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

State Forest: Jackson-Washington | Compartment: 11 Tract: 05
Forester: Danson, Beahrs | Date: December 19, 2016
Management Cycle End Year: 2041 | Management Cycle Length: 25

Location

The tract is located in Washington County, Indiana, more specifically Township 3 North Range 5 East, Section 6 and 7 in Gibson Township. This area is located approximately 5 miles west of Little York off of Mail Route Rd.

General Description

The tract is approximately 60 acres and the general cover type is mixed hardwood forest and Oak-Hickory forest, with a small area of planted pine.

History

The property that encompasses the tract was purchased by the Department of Natural Resources in 1955. A timber cruise was completed in 1972, which estimated a total volume of 3,575 bd. ft. /acre. The cruise narrative indicates that Chestnut Oak was the dominant overstory species on the ridge tops and upper slopes, while maple and American Beech were the dominant overstory trees in the lowlands. This assessment of the species mix in 1972 is fairly consistent with the current species mix of the tract; however, Yellow Poplar and Sugar Maple are now the dominant lowland overstory species.

In 1986, a timber sale was completed with an estimated volume of 101,461 bd. ft. Two regeneration openings were created as part of the sale, totaling 4 acres. These openings have regenerated in Yellow Poplar. The 1986 sale narrative indicates that a severe fire had gone through the eastern portion of the tract sometime in the past. In the 1986 sale numerous fire-scarred trees were marked for removal as culls, and most of the sound timber was marked for removal to open up the developing stand of oak that had regenerated after the fire. The inventory called for the removal of a 2 acre section of planted red pine averaging 8 inch diameters. However, the pine was not removed in the 1986 timber sale.

The 2016 inventory estimated a total volume of 9,216 bdft. per acre.

Landscape Context

The tract is located on the north side of Mail Route Road approximately 2 miles north of Pull Tight Road. The tract is surrounded by State Forest land; the tract is located within Jackson-Washington State Forest's largest landholding. This area is currently made up of

mature forests with closed canopies. Surrounding this large block of State Forest lands are agricultural fields, watershed lakes, and single-family residences.

Topography, Geology and Hydrology
The topography consists of moderate to steep slopes with north, west and east aspects. A northern segment of Mail Route Road serves as the southern tract boundary, and lies on top of a main ridge. A minor ridge that descends to the north off of Mail Route Road encompasses the eastern portion of the tract. The western slope of the ridge descends to an intermittent stream that flows north. West of this stream is another minor ridge that comes off of Mail Route Road and descends to the north; this ridge forms the bulk of the western portion of the tract.

Soils
Berks-Weikert complex (BhF) The site indexes for hardwood species range from 50 (black oak) to 70 (white oak). 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. They are about 55% Berks soil and 35% Weikert soil. 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. Because of the windthrow hazard, harvest methods should not isolate the remaining trees or leave them widely spaced. Preferred trees to manage for are black oak, bur oak, chestnut oak, scarlet oak, red oak, and white oak.

Burnside silt loam (Bu) The site index for hardwood species is 95 for yellow-poplar. 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. Most areas are used as pasture or woodland. Some areas are cleared and used as cropland. Native vegetation is deciduous hardwoods. This soil is well suited for trees. Plant competition is moderate. Preferred trees to manage for are bitternut hickory, bur oak, pin oak, red maple, shingle oak, and swamp 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 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 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.

Zanesville silt loam (ZaB, ZaC2) This gently sloping, deep, moderately well-drained or well-drained soil is found on ridge tops on the uplands. The soil is well suited to trees.

Plant competition is moderate. The site index for this soil ranges from 70 (white oak) to 90 (yellow-poplar). Preferred trees to manage for are black oak, bur oak, chestnut oak, persimmon, scarlet oak, red oak, and white oak.

Access
From the intersection of Pull Tight Road and Mail Route Road, travel north on Mail Route Road for approximately 2 miles and the tract lies on the north side of the road. See Access Map.

Boundary
The shape of the tract boundary resembles a triangle: the southern boundary of the tract is the widest portion of the tract, like the base of a triangle; the tract becomes narrower as it extends to the north, eventually coming to a point like the apex in a triangle. A portion of Mail Route Road forms the southern tract boundary. A ridge coming off of Mail Route Road forms the eastern tract boundary. This ridge descends to the north and drops into a drainage valley. At this point, the eastern tract boundary intersects an intermittent stream, which forms the northern corner of the tract. The western tract boundary follows the intermittent stream south for approximately 1,200 feet, and then follows an ephemeral drainage southwest to Mail Route Road.

Wildlife
A diverse assortment of wildlife resources are found on this tract conducive to providing habitat for a variety of wildlife species. Habitat includes:

- contiguous oak-hickory canopy
- mixed hardwood stands with varied structure
- small Pine pockets
- riparian areas

Hard mast trees such as oaks, hickories, and American beech provide food source to both game and non-game species.

Snags (standing dead or dying trees), are an important wildlife habitat features in Indiana's forests. They are used by a wide range of species as essential habitat features for foraging activity, nest/den sites, decomposers (e.g., fungi and invertebrates), bird perching and bat roosting. Additionally, snags are an important contributor to the future pool of downed woody material. Downed woody debris provides habitat and protection for many species and contributes to healthy soils.

Forest wildlife species depend on live trees for shelter, escape cover, roosting and as a direct (e.g., mast, foliage) or indirect (e.g., foraging substrate) food resource. The retention of live trees within various diameter classes is of particular concern to habitat specialists such as species of conservation need like the Indiana bat.

The DoF has developed compartment level guidelines for two important wildlife structural habitat features. Current assessments indicate the abundance of these habitat features meet or exceed recommended base levels in all diameter classes. The prescribed management will maintain or enhance the relative abundance of these features.

Wildlife Habitat Feature

Snags (all species)	Maintenance Level	Inventory	Available Above Maintenance
5"+DBH	240	341	101
9"+DBH	180	266	86
19"+DBH	30	34	4

A Natural Heritage Database review was completed for this tract. If Rare, Threatened or Endangered species (RTE's) 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.

Communities

This is primarily a mixed hardwood forest, with an oak-hickory forest along the ridge tops. There's also a 2 acre patch of Red Pine in the southern portion of the tract along Mail Route Road. Grape vine was noticed but it was not persistent and treatment is unnecessary. Invasive species were not noticed.

Forest Condition

TM 901 RESOURCE MANAGEMENT GUIDE			
INVENTORY SUMMARY			
		Compartment:	11
State Forest:	Jackson-Washington	Tract:	05
Forester:	Danson & Beahrs	Inventory Date:	11/23/16

ACREAGE IN:	
Forest	60
Non-Forest	
Water	
Permanent Openings	
Other Uses	
TOTAL AREA	60

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

SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
Chestnut Oak	44,840	163,600	212,400
Yellow Poplar	15,130	90,070	105,200
Sugar Maple	19,070	42,870	61,940

Northern Red Oak	3,370	41,280	44,650
American Beech	8,820	17,310	26,130
Black Oak	9,860	15,890	25,750
White Oak	6,030	15,600	21,630
White Ash	7,400	9,300	16,700
Largetooth Aspen	2,540	12,880	15,410
Pignut Hickory	-	13,370	13,370
Black Cherry	-	6,830	6,830
Shagbark Hickory	-	1,910	1,910
Black Gum	-	1,000	1,000
TRACT TOTALS	117,050	431,920	552,930
PER ACRE TOTALS	1,951	7,199	9,216

The 2016 inventory estimated a total volume of 9,216 bdft. per acre. Total basal area was estimated at 101 sq. ft. with 139 trees per acre. These values indicate current stocking for the tract is 84%. The harvest tally proposed the removal of 1,951 bdft. per acre bringing the basal area to 82.5 sq. ft. per acre and 130 trees per acre. The leave tally shows post-harvest stocking remaining in the fully stocked range, at approximately 69%, excluding culls.

Recreation
The main recreational use of the tract is hunting.

During the proposed management activities, specifically timber harvesting, public access into the tract will be restricted for safety reasons. Access into the area will be permitted following the completion of the harvest.

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

Tract Subdivision Description and Prescription
Mixed hardwood (36 acres)
The majority of the tract falls under the mixed hardwoods cover type. Within this cover type, yellow poplar and sugar maple are the dominant overstory tree species. The inventory estimated 1,753 bd. ft. of yellow poplar and 1,032 bd. ft. of sugar maple sawtimber per acre. The most prevalent overstory species outside of yellow poplar and sugar maple is American beech, at 436 bdft. of sawtimber per acre; this is also the most prevalent understory species in the entire tract. White ash accounts for the bulk of the remaining sawtimber trees in this cover type.

The prescribed management recommendation for this subdivision is to conduct an improvement harvest removing poorly formed and declining trees, which would funnel more resources to healthier trees of better form and vigor. The top species for removal in the proposed harvest are yellow poplar and sugar maple. This proposed harvest would

still result in sugar maple and yellow poplar being the most abundant tree species. Additionally, the management recommendation is to create group selection openings, particularly in the lowlands, to facilitate yellow poplar regeneration.

Planted Pine (3 acres)
The planted pine cover type is located in the south central portion of the tract on the ridgetop adjacent to Mail Route Road. Pole to small sawtimber-sized red pine make up the majority of the overstory in this cover type; small saw timber-sized largetooth aspen account for a small proportion of the overstory. The inventory estimated 0 bd. ft. of red pine because none of the trees inventoried were of sawtimber size. The inventory estimated 257 bd. ft. of largetooth aspen sawtimber per acre. The prescribed management recommendation for this cover type is to remove the pine and aspen overstory releasing hardwood seedlings present and promoting native hardwood regeneration.

Oak-Hickory (21 acres)
The oak-hickory cover type is located primarily on, and along, the ridge tops. Chestnut oak is the dominant overstory species throughout this cover type. Near the ridge tops, black oak, sugar maple, pignut hickory, white oak, Northern red oak and shagbark hickory account for the remaining overstory component. As you progress down slope yellow poplar, white ash, and American beech become more prevalent in the dominant chestnut oak overstory. The inventory estimated 3,540 bd. ft. of chestnut oak per acre. The inventory estimated 744 bd. ft. of Northern red oak, 429 bd. ft. of black oak, 361 bd. ft. of white oak, and 223 bd. ft. of pignut hickory sawtimber per acre. The top species for removal within this subdivision is chestnut oak. This proposed harvest would still result in chestnut oak being the most abundant tree species. The prescribed management recommendation is to conduct an improvement harvest that would remove poorly formed and declining trees, which would funnel more resources to healthier trees of better form and vigor.

Tract Prescription and Proposed Activities
The proposed management activity is to conduct an improvement harvest to improve the overall health and quality of the tract. This improvement harvest should occur within the next 3-5 years utilizing a combination of single tree and group selection methods. The purpose of single tree selection is to remove drought stressed or wind damaged trees, mature and over-mature trees, declining ash due to Emerald ash borer, mixed hardwoods that release quality oak and hickory, and other intermediate trees needed to release residual crop trees. Planted pine trees should be removed to favor native hardwoods. Group selection openings should be created to facilitate the regeneration of yellow poplar in the lowlands.

Additionally, group selection openings may be necessary for the regeneration of oak and hickory on the ridgetops and upper slopes. Within two years of the timber harvest, an timber stand improvement (TSI) operation should follow to adequately complete the group openings, treat cull trees, and release residual crop trees in the remaining tract

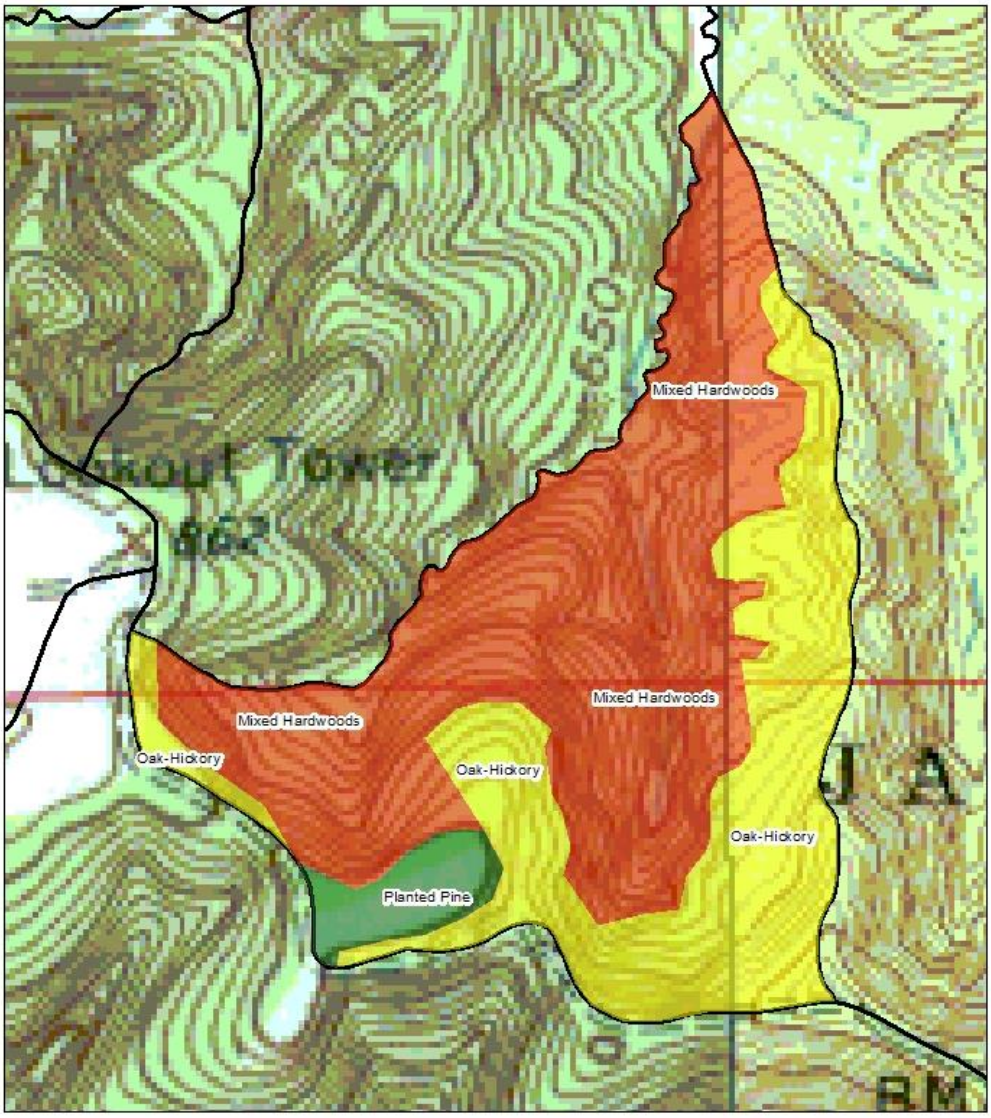
acreage. During TSI trees will be deadened to create snags for wildlife, such as the Indiana bat. Invasive species are to be monitored and treated as needed.

During and after completion of the proposed timber harvest BMP's will be implemented in order to minimize soil erosion. This tract should receive another inventory and management guide 20 years following the completion of the timber harvest. The proposed management activity is expected to increase tract habitat diversity and provide a variety of wildlife benefits, including snag creation, beneficial large woody debris and enhanced Oak growth.

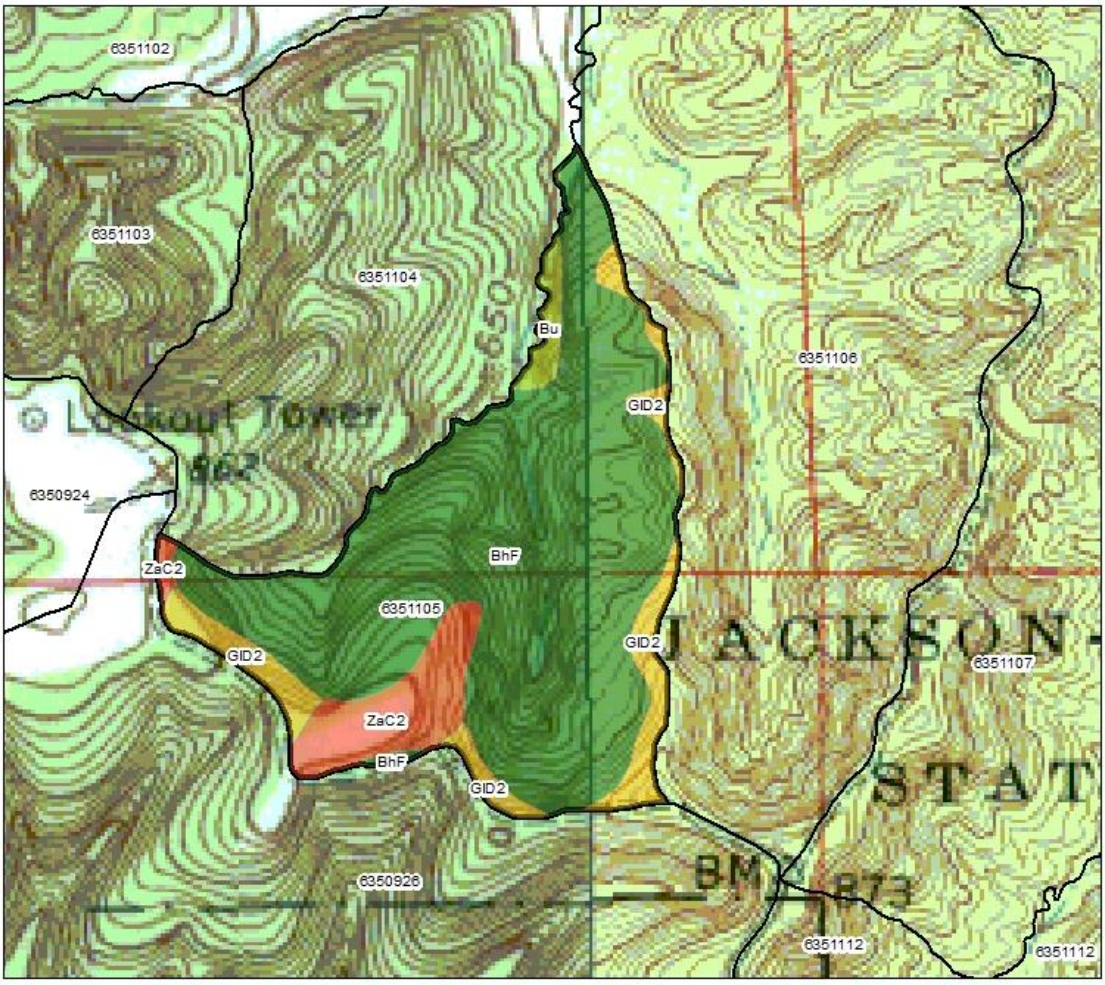
Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Mark and Sell Timber Sale	2017-2021
Post-harvest Timber Stand Improvement	2021-2023
Regeneration monitoring	3 yrs after harvest
Inventory and Management Guide	2043

Jackson-Washington State Forest
Compartment 11 Tract 05
Tract Subdivision



Jackson-Washington State Forest
Compartment 11 Tract 05
Soils Map



Legend

Soils

Tract Boundary

- BhF
- Bu
- WeC2
- ZaB
- ZaC2

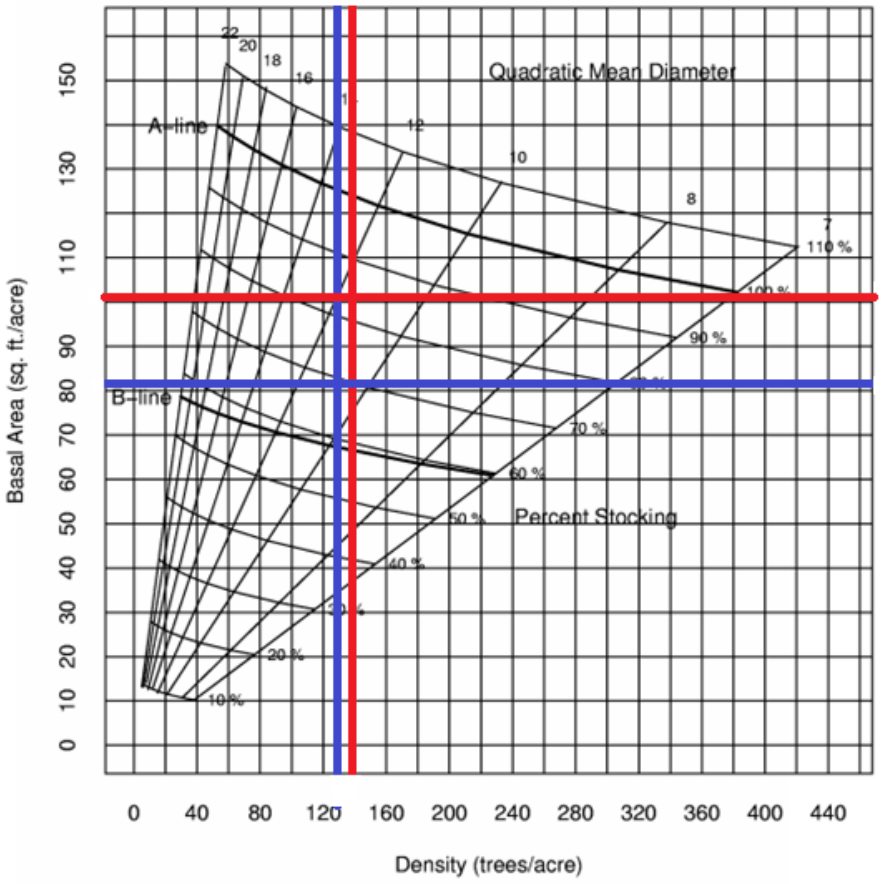
0 375 750 1,500 Feet

N

W E

S

Stocking Guide
Compartment 11 Tract 05



Current Data

Total Basal Area per Acre = 101 square feet per acre
Total Number Trees per Acre = 139
Average Tree Diameter = 11.5
Percent Stocking = 84%

Projected Post-Harvest Data

Total Basal Area per Acre = 82.5
Total Number Trees per Acre = 130
Average Tree Diameter = 10.8
Percent Stocking = 69%

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