

Indiana Department of Natural Resources
Division of Forestry
DRAFT
RESOURCE MANAGEMENT GUIDE

State Forest: Jackson-Washington
Forester: D. Potts
Management Cycle End Year: 2037

Compartment: 04 Tract: 07
Date: October 2, 2013
Management Cycle Length: 20 years

Location

This management area is located approximately 2.5 miles south of Brownstown, Indiana. More specifically, section 26 and 27 of Driftwood Township, Township 5N and Range 4E. The area is more commonly referred to as Compartment 04 Tract 07 of Jackson-Washington State Forest.

General Description

This general cover type is hardwood forest. The tract is 82 acres, all of which are considered commercial forest.

History

This tract is comprised of portions of three separate land acquisitions. The first occurred in 1932 from Emil V. Heller and Edna Heller, 301.5 acres. The second occurred in 1936 from O.H. Bundy and L.L. Bundy, 40 acres. The third occurred in 1943 from Fred Boyatt, 11.25 acres.

The tract file has records of a harvest in section 26 in 1973, in which 34,360 bd.ft. was sold for \$1,375.00. The harvest occurred on 12 acres within a tract was previously known as compartment 12 tract 4. The harvest occurred in the eastern portion of the tract that is now compartment 04 tract 07.

The next recorded management activity occurred in 1997, which was an inventory and resource management guide. That inventory estimated the volume per acre was 4,626 bd.ft with a harvest volume of 1,756 bd. ft./acre and a leave volume of 2,870 bd. ft./acre. Further, the management guide recommended marking the tract for harvest. There is evidence of some trees being marked for harvest (faint spots of paint), but no records indicate the timber marking was completed or that there was a sale.

In 2011, 59,501 bd.ft. was sold to Max Lambring for \$15,000.00 as a part of salvage sale that included several trees from this tract (mostly yellow poplar). The trees from this tract were all located adjacent to the firelane and were selected for salvage because they were dying due to previous drought events.

Landscape Context

The tract is completely surrounded by hardwood forest 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

Topography varies within this tract, ranging from flat in the bottomlands and ridgetops to somewhat steep slopes. There are two main ridgelines with access road/fire lanes/horse trail on them that serve as the tracts boundaries on the north and east. The western boundary of the tract follows a ridgeline south to where it meets an intermittent drainage. There is one smaller ridge that extends from the eastern boundary west and is located in the middle of the tract. Underlying geology is made up of sandstone, siltstone, and shale bedrock. A mapped intermittent drainage is located in between the smaller middle ridge and the ridge to the north. This drainage follows a path southwesterly and continues west beyond the tracts extreme south-western boundary. The drainage continues west and according to the USGS topographic map is unnamed until it reaches the East Fork White River. In the northwestern corner of the tract, on the ridgetop, there is a manmade wildlife pond. Any proposed management activities will adhere to the Indiana Logging and Forestry Best Management Practices 2005 field guide. Following these guidelines will minimize the impact to soil and water resources, thereby mitigating impacts to the intermittent stream and the wildlife pond.

Soils

Berks channery silt loam (BeG) (~30 acres) 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.

Gilpin silt loam (GnF) (~34 acres) This well drained soil has a water table at a depth greater than 40 inches and is on side slopes on uplands. Slopes range from 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 3.5 to 5.5. Bedrock is at a depth of 20 to 40 inches.

Kurtz silt loam (KtF) (~4 acres) 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, sugar maple, and white oak.

Stonehead silt loam (SsC2) (~10 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. 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. Seedling mortality, windthrow hazard, and plant competition are management concerns. The potential productivity or site index for this soil type is 90 for northern red oak. Preferred trees to manage for are black oak, chestnut oak, persimmon, northern red oak, scarlet oak, shagbark hickory, sugar maple, yellow-poplar and white oak.

Tilsit silt loam (TIB2), 2 to 6 percent slopes (~3 acres)

This moderately well drained soil has a seasonal high watertable at 2.0 to 3.0 ft. and is on ridgetops and side slopes on uplands. 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 bedrock. Available water capacity is moderate (7.9 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 4.5 to 5.5. Bedrock is at a depth of 40 to 80 inches.

Tilsit silt loam,(TIC2) 6 to 12 percent slopes (~1 acre)

This moderately well drained soil has a seasonal high watertable at 2.0 to 3.0 ft. and is on ridgetops and side slopes on uplands. Slopes are 6 to 12 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 (7.9 inches in the upper 60 inches). The pH of the surface layer in non-limed areas is 4.5 to 5.5. Bedrock is at a depth of 40 to 80 inches.

Access

This tract is located at the western end of Skyline Drive, on the Brownstown side. From the intersection of Poplar Street and US 50 in Brownstown, travel south on Poplar street for approximately 2 miles, the street will change from Poplar Street to County Road 50 West and then to Skyline Drive. Continue on Skyline Drive for .5 miles to the top of the hill beyond the green gate is the access road for the tract. From the gate travel 400 feet to the west, at this point the access road/fire lane splits to the north and to the south. The tract is on the west and south of the two access roads/fire lanes.

Boundary

This tract is bounded by an access road/fire lane/horse trail on the entire north and east side. The southern tract boundary follows an ephemeral drainage that begins at the southeastern tract corner and continues west and eventually meets the previously mentioned mapped intermittent drainage. The western tract boundary begins at the mapped intermittent drainage in the southwestern corner of the tract and follows a path north along the ridge. A small portion of this tract in the northeastern corner is also a property line for about 350 ft.

Wildlife

Wildlife Habitat Feature Summary					
	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Snags(all species)					
<i>5"+ DBH</i>	328	574	821	493	247
<i>9"+ DBH</i>	246	492	821	575	329
<i>19"+ DBH</i>	41	82	158	117	76

The wildlife habitat feature summary indicates that all DBH classes for snags are exceeded in not only for the maintenance level, but also for the optimal level. Additional snags will likely be created through post harvest timber stand improvement (TSI).

Communities

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.

Japanese stilt grass is present along the horse trails and fire lanes that surround the tract to the north and east. The stilt grass should be monitored for its spread into the understory and problem areas sprayed with an appropriate herbicide along the horse trails and fire lanes, where there is ATV access.

Forest Condition

The forest is generally healthy and vigorous. The 2013 inventory shows a total volume of 716,800 bd. ft. for the tract with a harvest volume of 279,240 bd. ft. and a leave volume of 437,570 bd. ft. These numbers translate to per acre volumes of 8,740 bd. ft. total, 3,410 bd. ft. harvest and 5,340 bd. ft. leave. The stocking chart shows current stocking at 81%, with a reduction to 52% stocking post harvest. Currently basal area is 103.3sq. ft./ acre. Post harvest basal area is estimated to be 64.8 sq. ft./acre. Trees per acres will decrease from 92 to 69 after the harvest. While in the course of the inventory, several plots fell in areas where a regeneration opening was the management prescription (see tract subdivisions for details) and though the harvest and leave volumes are more accurately estimated, the basal area for the tract is likely skewed due to regeneration opening plots having no basal area. The top three species by volume are chestnut oak, white oak and sugar maple. The top three harvest species by volume are chestnut oak, yellow poplar and sugar maple. Understory regeneration is dominated by American beech and sugar maple. There are areas where the understory is dominated by paw paw.

Blackgum, sassafras, and red maple are also frequently found in the understory as well. Throughout the tract oak and hickory regeneration was lacking, although some chestnut seedlings were occasionally observed.

Recreation

This tract has a horse trail on the western and northern boundaries. This tract has excellent public access due to its proximity to Skyline drive, the maintained fire access road, and the horse trails. During any harvest operations the sale area and portions of the horse trails will be closed due to safety concerns. Following the harvest, horse trails and access roads will be re-opened and returned to similar or better conditions.

Cultural

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

Tract Subdivision Description and Prescription

Oak/Hickory Subdivision (~61 acres)

This subdivision's overstory is dominated primarily by a variety of oak and hickory species such as black oak, chestnut oak, northern red oak, white oak, pignut hickory, bitternut hickory and shagbark hickory. The four oak species mentioned account for 84% of the total number of trees per acre, 89% of the volume per acre and 87% of the total basal area per acre. Chestnut oak is the most predominant sawtimber species found throughout the subdivision, the next three most common oaks are white oak, black oak and northern red oak, in that order. Pignut hickory is the most common sawtimber species of the hickories, with lesser amounts of shagbark hickory and bitternut hickory are present. Sugar maple and white ash comprise a very small component of the overstory species within this subdivision. The estimated volume for this subdivision is 8,191 bd. ft./acre, with the harvest removing 2,750 bd. ft./ acre, leaving the residual volume at 5,442 bd. ft./ acre. The midstory within this subdivision is dominated by the following species, in terms of number of trees per acre, chestnut oak, sugar maple, American beech and red maple. American beech and sugar maple dominated the understory and seedling regeneration within the subdivision. The management prescription for this subdivision is to provide release to better formed and healthy crop trees by harvesting lower quality competing trees within the next year or two. Effort should be made to maintain and enhance the oak/hickory forest type into the future. While in the course of the inventory several plots within this subdivision were in areas that either had insufficient stocking, numerous dying trees, or had past fire and/or grazing damage and the management prescription is to regenerate those areas. Removing the overstory will allow a healthy, well stocked new cohort of trees to grow. Regeneration in subsequent years within the openings will likely be comprised of the following species: yellow-poplar, red maple, blackgum, sassafras and some white ash and chestnut oak.

Mixed Hardwood Subdivision (~21 acres)

This subdivision's overstory is comprised of a mix of hardwood species. The sawtimber trees found most frequently (in terms of number per acre) within this subdivision are sugar maple, white oak, and yellow-poplar, in that order. Tree species which comprise a

significant quantity of volume within this subdivision are yellow poplar, sugar maple and white oak. The midstory within this subdivision is comprised primarily by three species, sugar maple, American beech and red maple. Paw paw was the most common understory species recorded during the inventory, within this subdivision. Aside from the mentioned paw paw, the understory was primarily comprised of American beech and sugar maple. The estimated volume for this subdivision is 10,313 bd. ft./acre, with the harvest removing 5,279 bd. ft./ acre, leaving the residual volume at 5,035 bd. ft./ acre. The management prescription for this subdivision is to provide release to better formed and healthy crop trees by harvesting lower quality competing trees within the next year or two. In the course of the inventory, there were several areas within this subdivision that had a significant number of trees that were either dying from drought, had insufficient stocking, or had visible damage and/or decay from past grazing and/or fire damage, in these areas the management prescription is implement a regeneration opening. Regeneration in subsequent years within the openings will likely be comprised of the following species: yellow-poplar, red maple, blackgum, sassafras and some white ash.

Tract Prescription and Proposed Activities

The management prescription is to apply a single-tree and group selection improvement harvest in the next year or two. A harvest should focus on removing the drought stressed and declining yellow poplar trees along the ridge top adjacent to the firelane/horse trail. Several areas located within both tract subdivisions had insufficient stocking, or had visible damage and/or decay from past grazing and/or fire damage, in these areas the management prescription is implement a regeneration opening. The number of regeneration openings and size of openings will vary based on the conditions discovered in the field at the time of marking. Throughout the rest of the tract harvesting should focus on removing wind damaged and drought stressed trees as well as those that are prone to wind throw. Following these recommendations should provide for a tract of well stocked healthy and more vigorous growing trees. Japanese stilt grass should be sprayed with an appropriate herbicide, where there is adequate ATV access, to control its spread. During and after harvest operations best management practices (BMP's) will be implemented to minimize any potential impact to soil and water resources. Following the harvest, timber stand improvement should be performed to complete regeneration openings, remove/reduce grapevines, release future crop trees and to deaden (non-merchantable) marked trees not removed during the harvest. Regeneration opening monitoring of openings that are greater than one acre in size should occur within 2-3 years post harvest, to ensure that natural regeneration is a success. A re-inventory should occur in 20 years, following the harvest.

Proposed Activities Listing

<u>Proposed Management Activity</u>	<u>Proposed Date</u>
Spray stilt grass with herbicide	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

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. Note: Some graphics may distort due to compression.

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TM 901			
RESOURCE MANAGEMENT GUIDE			
INVENTORY SUMMARY			
		Compartment:	4
Jackson-Washington State Forest		Tract:	7
Forester:	D. Potts	Date:	10/2/13

ACREAGE IN:	
Commercial Forest	82
Non-Commercial	0
TOTAL AREA	82

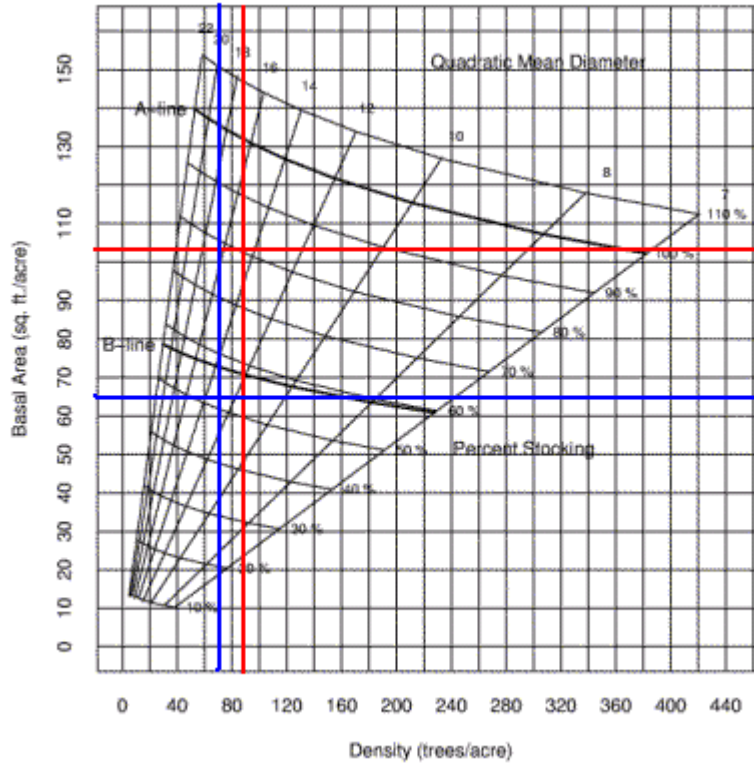
(Estimated Tract Volumes for Commercial Forest Area-Bd.Ft., Doyle Rule)

SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
Chestnut oak	111,310	215,300	326,610
White oak	19,770	87,720	107,480
Sugar maple	33,980	18,070	52,050
Yellow poplar	48,080	0	48,080
Black oak	24,710	22,050	46,760
Pignut hickory	7,120	36,520	43,640
Northern red oak	7,180	31,250	38,430
Shagbark hickory	0	15,700	15,700
White ash	12,050	0	12,050
Red maple	8,020	0	8,020
Bitternut hickory	0	5,520	5,520
Blackgum	3,120	0	3,120
Pin oak	0	2,840	2,840
Black walnut	0	2,600	2,600
American beech	2,280	0	2,280
Sassafras	1,620	0	1,620
TRACT TOTALS	279,240	437,570	716,800
PER ACRE TOTALS	3,405	5,336	8,741

PREVIOUS CRUISE DATA			
	GROWING STOCK	HARVEST STOCK	TOTAL VOLUME
PER ACRE TOTALS (1997)	2,870	1,756	4,626

Stocking Guide

Compartment 04 Tract 07



**Pre-Harvest Inventory Data in Red
(Sub merchantable trees excluded)**

Total BA/A = 103.3sq.ft./AC

Total #trees/acre = 92

Avg. tree diameter = 14.3 inches

Percent stocking = 80%

**Post-Harvest Inventory Data in Blue
(Sub merchantable trees excluded)**

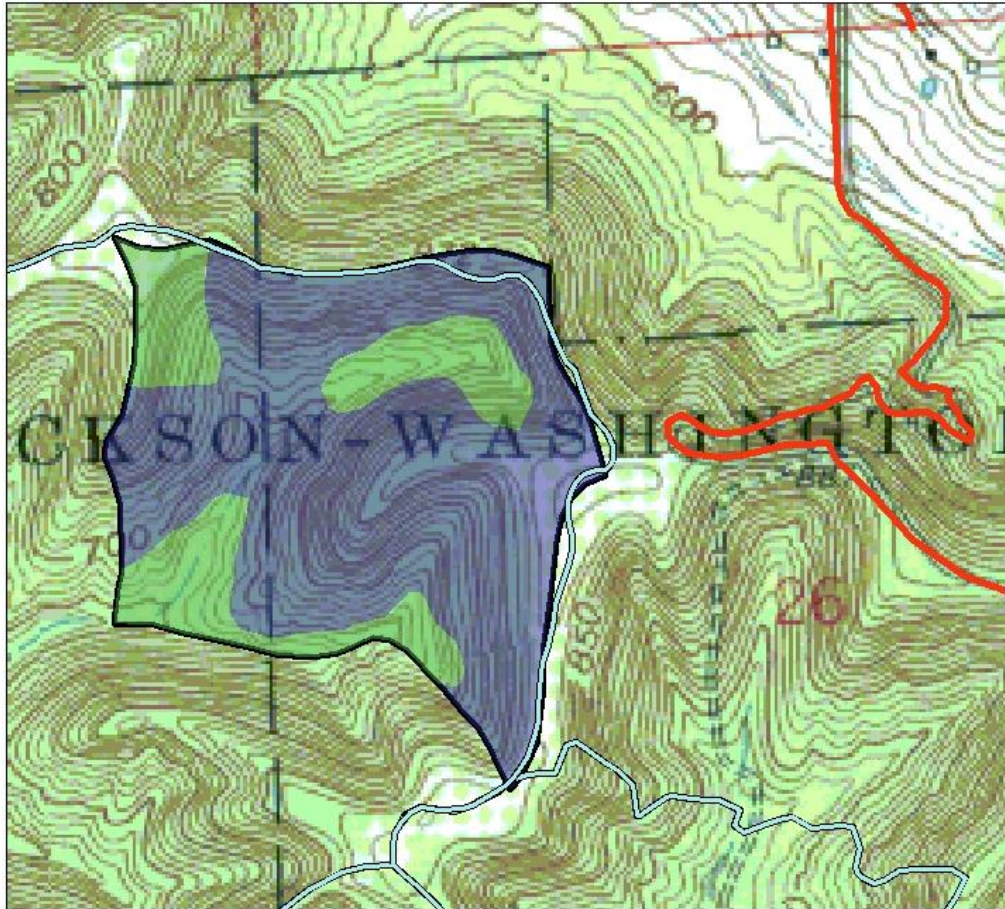
Total BA/A = 64.8 sq.ft./AC

Total #trees/acre = 69

Avg. tree diameter = 13.2 inches

Percent stocking = 52%

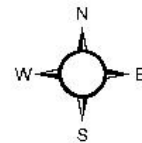
Jackson-Washington State Forest Compartment 04 Tract 07 Tract Subdivision Map



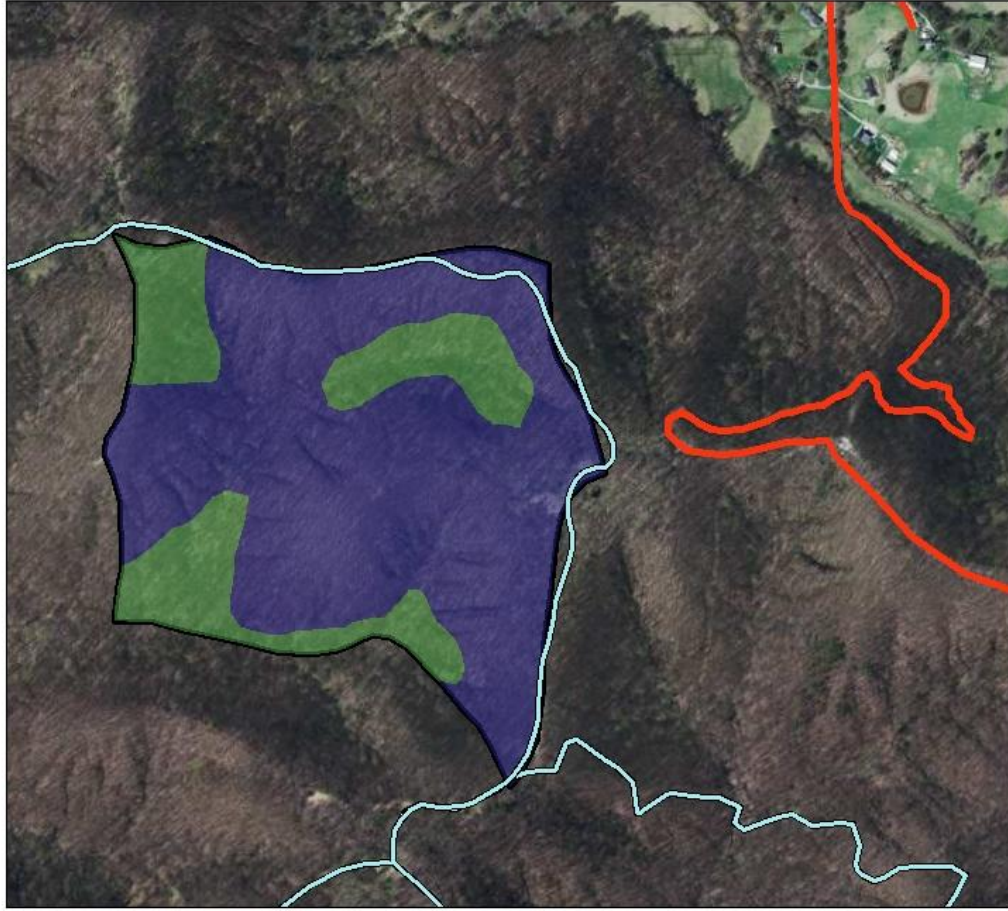
Legend

- Horse Trails
- Skyline Drive
- Tract Subdivision**
- Mixed hardwoods
- Oak hickory
- Tract Boundary

0 200 400 800 1,200 1,600 Feet



Jackson-Washington State Forest Compartment 04 Tract 07 Tract Subdivision Map



Legend

- Horse Trails
- Skyline Drive

Tract Subdivision

- Mixed hardwoods
- Oak hickory
- Tract Boundary

0 200 400 800 1,200 1,600 Feet

