Indiana Department of Natural Resources
Division of Forestry
DRAFT

Jackson-Washington State Forest Compartment 2 Tract 15
Forester: Vogelpohl (Potts 2014) Date: May 26, 2010 Revised: January 22, 2014
Management Cycle End Year 2037 Management Cycle Length 20 years

Location

This acre tract is located in Sections 19 and 20, Township 5 North, Range 5 East, Jackson County. The tract lies on State Road 250 approximately 4 ¾ miles from Brownstown and has approximately ½ mile of road frontage.

General Description

Tract 15 includes 86 acres of a wide diversity of forest types. Pine stands including shortleaf, eastern white, and Virginia pine can be found on the somewhat level to level ground in the south end of the tract. Other level topography in this area includes stands of mixed hardwoods dominated by species such as yellow poplar, sweetgum, and red maple. Oak-hickory stands dominate the lower slopes while stands of nearly pure chestnut oak dominate the upper slopes.

History

The land that makes up this tract came from three land purchases. The first was a 40 acre acquisition from Charles Rife on July 8, 1931. The second was an 80 acre acquisition from George Vondielingen on March 20, 1935. The third was a 180 acre acquisition from William and Anna Miller on September 22, 1943.

An inventory conducted in August of 1971 covered only the oak-hickory portion of this tract. The oak-hickory portion contained an estimated 3,107 board feet per acre with 1,795 bd. ft. harvest stock and 1,312 bd. ft. growing stock. The chestnut oak area was exempted from this inventory. The other areas of the tract received only a reconnaissance. Notes from this reconnaissance stated that the white pine ranged in diameter from 6 to 14 inches. The shortleaf pine near the northwestern area of the pine plantations was noted as containing trees only 6 to 10 feet tall at that time.

The white pine stand in the southeast corner of the tract was thinned and pruned in February 1975.

Two timber sales were marked and sold in a very small area of this tract as part of larger sales in this same compartment. The first was on October 20, 1978 and contained 21,983 board feet in 50 white oak trees. The timber was sold to Crown Timber Company of Richmond, IN for $11,260.00 ($512.21/MBF). The second sale was on December 14, 1979 and contained 172,102 board feet in 1,009 trees. The timber was sold to Brock Lumber Company of Bedford for $12,907.60 ($75.00/MBF).

Landscape Context

The area of forestland in which Compartment 2 Tract 15 lies contains approximately 2,100 acres of State Forest ownership. To the southwest of this block of forest across State Road 250 is a block of approximately 2,700 acres of State Forest ownership. With the exception of the offices,

property residences, and campground, these two blocks are almost entirely forested. Brownstown, approximately 2 miles northwest of Compartment 2, has not seen significant growth in land area over the last 10 years. Most of the development has been single family homes. Most of the conversion of forestland to homesites in the landscape surrounding Compartment 2 is occurring on Venus Road, approximately one mile north of this tract. Over the past 10 or so years, several acres have been lost to fragmentation due to construction of new homes and parcelization of larger tracts of forestland. To the east and southeast of the block of forest land containing compartments one and two is land heavily dominated by agriculture and dotted with small remaining woodlots which are areas that were generally too wet to farm. The primary threat to the private forestland within the landscape of Compartment 2 will continue to be fragmentation and parcelization due to construction of single family homes.

Topography, Geology and Hydrology

The southeastern portion of this tract consists of flat to very gently sloping ground. The northwestern portion of the tract consists of moderately steep to very steep slopes that are dissected by several ephemeral drainages.

The underlying geology consists of primarily siltstone, shale, and sandstone.

The hydrology within the tract consists of only ephemeral streams. A mapped intermittent stream forms the eastern border of the tract for about 500 feet. All of the runoff from this tract eventually drains into Pond Creek, which is a tributary of the Muscatatuck River.

Soils

Berks channery silt loam (BeG)

This steep to very steep, moderately deep, well drained soil is on side slopes and knolls in the uplands. Slopes are 25 to 75 percent. The native vegetation is hardwoods and most areas are wooded. It is fairly well suited to trees. The equipment limitations, seedling mortality, and the erosion hazard are management concerns. Overstocking helps to compensate for seedling mortality. Building logging roads and skid trails on the contour and constructing water bars help to control erosion. North aspects generally are more productive than south aspects. The site indexes for hardwood species range from 70 (white oak) to 90 (tulip poplar). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Coolville silt loam (CoD)

This moderately well drained soil has a seasonal high water table at 1.0 to 2.0 ft. and is on side slopes on uplands. Slopes are 12 to 20 percent. The native vegetation is hardwoods. The surface layer is silt loam and has moderately low or moderate organic matter content (1.0 to 3.0 percent). Permeability is very slow (<0.06 in/hr) in the most restrictive layer above bedrock. Available water capacity is moderate (6.6 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 3.5 to 5.5. Bedrock is at a depth of 40 to 60 inches.

Gilpin silt loam (GnF)

This well drained soil has a water table at a depth greater than 40 inches and is on side slopes on uplands. Slopes are 25 to 55 percent. The native vegetation is hardwoods. The surface layer is silt loam and has moderate organic matter content (2.0 to 4.0 percent). Permeability is moderate (0.6 to 2.0 in/hr) in the most restrictive layer above bedrock. Available water capacity is low (4.8

inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 3.5 to 5.5. Bedrock is at a depth of 20 to 40 inches.

Haubstadt silt loam (HdB2), eroded
This moderately well drained soil has a seasonal high watertable at 1.5 to 2.0 ft. and is on side slopes on lacustrine teraces. Slopes are 2 to 6 percent. The native vegetation is hardwoods. The surface layer is silt loam and has moderately low or moderate organic matter content (1.0 to 3.0 percent). Permeability is very slow (<0.06 in/hr) in the most restrictive layer above 60 inches. Available water capacity is moderate (8.4 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 4.5 to 6.0.

Kurtz silt loam (KtF)
This series consists of deep, well drained soils on hills. They formed in residuum weathered from interbedded soft siltstone and shale bedrock. Slopes range from 20 to 55 percent. Most Kurtz soils are in forest. Native vegetation consists of mixed hardwood with oaks, hickory, beech and tulip. These soils a well suited to trees. The potential productivity or site index for this soil type is 60 (n. red oak). Preferred trees to manage are American beech, black oak, chestnut oak, common persimmon, northern red oak, scarlet oak, shagbark hickory, sugar maple, and white oak.

Otwell silt loam (OtC2), eroded
This moderately well drained soil has a seasonal high watertable at 2.0 to 3.0 ft. and is on side slopes on lacustrine terraces. Slopes are 6 to 12 percent. The native vegetation is hardwoods. The surface layer is silt loam and has moderately low organic matter content (1.0 to 2.0 percent). Permeability is very slow (<0.06 in/hr) in the most restrictive layer above 60 inches. Available water capacity is moderate (6.9 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 4.5 to 5.5.

Stonehead silt loam (SsC2)
This series consists of deep and very deep, moderately well drained soils formed in loess and the underlying residuum weathered from soft shale or soft siltstone bedrock. Slopes range from 4 to 12 percent. Most areas are used for hay, pasture or are in woodland. Native vegetation is mixed hardwoods with oaks, hickory, beech, maple, and tulip-poplar as the major species. This soil is well suited for trees. Prolonged seasonal wetness hinders logging activities and planting of seedlings. The equipment limitations, seedling mortality, windthrow hazard, and plant competition are management concerns. The potential productivity or site index for this soil type is 90 (N. red oak). Preferred trees to manage for are American sycamore, black oak, bur oak, cherrybark oak, chestnut oak, common persimmon, northern red oak, scarlet oak, shagbark hickory, shingle oak, sugar maple, swamp chestnut oak, tulip poplar and white oak.

Access
Firelanes 104 and 130 both provide vehicular access to this tract from SR 250. This tract's southern boundary is State Road 250.

Boundary
Approximately .8 mile of currently unmarked property line forms part of the southern and western boundaries of this tract. Another approximately ½ mile of the southern boundary is formed by State Road 250. The eastern boundary of the tract follows an ephemeral drainage to a ridgetop. The northern tract boundary then follows this ridgetop.

Wildlife

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Snags (all species)					
5"+DBH	344	602	894	550	292
9"+DBH	258	516	515	257	-1
19"+DBH	43	86	13	-30	-73

The tract exceeds the maintenance level for snags in both 5" and 9" DBH classes. There is a deficiency in the 19" DBH class of 30 trees. To address this deficiency, timber stand improvement operations will create additional snags of 19" or larger.

A Natural Heritage Database Review is part of the management planning process. If Rare, Threatened or Endangered species were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Communities
The exotics observed during the inventory include: Japanese honeysuckle, oriental bittersweet, ailanthus, and Japanese stilt grass. Japanese honeysuckle should be treated where accessible. Oriental bittersweet should be cut and sprayed with appropriate herbicide. Ailanthus should be treated with a basal application of appropriate herbicide. Japanese stilt grass should be treated where accessible along trails with appropriate herbicide.

Forest Condition
The current inventory estimates this tract having 76.6 square feet of basal area per acre in 79 trees 6" DBH and larger. The projected harvest data estimate would bring these numbers down to 45 square feet of basal area per in 49 trees. While these projected post-harvest estimated numbers are lower than normal, 12.6 sq. ft. of basal area per acre and 13 trees of those numbers are from harvesting the pine trees. Generally the hardwoods are doing well but need release in order to maintain or increase vigor. A fire in 1999 killed many chestnut oak and reduced the stocking greatly in the burned over area. Many of the pine stands, especially the Virginia pine and eastern white pine, are blow over, due to the shallow root systems being overcome by multiple strong wind events. The low stocking and low basal area point to the necessity of several large scale regeneration openings throughout of the tract, especially in the areas of planted pine. Discussion of the management prescriptions is found in the "tract subdivision and prescription" section as well as the "tract prescription and proposed activities" section.

Recreation
Approximately .85 mile of the yellow "Boot Loop" horse trail runs through this tract and is heavily used by horse riders. Due to the readily available public access to this tract, hunting is also very common activity. This area, including the Boot Loop trail, would need to be closed during any timber harvest operation in this tract to ensure public safety.

Cultural
Cultural resources may be present, but their location(s) are protected. Adverse impacts to significant cultural resources noted will be avoided during management or construction activities.

Tract Subdivision Description and Prescription

Mixed Pine (10 acres)
Mixed pine occurs in the southeastern section of the tract in small pockets. The overstory species found in these pockets include American beech, eastern white pine, shortleaf pine, sugar maple, sweet gum, Virginia pine, and yellow-poplar. The understory consists of mostly American beech and sugar maple. There is very little regeneration occurring for much of these areas, except where there is some windthrow. Windthrow is common in the pine with Virginia pine having experienced the most frequent windthrow. The management prescription is to mark the pine stands for a regeneration opening, to promote a stand of native hardwoods. Within the regeneration openings species likely to occurring in years following the removal of the overstory and completion of the openings via post harvest timber stand improvement are the following: yellow poplar, red maple, sassafras, white ash, and sweetgum. The approximate sawtimber basal area per acre is 93 square feet.

Mixed Hardwoods (23 acres)
Much of this area is fairly flat or gently-sloped. The overstory species in this area consist primarily of sweetgum, sugar maple, red maple, yellow-poplar, American beech, American sycamore, and white ash. In this stand are scattered wolf trees and mature trees, which are remnants from former open pastures, surrounded by saplings. These trees should be harvested to release younger, higher-quality trees. White ash should also be harvested in anticipation of the impending emerald ash borer. The remaining areas of this subdivision should be thinned to favor the highest quality, most vigorous residual crop trees. Post-harvest timber stand improvement should be done to release any remaining crop trees not released during the harvest. Some areas contain a very low stocking and should be marked for regeneration openings in order to create a highly-stocked stand of young trees. The regenerated areas will likely have the following species following the harvest and completion of the openings: yellow poplar, red maple, sassafras, white ash, and sweetgum. American sycamore will also likely comprise a proportion of the species within the openings as well. The average basal area is approximately 55 square feet per acre.

Chestnut Oak (16 acres)
The chestnut oak stand lies in the northern part of the tract. Much of this area may be hard to access due to a combination of the property boundary and topography. The overstory of this area

is almost pure chestnut oak with some scattered pignut hickory, shagbark hickory, and black oak. American beech, sugar maple and sassafras made up the majority of the understory. A fire burned through part of this stand in 1999 and many damaged and dead trees are still present from this event. These damaged trees should be harvested if this area is deemed accessible, possibly resulting in a regeneration opening due to the extent of the burned area. Within the prescribed regeneration openings species likely to occupy the site after completion of the harvest and post-harvest TSI are sassafras, yellow poplar and chestnut oak. Thinning should be performed to favor chestnut oaks with vigorous crowns. The average basal area per acre is 61 square feet.

Oak-Hickory (37 acres)

The majority of the tract, south of the chestnut oak stand and north of the mixed hardwood stand, is an oak-hickory stand. The major overstory species in this stand are black oak, chestnut oak, pignut hickory, and white oak. The understory species include sugar maple, sassafras, and American beech. This area should be thinned to release the most vigorous and highest quality residual oak and hickory trees. Many mid-story and understory pole-sized and sawtimber-sized trees that are not oak or hickory should be harvested as well. The basal area of sawtimber trees is 67 square feet per acre on average.

Tract Prescription and Proposed Activities

This tract should receive a timber harvest within the next year. Japanese stilt grass should be sprayed with an appropriate herbicide, where there is adequate ATV access, to control its spread. Prior to the timber harvest ailanthus and bittersweet should be treated with the appropriate herbicide. The harvest should contain regeneration openings to convert the planted pine into native stands of hardwood trees. Regeneration openings will also be needed to increase the stocking level in currently understocked stands of mixed hardwoods. Another regeneration opening may be necessary in the chestnut oak subdivision in order to salvage fire-damaged trees. Throughout the remainder of the tract, thinning should be performed to harvest mature, damaged, and less desirable trees in order to release vigorous desirable crop trees. Following the harvest, post-harvest timber stand improvement should be performed to release any crop trees not released during the harvest and to complete any regeneration openings. This tract should receive another inventory 20 years after completion of the timber sale and post harvest TSI. Recreation will be impacted temporarily during the harvest, the Boot Loop horse trail will be closed during the harvest to ensure public safety. Most of the horse trails in this area will be able to remain open. If harvesting occurs during any hunting seasons, this may impact hunters temporarily as well. Water bars and implementation of BMP's will mitigate impacts to water quality.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Spray stilt grass with herbicide	2014
Pre-harvest invasive treatments (ailanthus and bittersweet)	2014
Mark harvest and sell timber	2014-2015
Post-harvest TSI	2017-2018
Regeneration opening monitoring >1acre in size	2018-2021
Inventory and Management Guide	2037

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RESOURCE MANAGEMENT GUIDE

INVENTORY SUMMARY

		Compartment:	2
Jackson-Washington State Forest		Tract:	15
Forester:	Jason Vogelpohl	Date:	5/26/2010

ACREAGE IN:	
Commercial Forest	86
Non-Forest	0
TOTAL AREA	86

B.A. Culls	0
B.A. Trees 12" & Up	68.3
B.A. Trees < 12"	18
Total B.A./Acre	85.8

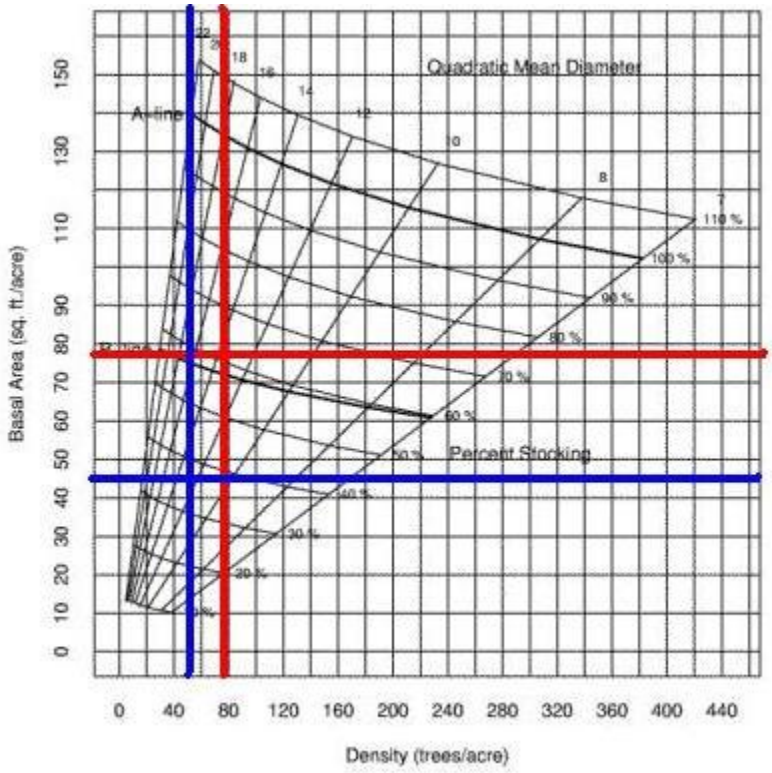
(Estimated Tract Volumes for Commercial Forest Area-Bd.Ft., Doyle Rule)

SPECIES	GROWING STOCK	HARVEST STOCK	TOTAL VOLUME
chestnut oak	92,730	52,000	144,730
black oak	46,950	8,280	55,230
pignut hickory	39,330	8,410	47,740
shortleaf pine	0	40,850	40,850
sweetgum	36,490	4,360	40,850
yellow-poplar	31,860	4,060	35,920
Virginia pine	0	30,560	30,560
eastern white pine	0	25,310	25,310
white oak	15,170	8,110	23,280
sugar maple	14,730	7,280	22,010
red maple	7,840	13,220	21,060
white ash	0	16,930	16,930
shagbark hickory	15,900	0	15,900
scarlet oak	6,430	0	6,430
American beech	2,600	2,000	4,600
American sycamore	0	3,460	3,460
eastern redcedar	0	3,400	3,400
northern red oak	3,060	0	3,060
TRACT TOTALS	313,090	228,230	541,320
PER ACRE TOTALS	3,641	2,654	6,294

PREVIOUS CRUISE DATA

DATE:	August 1971	GROWING STOCK	HARVEST STOCK	TOTAL VOLUME
PER ACRE TOTALS		1,312	1,795	3,107

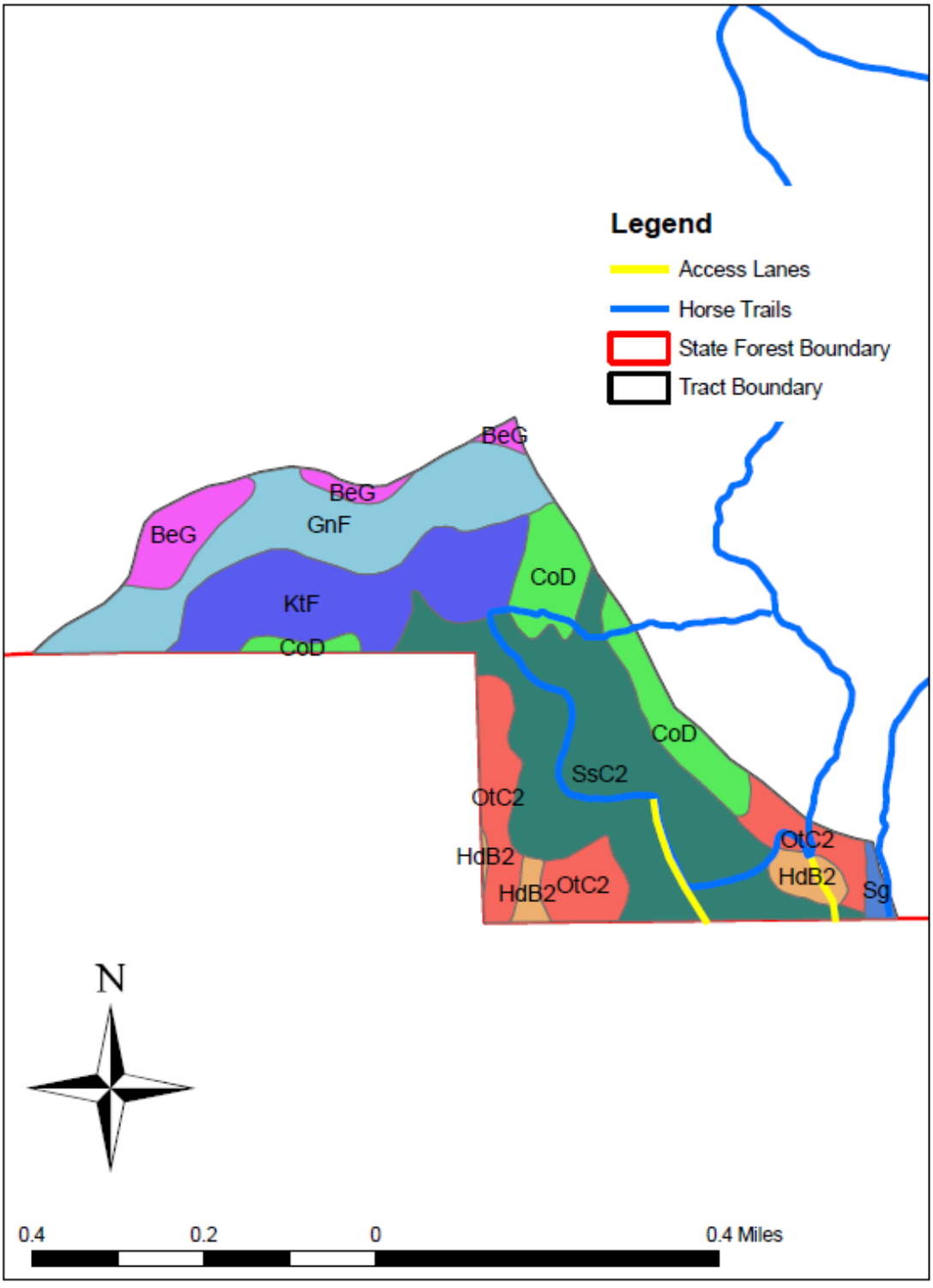
Compartment 2 Tract 15 Stocking Guide
May 2010 Inventory
86 acres



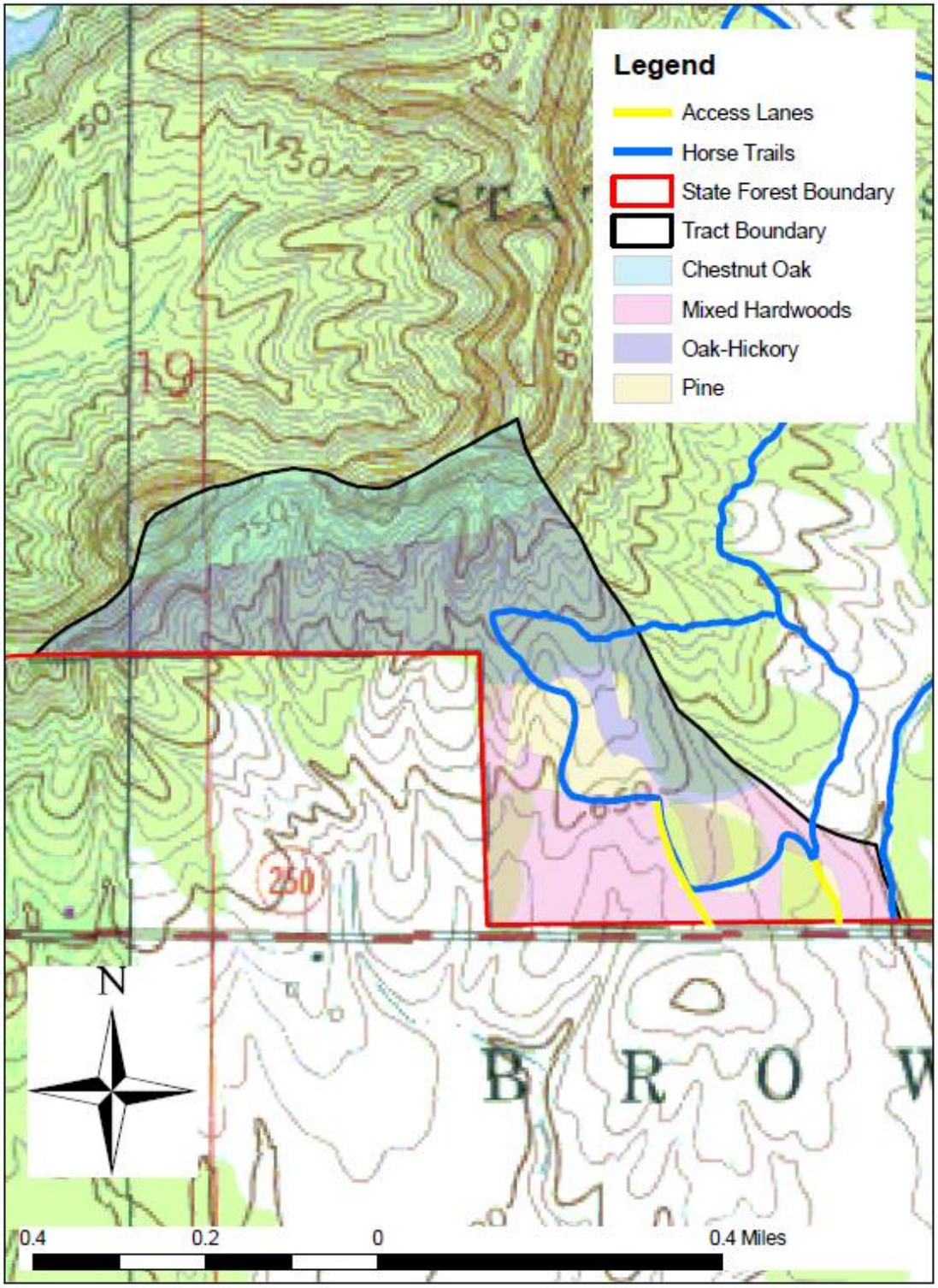
Pre-harvest Estimate (red line)
Basal Area Trees 6” DBH and Larger = 76.6 square feet per acre
Trees per acre 6” DBH and Larger = 79
Avg. tree diameter = 13.5”
Percent stocking = 62%

Projected Post-harvest Estimate (blue line)
Basal Area Trees 6” DBH and Larger = 45 square feet per acre
Trees per acre 6” DBH and Larger = 49
Avg. tree diameter = 12”
Percent stocking = 38%

Soils Map
Compartment 2 Tract 15
Jackson-Washington State Forest



Tract Subdivisions
Compartment 2 Tract 15
Jackson-Washington State Forest



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