Indiana Department of Natural Resources
Division of Forestry
RESOURCE MANAGEMENT GUIDE

Jackson-Washington State Forest	Compartment: 2	Tract: 3
Forester: Quentin Beahrs & Bailey McIntire (2024)	Date: 2/7/2018	Acres: 89
Management Cycle End Year: 2044	Management Cycle Length: 20 years	

Location
This tract, also referred to as 6350203, is located in Jackson County, Indiana, more specifically Township 5 North, Range 5 East, Section 17 in Brownstown Township. This area is located approximately 3.75 miles southeast of Brownstown, Indiana, off State Road 250.

General Description
The tract cover types consist of mixed hardwoods towards the bottoms and oak-hickory on the mid to upper slope; however, there are two small areas near the drainages planted to Eastern white pine. The topography consists of moderate to steep slopes up from the eastern bottomland area.

History
- 1963: 160 acres of land was purchased from John and Mary Vodielingen.
- 1971: Forest management plan was written, timber stand improvement (TSI) and a timber harvest were recommended.
- 1983: Timber harvest occurred, 84,800 bd.ft. of sawtimber volume sold.
- 2001: Tract boundary was changed, and tract acreages were updated for GIS
- 2018: Forest inventory completed

Landscape Content
The land surrounding the tract is Jackson-Washington State Forest, except to the east. East of the tract is privately owned forested ground and open pastures. Within a mile radius of the tract center there are agricultural fields, pasture lands, small ponds, and single-family residences.

Topography, Geology and Hydrology
The topography in the east to southeast portion of the tract is flat to semi-steep rolling hills. From the center to the west and southwest portion of the tract is steep to very steep rolling hills. The geology consists of siltstone and shale bedrock while the tops of the ridges consist of sandstone. This entire tract drains into a mapped intermittent stream, which flows into Horse Lick Creek.

Soils
Beanblossom silt loam (BcrAW) This is a 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 hillslopes. 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. Preferred trees to manage for are bitternut hickory, white oak, sugar maple, and yellow-poplar.

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.

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.

Gilpin silt loam, 25 to 55 percent slopes (GnF) 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) 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, 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.

Tilsit silt loam (TlB2, TlC2) The Tilsit series consists of deep and very deep, moderately well drained soils with a slowly permeable fragipan in the subsoil. Slope ranges from 0 to 15 percent.

The potential for surface runoff is negligible to medium. Permeability is moderate in horizons above the fragipan and slow or very slow in the fragipan. About half of the areas are used for corn, small grains, tobacco, truck crops, and hay and pasture. The remainder is in woodland or idle. Native vegetation is primarily oak, hickory, Virginia pine, maple, gum, poplar, dogwood, beech, ironwood, persimmon, and sassafras. These soils are 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. Seedlings survive and grow well if competing vegetation is controlled. The site indexes for hardwood species range from 90 (black oak) to 100 (tulip poplar). Preferred trees to manage for are black oak, bur oak, chestnut oak, scarlet oak, red oak, and white oak.

Access
The tract can be accessed from State Road 250. From State Road 250, travel north on Fire Lane 101 approximately .65 miles. Then, travel west on Fire Lane 133 approximately .4 miles. Then, travel approximately .3 miles north on Fire Lane 130 to the beginning of the tract.

Boundary
The tract boundaries are defined by a main ridge to the west, a drainage ravine that turns into a mapped intermittent stream to the north, a short section of property boundary line to the east, and a small unmapped ephemeral stream to the south.

Ecological Considerations
Wildlife observed during the inventory include American crow, chipmunk, white-tailed deer, American toad, Eastern gray squirrel, opossum, raccoon, and various songbird and woodpecker species. A pair of black vulture fledglings was observed as well as a Northern slimy salamander and ring-necked snake.

The Division of Forestry has developed compartment level guidelines for important wildlife structural habitat features such as snags and legacy trees. Snags are standing dead or nearly dead trees. Snags provide value to a stand in the form of habitat features for foraging activity, den sites, decomposers, bird perching, and bat roosting. Snags eventually contribute to the future pool of downed woody material, which provides habitat for many ground-dwelling species and contributes to healthy soils. Legacy trees are live trees of a certain species and diameter class, that have potential future value to various wildlife species, if retained in the stand. Current assessments indicate the abundance of these habitat features meet or exceed recommended maintenance levels.

The tract is primarily a mixed hardwood forest with the center of the tract being oak-hickory, it also has two small patches of planted Eastern white pines. Grapevine, multiflora rose, silt grass, and Japanese honeysuckle were observed in the tract. Invasive species treatment should be situational based on presence in the surrounding landscape addressing those with the protentional to spread following a timber harvest.

A formal Ecological Review process, which includes a search of Indiana's Natural Heritage Database, is part of the management planning process. If Rare, Threatened, or Endangered species were found to be associated with this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the population viability of those species or communities.

Recreation
The major recreational uses of the tract are hiking, horseback riding, and hunting. The White Pine horse trail loop runs through the eastern corner of the tract, and hiking trails 1, 2, and 10 run along the western tract boundary. During any management activity, specifically a timber harvest, portion of these trails will be temporarily closed or re-routed for public safety. Following the management activity the trail will be re-opened to the public.

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

Tract Subdivision Description and Prescription
Mixed Hardwoods (46 acres)
Approximately half of this tract is characterized as mixed hardwoods. Chestnut oak is the dominant species with an estimated 2,828 board feet (BDFT) of sawtimber per acre; sugar and red maple, American beech, and yellow-poplar are widespread understory trees. Yellow-poplar at 2,456 BDFT per acre and pignut hickory at 1,461 Bd.ft of sawtimber per acre are the two most prevalent species outside of chestnut oak. These numbers are tract totals not subdivision totals. The bulk of the remaining species in the tract are black oak, sugar maple, and white oak. Single tree and group selection openings should be implemented to release the suppressed white oak, pignut hickory, and chestnut oak that is trying to recruit from the midstory into the overstory.

Conifer (4 acres)
Approximately 4 acres of this tract is characterized as planted Eastern white pine. There were no sample plots that landed within either of the two tree planting areas. However, two plots landed on the edge of these areas allowing some data to be captured for this cover type. The dominant species is Eastern white pine with an estimated tract volume of 377 BDFT per acre of sawtimber. This number is likely low due to no plots landing fully within the planting areas. Native hardwood species have started to grow in the understory and have filled in where openings were created by dying trees or wind throw. The prescribed management recommendation in this subdivision is to remove the remaining pine through patch cut openings, allowing the conversion to native hardwood forests.

Dry Oak-Hickory (39 acres)
The remainder of the tract is characterized as dry oak-hickory cover type. The dominant species in this cover type is chestnut oak. The understory is diverse, including several oak and hickory species, sugar and red maple, and American beech. Towards the bottoms there are good stands of white oak in need of release, an oak shelterwood harvest could benefit this area. The prescribed management recommendation for this subdivision is to conduct an improvement harvest utilizing a combination of single tree and group selection, patch-cuts, and shelterwood to remove poorly formed and declining trees, which would funnel more resources to healthy trees with better form and vigor.

The current forest resource inventory was completed on 02/07/18 by Quentin Beahrs. A summary of the estimated tract inventory results is located in the table below.

Tract Summary Data (trees >11" DBH):

Species	# Sawtimber Trees	Total BDFT
Chestnut Oak	944	255,341
Yellow Poplar	513	218,614
Pignut Hickory	538	130,004
Black Oak	334	102,969
Sugar Maple	450	98,807
White Oak	231	82,051
Eastern White Pine	112	33,563
Northern Red Oak	66	32.554
Shagbark Hickory	151	31,110
Red Maple	148	28,852
American Beech	165	26,545
Sweetgum	75	11,106
American Sycamore	28	6,389
White Ash	59	5,150
Black Cherry	15	1,282
American Elm	22	1,121
Total	**3,850**	**1,065,458**

Tract Prescription and Proposed Activities
A timber harvest is recommended for this tract within the next five years. Each subdivision/cover type would utilize a combination of single tree and group selection to reduce overall stem density, release vigorous residual trees, and improve forest health. In the mixed hardwoods subdivision, overstory trees with defect and poor form, vigor, and health should be removed through patch cut openings. This is particularly true in the old pine planting areas. Thinning is necessary in areas of the oak-hickory subdivision with high stocking, leaving trees of good health, form, and vigor. An oak shelterwood harvest in combination with the use of prescribed fire would encourage oak-hickory regeneration and advancement. Prescribed fire will assist in

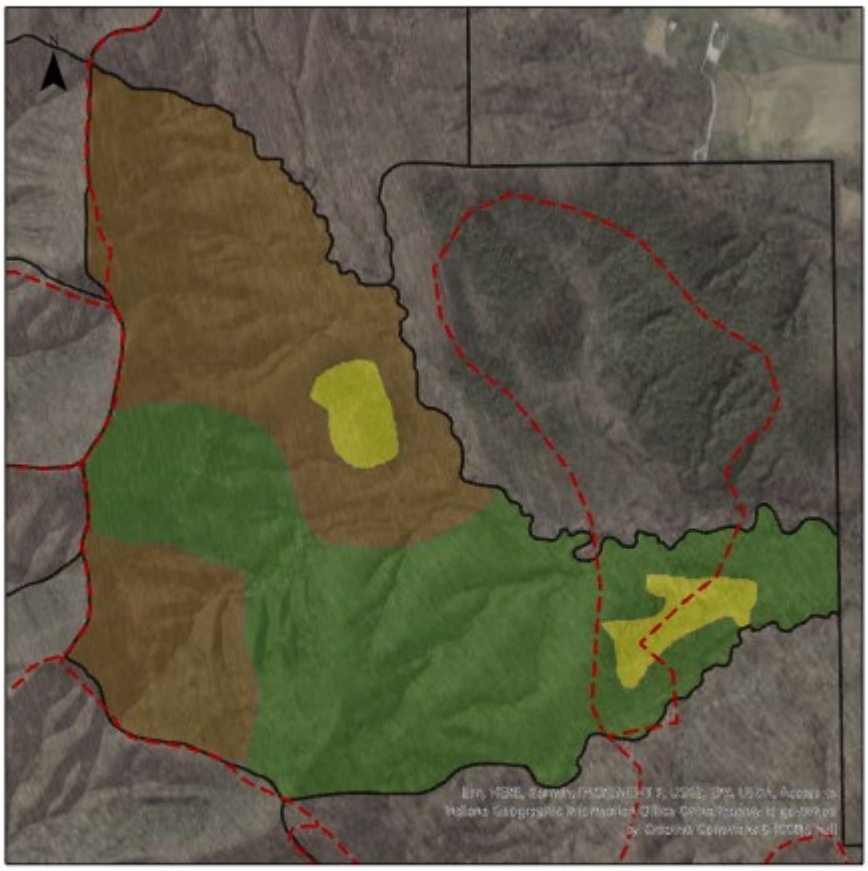
the control of shade tolerant species. Trees in the larger size classes that are declining should be removed to encourage better vigor of the residual stand. Other trees targeted for removal include mixed hardwoods that release oak or hickory trees and mature or over-mature trees with damage or in poor health due to age, disturbance, disease, or other stressors.
The inventory estimated 11,970 board feet per acre, with a total potential harvest volume of 238,896 – 443,664 board feet from the entire tract. The prescribed harvest will reduce the stocking level from approximately 100% to 78%, which is well above the B-line. Following the harvest TSI is recommended to complete any openings created and remove any remaining understory and overstory trees not removed by the harvest inhibiting oak and hickory regeneration.

During and after completion of the proposed management activity best management practices (BMP's) will be implemented in to minimize negative impacts to the soil and streams. This tract should receive another inventory and management guide 20 years following the completion of the timber harvest. The proposed management activity should have little to no impact on wildlife communities, including the Indiana bat, within or near the tract.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Per-harvest TSI and/or invasive treatments	2024-2025
Timber harvest	2024-2025
Post-harvest TSI/ shelterwood	2025-2030
Prescribed Fire	2027-3200
3-year regeneration opening review	three years after harvest
Next forest inventory	2044

Jackson-Washington State Forest
Compartment 2 Tract 3
Cover Types Map

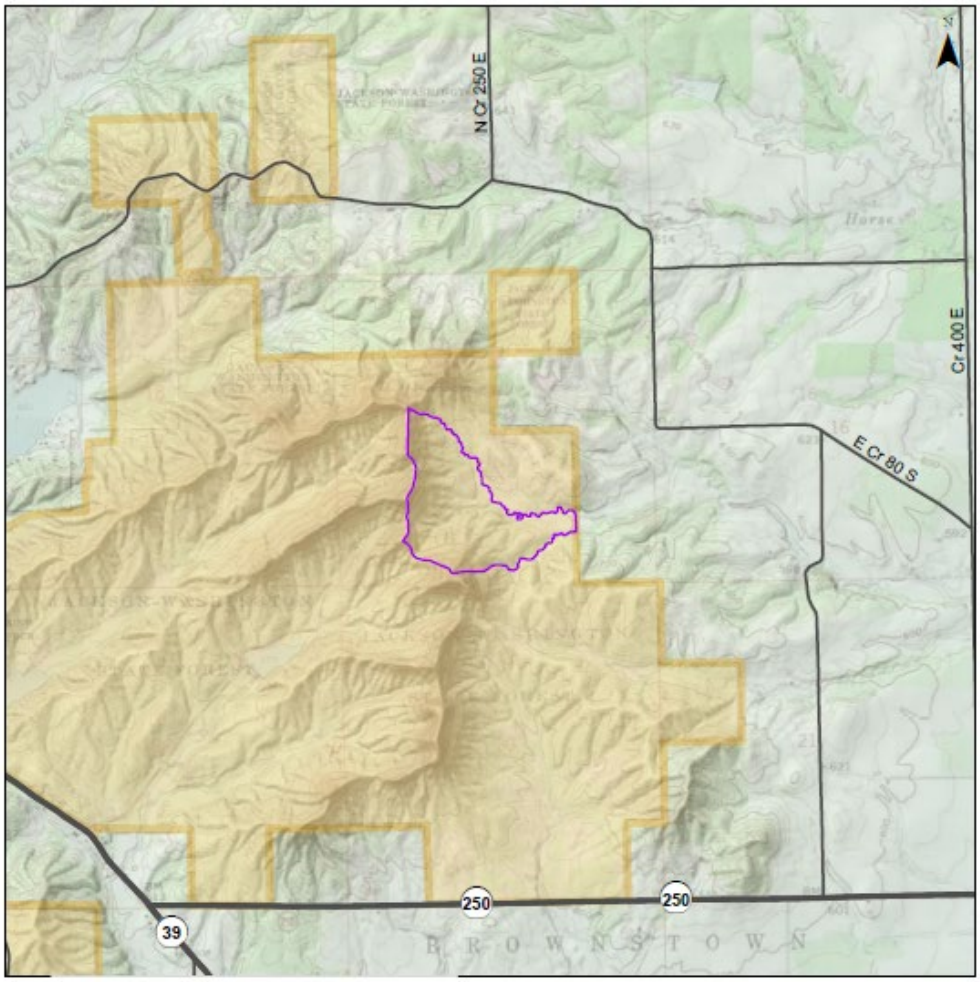


0 0.13 0.25 Miles

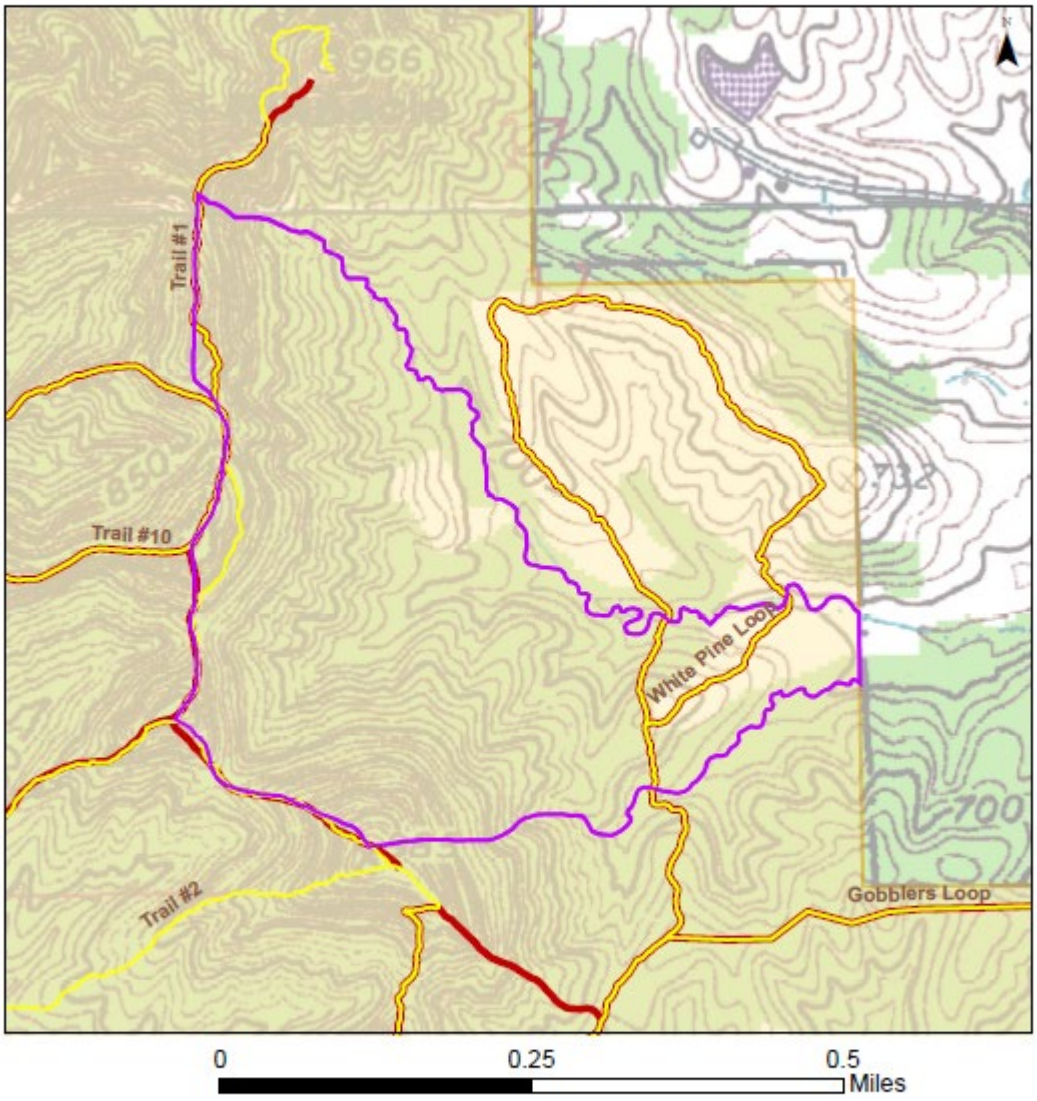
Legend

- Dry Oak-Hickory
- Mixed Hardwoods
- Conifer
- Tract Boundary
- Wildlife Ponds
- Fire Lanes

Jackson-Washington State Forest
Location Map
Compartment 2 Tract 3



Jackson-Washington State Forest
Compartment 2 Tract 3
Tract Map



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Recreation Trail

Fire Lane

Tract boundary

State Forest