

# Indiana Department of Natural Resources – Division of Forestry

## Resource Management Guide

**State Forest:** Morgan-Monroe

**Tract Acreage:** 121

**Forester:** Phil Jones

**Management Cycle End Year:** 2030

**Tract:** 6370104 (Comp 1 Tract 4)

**Commercial Acreage:** 117

**Date:** September 23, 2015

**Management Cycle Length:** 15

### Location:

Tract 6370104 is located in Morgan County, Washington Township, Section(s) 20, 21 – T11N – R1E. It is approximately 3 miles south of Martinsville and located 1 mile west of Hatfield Ridge Rd.

### General Description:

Most of the tract's 121 acres are covered with hardwood forests, especially oak-hickory timber types. Other type(s) present include mixed hardwood.

The most recent tract wide harvest in this tract occurred in 1987.

This was primarily an improvement cut and light thinning which focused on removal of fire damaged and other lower quality trees. There were also 11 regeneration openings created totaling 22 acres. TSI was performed in 1988 and focused on opening completion. TSI was performed again in 2010 in the regeneration openings and focused on ailanthus and grapevine control and light thinning. As a result of these management activities, the current overall timber quality within this tract is good and consists of primarily medium to large sawtimber size classes. The old regeneration openings are now over 25 years old and contain poletimber size mixed hardwoods.

### History:

- 1987 - Timber Sale: 235,900 bf Sold to Foley Hardwoods for \$33,200
- 1988 - TSI – 22 ac opening completion
- 2001 – Wildfire – 18 ac
- 2002 - Timber Harvest - Special Cut: Fire damaged timber sold to Hamilton for \$2,486.72. 22 trees and 7 culls. 4,089bf.
- 2003 - Invasive Species Control – Ailanthus
- 2010 - Invasive Species Control - Ailanthus
- 2010 - TSI: Grape vine control & CTR
- 2014 - Inventory/Cruising
- 2015 - Resource Management Guide

## **Landscape Context:**

The surrounding landscape near the tract is predominantly Closed-canopy deciduous forest. The primary block of the State Forest lies to the north and east. Private landownerships dominate to the west and south with a mix of developed areas, forest and agricultural lands.

Other minor cover/habitat types present include early successional forest (< 20 years old), Open water (lakes, ponds, rivers, streams, etc.).

Landscape level forest threats include parcelization and development of private land tracts, and introduction of invasive plants that are routinely introduced during home landscaping efforts.

## **Topography, Geology, Hydrology:**

The general topography of this region consists of unglaciated, sharply dissected hills, narrow ridges and valleys. The underlying bedrock is Mississippian sandstone, shale, and siltstone.

This tract lies within the Little Indian Creek subwatershed. Water resources within this hydrologic boundary are part of the Butler Creek-White River watershed.

Riparian features (intermittent streams and the man-made Prather Lake) are present on portions of the tract. General riparian management zone (RMZ) guidelines will be implemented in these areas in accordance with the *Indiana Logging and Forestry Best Management Practices Field Guide*".

## **Soils:**

Typical soils in this area are moderately drained to well drained soils that formed in residuum (formed in place on bedrock). A thin layer of loess covers some of these soils. The major soils in this tract are listed below.

### BfG- Berks channery silt loam, 35 to 80 percent slopes

This is a very steep, moderately deep, well drained soil on side slopes and nose slopes of strongly dissected uplands. It is suited to trees. Equipment limitations and erosion hazards are concerns that should be considered during management activities and implementation of Best Management Practices for Water Quality. This soil has a site index of 70 for northern red and black oak.

### GpD- Gilpin silt loam, 12 to 18 percent slopes

This strongly sloping, moderately deep, well drained soil is on convex, dissected uplands. It is well suited to trees. Erosion hazards, equipment limitations, and plant competition are the main management concerns. These should be considered when during management planning and implementation of Best Management Practices for Water Quality. This soil has a site index of 73 for northern red oak and 95 for yellow-poplar.

### GpE- Gilpin silt loam, 18 to 25 percent slopes

This is a moderately steep, moderately deep, well drained soil on highly dissected uplands. It is on very narrow ridgetops and lower shoulder slopes of broader ridgetops and head slopes of

drainageways. It is suited to trees. Erosion hazards, equipment limitations, and plant competition are the main management concerns. These should be considered when during management planning and implementation of Best Management Practices for Water Quality. This soil has a site index of 80 for northern red oak and 95 for yellow poplar.

#### Ha- Haymond silt loam

This nearly level, deep, well drained soil is on floodplains. It is well suited to trees. Management activities should consider wet times of year. This soil has a site index of 90 for white oak and 100 for yellow poplar.

### **Access:**

This tract is accessible via a gated firelane off of Hatfield Ridge Road. The gate is approximately 1.8 miles north of the intersection of Hatfield Ridge and Rosenbaum roads.

### **Boundary:**

Privately owned property borders this tract to the west. Private boundaries were last reviewed and marked in 2015.

The majority of the remaining tract boundaries adjoin other State Forest tracts and generally defined by deep ravines and mapped intermittent streams.

### **Wildlife:**

- This tract contains diverse vegetation and wildlife resources (age, type, structure) conducive to providing habitat for a variety of wildlife species. Habitat includes:
- contiguous oak-hickory canopy
- scattered mixed hardwood stands
- old regeneration openings
- riparian areas

Hard mast trees such as oaks, hickories, and American beech provide food source to squirrels, turkey, and white-tailed deer. The openings are varied in size but all present similar, dense vegetation that favors wildlife preferring this habitat structure.. Such vegetative species include sassafras, grapevine, and other early successional shrubs.

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 with certain characteristics (legacy trees) is of particular concern to habitat specialists such as species of conservation need like the Indiana bat.

In concert with various agencies and organizations, the DoF has developed compartment level guidelines for two important wildlife structural habitat features: **Forest Snag Density, Preferred Live Roost Trees**. Current assessments indicate the abundance of these habitat features meet or exceed recommended base levels in smaller diameter classes, but are slightly deficient in the larger size classes. 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; it is likely that suitable levels are present for this habitat feature in the surrounding landscape. The prescribed management will maintain or enhance the relative abundance of these features.

## **Communities:**

Listed below are the general community types found in this tract.

### ***Dry upland forest***

Dry upland forests occur on steep ridges at the crests of river bluffs and at the edges of escarpments throughout Indiana, but are most common on bedrock outcrops in the Shawnee Hills and Highland Region. The soils are very dry and poorly developed because of steep, exposed slopes or because of bedrock, gravel, or sand at or near the surface. In a dry upland community, trees tend to grow slowly, but contain a well-developed understory and groundlayer.

Dominant trees in this community include chestnut oak, scarlet oak, post oak, black oak, and red maple. Characteristic plants include pignut hickory, broom moss, and pincushion moss. Ground skinks, five-lined skinks, fence lizards, and summer tanager are some of the animals you would find.

### ***Dry-mesic upland forest***

Dry-mesic upland forests are one of the most prevalent forest communities in Indiana. This community occupies an intermediate position along a soil moisture gradient. Trees grow well, but the canopy is usually more open than in mesic forests.

The dominant trees found are white oak, red oak, and black oak. Other plants and animals characteristic of this community are: shagbark hickory, mockernut hickory, flowering dogwood, hop hornbeam, blackhaw, broad-headed skink, white-footed mouse, eastern chipmunk.

A Natural Heritage Database review was completed for this tract in September, 2015. If Rare, Threatened or Endangered (RTE) 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.

## **Exotic and Invasive Species:**

Below is a list of invasive species identified during the inventory. Priority control should be given to aianthus and if identified, bush honeysuckle. These would be treated as soon as practical, with individuals and smaller areas being targeted if needed. A broader and/or situational approach should be taken with the species noted below. Control measures for these species could be warranted for larger scale road & trailside treatment projects, planned regeneration openings, pre or post-harvest TSI projects, etc. Post-harvest control of stiltgrass is most easily accomplished through successful seeding of fescue or other highly competitive non-invasive seeding mixture.

- **Japanese Stiltgrass**
- **Multiflora Rose**
- **Ailanthus**

## **Recreation:**

Although no permanently established recreation trails or developments are present in this tract, there are still several recreational opportunities.

Hunting is permitted on State Forest property and this area also offers opportunities for certain types of gathering and wildlife viewing.

The following lakes/ponds are located in this tract and offer additional recreation opportunity, primarily fishing. No swimming is allowed. Access to this site is via a walkable firetrail. Current usage is low.

- Prather Lake – 4 ac

## **Cultural:**

This tract was reviewed for cultural sites during the forest resource inventory. Cultural resources may be present on this tract but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

## **Tract Description and Silvicultural Prescription:**

The current forest resource inventory was completed in 2014 by Forester McGuckin. A summary of the estimated tract inventory results are located in the table below.

### **Tract Summary Data**

Total Trees/Ac. = 145 **Trees/Ac.**

BA/A = 96 **Ft<sup>2</sup>/Ac.**

Present Volume = 7,554 **BF/Ac.**

Overall % Stocking = 82 **Stocking**

Sawtimber Trees/Ac. = 41 **Trees/Ac.**

Harvest Volume = 1,500-2,000 **Bd. Ft. /Ac.**

<b>SPECIES</b>	<b># of Sawtimber Trees</b>	<b>Total Bd. Ft.</b>
Black Oak	1,506	262,840
White Oak	1,329	213,970
Northern Red Oak	419	111,160
Yellow Poplar	233	70,960
Chestnut Oak	410	70,300
White Ash	211	40,440
Pignut Hickory	259	34,870
Scarlet Oak	224	32,560
Shagbark Hickory	105	25,330
Sugar Maple	60	10,680

Basswood	39	8,840
Black Cherry	36	8,560
American Beech	47	7,350
Chinkapin Oak	9	6,200
Red Elm	20	4,170
Sassafras	29	3,040
Largetooth Aspen	39	2,740
<b>TOTAL</b>	<b>4,975</b>	<b>914,010</b>

For the purpose of this guide, this tract has only one designated management stratum based on the dominance of its oak-hickory cover type. Below is a general tract description and silvicultural prescription.

## **Descriptions**

### **Oak-Hickory – 117ac**

The timber type on the north and east slopes is predominantly mature oak-hickory with some mixed hardwoods, such as yellow-poplar, sugar maple, white ash and American beech interspersed throughout. A mix of diameters are present, but the timber resource consists of a mostly medium to large sawtimber size class. The understory is dominated by beech and maple.

The south and west slopes are dominated with chestnut and scarlet oak. The understory is dense with greenbrier, sassafras, American beech, and red maple. With the exception of some larger individuals lower on the slopes, the timber resource in these areas consists of a mostly poletimber to medium sawtimber size class. Old fire damage is common throughout this cover type.

Overall, oak species account for the majority of the total volume in the tract, with white oak and black oak being the most prevalent.

### **Old Regeneration Openings**

Within the stratum there are numerous old regeneration openings dominated with yellow poplar, maples, and sassafras. The majority of yellow-poplar regeneration in these openings were found to have modest decline and mortality due to the yellow poplar scale infestation and severe droughts that occurred in the last 5 years. The openings are approximately 25 years old and total roughly 22 acres. Extensive TSI work was performed in 2010 and focused primarily on ailanthus and grapevine control.

## **Prescriptions**

This tract is well stocked and a managed timber harvest is prescribed. The following silvicultural prescriptions are recommended.

### **Selection & Improvement/Thinning Cutting**

A combination of selection, improvement and thinning cuttings are prescribed in this tract. The goal is to improve growth and vigor on the highest quality and most vigorous oak, hickory and mixed hardwood stems. This should be accomplished primarily through singletree selection and release thinning. Individual trees targeted for removal should include the following: competing mixed hardwoods; suppressed trees; trees damaged by past fire or grazing; wind-damaged trees; drought-stressed trees; and any other dominant or co-dominant trees that are overtopping or suppressing quality growing stock. The residual stocking in these areas should remain above the B-line according to the Gingrich stand density chart for upland hardwoods. This translates to approximately 65 - 70 sqft/acre.

Small group selections may be implemented in areas dominated with poor growing stock, creating a component of young forest and important early successional habitat. Low thinning may also be utilized in denser, even-aged areas with large amounts of suppressed and intermediate trees that are likely to drop out from competition. This method can also be employed to reduce the density of shade tolerant species such as sugar maple, red maple, and American beech in an attempt to establish and promote advanced oak-hickory regeneration.

### **Sanitation Cutting(EAB)**

Emerald Ash Borer has been detected in Indiana State Forests and is killing ash trees throughout the forest. Numerous trees are dying and more are showing signs of EAB infestation. When an infected ash tree dies, the wood quickly starts to breakdown and decay; by the second year following death, the wood is too far degraded to be utilized for commercial wood products. A sanitation harvest is prescribed to utilize the majority of ash trees before they die and decay. Many ash trees will not be utilized due to the rapid spread of EAB and mortality of ash across the infested landscape.

### **TSI**

A Timber Stand Improvement (TSI) is prescribed for 6370104. Work may include the following:

- Grapevine Control – Pre-harvest in potential regeneration openings
- Croptree Release – Post-harvest in old regeneration openings
- Regeneration Opening Completion – Post-harvest
- Large Snag Creation – Post-harvest, likely included in opening completion
- Exotic Control – Pre & Post-harvest control of ailanthus likely needed

### **Schedule:**

<u><i>Proposed Management Activity</i></u>	<u><i>Proposed Period</i></u>
Pre-Harvest TSI/ Invasive Treatments	2016-2017
Timber Marking	2017
Road/Landing Work	2016-2017
Timber Sale	2017
Timber Sale Closeout	2018-2019
BMP Review	2018-2019
Post Harvest TSI/Invasive Treatments	2019-2020
Regeneration Success Review	2023-2024
Reinventory and Management Guide	2030

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# 6370104

