

Indiana Department of Natural Resources – Division of Forestry

Draft

Resource Management Guide

State Forest: Jackson-Washington
Forester: Sandy Derringer
Management Cycle End Year 2037

Compartment 3 Tract 1
Date 11-14-13
Management Cycle Length 20 years

Location

This tract is located in Jackson county, in the southwest quarter of the Northwest quarter and south half of the Northwest quarter of section 24, township 5N, Range 4E. It contains 60 acres. It is located less than a mile south of Brownstown off South Base road.

General Description

The tract contains approximately 60 acres. All of which is commercial forest. There is a mapped intermittent stream running through the Northeast corner. The forest cover type is basically oak – hickory with some pine in the northeast corner.

History

This tract was purchased from Minnie Eisel on November 2, 1935. According to a 1931 aerial photo approximately 11 acres on the north end of the tract was used as an orchard. The north part of the tract was cleared at one point in time and then replanted with Virginia pine and other hardwoods. Next to the intermittent stream is evidence of planted rows of hardwood species and then beyond that are Virginia pine and shortleaf pine planted on both sides. There is evidence of old road beds throughout the tract. From the tract files, it appears no management was ever done in this tract. The tract was last cruised July 1987. At that time there was a low stocking level of 69%. TSI was recommended. In October 1996, Martin Engineering set a rebar at the NW corner of the tract and the west line was flagged.

Landscape Context

Adjacent to the north line of the tract is a residential area with houses and fields. The rest of the tract is surrounded by private forest to the east and west and state forest to the South.

Topography, Geology and Hydrology

This tract is made up of gentle sloping ridges that come off the main ridge that goes to a steep point in the south central part of the tract. The majority of the ridges run to the northeast. The intermittent stream that runs in the northeast corner has places where it appears to seep underground. The intermittent stream flows to Hough creek which flows into the East Fork of the White River.

Soils

Berks channery silt loam (BeG) This steep and very steep, moderately deep, well drained soil is on side slopes and knolls in the uplands. Slopes can range from 25 to 75 percent. The native vegetation is hardwoods. It is fairly well suited to trees. The equipment limitations, seedling mortality, and the erosion hazard are management concerns. 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 (yellow-poplar). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Bonnell silt loam, 10 to 18 percent slopes, eroded (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, 12 to 20 percent slopes (CoD) This moderately well drained soil has a seasonally high water table at 1.0 to 2.0 ft. and is on side slopes on uplands. Slopes can range from 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 is 3.5 to 5.5. Bedrock is at a depth of 40 to 60 inches. This soil type has a site index of 66 for northern red oak.

Haubstadt silt loam, 2 to 6 percent slopes, eroded HdB2

This moderately well drained soil has a seasonal high watertable at 1.5 to 2.0 ft. and is on side slopes on lacustrine terraces. 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 can range from 20 to 55 percent. Native vegetation consists of mixed hardwood with oaks, hickory, beech and yellow-poplar. This soil is well suited to trees. The site index for this soil type is 60 for northern red oak. Preferred trees to manage for are black oak, chestnut oak, persimmon, northern red oak, scarlet oak, shagbark hickory, and white oak.

Rarden silty clay loam, 12 to 20 percent slopes, severely eroded (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. This soil type has a black oak site index of 71. Tree species to manage for include bitternut hickory, northern red oak, American beech, sugar maple, and white oak.

Steff silt loam, rarely flooded (Sg)

This moderately well drained soil has a seasonal high water table at 1.5 to 2.5 ft. and is on flood plains. 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.

Access

Access to this tract is from South Base Road which is off of HWY 250. From there, a fire access road goes up the ridge to the first peak and then veers to the southwest to private property.

Boundary

All but the southern tract boundary are State Forest property boundaries with private landowners. The southern boundary follows the main ridge from the highest point to the east and a smaller ridgeline to the northwest and then west. A piece of rebar was set by Martin Engineering on the northwest corner of the tract in 1996. They also found the west ¼ stone. There is no record of any of the other lines being run except the west. Some boundary encroachment may be occurring on the north line before you get to the stream.

Wildlife

Wildlife Habitat Feature Tract Summary

	Maintenance level	Optimal level	Inventory	Available Above maintenance	Available Above optimal
Snags (all species)					
5"+ DBH	240	420	720	480	300
9"+ DBH	180	360	410	230	50
19"+ DBH	30	60	20	-10	-40

The wildlife habitat feature summary indicates the 5" and 9" DBH classes for snags exceed the maintenance and optimal levels. However, the 19"+ DBH class falls short of both the maintenance and optimal level. Additional snags will likely be created in each DBH class through post harvest Timber Stand Improvement (TSI). To address the 19"+ DBH deficiency, TSI operations will place an emphasis on the creation of larger snags where applicable.

A Natural Heritage Database review was completed for the tract. If Rare, Threatened or Endangered species (RTE's) 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

A Natural Heritage Database review was completed for the tract. If Rare, Threatened or Endangered species (RTE's) 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.

Invasive species observed during the inventory include: American Holly. The holly should be treated with an appropriate chemical or another eradication method used prior to a harvest operation.

Forest Condition

RESOURCE MANAGEMENT GUIDE			
INVENTORY SUMMARY			
		Compartment:	3
State Forest:	Jackson-Washington	Tract:	1
Forester:	S. Derringer	Inventory Date:	12/4/13
ACREAGE IN:			
Commercial Forest	60		
TOTAL AREA	60		

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

SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
Chestnut oak	43,520	155,790	199,310
Black oak	16,770	86,900	103,670
White oak	9,380	62,610	71,990
Pignut hickory	7,890	25,610	33,500
Northern red oak	2,270	24,450	26,720
White ash	2,770	13,080	15,850
Red maple	5,470	8,300	13,770
Black cherry	0	8,040	8,040
Shagbark hickory	0	6,160	6,160
Yellow poplar	0	5,320	5,320
American sycamore	2,080	2,080	4,160
Sugar maple	14,150	1,790	15,940
Sweetgum	2,020	0	2,020
Virginia pine	4,400	0	4,400
TRACT TOTALS	110,720	400,130	510,850
PER ACRE TOTALS	1,845	6,669	8,514

The 2013 inventory showed that the area contained an estimated total volume of 8,514 bd. ft. per acre, 1,846 bd. ft. per acre of harvest volume and a growing stock of 6,669 bd. ft. per acre. Total volume for the tract is 510,850 bd. ft., harvest volume is 110,720 bd. ft., and leave volume is 400,130 bd. ft. The top three species by volume present in this tract are chestnut oak, black oak and white oak. The top three species in the harvest category by volume are chestnut oak, black oak and sugar maple. The stocking chart shows current stocking at 87% with a reduction to 70% stocking post harvest (both current and post harvest stocking are within the fully stocked range). Current basal area is 109sq.ft/acre with a post harvest basal area estimated at 87.5 sq. ft. per acre. The trees

per acre will decrease from 102 to 89 trees per acre after the harvest. The dominate understory in this tract is beech and maple. There was very sparse oak regeneration found. Near the intermittent stream is an area that may have been an old field that was planted to pine. This area has oak and poplar starting to come through the pine.

Recreation

Primary recreation use of this tract is hunting of small game, deer, turkey, mushrooms, etc.

Cultural

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

Tract Subdivision Description and Prescription

Oak-Hickory (53 acres) - This area is dominated by chestnut oak on the upper parts of the slopes and has pockets of white oak dominating on the lower slopes. Other species present include black oak, scarlet oak, white oak, pignut hickory, and sugar maple. The understory is dominated mostly by beech and maple. There are a few areas with oak regeneration present. The oak quality is average with poorer formed chestnut oak near the ridge tops. This particular subdivision contains a pocket of unhealthy declining sugar maple that would benefit from a regeneration opening. The ash in the subdivision should also be removed due to the emerald ash borer. The management prescription for this subdivision would be to implement an improvement harvest utilizing single tree and group selection openings. Within the regeneration openings **primary** species likely to occur in years following removal of the overstory and completion of the openings via post harvest timber stand improvement are the following: yellow poplar, red maple, sassafras, and white ash. The single tree selection will focus on removal of poor quality, competing and over mature trees to release the healthy more vigorous trees present. This will provide more sunlight and nutrient to enhance **forest** development, **with oak and hickory as key target species for long term management in the selection area.**

Pine (7 acres) - This area was an old orchard that was planted in pine and hardwoods. The area near the intermittent stream is dominated by Virginia pine, shortleaf pine and has some oak and poplar in the lower canopy. The regeneration is mainly beech and maple. Sassafras is in the understory also. A couple of American hollies were also seen in the area. The American hollies should be removed prior to the harvest. This area will benefit from the creation of an opening to remove the over mature Virginia and Shortleaf pine which are not native to the area. The retention of oak in this subdivision should be maintained where applicable. The goal of the opening is to convert the area back to a mixed hardwood forest. Timber stand improvement should follow the harvest to further remove any trees left competing with the oaks.

Tract Prescription and Proposed Activities

The management prescription is to implement a harvest utilizing single tree and group selection harvest within 5 years. Most of the tract should be harvested to encourage growth of better quality oaks and hickories with the removal of low quality, suppressed, and dying species present in tract. The pine area will have a group selection opening to remove the non-native pine in favor of growing a new cohort of native hardwood tree species. Best management practices will be implemented during and after the harvest to minimize impact on soil and water resources.

Follow the harvest with TSI to deaden any culls, release any future crop trees and reduce the amount of beech and maple competing with the oak regeneration. Another inventory will be performed in approximately 20 years following the harvest.

Proposed Activities Listing

Proposed Management Activities	Proposed Date
Treat American Holly	2014
Mark Harvest and sell timber	2015 - 2016
Post - harvest TSI	2017 – 2018
Regeneration opening monitoring > 1 acre in size	2018 - 2021
Inventory and management guide	2037

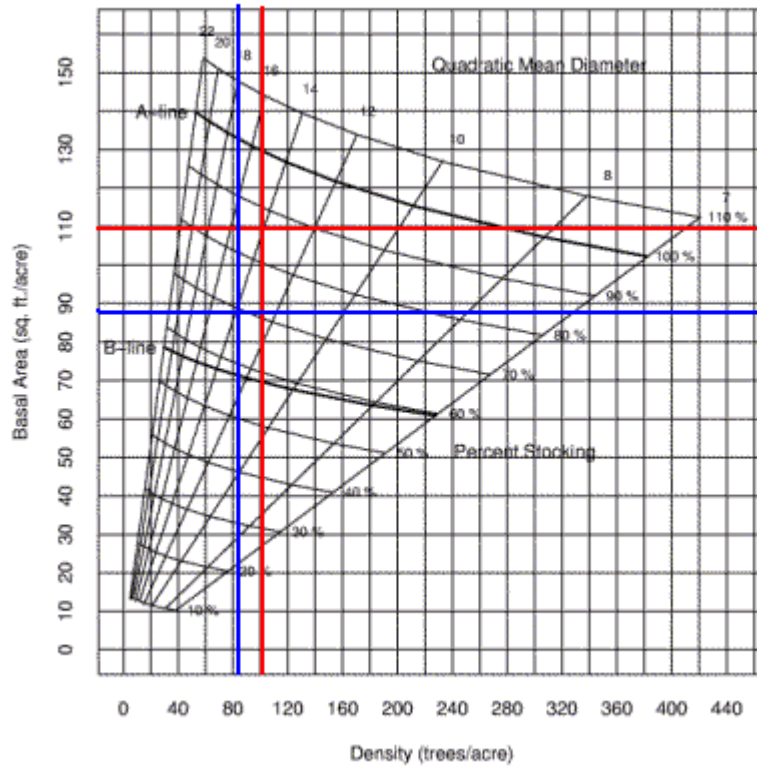
To submit a comment on this document, click on the following link:

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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. Note: Some graphics may distort due to compression.

Stocking Guide

Compartment 03 Tract 01



Pre-Harvest Inventory Data in Red

Total BA/A = 109 sq.ft./AC

Total #trees/acre = 102

Avg. tree diameter = 14.88 inches

Percent stocking = 87%

Post-Harvest Inventory Data in Blue

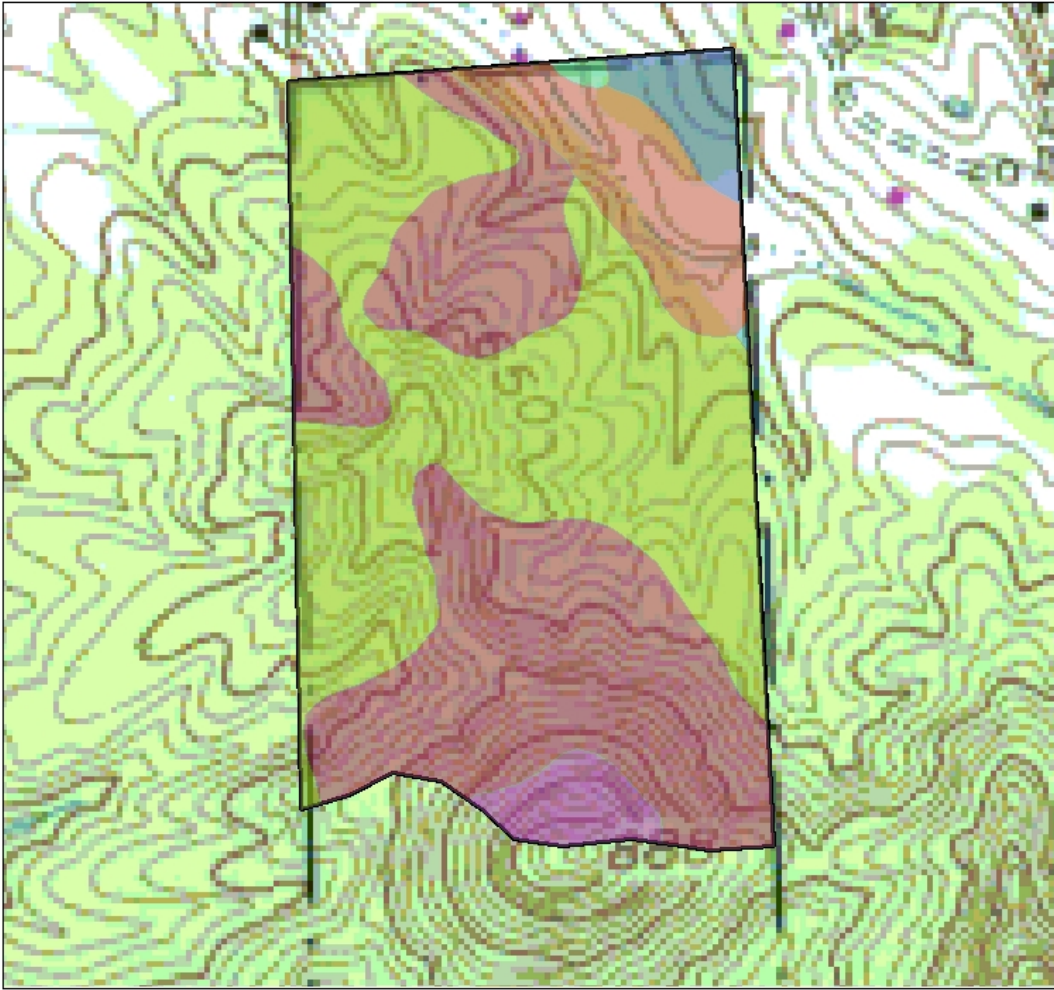
Total BA/A = 87.5 sq.ft./AC

Total #trees/acre = 89








Avg. tree diameter = 13.9 inches


Percent stocking = 70%

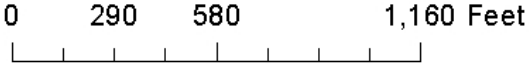
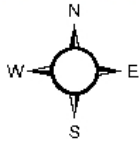
Jackson-Washington State Forest Compartment 03 Tract 01 Soils Map



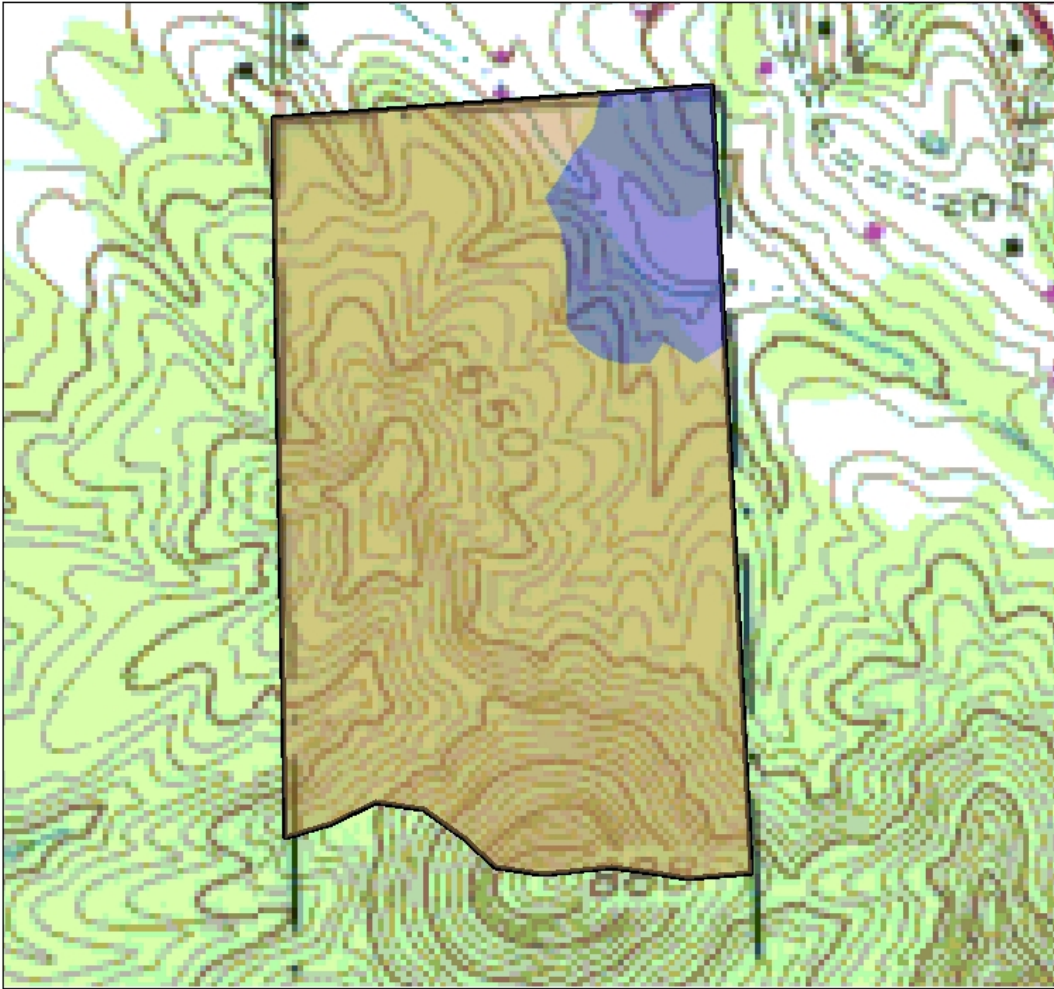
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B&G	BoD2	CoD	HdB2	Kf	RdD3	Sg

 C03 T01 Boundary






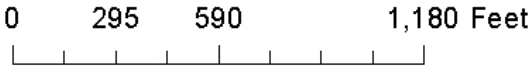
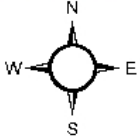
**Jackson-Washington State Forest
Compartment 03 Tract 01
Tract Subdivision Map**



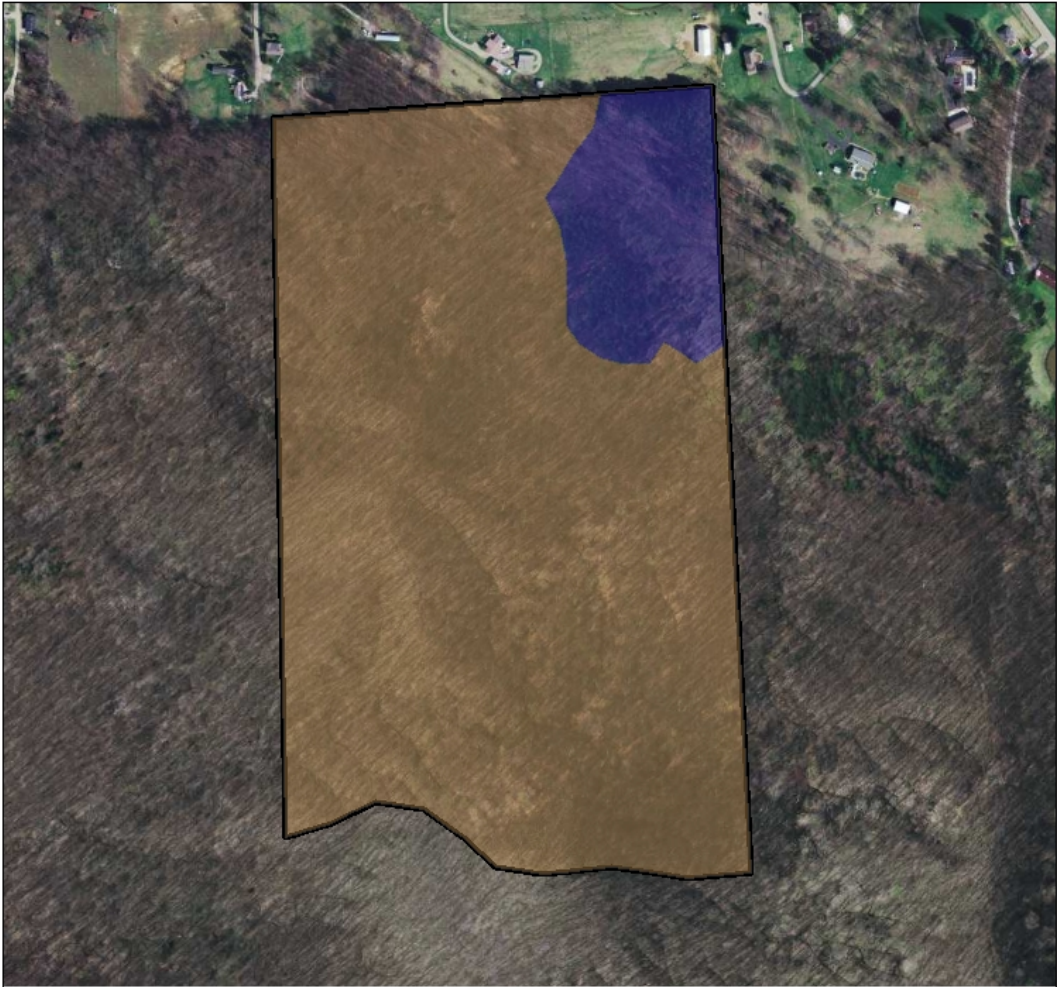
Legend

Tract Subdivision

-  Oak-Hickory
-  Pine
-  C03 T01 Boundary






**Jackson-Washington State Forest
Compartment 03 Tract 01
Tract Subdivision Map**



Legend

Tract Subdivision

-  Oak-Hickory
-  Pine
-  C03 T01 Boundary

