Indiana Department of Natural Resources - Division of Forestry

TM 901
RESOURCE MANAGEMENT GUIDE

INVENTORY SUMMARY

		Compartment:	1
Jackson-Washington State Forest		Tract:	11
Forester:	Matt Vellella	Date:	11/29/10

ACREAGE IN:			
Commercial Forest	61	B.A. Culls	1.0
Non-Forest	3	B.A. Sawtimber Trees	83.6
TOTAL AREA	64	B.A. Trees < 12"	29.7
		Total B.A./Acre	114.3

	GROWING STOCK (BF)	HARVEST STOCK (BF)	TOTAL VOLUME (BF)
White oak	162,120	29,680	191,800
Yellow poplar	80,260	25,630	105,890
Eastern white pine	85,030	14,970	100,000
Chestnut oak	66,180	17,650	83,830
Pignut hickory	41,760	0	41,760
Black oak	26,710	13,630	40,340
Scarlet oak	9,430	9,890	19,320
Sugar maple	5,130	13,120	18,250
Virginia pine	10,980	4,130	15,110
Northern red oak	13,420	0	13,420
Shagbark hickory	11,290	0	11,290
White ash	0	9,330	9,330
American beech	0	7,690	7,690
Black gum	3,350	3,150	6,500
Red pine	1,440	0	1,440
TRACT TOTALS	527,110	148,860	675,970
PER ACRE TOTALS	8,240	2,330	10,560

RESOURCE MANAGEMENT GUIDE

State Forest: Jackson-Washington
Compartment: 1 Tract: 11
Forester: Matt Vellella
Date: 11/29/2010
Management Cycle End Year: 2035
Management Cycle Length: 24 years

Location
This tract is located in Jackson County in section 19 of township 5 N, range 5 E. It is southeast of Brownstown and less than 2 miles away by road. The tract is near the Jackson-Washington State Forest entrance, just east of State Road 250 S.

General Description
This tract is comprised of stands of oak, mixed hardwoods, and pine. A strip of white pine borders the road along the bottom and eastern slope of a north-south running ridge. To its west on the ridge is another strip of scrubby Virginia pine. Further west transitions into a block of over-mature hardwoods, including species such as white oak, black oak, sugar maple, and American beech. The slopes beyond are mostly covered in oak. Snags abound throughout.

The total acreage is 64 acres, but that includes the property maintained area which contains only lawn or sparse trees that are non-commercial forest. This leaves 61 acres as commercial forest. The overall tract canopy composition is as follows:

Overstory	Understory	Regeneration
White oak	**American Beech**	**American Beech**
Yellow-poplar	**Black Cherry**	**Sugar Maple**
Eastern White Pine	**Sugar Maple**	**Chestnut Oak**
Chestnut oak	**Black Gum**	
Pignut hickory	**Chestnut Oak**	
Black oak	**Yellow Poplar**	
Scarlet oak		
Sugar maple		
Virginia Pine		
Northern red oak		
Shagbark hickory		
White ash		
American beech		
Black Gum		
Red Pine		

History
The tract is comprised of two separate land acquisitions, both individually purchased in 1931. The first was attained from Charles and Faye Silence totaling 168 acres. The other piece was bought from William H. and Freda Jones and totals 201 acres.

The first management activity conducted in this tract was an inventory in September 1971. At that time the tract was listed as having 32 acres of merchantable

timber and 25 acres of non-merchantable timber for a total of 57 acres. The inventory estimated 3,630 board feet per acre with 2,200 board feet as harvest stock, and 1,430 board feet per acre as growing stock.

A timber sale was sold in this tract on August 26, 1975. This sale only covered 8 acres of the tract and contained 9,351 board feet. The timber was sold to William Bailey of Heltonville for $1,765.00 ($188.74/MBF).

Another inventory was conducted by forester Dwayne Sieg on October 25, 1984. At this time the tract was estimated to contain 31 acres of commercial forest, 11 acres of pine, and 15 acres in recreational use. The commercial forest contained an estimated 6,935 board feet per acre, with 2,334 board feet as harvest stock and 4,601 board feet as growing stock.

A portion of this tract was harvested along with Compartment 1 Tract 10. A total of 131,586 board feet was marked by forester Dwayne Sieg. The sale was sold to Lloyd White Lumber Company of Heltonville on December 21, 1984 for $23,510.00 ($178.70/MBF).

In October of 1997, forester Joey Gallion cut down all non-oak trees in the regeneration opening. In March of 2009, Brian Kautz and forester Michael Spalding cut out all non-oak trees and some oak trees needed to provide release to the residual stand in the same opening.

A log salvage sale was conducted in December of 2010 by Derrick Potts between compartments 1, 2, and 3 over various tracts, this being one of them. The purpose was an attempt to curb the spread and intensity of the Emerald Ash Borer. A total of 146 logs with 30,589 BF were sold for $4,000.00 ($130.77/MBF) to Bane Logging Inc. Only a few of those logs were from this tract.

Landscape Context

The tract is completely surrounded by steep hills and forested lands which are primarily used for timber production, recreation, and hunting. There is very limited agriculture being practiced within a one mile radius. Development is limited and primarily consists of single-family residences.

Topography, Geology and Hydrology

The tract has two main ridges that form an upside-down “u” shape with one main gully that runs between the two. The topography is gently-sloping. Several ephemeral streams drain into Cypress Pond, which is on the very southern tip of the tract. The overflow from Cypress Pond drains into a perennial stream. This perennial stream flows into Pond Creek, which then flows into the Muscatatuck River. Proper implementation of Best Management Practices during and after the harvest will minimize impacts to water quality. Parent materials of the soils in this tract are Mississippian siltstone and shale.

Soils

Soils include: Stonehead silt loam, Steff silt loam, Nabb silt loam, Kurtz silt loam, Hickory loam, Coolville silt loam, Cincinnati silt loam, and Beanblossom silt loam.

Beanblossom silt loam (BcrAW) (1.2 acres)

This deep, well drained soil that formed in 0 to 24 inches of medium-textured alluvium and the underlying loamy-skeletal alluvium. The Beanblossom soils are on flood plains and alluvial fans below steep and very steep hill slopes. Most areas of Beanblossom soils are used for hay, pasture or woodland. A few areas are used for cropland. Native vegetation is deciduous forest, dominantly sycamore, elm, hickory, beech, maple, and tulip poplar. This soil is well suited to trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled. Preferred trees to manage for are bald cypress, bitternut hickory, bur oak, pin oak, red maple, shellbark hickory, shingle oak, and swamp white oak.

Bonnell silt loam (BoD2) (12.6 acres)
This well drained soil has a water table at a depth greater than 40 inches and is on side slopes on uplands. Site index is 80 for northern red oak. Slopes are 10 to 18 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 moderately slow (0.2 to 0.6 in/hr) in the most restrictive layer above 60 inches. Available water capacity is moderate (8.7 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 4.5 to 5.5. Drought and water erosion are management concerns for crop production.

Cincinnati silt loam (CcC2) (10.9 acres)
This series consists of very deep, well drained soils that are moderately deep to a fragipan. Site index is 80 for northern red oak. Slope ranges from 1 to 18 percent. Much of the area of Cincinnati soils is used for growing cultivated crops, mainly corn, wheat, soybeans, tobacco, and forages, both grasses and legumes. A considerable percentage of the Cincinnati soils is used for pasture or woodland, or is idle. Native vegetation is deciduous mixed hardwoods, including oaks, hickory, tulip poplar, maple, and beech. This soil is well suited to trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled. Preferred trees to manage for are bald cypress, black oak, bur oak, chestnut oak, persimmon, scarlet oak, shingle oak, red oak, and white oak.

Coolville silt loam (CoD) (28.2 acres)
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. Site index is 66 for northern red oak. 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. Drought and water erosion are management concerns for crop production.

Hickory loam (HrE) (7.1 acres)
This well drained soil has a water table at a depth greater than 40 inches and is on side slopes on uplands. Site index is 85 for northern red oak. Slopes are 15 to 45 percent. The native vegetation is hardwoods. The surface layer is loam and has moderate organic

matter content (2.0 to 4.0 percent). Permeability is moderate (0.6 to 2 in/hr) in the most restrictive layer above 60 inches. Available water capacity is high (10.1 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 4.5 to 5.5. Water erosion is a management concern for crop production.

Kurtz silt loam (KtF) (1.1 acres)
This series consists of deep, well drained soils on hills. They formed in residuum weathered from interbedded soft siltstone and shale bedrock. Site index is 60 for northern red oak. Slopes range from 20 to 55 percent. Native vegetation consists of mixed hardwood with oaks, hickory, beech and tulip. These soils are well suited to trees. Preferred trees to manage for are American beech, black oak, bur oak, cherry bark oak, chestnut oak, persimmon, northern red oak, scarlet oak, shagbark hickory, shingle oak, sugar maple, swamp white oak and white oak.

Nabb silt loam (NaaB2) (2.2 acres)
This moderately well drained soil has a seasonal high water table at 1.5 to 2.0 ft. and is on side slopes on uplands. Site index is 80 for northern red oak. 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 (8.3 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 4.5 to 5.5. Drought and water erosion are management concerns for crop production.

Steff silt loam (Sg) (0.6 acres)
This moderately well drained soil has a seasonal high water table at 1.5 to 2.5 ft. and is on flood plains. Site index is 107 for yellow poplar. Slopes are 0 to 2 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 moderate (0.6 to 2 in/hr) in the most restrictive layer above 60 inches. Available water capacity is high (10.8 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) (0.1 acres)
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. Site index is 90 for northern red oak. 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 yellow 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. Preferred trees to manage for are American sycamore, black oak, bur oak, cherry bark 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
Camp Road is a paved roadway that provides primary access to the tract. It intersects State Road 250 S just south of County Road 100 E, south of Brownstown. Within the tract the topography should not limit equipment access anywhere across the site.

Boundary
The tract is completely enclosed in Jackson-Washington State Forest land. The south east boundary is formed by Camp Road, the north east boundary follows an ephemeral stream, the northwest boundary is the ridge containing Trail 10, and the southwest boundary follows the bottom of another gully that feeds into Cypress Pond on the very southern tip. The boundaries are very evident.

Wildlife

Snags (all species)	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
5"+ DBH	256	448	895	639	447
9"+ DBH	192	384	581	389	197
19"+ DBH	32	64	40	8	-24

Maintenance level for the number of snags is exceeded in all DBH classes and optimal level is exceeded for the 5" and 9" DBH classes. No other action is needed on this tract. The snags present on the site provide great roosting habitat for the Indiana bat and TSI after the harvest should create more. Openings created by the harvest are also important to providing them with ideal roosting habitat.

The open under story and large numbers of oak trees provide mast for wild turkeys, white-tail deer, and squirrels. Fresh deer scrapings and rubs were noted in the tract during the inventory. The Natural Heritage Database Review found only timber rattlesnake (Crotalus horridus) nearby recorded in the year 2007. Also listed were the Indiana bat and a badger. Due to habitat requirements of the badger, only the Indiana bat or timber rattlesnake could be near the tract and affected by the harvest. The results of the management recommended will only improve wildlife habitat due to increased course wood debris on the ground and more food present for the prey and predators.

Single tree selection and group selection openings will create more mast for the wildlife and more edge areas for the deer. The harvest will not produce fragmentation or disrupt any travel corridors and any openings are meant to mimic natural disturbance that occurs in unmanaged stands. Proportions of cover types will slightly change in the short term but will return to current ratios in the future. Wildlife that are specialist interior forest species will benefit from a new diversity of food sources while generalist species would not have enough habitat created from these small openings to compete with those interior specialists.

Communities
Native stands in this tract consist of the following forest types: Oak-hickory and mixed hardwoods. Also non-native stands of Virginia, red, and eastern white pine are present.

Multiple siltstone glades were found about a mile from the tract center on the Natural Heritage Database Review but none are in the tract.

Multiflora rose is a common exotic across the property while silt grass is also present near the road on the eastern side of the tract. Multiflora rose will be monitored but it is not interfering with forest health so no action is currently required. Silt grass should be sprayed where there is ATV access.

Forest Condition

The forest is healthy and vigorous relative to the present soils. The harvest will drop the basal area from 108 square feet to 86 and the number of trees per acre will be reduced from 104 to 93. This will in turn decrease stocking from 85% to 68%. The large pine stand is falling apart from age, overstocking, and grapevines. Multiple openings or a single large opening would be appropriate to return a healthy stand of trees in the future. An opening would also be helpful in the area of over mature trees.

Recreation

The primary recreational use of this tract is by hikers, wildlife viewers, and naturalists, as this tract contains Hiking Trails 4, 6, and 10. Due to the location of this tract within the safety zone, no hunting is allowed. During the proposed harvest, portions of the trails will be shut down for public safety.

Cultural

The property residence is in the tract on the eastern side next to the road. Cultural resources may be present on the tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction projects.

Tract Subdivision Descriptions and Prescriptions

Oak (33.0 acres)

The overstory species are mostly chestnut oak, black oak, northern red oak, scarlet oak, and white oak, along with occasional yellow-poplar, pignut hickory, sugar maple, shagbark hickory, white ash, and American beech. The understory species are mostly American beech, sugar maple, black cherry, and chestnut oak. Regeneration was typically very poor with sugar maple and American beech dominating, although a small number of chestnut oak seedlings were present as well. Average basal area for this subdivision is 98.3 square feet per acre.

According to the stocking chart, this is close to being overstocked and should be reduced to maintain vigorous growth. This subdivision contains mostly medium-sized oak trees that should be thinned via single tree selection to improve vigor and allow the trees with best form and size to continue developing. Prime and quality white oak and quality black oak were observed during the inventory. The subdivision should be managed for oak sawtimber and quality trees.

Mixed Hardwoods (19.4 acres)

This subdivision is not dominated by any one tree species. The overstory species include white oak, yellow-poplar, chestnut oak, pignut hickory, black oak, scarlet oak, sugar

maple, northern red oak, shagbark hickory, white ash, American beech, Virginia pine, and eastern white pine. The understory species are mostly American beech, sugar maple, black cherry, black gum, sassafras, and chestnut oak. Regeneration was the best of the three commercial stands though still poor with American beech being the most prevalent seedling. Average basal area for this subdivision is 83.3 square feet per acre.

This mixed hardwoods subdivision should be managed for a diversity of species. There are many over mature trees that should be harvested and the rest thinned where possible to maintain the uneven aged management of the stand. Openings should be marked in areas dominated by all over mature trees. These will allow younger and healthier trees for the future.

Pine (9.1 acres)
The overstory species are mostly Virginia pine, eastern white pine, and yellow-poplar with an understory of American beech, sugar maple, yellow-poplar, and sassafras. Regeneration was generally nonexistent with very few American beech seedlings. Average basal area for this subdivision is 75.0 square feet per acre.

This subdivision should be managed for the regeneration of a new stand. Openings should be placed throughout to create newer and healthier cohorts of trees. It should be thinned using single tree selection in the rest of the subdivision to manage a natural appearance and produce larger sawtimber trees.

Property Maintained Area (2.7 acres)
This is mowed lawn with very few trees that are almost all eastern white pine. Some ornamental shrubs and a red pine were found here as well. It includes a picnic area and the property residence. Average basal area for this subdivision is 75 square feet per acre.

These should continue to be maintained as they currently are – for function of the picnic area and property residence and for aesthetics. This includes keeping large trees and open spaces with trimmed grass underneath. Trees may be needed to be harvested to maintain this goal, to properly fell trees in adjacent subdivisions, or for other reasons.

Overall Tract Prescription and Proposed Activities
The tract should be managed overall as an uneven stand using single tree selection and group selection openings to simulate canopy gaps, and old age senescence in natural, unmanaged stands. The lowest quality trees should be removed and the highest kept as a generalization.

The harvest should remove approximately 2,330 board feet per acre leaving the 8,240 board feet per acre. White oak, yellow-poplar, chestnut oak, and eastern white pine will be harvested the most intensively. Timber marking and its sale should occur in 2011 with post harvest and TSI in 2013. A management cycle will bring the next inventory and management report to be due in 2035.

These management methods will have little impact on the soils, hydrology, wildlife, or future recreation. Following BMP's closely will ensure that erosion concerns are addressed. During management activities snags will be retained benefit wildlife by providing appropriate habitat. Cypress Pond should thus be minimally impacted. Healthier wildlife will also produce more opportunities for the public property users – hikers and wildlife viewers. The regeneration openings will provide more roosting

opportunities for the Indiana bat because of their preference to openings within forest tracts.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Mark harvest and sell timber	2011
Post-harvest and TSI	2013
Inventory and Management Report	2035

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

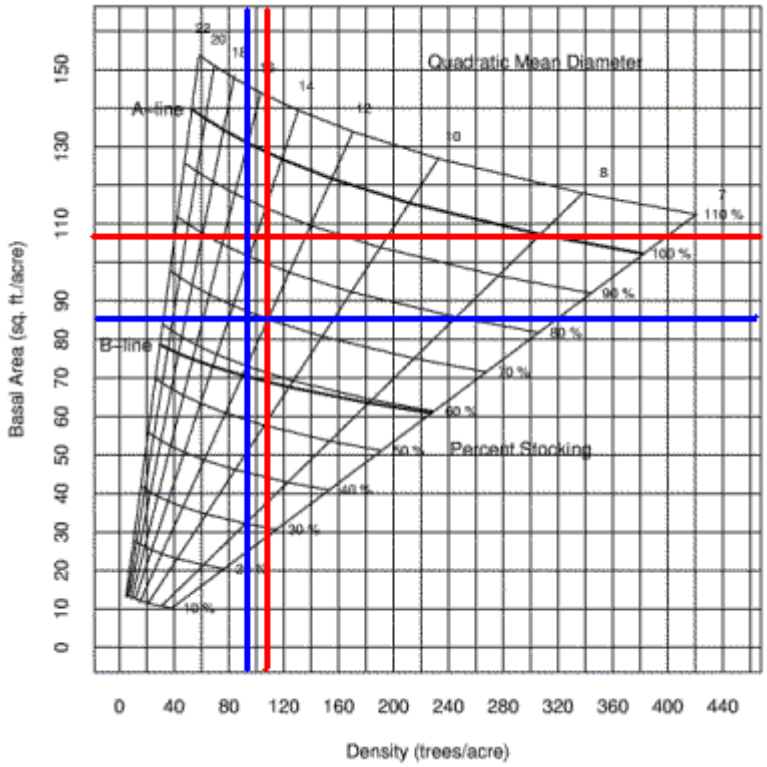
You **must** indicate the State Forest Name, Compartment Number and Tract Number in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered.

Stocking Guide

Compartment 1 Tract 11

November 2010 Inventory

64 acres



Pre-Harvest Inventory Data in Red

Total BA/A = 107.8 sq.ft./AC

Total #trees/acre = 104

Avg. tree diameter = 13.5 inches

Percent stocking = 85%

Post-Harvest Inventory Data in Blue

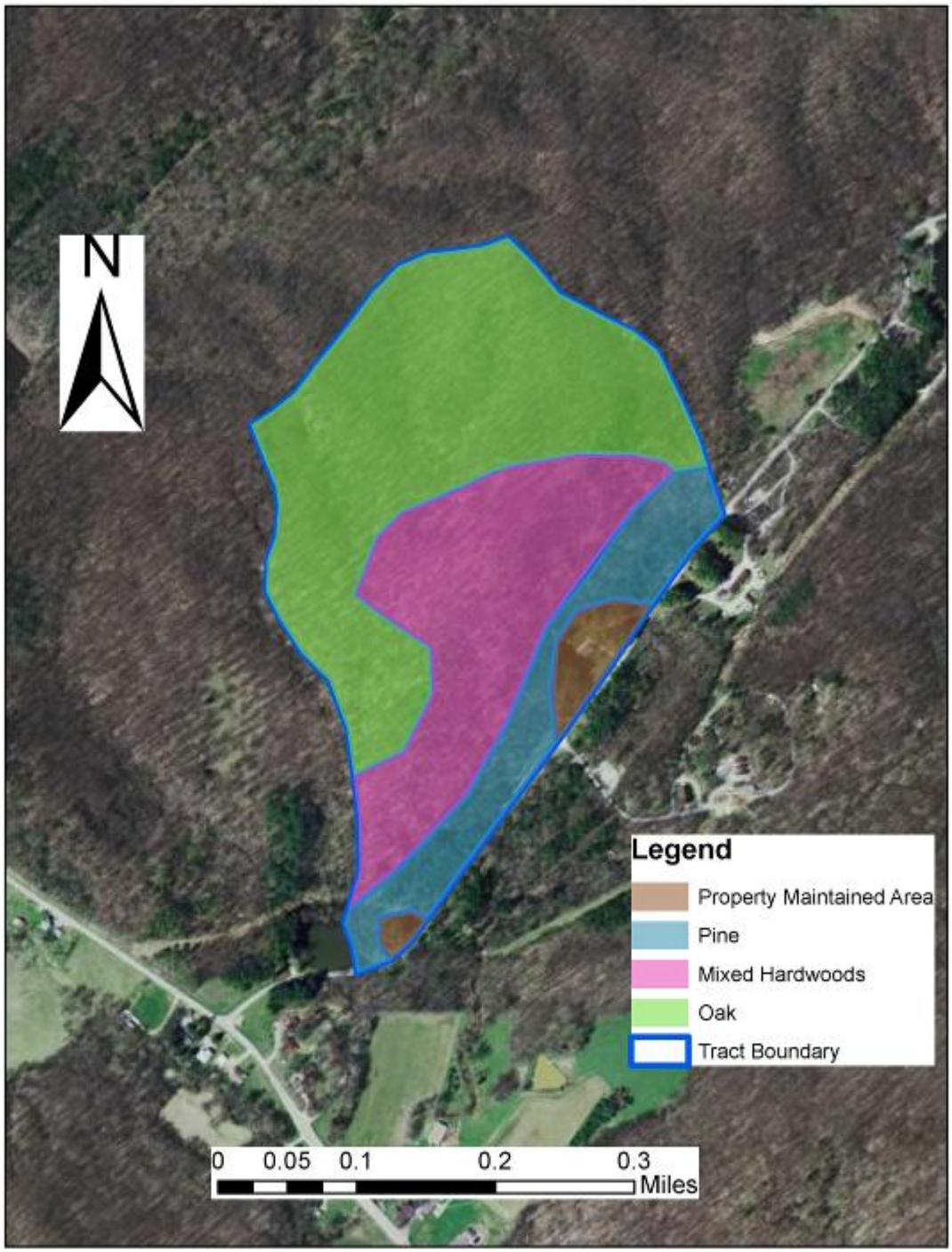
Total BA/A = 85.87 sq.ft./AC

Total #trees/acre = 93

Avg. tree diameter = 12.9 inches

Percent stocking = 68%

Tract Subdivision Units
Jackson-Washington State Forest
Compartment 01 Tract 11



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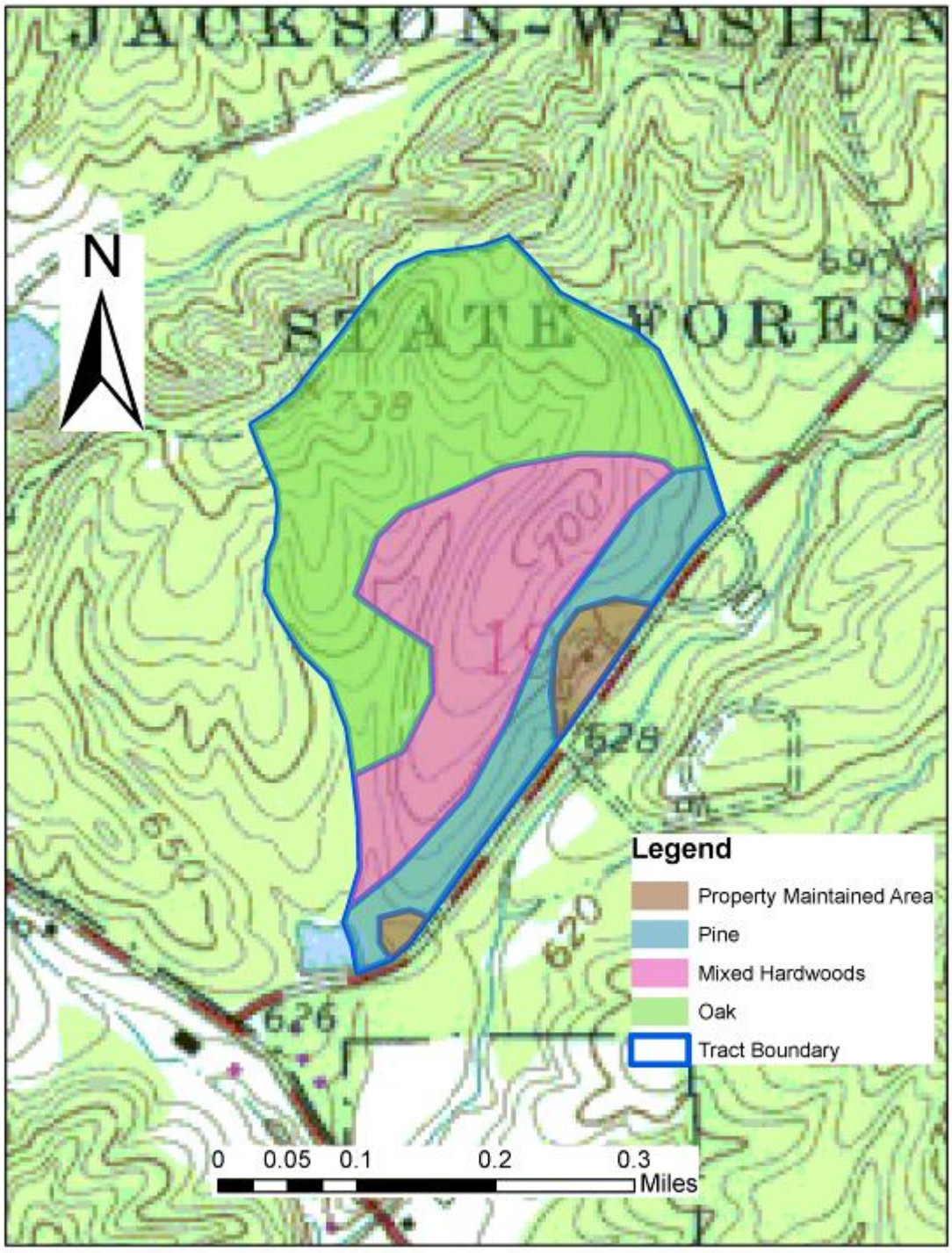

Tract Soils
Jackson Washington State Forest
Compartment 01 Tract 11