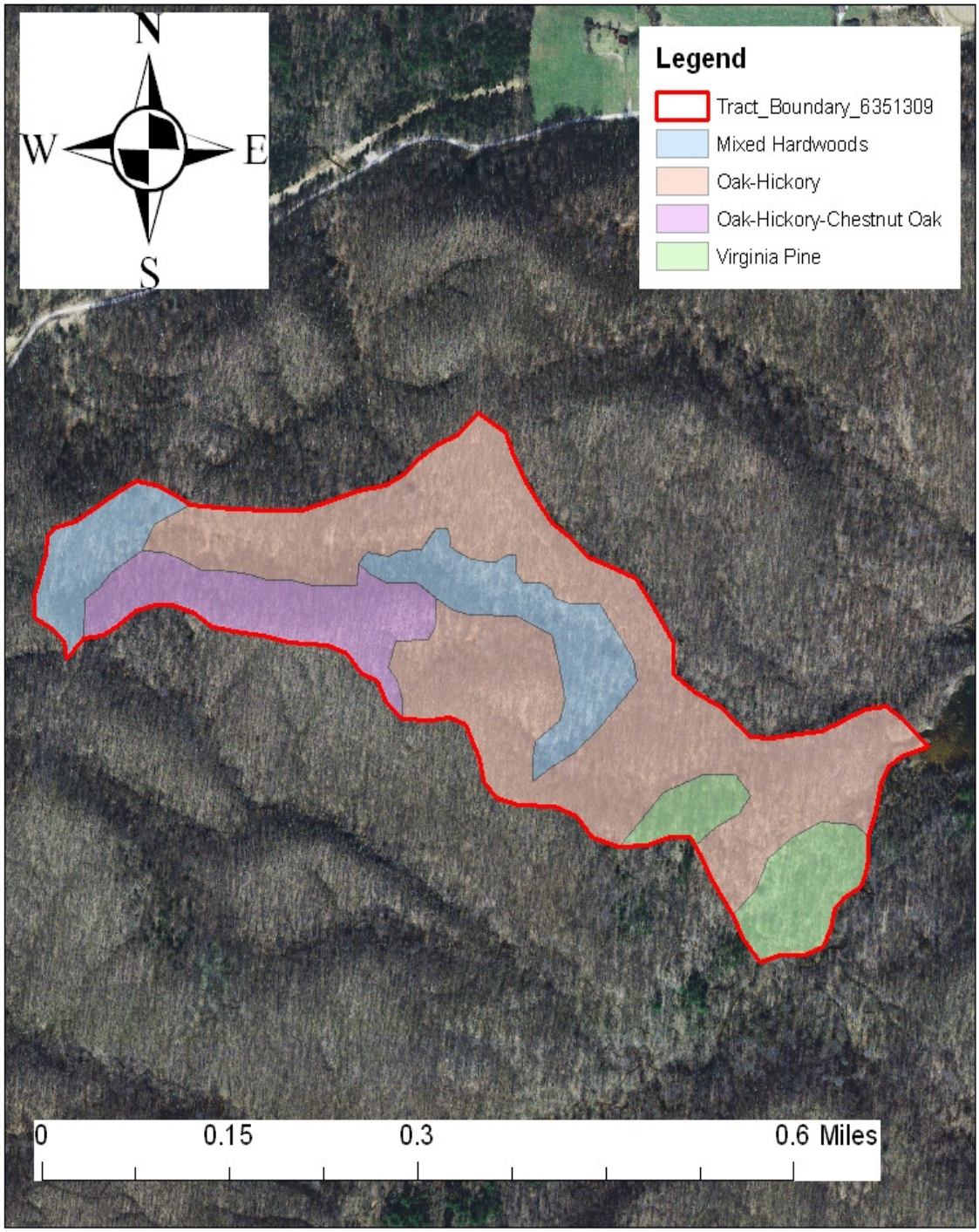
<u>Pre-Harvest Inventory Data in Red</u>
Total B.A. per acre = 98.5 sq.ft.
Total # trees/acre = 99
Avg. tree diameter = 13" DBH
Percent stocking = 73%

<u>Projected Post-Harvest Data in Blue</u>
Total B.A. per acre = 77.51 sq.ft.
Total # trees/acre = 88
Avg. tree diameter = 12.5" DBH
Percent stocking = 64%

Tract Subdivisions
Jackson-Washington State Forest
Compartment 13 Tract 9



Tract Subdivisions
Jackson-Washington State Forest
Compartment 13 Tract 9



Soils Map
Jackson-Washington State Forest
Compartment 13 Tract 9