

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

Jackson-Washington State Forest
Forester: Ross Danson, Allen Jasowicz, &
Krista Jones (2024)
Management Cycle End Year: 2044

Compartment: 9
Date: 7/22/2016

Tract: 27
Acres: 48

Management Cycle Length: 20 years

Location

This tract, also referred to as 6350927, is located immediately south of E. Mount Eden Road in Section 36, T4N, R4E, Monroe Township in Washington County, Indiana.

General Description

The entire acreage of the tract consists of forest. Oak-hickory dominates the upper, mid, and lower slopes of all major finger ridges, with mixed hardwoods occurring only in the bottoms along the stream and in the northeast quarter of the tract. Nearly all ash trees in the tract have succumbed to emerald ash borer and died out of the stand.

History

- 2008: Land acquisition of 160 acres from The Nature Conservancy (TNC) to create the tract.
- 2016 Forest inventory

Based on aerial photography, the land in the tract immediately adjacent to the mapped intermittent stream was historically used for farming and/or grazing. Forest covered the remainder of the tract.

Landscape Context

Public and private forestland surrounds most of the tract. North of the tract is relatively flat due to the presence of the Muscatatuck River. This area is characterized mainly by private ownership consisting of agricultural fields and small woodlots. There are a few single-family residences within a mile radius of the tract center.

Topography, Geology and Hydrology

The tract's western boundary features a broad north-south ridgetop, from which extend three east-facing finger ridges. The degree of slope varies throughout the tract from moderate to steep. A mapped intermittent stream, which drains into the Muscatatuck River, runs along the eastern boundary of the tract. A flat bottomland area buffers the stream in the northeastern corner of the tract. The tract is located within the Knobstone Escarpment Section of the Highland Rim Natural Region. Underlying geology consists mostly of siltstone.

Soils

Berks-Weikert complex (BhF) 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) 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.

Gilpin silt loam (GID2) 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.

Stendal silt loam (Sf) This soil series consists of very deep, somewhat poorly drained soils that formed in acid, silty alluvium. These soils are on flood plains and flood-plain steps. Slopes range from 0 to 2 percent. Used mainly for growing corn and soybeans. Some areas are in forest. Native vegetation is dominantly hardwood forest. This soil is well suited to trees. The equipment limitations and plant competition are concerns in managing the woods. Equipment should only be used during dry periods or when the ground is frozen. Seedlings survive and grow well if competing vegetation is controlled and if livestock are excluded from area. The site indexes for hardwood species range from 85 (sweetgum) to 90 (pin oak). Preferred trees to manage for are bur oak, overcup oak, pecan, pin oak, red maple, shellbark hickory, swamp chestnut oak, and swamp white oak.

Wellston silt loam (WeC2, WeD) This series consists of deep or very deep, well-drained soils formed in silty material from loess and from fine-grained sandstone or siltstone and with bedrock at depths of 40 to 72 inches. Wellston soils are on nearly level to steep uplands in areas of acid sandstone, siltstone, or shale bedrock; but are most common on ridgetops. Slope ranges from 0 to 50 percent but are dominantly 4 to 18 percent. Native vegetation consisted of oak, hickory, dogwood, tulip poplar, and cherry. 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. The site indexes for hardwood species are 81 (red oak) and 90 (yellow-poplar). Preferred trees to manage for are black oak, chestnut oak, persimmon, red oak, scarlet oak, shagbark hickory, sugar maple, yellow-poplar, and white oak.

Access

The tract may be accessed via Mail Route Road. Follow St Rd 39 just south of the Muscatatuck River for approximately 2.4 miles before turning west onto Power Line Rd. In one mile, turn south on Pumpkin Center Road. Follow for another mile and then turn west onto Pull Tight Road and continue for 3 miles to Mail Route Road. Head north on Mail Route Road to its terminus, which also marks the start of Fire Lane 720. Follow this fire lane for an additional mile to the State Forest property line. Continue east along the property line for a tenth of a mile to arrive at the southwest corner of the tract.

E. Mount Eden Road allows for additional access to the tract at its northeast corner provided permission is granted from the adjacent landowner to cross a narrow strip of private ground. The northeast corner may also serve as a log yard for timber skidded from the tract.

Boundary

The property line for the State Forest, painted in orange and flagged in pink, acts as both the northern and the western tract boundary. The eastern boundary of the tract follows a mapped intermittent stream that flows south-southwest. This stream is joined by an ephemeral drain, which serves as the southern tract boundary.

Ecological Considerations

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.

Inventory data for Compartment 09 Tract 27 indicates the abundance of snags 5 and 9"+ DBH is below target maintenance levels. Where opportunities exist, snags in the deficient size class will be created by culling standing trees. It is important to note that these are compartment-level guidelines and that even though the estimated tract data does not quite meet all target levels, its likely they meet or exceed in neighboring tracts. So, while tract-levels may be lower than the surrounding area, overall densities across the compartment meet Division of Forestry guidelines.

Invasive species observed in the tract include a small patch of garlic mustard on the northernmost finger ridge. Japanese stiltgrass and some multiflora rose are also present,

occurring sporadically in the bottomland area adjacent to the mapped intermittent stream. While none of the invasives appear to be a problem at this time, their treatment should occur as time and resources allow.

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 main recreational use of the tract is hunting. No designated recreational trails are present. For public safety, access within this tract will be temporarily restricted during active management.

Cultural

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

Tract Subdivision Description and Silvicultural Prescription

Dry Oak-Hickory (37.5 acres) This subdivision is most of the tract, with oaks and hickories dominating the upper, mid, and lower slopes of all major finger ridges. The overstory is comprised mostly of chestnut oak and white oak, with black oak, Northern red oak, and pignut hickory scattered throughout. Overstory species on the upper slopes are showing signs of decline due to past drought and fire damage. Damaged, unsound, or declining trees that are in direct competition with healthier more vigorous trees should be targeted for removal through single tree selection. While tree species and tree size are consistent across finger ridges throughout the subdivision, the northernmost finger ridge is an outlier. A tornado passed through this area in 1990 and set back succession. Here, the largest trees are classified as pole timber at less than 12 inches diameter at breast height. Grapevine is present in the canopies of most of these trees and suppressing their growth. It should be controlled via timber stand improvement (TSI). The midstory consists of a diverse array of species, with a good oak-hickory component. Species include red and sugar maple; shagbark, mockernut, and pignut hickory; chestnut, black and white oak; and sassafras. Many of the midstory oaks and hickories are suppressed and will benefit from release from either TSI or a single tree selection harvest. This subdivision also has many different species of seedlings, including sugar maple, white ash, sassafras, and American beech. Advanced regeneration of oak and hickory species is also present. One or more areas might benefit from an oak shelterwood harvest. This would encourage increased acorn production in the oaks and hickories, as well as provide saplings with additional light needed for continued growth. In addition, overstory trees with low vigor or of poor quality or form should be selected for removal to improve light conditions on the forest floor and increase nutrient availability to residual trees.

Mixed Hardwoods (10.5 acres) Species in this subdivision occur only in the bottoms along the mapped intermittent stream in the northeast quarter of the tract. Common overstory trees include sugar maple and American beech, with some scattered sycamore and black walnut. Few oaks and

hickories are present. The understory consists predominantly of spicebush, which is able to thrive under a dense sugar maple midstory. Some American beech and pawpaw are also in the understory. Little to no regeneration is present except for a few isolated ash seedlings. Numerous overstory trees are in poor health and declining. These should be removed via single tree selection or patch-cut openings. Doing so will improve the overall health and resiliency of the stand. Prescribed fire, TSI, and single tree selection would help increase the oak-hickory component in this subdivision by reducing the shade tolerant species in direct competition for limited resources. In areas without oak or hickory, single tree selection should focus on releasing crop trees of any hardwood species that are of better form, vigor, and quality.

The current forest resource inventory was completed on 07/22/16 by Ross Danson and Allen Jasowicz. A summary of the estimated tract inventory results is located in the table below.

Tract Summary Data (trees >11" DBH):

Species	# Sawtimber Trees	Total Bd. Ft.
Chestnut oak	807	149,420
American beech	181	33,330
Sugar maple	185	25,660
Northern red oak	73	23,940
Black oak	139	23,870
White oak	82	13,960
Pignut hickory	85	12,970
American sycamore	41	11,240
Shagbark hickory	50	10,380
Black walnut	41	6,120
Yellow poplar	35	9,760
White ash	12	2,170
Red maple	10	1,250
Total:	1,741	321,070

Tract Prescription and Proposed Activities

This tract should receive a harvest within the next 2 years. This may be a standalone harvest or in conjunction with adjacent tracts. Trees targeted for removal should include mixed hardwoods that release oak and hickory trees; trees that are in declining health due to age, drought stress, or damage from grazing, fire, wind, or insects; and any intermediate trees needed to release vigorous residual trees. Both subdivisions require single tree selection to reduce stocking, thereby improving the overall quality and vigor of the stand. Relatively heavier thinning may be necessary among the chestnut oak on the upper slopes. Several of these slopes also provide an excellent opportunity for an oak shelterwood harvest. Oak and hickory seedling establishment can also be promoted by running a low-intensity prescribed fire through the tract to reduce competition from the dense sugar maple understory. TSI of the midstory should be completed following a harvest in part to encourage the recruitment of suppressed oaks and hickories from the midstory to the overstory. Canopy gaps or patch-cuts should be implemented in areas with poorly formed or damaged trees, as well as in areas with trees that are in poor health. The

inventory estimated 6,690 board feet per acre, with a total potential harvest volume of 69,410 to 144,000 board feet from the entire tract. The top three harvest species by volume include chestnut oak, American beech, and black oak. This harvest will result in a healthier, more vigorous stand of forest that will be primarily dominated by the oak-hickory cover type.

Any invasive plant species present in patch-cuts or shelterwoods should be treated prior to the harvest.

During and after completion of the timber harvest, best management practices (BMPs) will be implemented to minimize soil erosion. . The Indiana Logging and Forestry Best Management Practices 2022 BMP Field Guide will be followed.

Within two years of the timber harvest, a TSI operation should follow to adequately complete any patch-cut openings, reduce the understory in any shelterwoods, release residual crop trees in the remaining tract acreage, and address the deficit of snags within the 5 to 19”+ diameter classes.

A prescribed fire regime should be implemented following post-harvest TSI. This will improve conditions for oak and hickory regeneration success by reducing competition from shade tolerant species and promoting seed germination.

Proposed Activities Listing

Proposed Management Activity

Mark and sell timber

Pre-harvest TSI and/or invasives as needed

Timber harvest

Post-harvest TSI and/or invasives

Prescribed fire regime

3-year regeneration opening review

Next forest inventory

Proposed Date

2024-2026

2026-2028

2030-2032

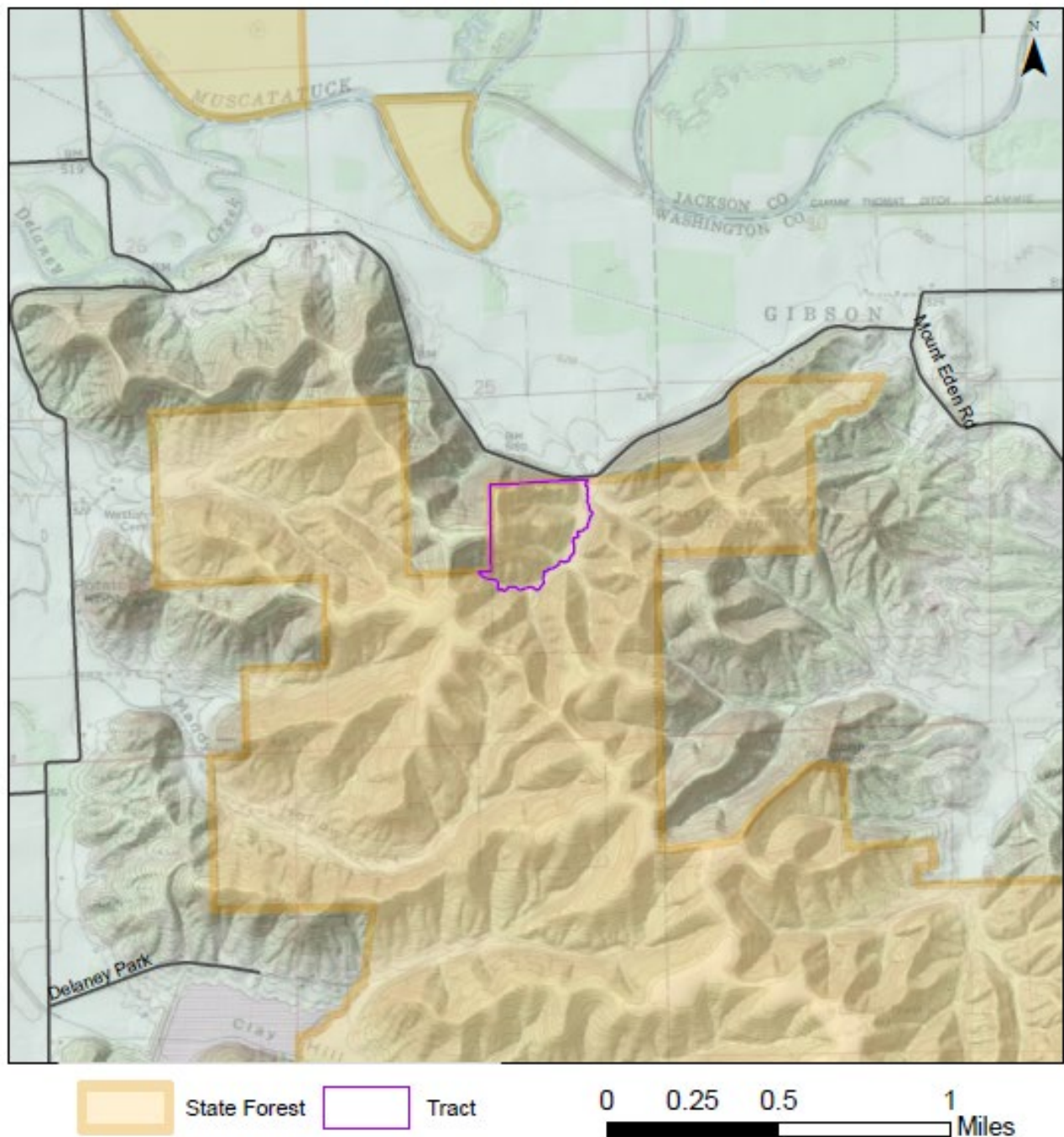
1-2 years after harvest

1-2+ years after post-harvest TSI
three years after harvest

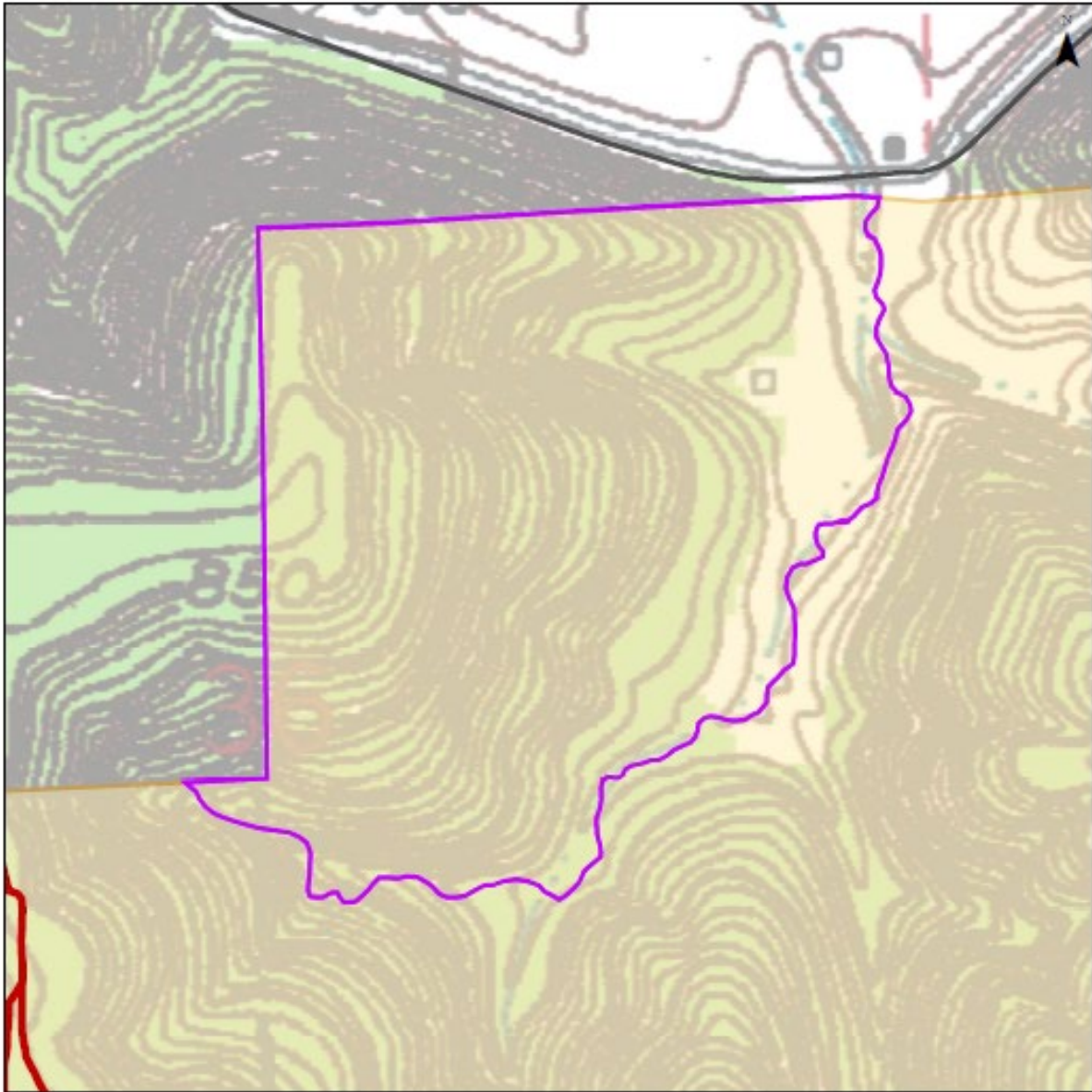
2044

Maps

Jackson-Washington State Forest Location Map Compartment 9 Tract 27



Jackson-Washington State Forest
Compartment 9 Tract 27
Tract Map

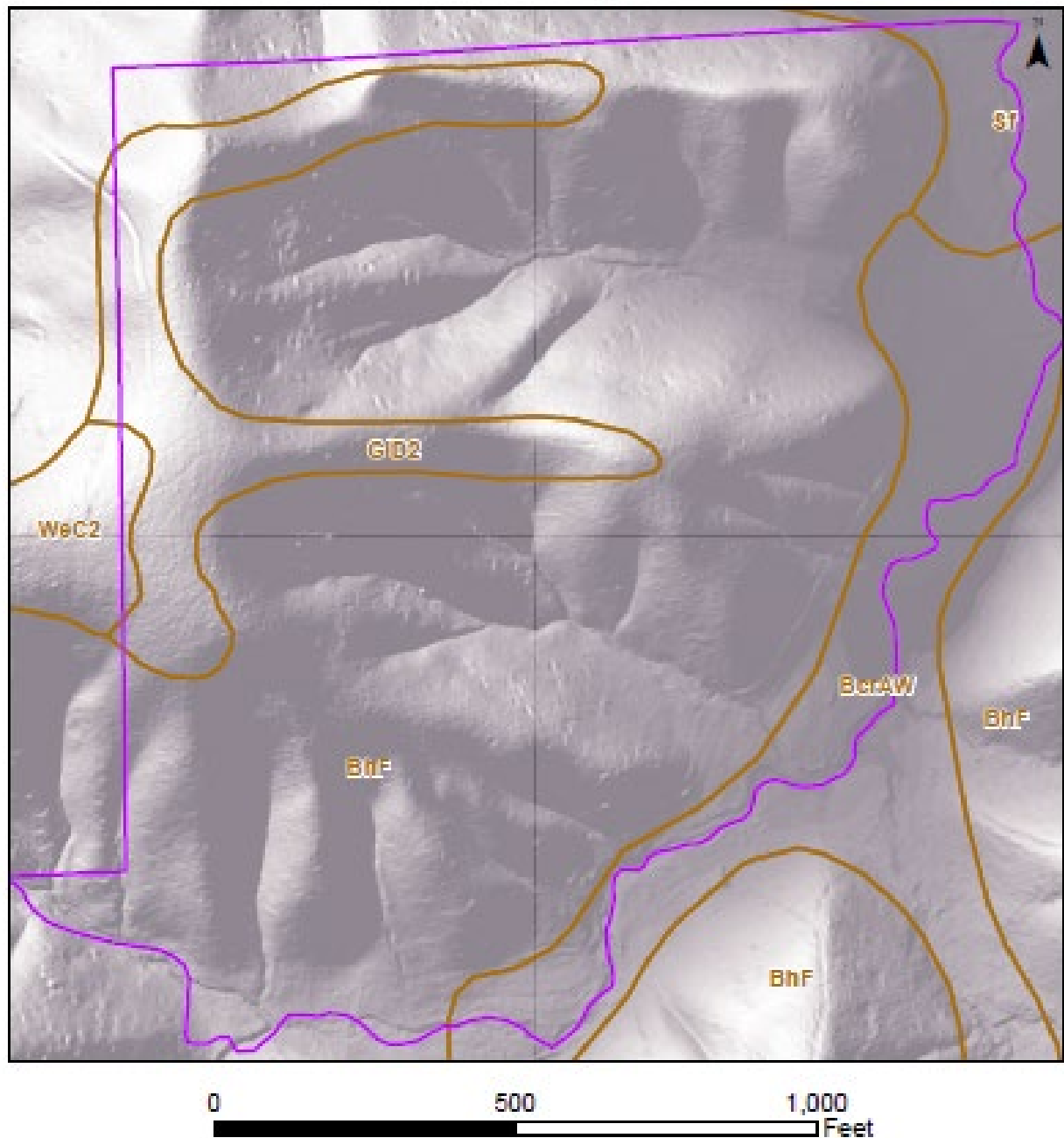


Fire Lane

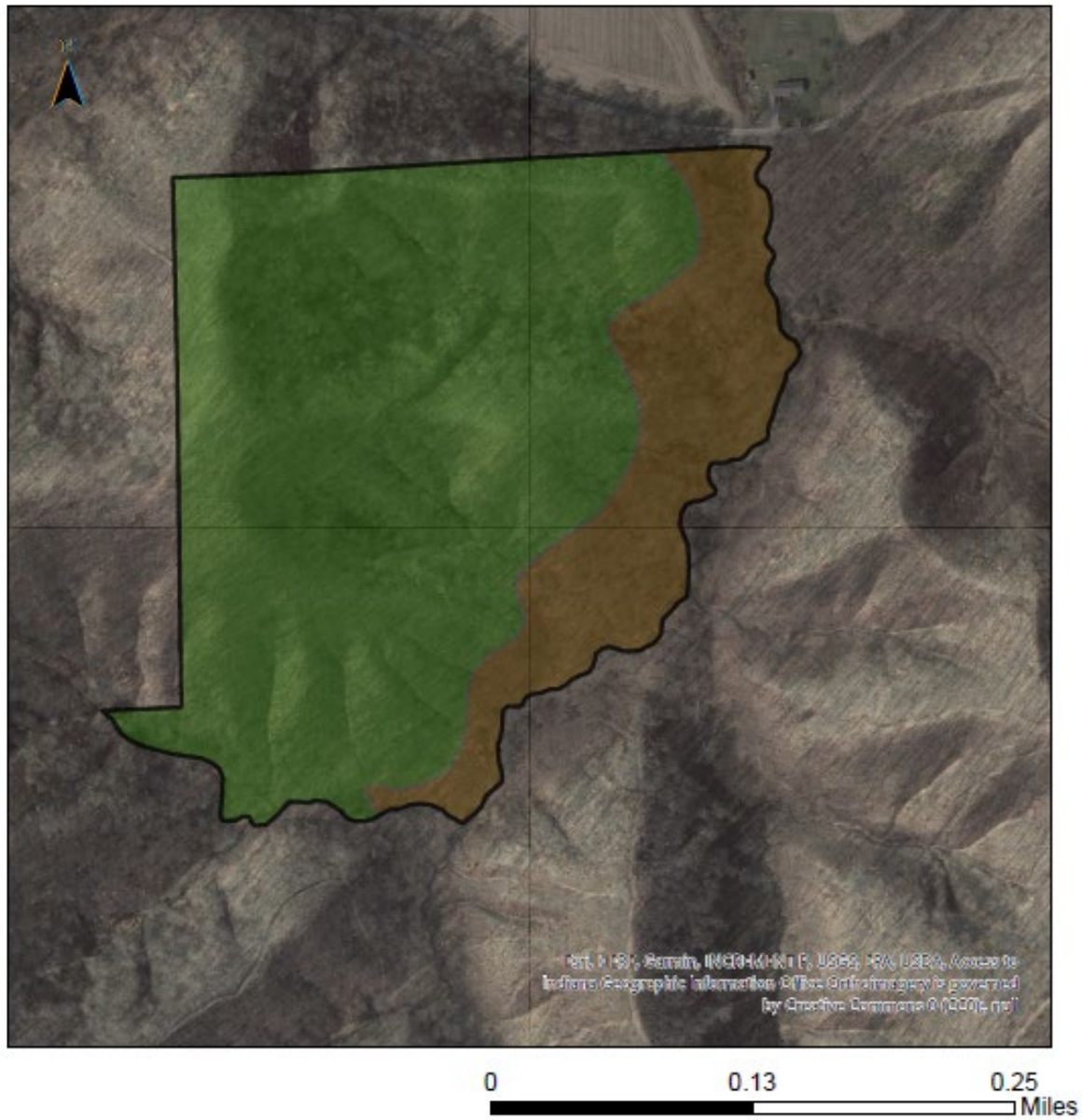
Tract boundary

State Forest

Jackson-Washington State Forest Compartment 9 Tract 27 Soils Map



Jackson-Washington State Forest Compartment 9 Tract 27 Cover Types Map



Legend

- Dry Oak-Hickory
- Mixed Hardwoods
- Tract Boundary
- Wildlife Ponds