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

State Forest: Morgan-Monroe State Forest **Tract:** 6370410 (Compartment 4 tract 10)
Tract Acreage: 58 **Forest Acreage:** 58
Forester: Ramey / Jones **Date:** July 21, 2016
Management Cycle End Year: 2032 **Management Cycle Length:** 16

Location:

Tract 6370410 is located in Morgan County, Washington Township, Section(s) 33, 34 – T 11 N – R 1 E. It is approximately 1 mile and a bit north of Main Forest Rd on Rosenbaum Rd.

General Description:

Most of the tract's 58 acres are covered with hardwood forests, especially oak-hickory timber types. Other type(s) present include mixed hardwoods. The most recent harvest in this tract occurred in 1986. This was primarily an improvement cut and light thinning which focused on removal of fire damaged and other lower quality trees. As a result of past efforts, the current overall timber quality within this tract is good and consists mainly of medium to large size classes. There was a regeneration opening created totaling 1.2 acres. TSI was performed in 1987 and focused on cull removal opening completion. The old regeneration openings are now 30 years old and contain poletimber size mixed hardwoods.
Older tract and harvest records are not clear due to the reassigning and overlapping of compartments and tracts delineated in the 1970's. Compartment 4, tract 10 had previously been part of old compartment 10, tracts 2 and 3. The acreage has changed from 86 acres to 133 acres to present tract of 58 acres.

History:

- 1931-47 – Acquisition of various land holdings
- 1971 - Timber Harvest formerly Compartment 10 tract 2 (30,620 bf sold)
- 1986 - Timber Harvest Combined with tract 3 (209,050 bf sold)
- 1987 - TSI – General opening completion
- 2016 - Inventory/Cruising Ramey / Jones
- 2016 - Resource Management Guide

Landscape Context:

State Forest managed lands completely surrounds the tract is predominantly Closed-canopy deciduous forest.

The surrounding landscape near the tract is predominantly closed-canopy deciduous/mixed forest. The primary block of the State Forest lies to the east of Rosenbaum Road.
Other minor cover/habitat types present include utility line to the west and across the road.

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 Sand Creek-Indian Creek subwatershed. Water resources within this hydrologic boundary are part of the Indian Creek watershed.

Riparian features (intermittent streams and ephemerals) 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 well drained or well drained. These soils formed from a thin layer of loess and underlying limestone bedrock. 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.

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 drainage ways. It is suited to trees. Erosion hazards, equipment limitations, and plant competition are the main management concerns. These should be considered 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.

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.

Wa- Wakeland silt loam, frequently flooded
This is a nearly level, deep, somewhat poorly drained soil on narrow to moderately broad flood plains of creeks. It is well suited to trees. Management planning should consider wet times of year. This soil has a site index of 90 for pin oak and yellow poplar.

Access:

This tract is accessible via Rosenbaum Road. The gate is approximately 1.2 miles north of the intersection of Main Forest and Rosenbaum roads. Access within the tract is good.

Boundary:

This tract has no adjacent private ownerships. The tract boundaries are defined by Rosenbaum Rd., other State Forest tracts and are 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
- contiguous mixed hardwood canopy
- riparian areas
- shrub-scrub area across the road under utility lines

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.** Current assessments indicate the abundance of these habitat features meet or exceed recommended base levels in all diameter classes. **Preferred Live Roost Trees**. 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.

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 ground layer.

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 on 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. These species are common and prevalent throughout the county. 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 3/7/16 by Foresters Ramey / Jones. A summary of the estimated tract inventory results are located in the table below.

Tract Summary Data

Total Trees/Ac. = 122 **Trees/Ac.**
Present Volume = 13,742 **BF/Ac.**
Sawtimber Trees/Ac. = 53 **Trees/Ac.**
Harvest Volume = 3,500-4,000 **Bd. Ft. /Ac.**

SPECIES	# of Sawtimber Trees	Total Bd. Ft.
Black Oak	791	305,520
Northern Red Oak	336	92,740
Yellow-Poplar	301	87,740
White Oak	353	78,650
Shagbark Hickory	193	48,110
Chestnut Oak	168	45,700
Sugar Maple	243	32,830
Pignut Hickory	160	25,490
Sassafras	195	18,260
Scarlet Oak	83	17,540
White Ash	30	13,160
Red Maple	47	12,470
Blackgum	53	8,280
American Elm	64	5,650
Black Locust	18	4,910
TOTAL	3,035	797,050

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/Mixed Hardwood – 56.4 acres

The timber type is predominantly mature oak-hickory with mixed hardwoods, such as yellow-poplar, sugar maple, white ash, red maple, and American beech, more common on north and east slopes. A mix of diameters is present, but the timber resource consists of a mostly medium to

large size classes. Oak species account for the majority of the total volume in the tract, with black and red oaks being the most prevalent. The understory is dominated by beech-maple.

Old Regeneration Openings – 1.6 acres

Within the stratum there is one old regeneration opening dominated with yellow poplar, maples, and sassafras. The majority of yellow-poplar regeneration in this opening were found to have modest decline and mortality due to the tuliptree scale infestation and severe drought that occurred in 2012. The opening is approximately 30 years old and totals roughly 1.2 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 (70-75 sqft/acre) according to the Gingrich stand density chart for upland hardwoods.

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. This prescribed management will also allow ash seed to be captured in the seedbed 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, access and mortality of ash across the infested landscape.

TSI

A Timber Stand Improvement (TSI) is prescribed for 6370410. Work should include the following:

- Croptree Release – Post-harvest
- Regeneration Opening Completion – Post-harvest
- Large Snag Creation – Post-harvest as part of opening completion and croptree release operations
- Coppicing – Post-harvest as part of opening completion operation – limited to young oaks, walnut, yellow-poplar.
- Exotic Control – Potential Pre-harvest in openings, Post-harvest as needed

Schedule:

Proposed Management Activity	*Proposed Period*
Timber Marking	2017-18
Road/Landing Work	2017-18
Timber Sale	2019
Timber Sale Closeout	2020
BMP Review	2021
Post Harvest TSI/Invasive Treatments	2021
Regeneration Success Review	2025
Reinventory and Management Guide	2032

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6370410 Stand Map