

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

State Forest: Morgan-Monroe State Forest	Tract: 6371101 Compartment 11 Tract 01
Tract Acreage: 110	Forest Acreage: 110
Forester: Ramey / Jones	Date: June 8, 2016
Management Cycle End Year: 2032	Management Cycle Length: 16

Location:

Tract 6371101 is located in Monroe County, Washington Township, Section 1, T10 N – R1 W. It is approximately 12 miles north of Bloomington, and located on Old State Road 37 Rd.

General Description:

Most of the tract's 110 acres are covered with hardwood forests, especially oak-hickory timber types. Other type(s) present include mixed hardwood and pine plantations. The most recent harvest in this tract occurred in 1994. This was primarily an improvement harvest and light thinning which focused on removal of fire damaged and other lower quality trees. There were also 6 regeneration openings created totaling 10 acres. TSI was performed in 1996 and focused on cull removal, vine control, and opening completion. As a result of past efforts, the current overall timber quality within this tract is good and consists mainly of medium size class. The old regeneration openings are now 20 years old and contain poletimber size mixed hardwoods.

History:

- 1930 - Acquisition
- 1932-34 - Pine Plantings 13 acres
- 1974 - Timber Harvest – White Pine poles
- 1989 - TSI: Grape vine control
- 1993 - Inventory/Cruising- Hahn
- 1994 - Timber Sale Wright Timber 148,065bf for \$60,009.00.
- 1996 - TSI – General opening completed.
- 2016 - Inventory/Cruising - Ramey
- 2016 - Resource Management Guide

Landscape Context:

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

Other minor cover/habitat types present include Bryant Creek Lake to the east and utility line to the west.

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 Burkhart Creek-White River sub watershed. Water resources within this hydrologic boundary are part of the Butler Creek-White River watershed.

Riparian features 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.

WmC- Wellston-Gilpin silt loams, 6 to 20 percent slopes

These moderately sloping to moderately steep, well drained soils are on side slopes and ridgetops in the uplands. They are well suited to trees. This complex has a site index for northern red oak of 71 in the Wellston and 80 in the Gilpin.

CrC- Crider silt loam, 6 to 12 percent slopes

This moderately sloping, deep, well-drained soil is on narrow and broad convex ridgetops of the uplands. It is well suited to trees. This soil has a site index of 88 for northern red oak and 97 for yellow poplar.

BkF- Berks-Weikert complex, 25 to 75 percent slopes

This complex consists of steep and very steep, moderately deep and shallow, well drained soils on side slopes of the uplands. Erosion hazard, equipment limitations, and seedling mortality are concerns in management due to slope and depth to bedrock. These factors should be considered when planning management activities and implementing Best Management Practices for Water Quality. This complex has a site index of 70 for northern red and black oak.

Bu- Burnside silt loam, occasionally flooded

This nearly level, deep, well-drained soil is on floodplains. It is occasionally flooded for brief periods in the spring. It is well suited to trees. This soil has a site index of 95 for yellow poplar.

Access:

This tract is accessible via Old State Road 37. The gate is approximately 300 feet south of the intersection of Old State Road 37 and Main Forest road. Access within the tract is good.

Boundary:

This tract has no adjacent private ownerships. The tract boundaries are defined by other State Forest tracts and are generally defined by deep ravines, mapped intermittent streams to the west and Old State Road 37 to the east and Bryant Creek road to the south.

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
- pine plantations
- 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:** 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 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.

Red/White Pine Plantations

The tract includes an approximately 10 acre red and white pine planting that was observed. It was established in the 1930's to help restore forests on abandoned, worn out farmlands. This is a small to large sawtimber size stand that is stagnant in areas and in general decline. These remnants offer some habitat diversity, but as will eventually fade from the stand. Red pine is not a native species to Indiana.

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 6/8/16 by Forester Ramey. A summary of the estimated tract inventory results are located in the table below.

Tract Summary Data

Total Trees/Ac. = 108 **Trees/Acre**

Sawtimber Trees/Ac. = 47 **Trees/Acre**

Present Volume = 12,238 **Board Feet/Acre**

Harvest Volume = 4000-4500 **Bd. Ft. /Ac.**

SPECIES	# of Sawtimber Trees	Total Bd. Ft.
Yellow-Poplar	804	356,940
Eastern White Pine	322	216,310
Sugar Maple	1,340	200,000
Black Oak	650	172,430
White Oak	375	119,940
Northern Red Oak	329	89,630
Red Pine	501	76,240
White Ash	226	47,010
Pignut Hickory	198	43,950
American Beech	112	24,720
Shagbark Hickory	128	23,380
Black Cherry	102	23,210
Black Walnut	84	9,760
Black Locust	59	9,410
American Elm	76	5,590
Blackgum	31	2,770
Sassafras	41	2,250
TOTAL	5,378	1,423,540

For the purpose of this guide, this tract has two 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 – 87.7 acres

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 is 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 yellow poplar 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.

Old Regeneration Openings – 9.9 acres

Within the stratum there are 6 old regeneration openings totaling 9.9 acres and 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 20 years old and total roughly 10 acres.

Mixed Pine Plantation – 11.9 acres

The timber type is predominantly planted mixed red and white pine and is located in the central area of the tract. The white pine is doing well; containing medium and large sawtimber trees that have good height, with some occasional mixed hardwoods growing in. The red pine has stagnated and is in general decline. Hardwoods in these areas consist of primarily yellow-poplar and maple.

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 square feet/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.

Pine Thinning/Improvement Cutting

Though not native to this area, pine does have aesthetic value. In general, the pines that do well on our State Forest properties are eastern white pine, shortleaf pine, and loblolly pine. Due to the good condition of this stand, it will be managed and enhanced until maturity. A free thinning is prescribed for this stand. This will include a combination of low, selection, and possibly geometric/row thinning. Individual trees targeted for removal should include the following: suppressed and intermediate trees that are likely to drop out from competition; dominant or co-dominant pine trees that are overtopping or competing with quality hardwoods, trees damaged by past fire; wind-damaged trees; drought-stressed trees; and possibly trees that need to be removed to achieve a desired spacing or for logistical reasons.

Emerald Ash Borer

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 6371101. 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
Timber Sale	2018-19
Timber Sale Closeout	2020
BMP Review	2020
Post Harvest TSI/Invasive Treatments	2021
Regeneration Success Review	2025
Reinventory and Management Guide	2032

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6371101 Stand Map

