Indiana Department of Natural Resources
Division of Forestry

RESOURCE MANAGEMENT GUIDE

Jackson-Washington State Forest	Compartment 3 Tract 15
Forester Michael Spalding	Draft Plan Date: May 22, 2013
Management Cycle End Year: 2036	Management Cycle Length: 23 years

Location
This tract is located in Jackson County, Brownstown Township, Sections 25 and 26, Township 5 North, Range 4 East. Brownstown is located about 2 ½ miles north of this tract.

General Description
This 53 acre tract is covered by primarily mixed hardwoods with pockets of oak-hickory included.

History
This tract is comprised of land that was purchased through five separate acquisitions. They are as follows: 80 acres from John and Hanna Brandt on December 16, 1932; 301.5 acres from Emil and Edna Heller on July 18, 1932; 80 acres from Henry and Louise Terkhorn on May 16, 1933; 70 acres from Edward and Mary Nierman and William and Edna Kuehn on March 5, 1935; and 8.5 acres from Aimee Gunder et al. on September 27, 1943.
The first recorded management in this tract was an inventory performed in June 1971. At that time, the tract was 76 acres, with 17 acres listed as non-timber, 4 acres as non-merchantable timber, and 55 acres as merchantable timber. The inventory estimated a total volume per acre of 2,350 board feet with 1,210 board feet as harvest stock.
A timber sale was marked on 19 acres of this tract and was sold on November 27, 1973. This sale contained 38,570 board feet in 221 trees and was purchased by Paul Wheeler for $1,543.00 ($40.00/MBF).

Landscape Context
This tract lies near the center of the Skyline Drive area of Jackson-Washington State Forest, and is therefore very heavily forested. Moving out from this block of forested hills the landscape becomes dominated by other agricultural uses, primarily corn and soybean production. Brownstown is the most heavily populated area in the landscape and is 2 ½ miles from the tract.

Topography, Geology and Hydrology
The overall topography of this tract is steep; approximately 80% of the area is greater than 20% slope. A dozer or other tracked equipment will be necessary for skidding in portions of the tract. The underlying geology is made up of sandstone, siltstone, and shale bedrock. This entire tract drains into an intermittent stream that eventually flows into Hough Creek, a tributary of the White River.

Soils

Berks channery silt loam (BeG) (11.3 acres) This steep and very steep, moderately deep, well drained soil is on side slopes and knolls in the uplands. Slopes are 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. Overstocking helps to compensate for seedling mortality. 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 will 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.

Beanblossom silt loam (BcrAW) (2.6 acres) 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 hill slopes. Native vegetation is deciduous forest, dominantly sycamore, elm, hickory, beech, maple, and yellow-poplar. This soil is well suited to trees. Plant competition is moderate. Seedlings survive and grow well if competing vegetation is controlled. Preferred trees to manage for are bitternut hickory, white oak, sugar maple, and yellow-poplar.

Gilpin silt loam, 25 to 55 percent slopes (GnF) (20.2 acres) This well drained soil has a water table at a depth greater than 40 inches and is on side slopes on uplands. Slopes are 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 in non-limed areas is 3.5 to 5.5. Bedrock is at a depth of 20 to 40 inches.

Kurtz silt loam (KtF) (10.5 acres) This series consists of deep, well drained soils on hills. They formed in residuum weathered from interbedded soft siltstone and shale bedrock. Slopes range from 20 to 55 percent. Most Kurtz soils are in forest. Native vegetation consists of mixed hardwood with oaks, hickory, beech and yellow-poplar. These soils a well suited to trees. The potential productivity or site index for this soil type is 60 (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.

Stonehead silt loam (SsC2) (5.5 acres) This series consists of deep and very deep, moderately well drained soils formed in loess and the underlying residuum weathered from soft shale or soft siltstone bedrock. Slopes range from 4 to 12 percent. Native vegetation is mixed hardwoods with oaks, hickory, beech, maple, and tulip-poplar as the major species. This soil is well suited for trees. Prolonged seasonal wetness hinders logging activities and planting of seedlings. The equipment limitations, seedling mortality, windthrow hazard, and plant competition are management concerns. The potential productivity or site index for this soil type is 90 for northern red oak. Preferred

trees to manage for are black oak, chestnut oak, common persimmon, northern red oak, scarlet oak, shagbark hickory, sugar maple, yellow-poplar and white oak.

Tilsit silt loam (TlB2) (3.0 acres) 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, red and sugar maples, blackgum, yellow-poplar, dogwood, beech, 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
This tract can be accessed directly off of Skyline Drive at the fire tower. From the intersection of Poplar Street and US 50 in Brownstown, travel south on Poplar street for approximately 2 miles. During this time, the street will change from Poplar Street to County Road 50 West and then to Skyline Drive. Continue on Skyline Drive approximately 1.3 miles to the fire tower.

Boundary
The northern boundary of this tract is an intermittent stream. The western boundary is a ridge that travels down slope from the top of the main ridge along Skyline Drive next to the fire tower to the intermittent stream in the bottom. The southern boundary is Skyline drive. The eastern boundary is an ephemeral stream drainage that travels from Skyline Drive north to the intermittent stream.

Wildlife

Habitat Snag Guidelines					
				Available	Available
Snag	Maintenance	Optimal	Inventory	Above	Above
Size Class	Level	Level	Estimate	Maintenance	Optimal
5"+ DBH	212	371	422	210	51
9"+ DBH	159	318	249	90	-69
19"+ DBH	26.5	53	66	40	13

There are an abundance of snags in this tract as indicated by the chart above. All size classes exceed the maintenance level, and two of the three size classes exceed even the optimal level. Post-harvest TSI will also create additional snags.

Communities

A Heritage Database Review was completed for this tract. 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.

While the overall forest type found in this tract is mixed hardwoods, there are small inclusions of oak-hickory forest as well. Several siltstone glades were identified nearby, but no areas within this tract appeared to resemble a glade. There are some areas of rock outcropping near the head of ephemeral streams. These areas will generally be avoided during the harvest due to steepness.

Forest Condition

Much of this tract is fairly healthy with one large exception. Most of the yellow-poplar trees are dead or rapidly declining in vigor. This is due to multiple drought years during the past decade. Thirty-eight percent of the entire estimated volume in this tract is yellow-poplar. The stocking is fairly high at 88%. The inventory estimated a total volume of 595,820 board feet, with 266,960 bd. ft. as harvest stock and 328,860 board feet as growing stock.

TM 901

RESOURCE MANAGEMENT GUIDE

INVENTORY SUMMARY

		Compartment:	3
Jackson-Washington State Forest		Tract:	15
Forester:	Michael Spalding	Date:	2/11/13

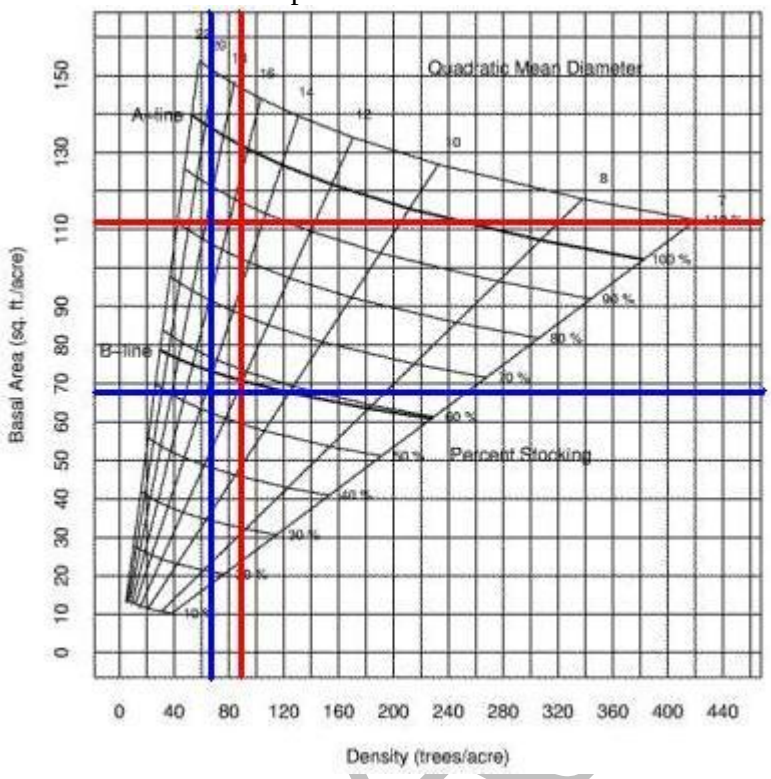
ACREAGE IN:	
Commercial Forest	52.6
Recreation Use	0.6
TOTAL AREA	53.2

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

SPECIES	HARVEST STOCK	GROWING STOCK	TOTAL VOLUME
yellow-poplar	146,690	82,310	229,000
chestnut oak	20,430	69,400	89,830
northern red oak	6,090	77,340	83,430
sugar maple	7,150	29,490	36,640
basswood	20,740	9,920	30,660
loblolly pine	22,700	0	22,700
white ash	15,050	3,930	18,980
white oak	6,050	12,210	18,260
pignut hickory	3,900	7,260	11,160
black oak	2,050	8,830	10,880
black walnut	0	10,010	10,010
red maple	6,840	1,440	8,280
shagbark hickory	0	5,770	5,770
bitternut hickory	0	5,720	5,720
American sycamore	1,900	2,980	4,880
sweetgum	2,640	0	2,640
red elm	1,210	1,320	2,530
black cherry	1,970	0	1,970
American beech	1,550	0	1,550
sassafras	0	930	930
TRACT TOTALS	266,960	328,860	595,820
PER ACRE TOTALS	5,075	6,252	11,327

Stocking Guide

Compartment 3 Tract 15



Estimated Pre-Harvest Data in Red

Total Basal Area per Acre = 111 square feet per acre

Total Number Trees per Acre = 88

Average Tree Diameter = 15 inches DBH

Percent Stocking = 88%

Projected Post-Harvest Data in Blue

Total Basal Area per Acre = 68 square feet per acre

Total Number Trees per Acre = 64

Average Tree Diameter = 13.9 inches DBH

Percent Stocking = 54%

Recreation

Recreational use of this tract is high due to the fire tower, Hiking Trail 7, and the proximity to Skyline Drive. The hiking trail and area surrounding the fire tower would need to be temporarily closed during harvest operations.

Cultural

The fire tower located here was designated as a National Historic Lookout on May 7, 1992. This tower will be avoided by harvest operations.

Tract Subdivision Description and Prescription
Fire Tower Area (.6 acre)
This is the mowed area around the fire tower. No management will occur in this area, as this area is not forested.

Old Field Hardwood/Pine (5.1 acres)
This subdivision contains Virginia, loblolly, and shortleaf pine trees as well as a mix of native hardwoods dominated by yellow-poplar, red maple, sassafras, and white ash. Many of the yellow-poplar trees in this stand have already died, while others are declining in health and vigor. The size of the overstory trees generally ranges from pole to large sawtimber, and the understory is dominated heavily by very dense beech. This area prescription includes regeneration openings to harvest the non-native Virginia pine before the stand deteriorates, harvest the dying, dead, and drought-stressed yellow-poplar, and salvage the ash in advance of emerald ash borer. Many of the non-native shortleaf/loblolly pine trees will be left, as they appear to be growing well on this site. Single-tree selection in areas not marked for openings will focus on releasing the healthiest and highest quality mixed hardwoods, oak, and hickory. Following post-harvest TSI to complete the opening, this area will then be allowed to naturally regenerate into a healthier, younger stand of native mixed hardwood trees.

Mixed Hardwoods (47.5 acres)
As the name indicates, this area is dominated by mixed hardwoods; however, there are pockets of oak-hickory that are not large enough to delineate separately. The timber in this area is generally good to excellent, with a few lower quality stems present as well. The overstory trees range from pole to large sawtimber, with most being medium to large. The understory is heavily dominated by beech and sugar maple. Prescription for much of this subdivision is single-tree selection to release the more vigorous, better quality trees. Also, when possible, mixed hardwood trees should be marked to release oak or hickory trees. Ash trees should be marked for removal in advance of emerald ash borer reaching this block of forest. The yellow-poplar trees are declining in health and vigor in this subdivision as well. A few areas throughout the subdivision are prescribed for small to moderate-sized regeneration openings between one and ten acres, with most of the openings being in the one to three acre range. These areas contain mature, overmature, dying, and dead yellow-poplar, ash, and other damaged, mature, overmature, and defective trees of other species.

Tract Prescription and Proposed Activities
Prescription: Single tree and group selection harvest within the next two years. The primary goal should be to salvage the dying yellow-poplar trees. Other trees to be harvested should include all ash, non-native pine trees, trees with fire, grazing, or wind damage, and other trees to release healthier more vigorous mixed hardwoods and oak-hickory. This proposed harvest will temporarily drop the stocking slightly below the b-line for the tract. The large amount of volume contained in the yellow-poplar to be harvested accounts for this. Following completion of the harvest, post-harvest TSI should be completed to complete the regeneration openings, deaden any culls not taken

by the logger, deaden grape vines, and release and residual crop trees not sufficiently released during the harvest.

Due to the high recreational use of this tract, the fire tower and Trail 7 would need to be temporarily closed for public safety. Best Management Practices will be required on this harvest as on all Indiana State Forest timber harvests to mitigate any effects on water quality. The regeneration openings will offer excellent foraging habitat for the Indiana bat, and increased solar exposure to the residual trees will provide quality roost trees. Although all snag guidelines are met or exceeded in this tract, additional snags will be created during the post-harvest TSI. Twenty years after completion of the timber harvest, another inventory should be conducted and management guide written.

Proposed Activities Listing

Mark and sell timber harvest	2013-2014
Post-Harvest TSI	2015-2017
Inventory and management guide	2036

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Tract Subdivisions
Compartment 3 Tract 15
Jackson-Washington State Forest