

**Indiana Department of Natural Resources – Division of Forestry**  
**Draft**  
**Resource Management Guide**

**State Forest:** MMSF

**Tract Acreage:** 56

**Forester:** Jones/Ramey

**Management Cycle End Year:** 2031

**Tract:** 6370518 – Comp 5 Tract 18

**Forest Acreage:** 56

**Date:** July 26, 2016

**Management Cycle Length:** 15

**Location:**

Tract 6370518 is located in Morgan County, Washington Township, Section(s) 31, 32 – T11N – R1E. It is approximately 4.5 miles south of Martinsville and located 2 miles west of Rosenbaum Rd along the north side of Magoose firelane.

**General Description:**

Most of the tract's 56 acres are covered with hardwood forests, especially oak-hickory timber types.

The most recent harvest in this tract occurred in 1998.

This was primarily an improvement cut which focused on removal of mature, diseased, windthrown, and other lower quality trees. Approximately 1,570 BF / ac were removed in this harvest. There were also 2 regeneration openings created totaling 3 acres. TSI was performed in 2002 and focused on opening completion. As a result of past efforts, the current overall timber quality within this tract is good and consists mainly of medium to large sawtimber size class. The old regeneration openings are now 17 - 18 years old and contain mainly sapling and poletimber size mixed hardwoods.

**History:**

- 1929, 1939 - Acquisition
- 1997 - Inventory/Cruising
- 1997 - Resource Management Guide
- 1998 - Timber Sale – 92,635 BF
- 2002 - TSI – Opening Completion
- 2016 - Inventory/Cruising

## **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, east, and west. Private landownerships dominate to the south with a mix of developed areas, forest and agricultural lands.

Other minor cover/habitat types present include Pine/conifer plantations, and Early successional forest (< 20 years old).

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) 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 planning 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.

### ZaB- Zanesville silt loam, 1 to 6 percent slopes

This gently sloping, deep, moderately well drained or well drained soil is on uplands. It is well suited to trees. This soil has a site index of 69 for white oak and 90 for yellow poplar.

### ZaC- Zanesville silt loam, 6 to 12 percent slopes

This moderately sloping, well drained soil is moderately deep to a fragipan. It is on side slopes of the loess covered uplands. It is suited to trees. The fragipan can limit rooting depth. This soil has a site index of 68 for northern red oak.

### **Access:**

This tract is accessible via a farm gate off of Rosenbaum Rd. The gate is approximately .7 miles south of the intersection of Gose Creek and Rosenbaum roads. Access to the tract via Magoose firelane and within the tract is good.

### **Boundary:**

This tract has no adjacent private ownerships except on its Southern flank. The tract boundaries are defined by other State Forest tracts and are generally defined by deep ravines and mapped intermittent streams.

Privately owned property borders this tract to the south. Private boundaries were last reviewed and marked in 2014.

The majority of the remaining tract boundary adjoins other State Forest tracts and is generally defined by a firelane to the south, deep ravines and a mapped intermittent stream to the southeast.

### **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
- riparian areas
- old regeneration openings

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 all diameter classes. Current assessments indicate the abundance of these habitat features meet or exceed recommended base levels in all diameter 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 2/18/16. 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. If identified, priority control should be given to ailanthus and 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.

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

### **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.

### **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 on 6/23/16 by Forester Jones. A summary of the estimated tract inventory results are located in the table below.

#### **Tract Summary Data**

Total Trees/Ac. = 182 **Trees/Ac.**  
 BA/A = 119 **Ft<sup>2</sup>/Ac.**  
 Present Volume = 8,800 **BF/Ac.**

Overall % Stocking = 100% **Stocking**  
 Sawtimber Trees/Ac. = 58 **Trees/Ac.**  
 Harvest Volume = 2,500 – 3,000 **Bd. Ft. /Ac.**

<b>SPECIES</b>	<b># of Sawtimber Trees</b>	<b>Total Bd. Ft.</b>
Black Oak	836	138,710
White Oak	855	125,700
Scarlet Oak	815	109,500
Yellow Poplar	103	37,900
Red Maple	297	25,440
Sugar Maple	155	18,270
Largetooth Aspen	38	13,930
Northern Red Oak	20	6,730
Pignut Hickory	20	5,470
White Ash	93	5,140

Chestnut Oak	18	4,840
Black Walnut	47	3,320
TOTAL	3,297	494,950

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 – 53 ac**

The timber type on the north and east slopes is predominantly mature oak-hickory with mixed hardwoods, such as yellow-poplar, sugar maple, white ash, red maple, 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 scarlet oak and smaller sawtimber size black and white 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 black oak and white being the most prevalent.

### **Old Regeneration Openings – 3 ac**

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 17 years old and total roughly 3 acres.

## **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 (65 - 70 sqft/acre) according to the Gingrich stand density chart for upland hardwoods. Grapevine control and non-commercial thinning is recommended in the old regeneration openings.

Small group selections may be implemented in areas dominated with poor growing stock, creating a component of mixed hardwood regeneration, 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.

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. The prescribed management will also allow ash seed to be captured and new seedlings generated before the loss of seed bearing ash trees to EAB. 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 6370518. Work should include the following:

- Grapevine Control – Pre-harvest in potential openings / Post Harvest in old 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 as needed

### **Schedule:**

<u>Proposed Management Activity</u>	<u>Proposed Period</u>
Pre-Harvest TSI/Invasive Treatments	2018-2019
Timber Marking	2019
Road/Landing Work	2018
Timber Sale	2019
Timber Sale Closeout	2020-2021
BMP Review	2020-2021
Post Harvest TSI/Invasive Treatments	2020-2021
Regeneration Success Review	2025-2026
Reinventory and Management Guide	2031

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# 6370518

