Indiana Department of Natural Resources
Division of Forestry
DRAFT

RESOURCE MANAGEMENT GUIDE

State Forest: Jackson-Washington Compartment: 2 Tract: 1
Forester: Matt Vellella Date: 4/21/2011
Management Cycle End Year: 2034 Management Cycle Length: 20 years

Location

This tract is in Jackson County about 2 miles southeast of Brownstown off Venus Road. It is the NW ¼ NE ¼ SEC 17 T 5 N, R4E.

General Description

Total acreage is 41.1 acres, making this a small tract in terms of land cover. There are many big trees though which contribute to a total volume of 316,750 bf. The forest cover can be split into two major categories of "oak covertype" and "mixed hardwoods covertype." Tree species with highest volumes are scarlet oak, black oak, white oak, pignut hickory, and chestnut oak. Slopes are moderate and there are at least two intermittent streams that flow through the tract.

History

This area was purchased in 1953 from Harold and Josephine Prince, Frances and William Prince, and Freida Bohall as a single 40 acre unit. It was then delineated as compartment 6 tract 1.

A cruise in 1969 recommended that large overmature trees should be removed in a harvest and residual culls be removed in TSI. It also called for the scattered open parts of the tract (total of 20 acres) that were severely eroded to be planted in Virginia Pine. Later that year of 1969 3000 Virginia Pine were planted. The next year another 7000 were planted.

In 1979 a second inventory by Smith found 143 bf/ac of harvestable volume and a total of 1,230 bf/ac. Top species from most to least volume were black oak (with twice the volume of the next highest species), pignut hickory, shagbark hickory, white oak, and eastern red cedar. It was described as a low value, overstocked stand with small trees. Recommendations were for nothing to be done.

A cruise in 1994 found 1,284 bf/ac of harvestable volume and a total volume of 3,262 bf/ac by Gallion. Top species from most to least volume were white oak, black oak, yellow poplar, pignut hickory, and eastern red cedar. A release cutting was recommended on oak-hickory and Virginia pine but deemed unreasonable because of access constraints. TSI was then considered the next best option. Openings were recommended in the scrubby areas.

Landscape Context

The steep knobs that comprise the "hills of southern Indiana" end just south of this tract. Pinnacle peak is less than half a mile away. Surrounding areas are in forestland or agriculture production on the flatter slopes with good soils with adjacent properties in both of the two. There are a few single family residences within a mile of the tract center.

Topography, Geology and Hydrology
The parent material is a sand and siltstone origin. Slopes are moderate which will pose no difficulty for harvest crews but there are intermittent stream

Soils

Bonnell Silt Loam (BoD2)
This well drained soil has a watertable at a depth greater than 40 inches and is on side slopes on uplands. 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.

Coolville Silt Loam (CoD)
This moderately well drained soil has a seasonal high watertable 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.

Rarden Silty Clay Loam (RdD3)
This moderately well drained soil has a seasonal high watertable 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 silty clay loam and has moderately low organic matter content (0.5 to 2.0 percent). Permeability is slow (0.06 to 0.20 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 6.5. Bedrock is at a depth of 20 to 40 inches.

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. 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 black oak, bur oak, cherrybark oak, chestnut oak, northern red oak, scarlet oak, shagbark hickory, shingle oak, sugar maple, swamp chestnut oak, tulip poplar and white oak.

Access
This is a landlocked parcel; private property surrounds it on all sides. Access for the timber harvest will require an easement. Within the tract, the slopes will not hinder timber access. Hydrology of the tract will require stream crossings.

Boundary
All boundaries are also property lines. There is a surveyed corner stone on both the northeast and northwest corners which allowed us to run a confident line between the two. There is pink flagging that marks this northern line. The other three lines have green flagging on them which means the marked line is tentative. An adequate buffer will be kept from this line. The southwest corner is also the northeast corner of more of our property.

Wildlife Habitat Feature Tract Summary

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Legacy Trees *					
11"+ DBH	369.9		470	100	
20"+ DBH	123.3		186	62	
Snags (all species)					
5"+ DBH	164.4	287.7	589	424	301
9"+ DBH	123.3	246.6	294	171	48
19"+ DBH	20.55	41.1	34	13	-7

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

Maintenance level for the number of snags and legacy trees was exceeded in all DBH classes. Snags exceeded the optimal level in the 5" and 9" DBH classes. However, the 19" DBH class for snags was below optimal. No other action is needed on this tract. Additional snags will likely be created due to post harvest TSI. The snags present on the site provide great roosting habitat for several species of bat.

The open under story and large numbers of oak trees provide mast for wild turkeys, white-tail deer, and squirrels. Turkey and deer tracks were noted in the tract during the inventory as well as many squirrels.

A Natural Heritage Database review was obtained for this tract. 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.

In the future harvest, 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

Multiflora rose and silt grass were found in the tract. Both should be monitored closely.

The Mixed-Hardwoods subdivision is composed of a large diversity of trees in the overstory. Quality of trees is generally very low with scrubby pine, cedar, and sassafrass are numerous in the under and overstory.

The quality of trees varies between great and very poor depending on site history. Defect and rot are common in the butt logs and many tops have been blown out. Scarlet oak are in especially poor condition throughout the tract. Large trees are common (exceeding 30 inches) but are often unhealthy.

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Forest Condition

Current stocking of the stand is in the high B range. Without management that will soon slip over the line into the over-stocked range. The harvest should only remove about 14 trees per acre and the average diameter should only 6 tenths of an inch (from 11.6 to 11). Basal area will also drop from 100.5 to 79.

Recreation

Recreation includes, but is not limited to hunters and wildlife viewers. White-tailed deer, cottontail rabbits, squirrels, and more game can be found on this tract. Because this is a landlocked parcel, only a small population (surrounding landowners) can access it.

Cultural

Cultural resources may be present on this tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Tract Subdivision Description and Prescription

Oak (23.4 acres)

The composition of this tract is many oak and some hickory in isolated locations. Overstory species include scarlet oak, black oak, white oak, pignut hickory, chestnut oak, shagbark hickory. Understory species include shagbark hickory, sugar maple, American beech. Regeneration is limited with mostly sugar maple and a few chestnut oak seedlings but some isolated patches have exceptional oak regeneration. A few patches of oaks that are falling apart exist in this tract, especially along fence lines and where neighboring management practices touch this tract.

Single tree selection should be used to promote healthy and strong trees with large canopies for maximum energy production and larger boles for aesthetics and value. Openings are possible but this tool should be concentrated on the mixed hardwoods stand and scrub stand. Canopy gaps are good for diversity and to thin out pockets of especially damaged or weak trees.

Mixed Hardwoods (10.7 acres)
These could generally be described as poor quality sites. The overstory is extremely varied with many pockets of low quality trees interspersed with a few very large trees. This is not a homogenous stand but a compilation of a dozen different canopy types. Overstory species include: eastern red cedar, Virginia pine, black gum, northern red oak, sassafras, red maple, black oak, scarlet oak, sweet gum, chestnut oak, and white ash. The understory is similar but also includes ironwood, black cherry, blue beech, and American beech.

Openings will be very helpful here. These openings will clear the scrubby mess that is present in some of the places and also give other areas a new opportunity for a healthy start. All sawtimber and pole sized trees should be removed. The soils are very rich that will support vigorous new growth of hardwoods. Single tree selection should be used where openings are not necessary or possible. This will keep a contiguous canopy and will help development of shade tolerant tree species.

Scrub (7.0 acres)
These too can be described as poor quality. They differ from mixed hardwoods in that the overstory is mostly eastern red cedar, sassafras, and an oak component of red oak and black oak. Trees are pole sized and are falling over and apart. There is no quality timber in the scrub subdivision.

This subdivision should be converted to an opening. The future integrity of the forest must be considered and this is the best way to manage for that.

Overall Tract Prescription and Proposed Activities
Openings and single tree selection will be the most important tools for this harvest. They both create a healthier forest, the former is managing for future stands and the latter for present stands, so to speak. If no management is done or too few trees are cut, the stand will deteriorate in health creating large weak trees susceptible to rot, disease, decay, etc…. The timber should be sold in 2012 with post-harvest and TSI operations in 2014. The next inventory and management plan should then be prepared in 2034.

The timber harvest should leave black oak, white oak, and scarlet oak as the three species with the most volume; the difference will be that scarlet oak will have the least volume of the three.

It is important that best management practices (BMP‘s) (such as installing water bars after use of skid trails, keeping tree tops out of streams, and not logging in wet areas at especially wet times) are followed to restrict sediment runoff, erosion, and negative impacts to wildlife.

These management methods will have little impact on the soils, hydrology, wildlife, or future recreation. The regeneration openings, snags, and more open canopies will provide more roosting opportunities for the Indiana bat because of their preference to openings within forest tracts, especially in the short-term aspect. During management activities, snags will be retained that benefit wildlife by providing appropriate habitat. Healthier wildlife will also produce more opportunities for the public property users.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Mark harvest and sell timber	2012-2014
Post-harvest and TSI	2014-2015
Inventory and Management Report	2034

TM 901

RESOURCE MANAGEMENT GUIDE

INVENTORY SUMMARY

		Compartment:	2
Jackson-Washington State Forest		Tract:	1
Forester:	Matt Vellella	Date:	4/21/2011

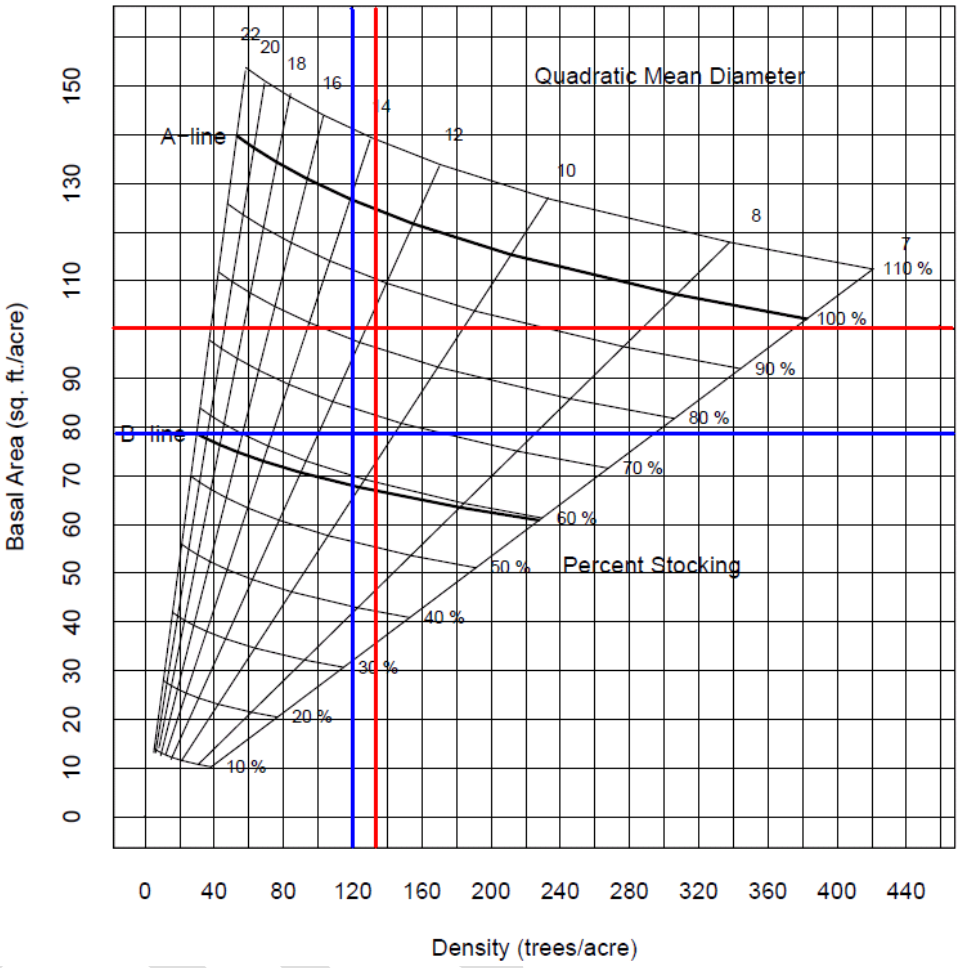
ACREAGE IN:			
Commercial Forest	41.1		
Non-Forest	0		
TOTAL AREA	41.1		
		Total B.A./Acre	100

	GROWING STOCK (BF)	HARVEST STOCK (BF)	TOTAL VOLUME (BF)
Scarlet oak	30,070	33,710	63,780
Black oak	50,990	10,770	61,760
White oak	39,980	9,550	49,530
Pignut hickory	22,380	5,770	28,150
Chestnut Oak	17,840	3,400	21,250
Northern Red Oak	20,270	0	20,270
Red Maple	9,200	10,310	19,510
White ash	0	18,170	18,170
Sweetgum	7,570	0	7,570
Black Gum	5,560	0	5,560
Shagbark hickory	5,380	0	5,380
Virginia Pine	1,250	3,770	5,010
Eastern White Pine	0	3,500	3,500
Sassafras	2,570	630	3,200
Sugar maple	2,220	0	2,220
Eastern Redcedar	1,310	0	1,310
TRACT TOTALS	216,570	100,180	316,750
PER ACRE TOTALS	5,270	2,440	7,710
1979 CRUISE TOTAL	1,979	1,284	3,262
1994 CRUISE TOTAL	1,087	143	1,230

C 2 T 1 Tract Stocking Chart

April 2011 Inventory

41.1 acres



Pre-Harvest Inventory Data in Red

Total BA/A = 100.5 sq.ft./AC

Total #trees/acre = 134

Avg. tree diameter = 11.6 inches

Percent stocking = 100%

Post-Harvest Inventory Data in Blue

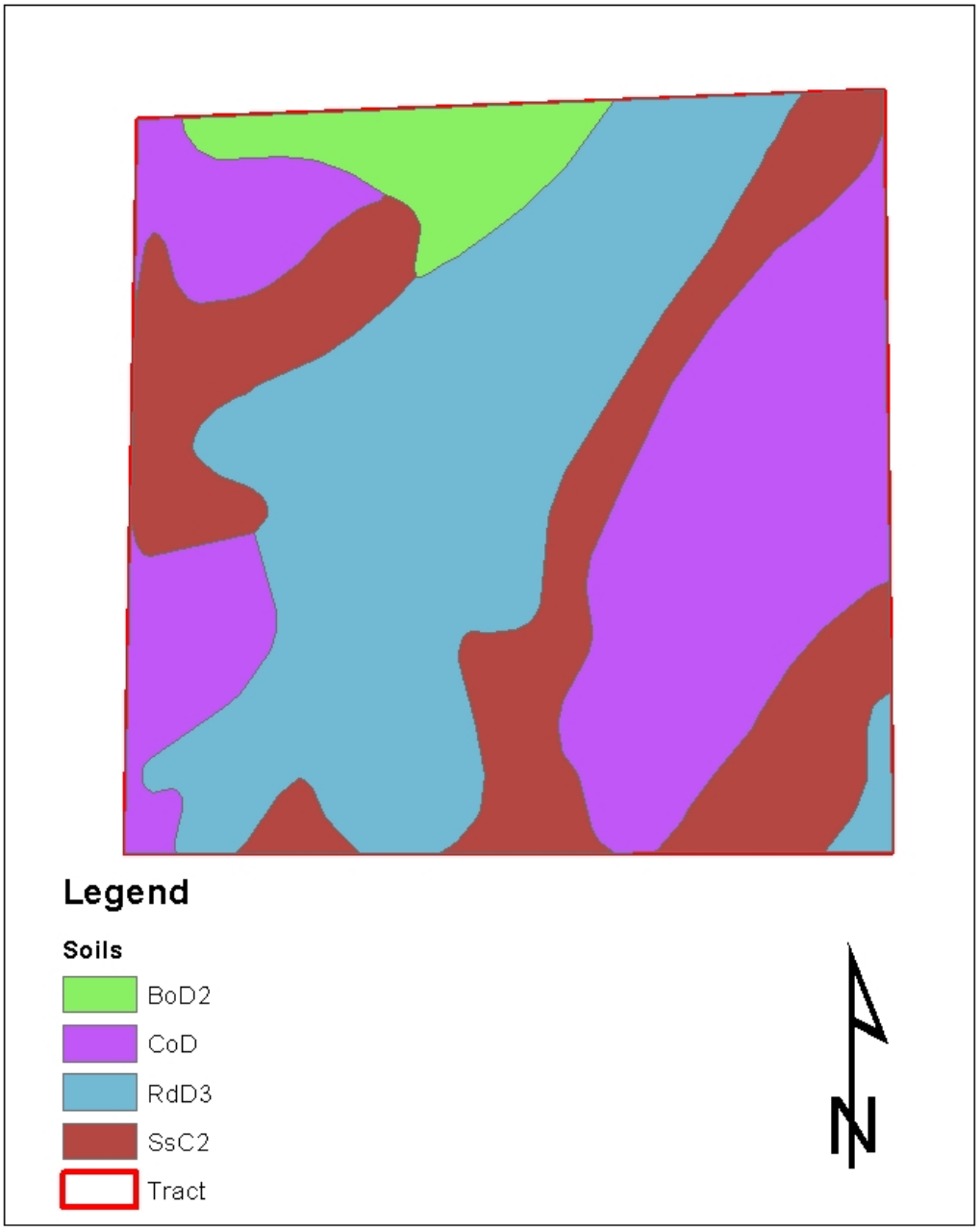
Total BA/A = 79 sq.ft./AC

Total #trees/acre = 120

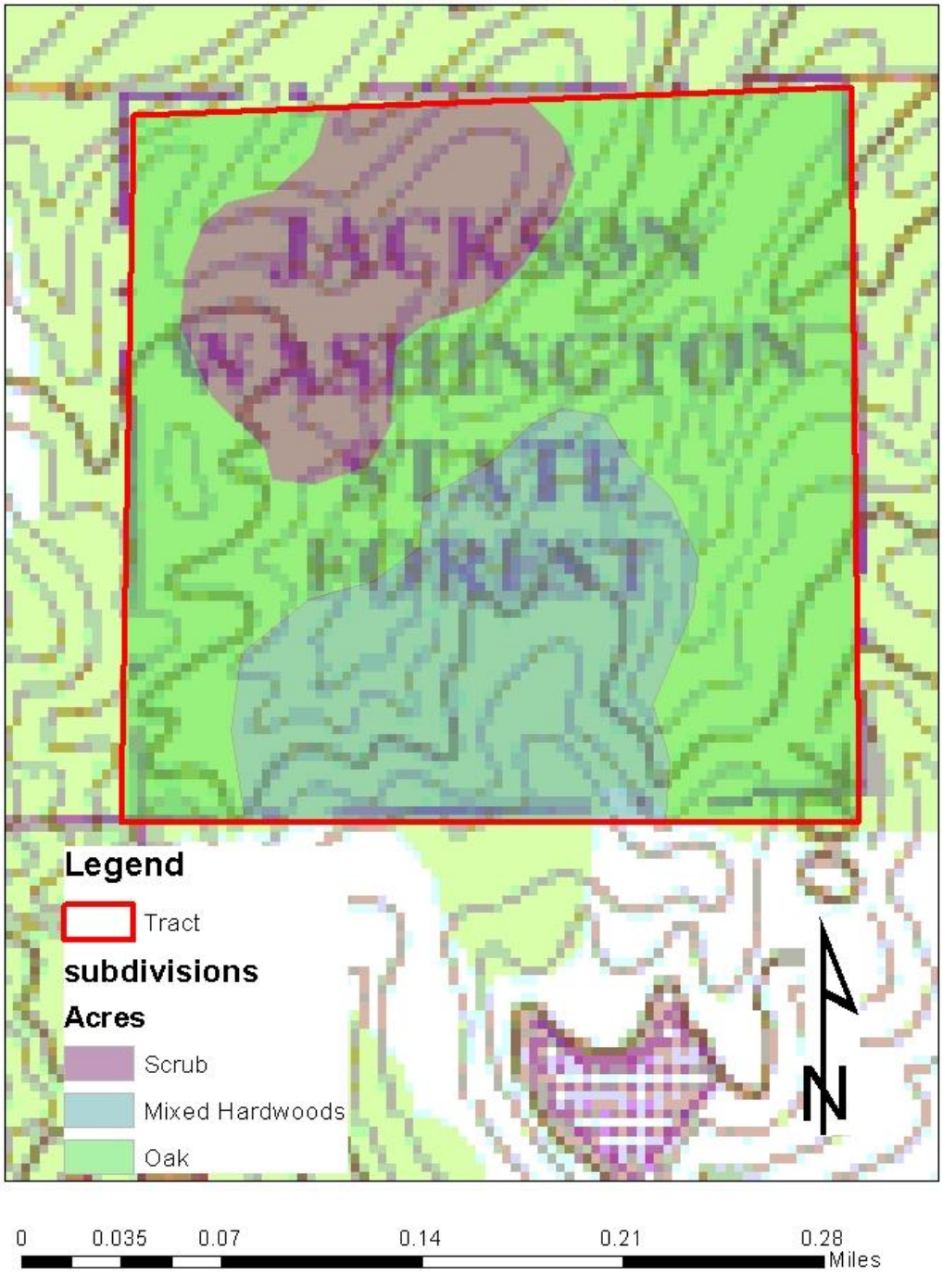
Avg. tree diameter = 11 inches

Percent stocking = 79%

Jackson-Washington State Forest
Compartment 2 Tract 1
Soils



Jackson-Washington State Forest
Compartment 2 Tract 1
Tract Subdivisions



Jackson-Washington State Forest
Compartment 2 Tract 1
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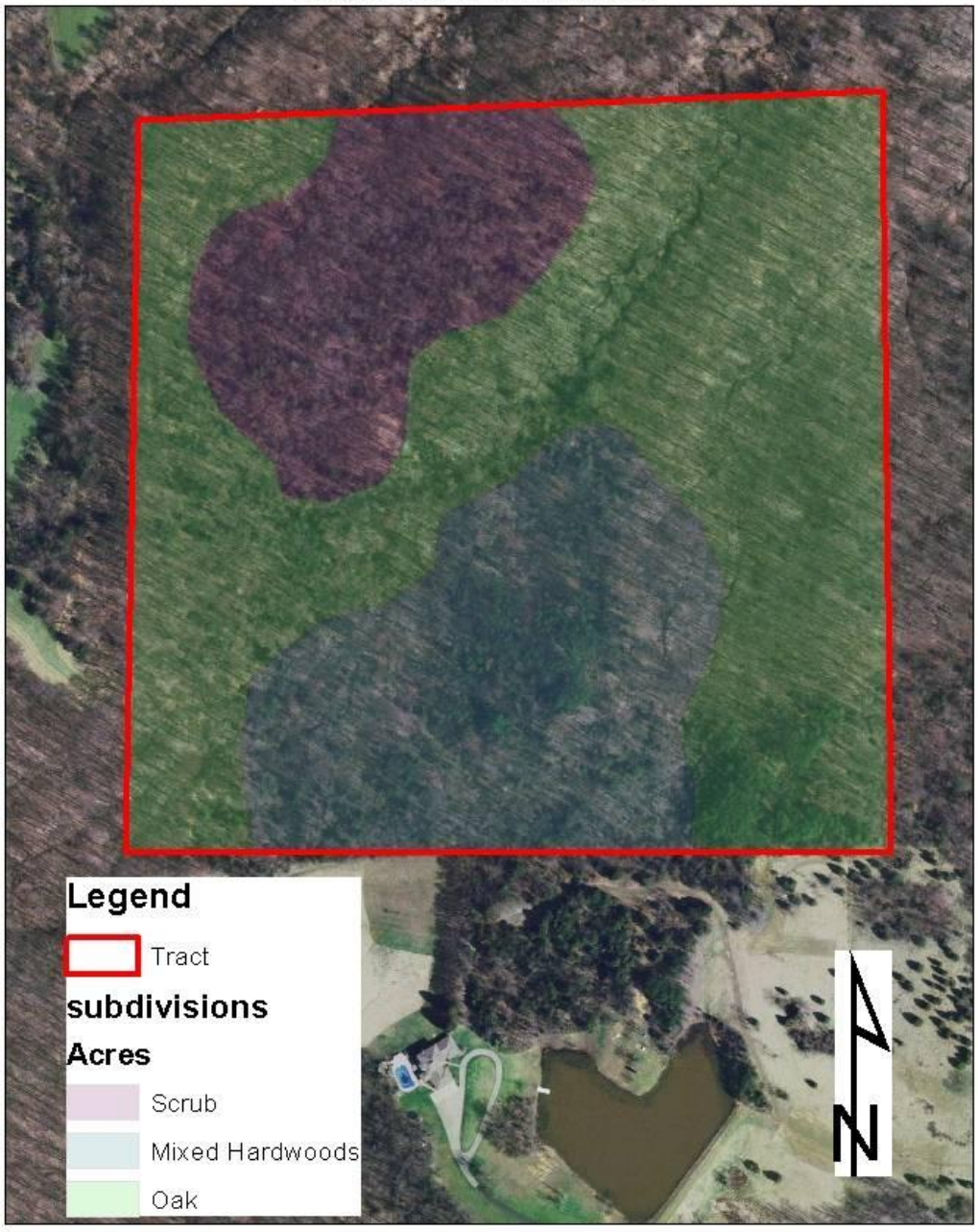

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