

Indiana Department of Natural Resources – Division of Forestry

Draft

Resource Management Guide

State Forest: Morgan-Monroe State Forest **Tract:** 6371102 Compartment 11 Tract 2
Tract Acreage: 117 **Forest Acreage:** 115.5
Forester: Ramey / Jones **Date:** September 24, 2015
Management Cycle End Year: 2032 **Management Cycle Length:** 17

Location:

Tract 6371102 is located in Monroe County, Washington Township, Section(s) 1, 2 – T- 10- N – R- 1- W. It is approximately 1/4 mile north of the main forest entrance and located Old State Road 37.

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. The most recent harvest in this tract occurred in 1999. This was primarily an improvement cut and light thinning which focused on removal of fire damaged and other lower quality trees. There were no regeneration openings created. 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.

History:

- 1933-34 - Tree Plantings
- 1976 - Timber Harvest 97,560 board feet
- 1977 - TSI - General
- 1997 - Inventory/Cruising
- 1998 - Resource Management Guide Forester Hahn
- 1999 - Timber Sale / Harvest 111,872 board feet
- 2000 - TSI - General
- 2016 - Inventory/Cruising – Forester Ramey
- 2016 - 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 south of Old State Road 37, a major utility line to the east and private landownerships to the west of this tract.

Other minor cover/habitat types present include pine/conifer plantations and an old stone quarry with water.

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

Riparian features (intermittent streams and ephemeral) 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 1/4 mile northwest the intersection of Old State Road 37 and Main Forest road. Access within the tract is good.

Boundary:

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

The majority of the remaining tract boundaries adjoin other State Forest tracts and are generally defined by deep ravines and a mapped intermittent streams 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
- pine plantations
- riparian areas
- Old stone quarry with water

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 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.

Wildlife Ponds (old stone quarry) – 2.2 acres

Wildlife ponds provide a reliable source of water to wildlife year-round. They provide for wildlife foraging activity, drinking, cover, and also important breeding habitat for forest amphibians. When possible, harvest operations should remove no more than 25% of the basal area within 50 feet of pool. Also, all snags and downed logs should be left within a 100 foot buffer. Canopy cover surrounding pool should be retained to encourage shading and limit evaporation unless they threaten the structural integrity of impoundment. Disturbance around pool should be minimized. Routine BMP'S should be applied to harvest areas to ensure that water levels and quality are maintained. If an even-age treatment is prescribed that requires residual retention, this retention should be left around pond to satisfy both recommendations.

Ledges, rock outcrops, cliff, talus slopes

Ledges, rock outcrops, cliff, and talus slopes provide unique habitat for wildlife species. In general, direct impacts to these resources should be avoided. Care should be taken during harvest layout and planning to protect the integrity of these resources.

A Natural Heritage Database review was completed for this tract on 2/18/16 and will be rechecked prior to plan implementation. 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.

- **Autumn Olive**
- **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 6/15/16 by Forester Ramey. A summary of the estimated tract inventory results are located in the table below.

Tract Summary Data

Total Trees/Ac. = 127 **Trees/Ac.**
Present Volume = 13,402 **BF/Ac.**

Sawtimber Trees/Ac. = 54 **Trees/Ac.**
Harvest Volume = 3500-4000 **Bd. Ft. /Ac.**

SPECIES	# of Sawtimber Trees	Total Bd. Ft.
Yellow-Poplar	1,297	579,730

White Oak	533	157,170
Sugar Maple	859	138,650
Black Oak	344	109,980
Red Maple	552	77,410
Northern Red Oak	289	70,070
Red Pine	443	62,600
White Ash	318	62,470
Pignut Hickory	144	48,720
Sassafras	363	48,630
Black Walnut	193	38,910
Shagbark Hickory	161	30,990
American Beech	159	18,590
Black Locust	74	10,080
Largetooth Aspen	61	9,370
Black Cherry	26	4,520
Blackgum	26	3,950
American Elm	44	2,430
TOTAL	5,886	1,474,270

This tract has 2 management units (stands). Below is a list, general stand descriptions and silvicultural prescriptions.

Descriptions

Oak-Hickory/Mixed Hardwood – 110.1 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 are 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 white and black being the most prevalent. The understory is dominated by beech-maple.

Mixed Pine Plantation – 4.7 acres

The timber type is predominantly planted mixed red and white pine and is located in the central area of the tract. The general condition of the white pine is fair to good; containing medium and large sawtimber trees that have good height, with some occasional mixed hardwoods moving in where pines have died out. The red pine is stagnant, in general decline, and is slowly converting to mixed hardwoods. Hardwoods in these areas consist primarily of yellow-poplar, sassafras, 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 (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.

Pine to Hardwood Conversion Cutting

A conversion of this area from nonnative planted pine to native hardwoods is prescribed. This should be accomplished primarily through an even-age method such as clearcutting. If areas exist that are interspersed with a sufficient stocking of vigorous dominant, co-dominant, and intermediate mixed hardwoods, a singletree and group selection cutting of these areas is recommended. A light improvement cutting of the hardwood trees may be necessary.

Emerald Ash Borer

Emerald Ash Borer (EAB) 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 6371102. Work should include the following:

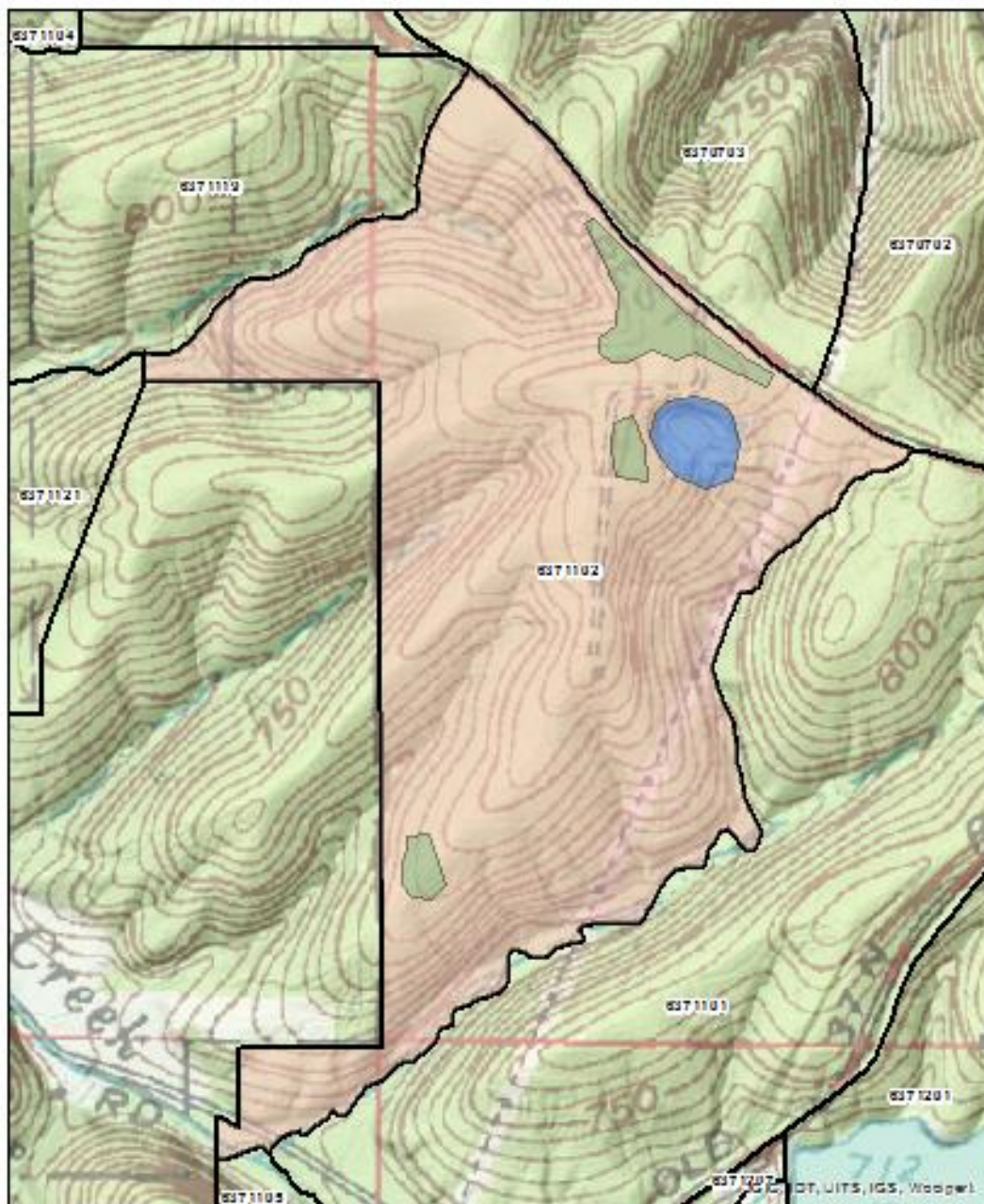
- Croptree Release – post harvest
- Regeneration Opening Completion – post harvest
- Large Snag Creation - Post-harvest as part of opening completion and croptree release operations
- Coppicing – post harvest if openings are created
- Exotic Control – Potential Pre-harvest in openings, Post-harvest as needed




Schedule:

<i><u>Proposed Management Activity</u></i>	<i><u>Proposed Period</u></i>
Timber Marking	2017-18
Road/Landing Work	2017-18
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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	Stone Quarry-2.2 ac
	Pine Stand-4.7 ac
	Oak-Hickory Mixed Hdws-110.1 ac

