

Indiana Department of Natural Resources
Division of Forestry
RESOURCE MANAGEMENT GUIDE

Jackson Washington State Forest
Forester: Bailey McIntire
Management Cycle End Year 2043

Compartment 12
Date: 5/30/2023
Management Cycle Length 20 years

Tract 15
Acres 74

Location

This tract, also known as 6351215, is in the north central portion of Section 26, Township 3N, Range 4E, Washington Township, Washington County. This tract lies approximately 7 miles northeast of Salem, Indiana, off Delaney Park Road.

General Description

This tract is comprised of stands of oak-hickory, chestnut oak, and mixed hardwoods. The drainages on either side of the tract are comprised mostly of mixed hardwoods that are reaching maturity. The topography consists of moderate to steep slopes up from the western bottomland area.

History

Based on aerial photography, the bottomland areas and much of the ridgetop were historically used for farming. A network of roads/trails are visible to the northeast, presumably connecting the agricultural fields on the ridge to those north of the tract boundary and to the nearest county road. The remainder of the tract was forest covered.

- 1955 Land acquisition from Lief and Lucinda Saylor.
- 1972 Forest inventory estimated 2,629 board feet (bdft) per acre, 131,450 bdft total.
- 1990 Forest inventory estimated 3,853 bdft per acre, 281,279 bdft total.
 - A timber harvest recommended within five years, but the harvest did not occur.
- 2022-2023 Improvement of Fire Lane 810.

Landscape Context

Public forestland in the Mitchell Karst Plains natural subregion surrounds most of the tract, except a 20-acre inholding along the tract's eastern boundary. There are several watershed lakes within the area, as well as privately-owned forestland and agricultural fields. Several timber harvests have occurred on private lands within the past 15 years. Currently, the amount of early successional forest habitat in the compartment is relatively low. However, private forestland includes large openings with early successional forest habitat. Most of the fields that were abandoned prior to state ownership have since become closed-canopy forest. Development in the area is limited to single-family residences. Some construction of homes has been seen in the area, but the distance to municipalities and poor economic conditions have kept those to a minimum.

Topography, Geology and Hydrology

The tract contains one main ridge that runs along the northern boundary. Two secondary finger

ridges extend west-southwest from the main ridge. Topography varies throughout the tract. However, the main ridge and its fingers are broad and flat while the side slopes are moderately steep, the north side of the main ridge is moderate to very steep. The tract contains a mapped intermittent stream that serves as most of the southern, western, and northern tract boundary. This mapped intermittent transitions into a perennial stream that drains into a private watershed lake. That lake flows into Delaney Creek, which eventually drains into the Muscatatuck River. Additionally, one manmade wildlife pond is located within the tract. It was constructed on the eastern tip of the main ridge. The tract's underlying geology consists mostly of siltstone. During management activities the 2022 Best Management Practices (BMPs) field guide will be followed.

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.

Crider silt loam (CoB, CoC2, CoD2) 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. Nearly all the soil is used for growing crops and pasture. The original vegetation was mixed hardwood forest, chiefly of oaks, maple, hickory, elm, ash, and hackberry. These soils are well suited for trees. There are no major hazards affecting the harvest and 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, bur oak, chinkapin oak, Kentucky coffee tree, red oak, pecan, shagbark hickory, sugar maple, yellow-poplar, and white oak.

Gilpin silt loam (GID2) This strongly sloping, moderately deep, and well-drained soil is on side

slopes in the uplands. This soil is 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.

Access

A management easement, Fire Lane 810 off North Delaney Park Road provide the only access to this tract. The fire lane has been improved from the intersection with North Delaney Park Road up to the 20-acre private inholding.

Boundary

The northwest tract boundary also serves as the state forest boundary line beginning at the mapped intermittent stream to the west proceeding to another mapped intermittent to the north. This stream serves as the remainder of the northern tract boundary until it meets the state forest boundary line with the private 20-acre inholding to the east. This inholding is the eastern tract boundary, and state forest boundary, to the south where it meets a drainage leading southwest to the mapped intermittent stream which then represents the western boundary.

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 Natural Heritage Database Review is part of the management planning process. If Rare, Threatened or Endangered communities 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.

The Division of Forestry has developed compartment level guidelines for important wildlife structural habitat features such as snags. Snags are standing dead or dying 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. Downed woody debris provides habitat for many species and contributes to healthy soils.

Snags	Maintenance Level	Inventory	Available Above Maintenance
5" + DBH	308	994	686
9" + DBH	231	521	290
19" + DBH	38.5	75	36

Current assessments indicate the abundance of these habitat features meet or exceed recommended maintenance levels in all diameter classes. The prescribed

management will maintain or enhance the relative abundance of these features.

Invasive species noted in the tract include multiflora rose and Japanese stiltgrass. Multiflora rose was found particularly in the bottomland area along the fire lane. Because this is the main access into the compartment these invasives should be treated to minimize spread. The stiltgrass appeared to be restricted to the fire lane only.

Recreation

Currently, the tract does not provide public access, except through adjacent private landowners. Hunting and fishing are the primary recreational activities that occur in this tract. For public safety, these activities would be altered or temporarily altered within the tract during active management.

Cultural

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

Tract Subdivision Description and Silvicultural Prescription

Mixed Hardwoods (29 acres)

This subdivision/cover type is primarily composed of sugar maple, yellow poplar, and American sycamore. Other species in the overstory include chestnut oak, pignut hickory, black walnut, sassafras, shagbark hickory, basswood, and white oak. This subdivision is primarily in the bottomland area with a small strip along the northern boundary. The bottomland area was formally an old field and due to a manmade watershed lake on adjacent private property this area is susceptible to periodic flooding. The quality of the trees in the area are poor to good with some exceptions. Aside from old aerial photos, it is evident in the bottomland areas was an old field as many of the trees exhibit open grown features such as poor form and low quality. A light improvement harvest is recommended to improve the overall quality of the stand. This harvest will be primarily single tree selection with some group selection or patch cut openings. Preventative measures shall be taken around the mapped intermittent stream to the west. The moist conditions of this area may limit management activities to drier periods of the year. Post harvest timber stand improvement (TSI) is recommended in conjunction with pre- and post-harvest invasive species treatment. This subdivision contains most of the invasive multiflora rose found in the tract. On the northern side of the tract there is a strip of hillside that is primarily mature maple, beech, and tulip poplar which has closed off regeneration to this area. With the presences of quality oak and hickory surrounding this area it makes a great location to create an opening. There was also some good quality black walnut found within this area that needs release.

Dry Oak-Hickory (45 acres)

This subdivision/cover type is primarily composed of chestnut oak, white oak, and northern red oak. Other species include black oak, pignut hickory, sugar maple, and bitternut hickory. This subdivision can further be divided into three main areas: chestnut oak, oak- hickory, and a small area of white oak. The chestnut oak is found primarily on the ridge top and is of varying quality. Some chestnut oak has poor form and stunted growth while most of the chestnut is of good to great form and should be released. There is a fair amount of young hickory mixed within and in

need of release. Oak and hickory regeneration was found sparingly due to closed canopy. This area would benefit from a light to moderate timber harvest followed by TSI to reduce the mid and understory shade tolerant species and promote regeneration and release of good, healthy, and vigorous trees. The oak-hickory area was primarily on the upper slopes and was quite diverse containing good to great quality and diverse age trees. However, these trees are being crowded or suppressed by mature maple and beech. Oak and hickory regeneration is present but needs additional sunlight and space to advance. This area would also benefit from a light to moderate harvest followed by TSI to promote regeneration and release trees of good health and vigor.

Finally, a small 3-acre section contains a group of fairly large and good quality white oak trees. Within this area there are also sizable yellow poplar. This area has been noted in past guides as needing management. Given the condition of these white oaks and their spacing this area could be a good place for an oak shelterwood. With the removal of the mature yellow poplar and proper TSI this site could establish white oak regeneration. Overall, this subdivision contains a fair amount of good to great quality oak and hickory that needs release to continue to have a healthy vigorous canopy. TSI will be needed, and a prescribed fire will also help to further promote and improve this stand.

The current forest resource inventory was completed on 5/30/23 by Forester Bailey McIntire summary of the estimated tract inventory results are located in the table below.

Tract Summary Data (trees >11" DBH):

Species	# Sawtimber Trees	Total Bd. Ft.
American beech	142	18,450
American Elm	26	610
American Sycamore	98	23,630
Bitternut Hickory	186	25,770
Black Cherry	71	9,670
Black Oak	257	69,630
Black Walnut	5	3,130
Chestnut Oak	780	167,730
Northern Red Oak	271	75,330
Pignut Hickory	284	51,780
Shagbark Hickory	113	18,910
Sugar Maple	611	77,750
White Ash	64	5,340
White Oak	370	101,640
Yellow Poplar	305	70,760
Blackgum	41	5,620
Red Maple	27	5,240
Total:	3,651	730,990

Summary Tract Silvicultural Prescription and Proposed Activities

An improvement harvest is recommended. This harvest be included with other tracts within the compartment or a standalone harvest. Both subdivisions will require single tree 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 cuts. Thinning is necessary in areas of the oak-hickory subdivision with particularly high stocking, including the ridges where chestnut oak occurs in dense monocultures. Trees in the larger size classes that are declining should be removed through group selection or patch cuts to encourage better vigor of the residual stand. Other trees targeted for removal in either subdivision 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. An oak shelterwood and prescribed fire may also be options to maintain or increase the oak-hickory regeneration in either subdivision. The prescribed timber harvest would reduce stocking from 70% to 49% which is just above the C- line. The inventory report estimated 9,878 bdft per acre, with a total potential harvest volume between 165,000 to 358,000 bdft of the whole tract. The top three species by volume are chestnut oak, white oak, and sugar maple. The harvest will result in a healthier, more vigorous stand of forest that will be primarily dominated by the oak-hickory cover type.

A post-harvest TSI operation is recommended within two years of the timber harvest. This will be done to complete any group selection or patch-cut openings; reduce the presence of shade tolerant species in the understory; and release oak, hickory, and other crop trees in the remaining acreage. Some trees will be deadened to increase the number of snags that are available as wildlife habitat.

Use of prescribed fire would occur post-harvest during the dormant season. Prescribed fire will encourage the establishment of oak and hickory species by improving conditions more suitable for seed germination and reducing understory competition.

Invasive species observed will be managed on a situational basis and monitored following the harvest. During and after completion of the timber harvest, best management practices (BMPs) will be implemented to minimize soil erosion.

Proposed Activities Listing

<u>Proposed Management Activity</u>	<u>Proposed Date</u>
Mark timber	2025-2026+
Pre-harvest TSI and/or invasive treatments	2026-2027
Timber harvest	2026-2030+
Post-harvest TSI and/or invasive treatments	1 to 2 years after harvest
Prescribed fire regime	1 to 2 years+ after post-harvest TSI
Regeneration monitoring	3-5 years after the timber harvest
Inventory and Management Guide	2046