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: 12 Tract: 17
Date: December 11, 2013
Management Cycle Length: 20 years

Location
This tract is located approximately 5.5 miles northeast of Salem, IN, in sections 25 and 26, Township 3N, Range 4E, Washington Township, Washington County.

General Description
This general cover type is hardwood forest. The tract is 79 acres, all of which are considered commercial forest.

History
This tract is comprised of three separate parcels of land totaling 700 acres (360 acres, 140 acres, and 200 acres) that were acquired from Lief H Saylor and Lucinda Saylor, husband and wife, between the years 1953 and 1955.

The tract history file contains a 1972 management plan for an area that was formerly known compartment 58 tract 3. The inventory estimated the total volume per acre at 2,567 bd.ft. with a harvest removing 1,354 bd.ft./acre and a leave volume of 1,213 bd.ft./acre. One subdivision (referred to as sub-tract 3a) of that management plan recommends an improvement harvest, in 30 years. It recommends a group selection harvest in 10-15 years for the portion for the area labeled as sub-tract 3b. According to the property records, this area never received the recommended harvests. The majority of compartment 12 is surrounded by private property and therefore access into the compartment for management purposes has been limited, with a few timber sales occurring in the last forty years.

Landscape Context
The dominant land use within the landscape surrounding this tract is forestland. This tract is situated in the middle of a block of Jackson-Washington State Forest that is approximately 1000 acres. Currently, the amount of early successional forest habitat in this area is relatively low as most of the abandoned fields from prior to State of Indiana ownership have become closed canopy forest. Surrounding this block of forestland are crop fields, watershed lakes, and single-family residences. Some increase in construction of homes has been seen in the area, but the distance to municipalities and poor economic conditions have kept those to a minimum. Also, several timber harvests have occurred on the private lands surrounding the State Forest. Most appear to have been diameter limit

high-grade harvests, while some have been harvested with long-term forest management as a directive.

Topography, Geology and Hydrology

This tract is comprised of a main ridge that is the eastern and part of the northern tract boundary. From that main ridge are three smaller ridges that extend from the tract boundary to the west. The topography varies within the tract from flat on the ridgetops to steep on the side slopes. The tract contains a mapped intermittent drainage that is almost the entire southern tract boundary. That mapped intermittent drainage flows northwest to a small lake. That lake drains into a mapped intermittent drainage, which then flows into Delaney Creek. Delaney Creek continues to meander north, where it then flows into the Muscatatuck River, which then flows into the East Fork White River. The underlying geology consists of siltstone, sandstone, and shale. A manmade wildlife pond is located in an adjacent tract along the eastern tract boundary. Any prescribed harvest will take the necessary precautions as outlined in the Indiana Logging and Forestry Best Management Practices manual to mitigate potential negative impacts to the pond.

Soils

Berks-Weikert complex (BhF) (~50 acres) This soil series is steep to very steep, well drained soils are on side slopes in the upland areas. The Berks soil is moderately deep, and the Weikert soil is shallow. The two soils occur as areas so intricately mixed that mapping them separately is not practical. This soil complex is suited for trees. The erosion hazard, the equipment limitations, seedling mortality, windthrow hazard, and plant competition are concerns in managing the woods. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species range from 50 (black oak) to 70 (white oak). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Burnside silt loam (Bu) (~12 acres) This series consists of deep, well drained soils that formed in 30 to 61 centimeters (12 to 24 inches) of medium-textured alluvium and the underlying loamy-skeletal alluvium. These soils are on flood plains and alluvial fans. It is occasionally flooded for brief periods in the spring. Native vegetation is deciduous hardwoods. This soil is well suited for trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site index for hardwood species is 95 for yellow-poplar. Preferred trees to manage for are bitternut hickory, white oak, red oak, black walnut, sugar maple, and yellow-poplar.

Crider silt loam (CoB, CcC2, CoD2) (~6 acres) This soil series consists of deep, well drained, moderately permeable soils on uplands. They formed in a loess mantle and the underlying residuum from limestone. Slopes range from 0 to 30 percent. These soils are well suited for trees. There is no major hazards affecting the harvest or planting of trees until you reach a slope in excess of approximately 12%. Once this percent slope is reached special considerations need to be addressed. The erosion hazard, the equipment limitations, and plant competition are the main concerns in the management of wooded

areas. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. The site indexes for hardwood species range from 90 (white oak) to 98 (tulip poplar). Preferred trees to manage for are black cherry, black oak, black walnut, northern red oak, shagbark hickory, sugar maple, yellow-poplar, and white oak.

Gilpin silt loam (GID2) (~8 acres) This strongly sloping, moderately deep, and well drained soil is on side slopes in the uplands. This soil is fairly well suited to trees. The erosion hazard, the equipment limitations, and plant competition are the main concerns in the management of wooded areas. Locating logging roads, skid trails, and landings on gentle grades and removing water with water bars, culverts, and drop structures help to control erosion. During wet periods, roads tend to be slippery and ruts form easily. Seedlings survive and grow well if competing vegetation is controlled by cutting, girdling, or spraying. The site indexes for hardwood species range from 80 (red oak) to 95 (yellow- poplar). Preferred trees to manage for are black oak, chestnut oak, scarlet oak, red oak, and white oak.

Hagerstown silt loam (HaC2) (~4 acres) This series consists of deep and very deep, well drained soils formed in residuum of hard gray limestone. Slope ranges from 0 to 45 percent. Permeability is moderate. Native vegetation is mixed hardwoods. This soil is well suited to trees. The equipment limitation is moderate. During wet periods, roads tend to be slippery and ruts form easily. The roads should be built on gentle grades, and water should be removed with water bars, culverts, and drop structures. The site indexes for hardwood species range from 70 (white oak) to 90 (yellow-poplar). Preferred trees to manage for are black cherry, black oak, black walnut, chestnut oak, northern red oak, and white oak.

Access

From Salem, IN take Highway 56 east for approximately 5 miles, then turn north onto Old State Road 56. Travel on Old State Road 56 for about .5 mile, turn left onto QuakerRoad for about ¾ mile, then turn north onto Marrs Road. Stay on Marrs road for about 1 ¼ miles; the tract is accessed via an old county road that follows a path west of Marrs road along a section line. At the end of the old county road, the tract is accessed via an agreement with a private landowner. Currently there is no public access to this tract.

Boundary

The tract boundary is also the property boundary in two areas. The first is the very southeastern end of the tract; the boundary follows a north-south property line for about 400 feet. The second is located in the northern most portion of the tract, and follows the property boundary for about 400 feet and contains a property corner. From the southern end of the eastern tract (and property) boundary, the southern tract boundary follows a drainage which flows in a westerly direction, for about 4,000 feet, of which 3,700 feet is a mapped intermittent drainage. At the west end of the southern tract boundary, the drainage intersects an unmapped intermittent drainage; at this point the tract boundary follows the drainage northeast to the northern property boundary. From the property boundary, the tract boundary follows a drainage east to where it intersects the main ridge.

The tract boundary follows the ridge southeast to the eastern boundary, which is also a property boundary.

Wildlife

Wildlife Habitat Feature Summary					
Snags(all species)	**Maintenance Level**	**Optimal Level**	**Inventory**	**Available Above Maintenance**	**Available Above Optimal**
5"+ DBH	316	553	1020	704	467
9"+ DBH	237	474	607	370	133
19"+ DBH	39.5	79	161	121	82

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.

Forest Condition

The 2013 inventory states that the area contains an estimated total volume of 11,291 bd. ft. per acre, with a harvest volume of 2,899 bd. ft. per acre and a residual growing stock volume of 8,392 bd. ft. per acre. Total volume for the tract is estimated at 891,990 bd.ft., with a harvest volume of 229,050 bd.ft. and a leave volume of 662,960 bd.ft.. The measured basal area for this tract is currently 124.7 sq. ft. per acre (excluding sub merchantable trees). According to the inventory, the post harvest basal area per acre (excluding sub merchantable trees) will be 93.4 sq. ft. The prescribed harvest will reduce the stocking from 97% to 73% and will reduce the number of trees per acre from 102 to 84. Overall stocking will remain in the fully stocked range.

Recreation
This tract currently does not have any public access for recreation. However, the area is used by adjacent landowners for hunting and fishing.

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

Tract Subdivision Description and Prescription

Oak/Hickory (~55 acres)
The overstory in this subdivision is dominated primarily by chestnut oak, which accounts for 35% of the total basal area per acre. Other species which comprise significant proportion of the basal area are as follows: pignut hickory, white oak, and black oak. Those three species account for 30% of the basal area within the subdivision. The basal area per acre for this subdivision is estimated to be 125.2 sq. ft. (sub-merchantable tree excluded). The total estimated volume for this subdivision is 623,070 bd.ft. with a harvest of 156,640 bd.ft. and a leave of 466,430 bd.ft.. According to the inventory data, for this subdivision, the harvest volume per acre is 2,850 bd.ft. with a leave volume of 8,480 bd.ft. adding to a total volume of 11,330 bd.ft. per acre. Midstory species found within this subdivision are dominated by sugar maple, chestnut oak, red maple, white oak and American beech. Understory species are dominated by American beech and sugar maple. In a few areas on the drier south facing slopes, oak and hickory was present in the understory and in some places there were oak and hickory seedlings. Any prescribed activities within these areas should aim to improve the survival of the oak and hickory seedlings and saplings.

The prescription for this subdivision is to conduct an improvement harvest utilizing single trees selection and group selection openings. Prescribed single-tree selection will focus on maintaining and enhancing the oak and hickory forest type by providing additional light and nutrients to favorable crop trees with well formed, healthy, dominant crowns located in stable areas. Prescribed group selection openings will focus on areas where the stocking is low and trees are poorly formed. Post harvest timber stand improvement (TSI) will complete the regeneration openings by cutting and/or girdling the remaining sub-merchantable trees. This will allow full sunlight to reach the forest floor and promote the natural regeneration of a healthy stand of native mixed hardwood trees, including: chestnut oak, yellow poplar, red maple, and sassafras. In the short term, sugar maple and American beech will likely be present within the regeneration openings. However, post-harvest TSI will control most stems down to 1" DBH and in subsequent years shade intolerant species will likely outcompete the slower growing shade tolerant species.

Mixed Hardwoods (~24 acres)
This subdivision is generally a mix hardwood species; the following comprise 60% of the total merchantable basal area per acre: sugar maple, yellow poplar, black oak, American

sycamore, northern red oak and pignut hickory. Sugar maple alone accounts for 22% of the total merchantable basal area. The total basal area for this subdivision is 120 sq. ft. per acre. The estimated total volume for this subdivision is 268,900 bd.ft., with a harvest of 72,440 bd.ft. and a leave of 196,450 bd.ft.. This translates to per acre values of 11,200 bd.ft. total with a harvest of 3,020 bd.ft. and a leave of 8,190 bd.ft. Midstory species within this subdivision are comprised of sugar maple, red maple, American beech and sassafras. The understory is primarily sugar maple and American beech.

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. Merchantable white ash should be selected for harvest in advance of the Emerald Ash Borer becoming established within this area. 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 regeneration openings will likely be comprised of the following species: yellow-poplar, red maple, and sassafras. In the short term, sugar maple and American beech will likely be present within the regeneration openings. However, post-harvest TSI will control most stems down to 1" DBH and in subsequent years shade intolerant species will likely outcompete the slower growing shade tolerant species.

Tract Prescription and Proposed Activities

The overall tract prescription is to conduct an improvement harvest using single-tree selection and group selections to accomplish the management objectives. In the oak/hickory subdivision selection should focus on improving and enhancing the oak and hickory forest type. In the mixed hardwood subdivision marking should focus improving the overall health and vigor of the various hardwood crop trees by selecting less desirable trees. Merchantable ash should be marked for removal. Within both subdivisions regeneration openings will likely be the most appropriate prescription in areas where stocking is low and the trees are poorly formed and/or in areas where the trees are dying from drought, has insufficient stocking, or has visible damage and/or decay from past grazing and/or fire damage. The number of prescribed regeneration openings and size of openings will vary based on the conditions discovered in the field. Following these recommendations should provide for a tract of well stocked healthy and more vigorous growing trees. 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 remove grapevines, release future crop trees and to deaden (non-merchantable) 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

Proposed Management Activity	*Proposed Date*
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:
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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.

TM 901 RESOURCE MANAGEMENT GUIDE				
INVENTORY SUMMARY				
			Compartment:	12
Jackson-Washington State Forest			Tract:	17
Forester:	D. Potts		Date:	12/10/13

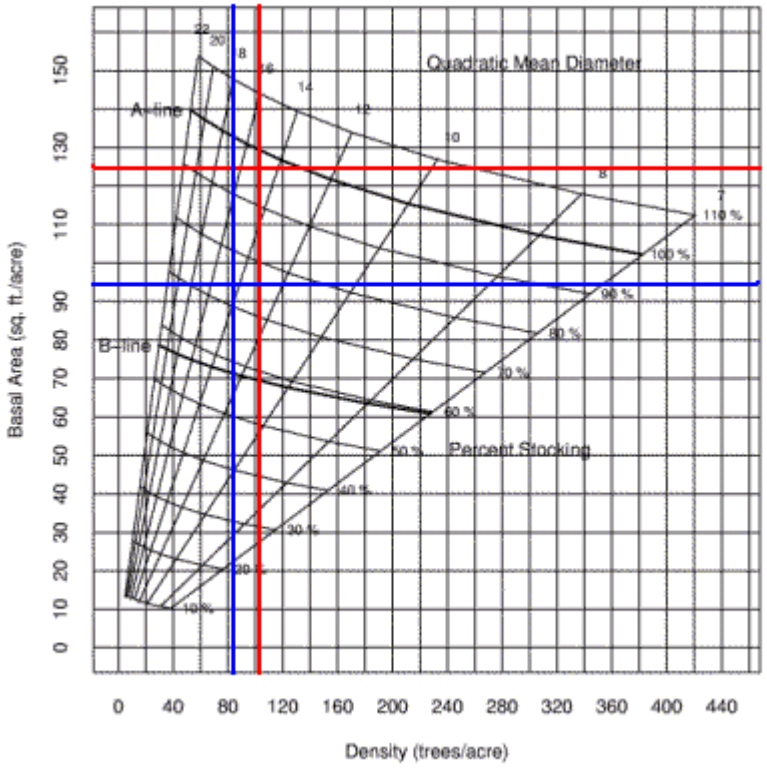
ACREAGE IN:

Commercial Forest	79
Non-Commercial	0
TOTAL AREA	79

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

SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
Chestnut oak	59,240	196,760	256,000
White oak	6,160	98,380	104,540
Black oak	34,960	55,850	90,810
Pignut hickory	12,900	67,810	80,710
Sugar maple	19,120	58,380	77,500
Yellow poplar	31,360	40,330	71,690
Northern red oak	9,050	59,270	68,320
Shagbark hickory	0	32,290	32,290
American sycamore	15,880	13,540	29,420
American beech	16,940	2,240	19,170
White ash	10,360	6,370	16,720
Red maple	6,490	9,260	15,750
Scarlet oak	6,590	4,650	11,240
Bitternut hickory	0	7,300	7,300
Chinkapin oak	0	5,400	5,400
Black cherry	0	2,430	2,430
Red elm	0	1,930	1,930
American elm	0	770	770
TRACT TOTALS	**229,050**	**662,960**	**891,990**
PER ACRE TOTALS	**2,899**	**8,392**	**11,291**

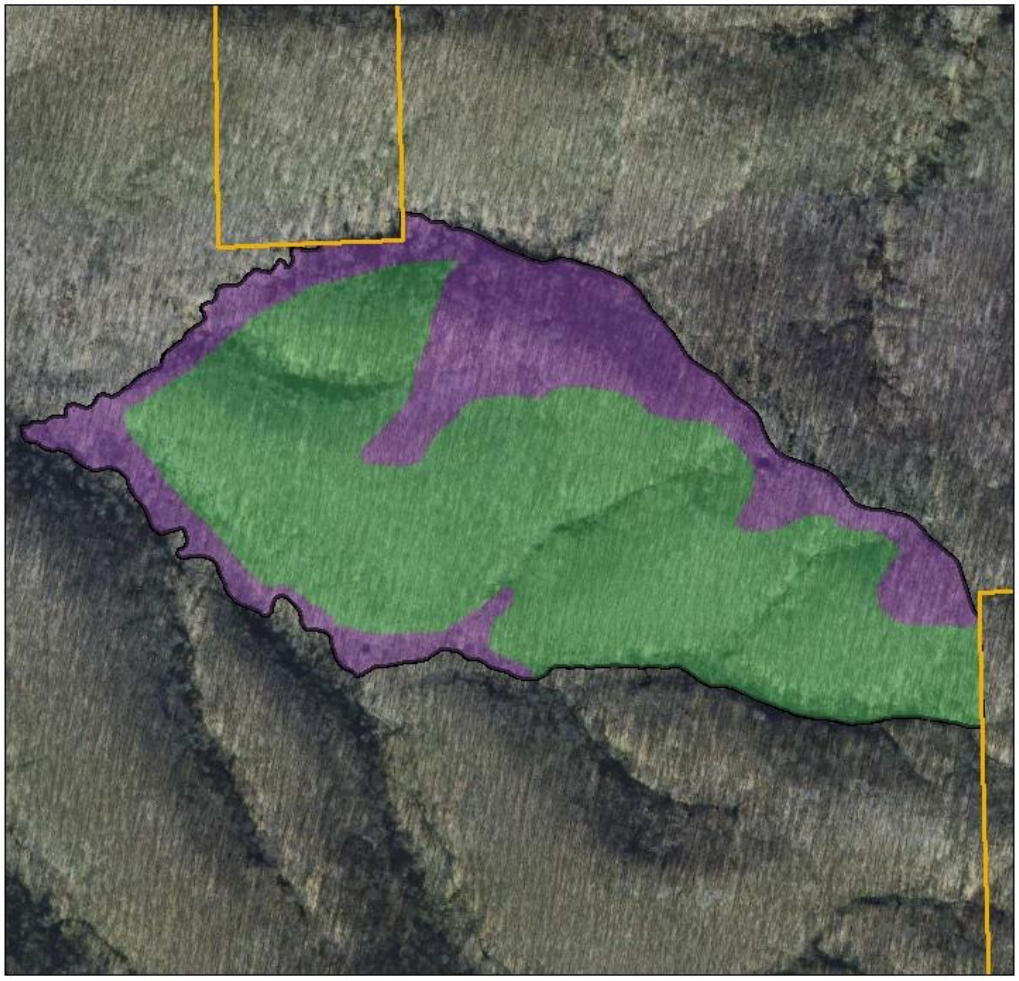
Stocking Guide
Compartment 12 Tract 17
79 acres



Pre-Harvest Inventory Data in Red
Total BA/A = 124.7 sq.ft./AC
Total #trees/acre = 102
Avg. tree diameter = 15 inches
Percent stocking = 97%

Post-Harvest Inventory Data in Blue
Total BA/A = 93.4 sq.ft./AC
Total #trees/acre = 84
Avg. tree diameter = 14.1 inches
Percent stocking = 73%

Jackson-Washington State Forest
Compartment 12 Tract 17
Tract Subdivision Map



Legend

- Property Boundary
- Mixed Hardwoods
- Oak/Hickory
- Tract Boundary

0 175 350 700 1,050 1,400
Feet

N
W E
S

Jackson-Washington State Forest
Compartment 12 Tract 17
Tract Subdivision Map

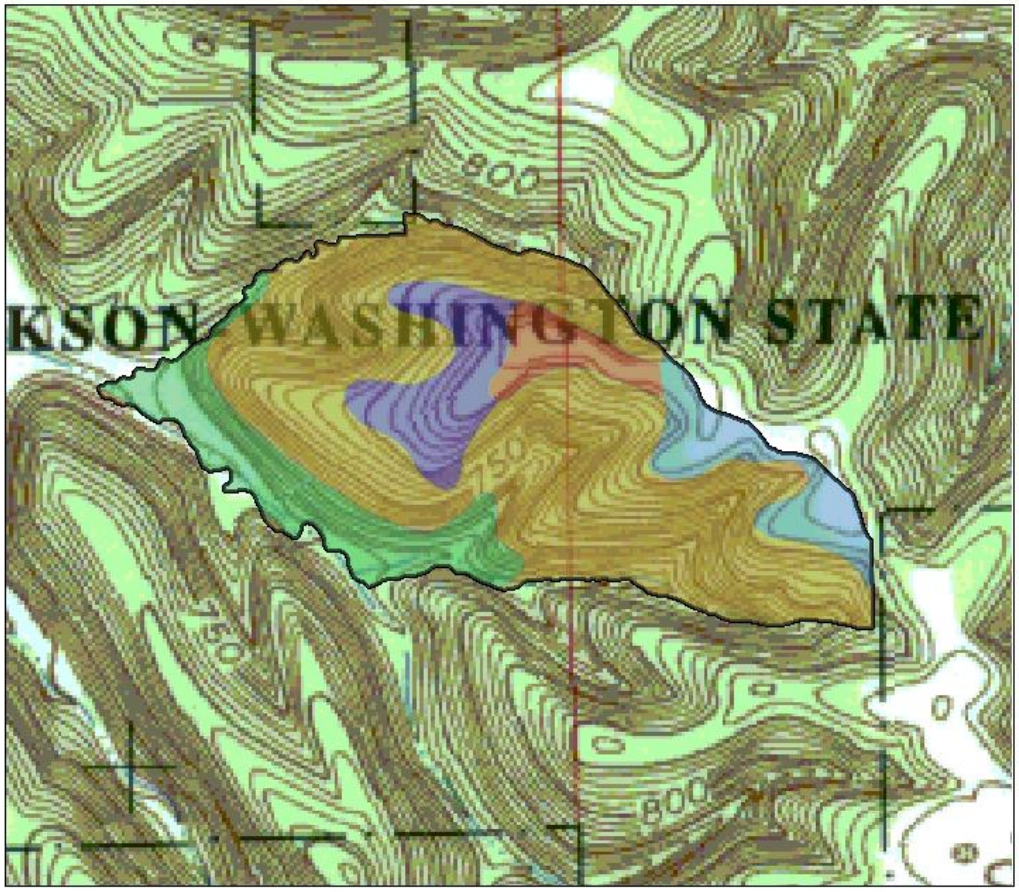
Legend

- Property Boundary
- Mixed Hardwoods
- Oak/Hickory
- Tract_Boundary

0 225 450 900 1,350 1,800 Feet

N
W E
S

Jackson-Washington State Forest
Compartment 12 Tract 17
Soils Map



Legend

Soils

- BhF
- Bu
- CoC2
- GID2
- HaC2
- Tract Boundary

0 235 470 940 1,410 1,880 Feet

N
W E
S