

# Indiana Department of Natural Resources – Division of Forestry

**DRAFT**

## Resource Management Guide

**State Forest:** Morgan-Monroe

**Tract Acreage:** 81

**Foresters:** Allison Rubeck for P. Jones

**Management Cycle End Year:** 2028

**Compartment 13 Tract 03**

**Commercial Acreage:** 81

**Date:** July 23, 2013

**Management Cycle Length:** 15 years

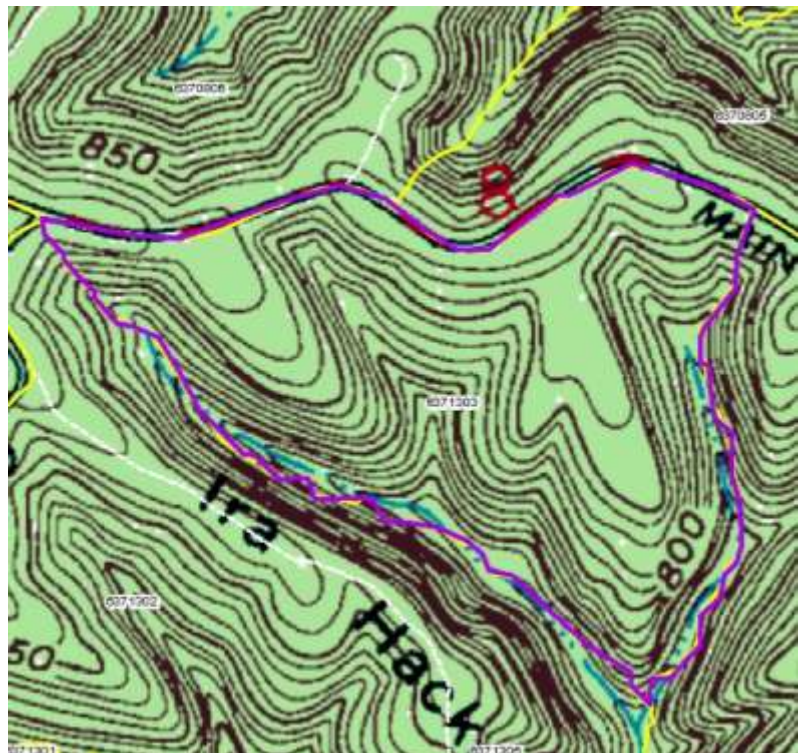
### Location

M1303 is located in the south central portion of Section 8 in Township 10N, Range 1E in Benton Township of Monroe County, Indiana. The tract lies approximately 14 miles north northeast of the city of Bloomington, Indiana and 9 miles south southwest of Martinsville, IN being situated approximately 1.5 miles inside the Morgan-Monroe State Forest entrance on the south side of Main Forest Road.

**Figure 1. Morgan-Monroe State Forest Compartment 13 Tract 3**

### General Description

M1303 consists of a total of 81 Oak-Hickory forested acres. Mixed Hardwoods such as Yellow Poplar, Sugar Maple, White Ash, Red Maple, American Beech and Largetooth Aspen are also present and interspersed throughout the tract. All 81 acres are considered commercial forest acreage. M1303's timber resource ranges from small to large sawtimber in size. The overall timber quality of this tract is good to excellent. Poletimber-sized Mixed Hardwoods dominate the regeneration openings. This tract serves as a Buffer Tract for an Evenaged Management Unit of the Division of Forestry's 100 Year Hardwood Ecosystem Experiment. A summary of the forest resources in M1303 in relation to species dominance is noted below in Table 1.



**Table 1. Overview of Forest Resources in M1303 in July of 2013**

<b>Overstory Sawtimber Layer</b>	<b>Understory Poletimber Layer</b>	<b>Regeneration Layer</b>
<b>Black Oak</b>	<b>Chestnut Oak</b>	<b>Yellow Poplar</b>
<b>Chestnut Oak</b>	<b>Red Maple</b>	<b>American Beech</b>
<b>White Oak</b>	<b>Sugar Maple</b>	<b>Sugar Maple</b>
<i>Scarlet Oak</i>	<b>Yellow Poplar</b>	<i>Blackgum</i>
<i>Northern Red Oak</i>	<b>Basswood</b>	<i>Largetooth Aspen</i>
<i>Yellow Poplar</i>	<i>White Oak</i>	<i>Red Maple</i>
<i>Bitternut Hickory</i>	<i>American Beech</i>	<i>Sassafras</i>
<i>Red Maple</i>	<i>Bitternut Hickory</i>	<i>Bitternut Hickory</i>
<i>Sugar Maple</i>	<i>Sassafras</i>	<i>Black Cherry</i>
<i>Basswood</i>	<i>Scarlet Oak</i>	<i>Bluebeech</i>
<i>Largetooth Aspen</i>	<i>Blackgum</i>	<i>Chestnut Oak</i>
<i>Chinkapin Oak</i>	<i>Northern Red Oak</i>	<i>Flowering Dogwood</i>
<i>Pignut Hickory</i>		<i>Hackberry</i>
<i>White Ash</i>		<i>Pignut Hickory</i>
		<i>White Oak</i>

**Bold – Species that comprise  $\geq 10\%$  of the total TPA and/or BA in each structural class**

*Italicized - Species that comprise  $\leq 10\%$  of the total TPA and/or BA in each structural class*

### History

- 1931 – State Forest acquisition from Stewart Family (DR#143.75) pt of 200 acres.
- 1935 – C.C.C Pine Planting.
- Pre 1970 – Timber Sale (Volume Unknown)
- 1/19/89 – Timber Sale (132,960 Bd. Ft.) sold to Sam Cramer Logging for \$21,600.00
- 1/29/90 – Timber Sale Harvest Completed
- 1990 – TSI Completed
- 1993 – TSI Completed
- 2006 – Tract Forest Resource Inventory
- 7/19/13 – 2<sup>nd</sup> Tract Forest Resource Inventory by Foresters P. Jones and A. Rubeck.

In 1989 a timber sale was sold in the tract of 724 trees containing an estimated 132,960 Board Feet (Bd. Ft.) of volume along with 230 cull trees. About 80% of the trees marked for removal were Oaks and the remaining trees were predominantly Yellow Poplar, White Ash, Sugar Maple, Basswood, and Aspen. The harvest was completed and closed out in the winter of 1990. Post harvest TSI was partially completed in the late summer of 1987 and finished in 1993. There were 6 group selection openings created in the 1989 sale totaling 6.89 acres.

### Landscape Context

M1303 lies entirely south of Main Forest Road. Other Morgan-Monroe State Forest tracts of generally closed canopy hardwood forest completely surround the tract. Three tracts to the north across Main Forest Road form one of the Even-aged Research Cores that is specifically managed by the HEE. Two mapped intermittent streams make up almost the entirety of the west, south and east tract boundaries. These two streams converge together in the southernmost point of M1303 to form a larger mapped intermittent stream.

## Topography, Geology, and Hydrology

M1303 consists of two main ridges that run from the north part of the tract in a southerly direction. Slopes range from 2-6% on the ridgetops and 25-75% on the sideslopes. All aspects are represented within the tract. The two primary soils found in M1303 formed over limestone, or were underlain by sandstone, siltstone, or shale. Water resources from the intermittent streams and ephemeral drainages in this tract drain into Greasy Creek, then into Beanblossom Creek which feeds into the White River.

## Soils

This tract contains 2 different soil types: BkF and WmC. Soils listed in order of dominance. These are pictured in Figure 2 below.

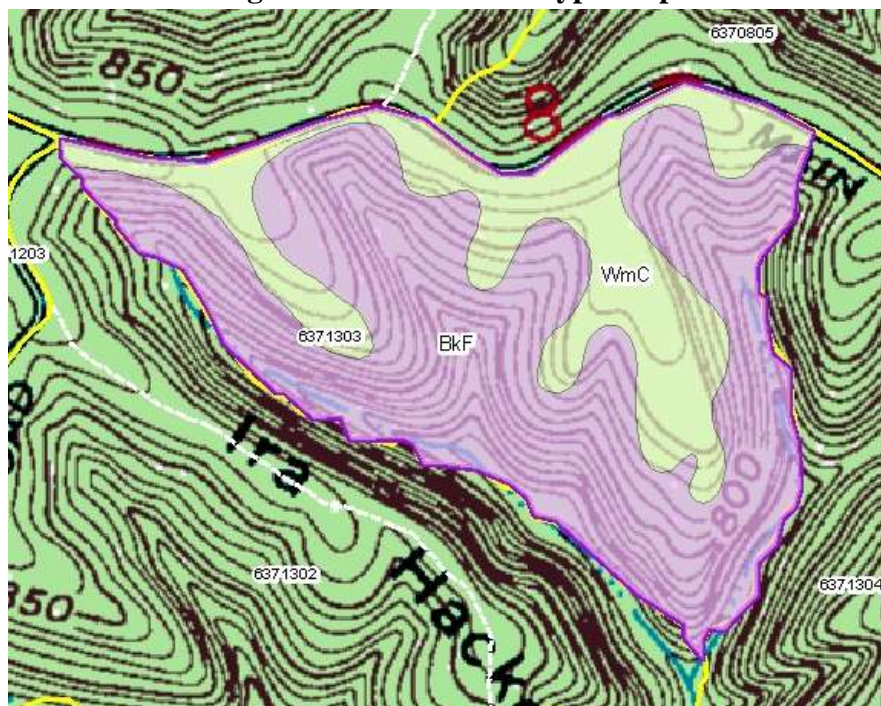
### BkF- Berks-Weikert Complex, 25 to 75 percent slopes

This Complex consists of steep and very steep, moderately deep and shallow, well drained soils on sideslopes of the uplands. These soils are only suited for timberlands but do not typically produce high quality timber. Erosion hazards, equipment limitations, and seedling mortality are concerns in management due to slope and depth to bedrock. These factors should be considered when laying out timber sales and in implementing Best Management Practices for Water Quality. This Complex has a site index of 70 for Northern Red and Black Oak.

### WmC- Wellston-Gilpin Silt Loams, 6 to 20 percent slopes

These moderately sloping to moderately steep, well drained soils are on sideslopes and ridgetops in the uplands. They are well suited to trees. This soil type has a site index for Northern Red Oak of 71 in the Wellston soil and 80 in the Gilpin soil.

**Figure 2. – M1303 Soil Type Map**



## Access

This tract is easily accessible for public and resource management access from off of the Main Forest Road of Morgan-Monroe State Forest. This road is in excellent condition being paved.

Old haul roads into this tract were also found to be in good condition. Along Main Forest Road there are two blocked access trails that provide recreational and management access. Roadways into this tract were last improved in 2013.

### **Boundary**

There are no private ownerships adjacent to M1303. Other Morgan-Monroe State Forest tracts border all portions of this tract. The entirety of the north tract boundary is determined by Main Forest Road. Mapped intermittent streams serve as tract boundaries for the west, south and east boundaries.

### **Wildlife**

Wildlife resources are abundant within M1303. This tract contains a diverse vegetation conducive to providing habitat for a wide variety of wildlife species. Forested habitat includes a large amount of contiguous Oak-Hickory timber species, interspersed Mixed Hardwood species, forested riparian areas, and scattered 20 to 30 year old regeneration openings. These openings vary in size but all present similar, dense vegetation that provides wildlife habitat food and cover. Vegetative species include Sassafras, Wild Grapevine, and assorted early successional shrubs.

Other habitat structures that favor wildlife include snags (standing dead trees) and cavity trees. Snags and cavity trees provide habitat for birds, bats, and other small mammals to feed, roost, and nest. Hard mast trees such as Oaks, Hickories, and American Beech provide food resources for Fox and Gray Squirrels, Wild Turkey, White-tailed Deer and Blue Jays. Downed woody debris provides habitat and cover for many wildlife species and also reduces rainfall runoff.

A Natural Heritage Database Review was completed for M1303 in 2013. If Rare, Threatened or Endangered species (RTE's) were identified for M1303; the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

The Division of Forestry has instituted procedures for conducting forest resource inventories so that the documentation and analysis of live tree and snag tree densities are examined on a compartment and tract level basis in order to maintain long-term and quality forest habitats. Crown release performed during timber harvests will stimulate the growth of the selected residual trees and will enhance the vigor of these sawtimber trees. Timber Stand Improvement (TSI) following the harvest is planned which will increase standing snag counts. Management practices conducted on Y1303 will be conducted in a manner that will maintain the long-term and quality forest habitats for wildlife populations.

### **Communities**

M1303 is generally comprised of dry mesic upland hardwoods. The dominant overstory timber species includes Black, Chestnut, and White Oaks. Slopes and streamside areas have mainly an Oak canopy however portions of the tract contain Mixed Hardwood species such as Sugar Maple, Yellow Poplar, and American Beech. The prior harvest regeneration openings from the 1989 sale contain predominately Yellow Poplar and Red Maple poletimber. The understory contains some Oaks species however poletimber species within the tract are mainly Chestnut Oaks, Maple spp.,

Yellow Poplar and Basswood. The regeneration status of the tract currently consists of Yellow Poplar, American Beech and Sugar Maples.

### Exotic and Invasive Species

Multiflora Rose was observed in scattered but light concentrations. Nearby counties including portions of Monroe County in Indiana have documented locations of the plant virus Rose Rosette disease. The populations of Multiflora Rose within the State Forest have stabilized and are being slowly contained by this disease. Control measures for MF Rose may be warranted if populations are located in planned regeneration openings. A light population of Tree of Heaven (*Ailanthus altissima*) was discovered in one of the regeneration openings in this tract during the resource inventory. This occurrence of Ailanthus was mapped and the control of this exotic is planned during this management cycle.

### Recreation

Recreation in this tract is popular due to its close proximity to Main Forest Road. There are several recreational opportunities available for the public in M1303, these would include hunting, mushrooming, wildlife viewing and hiking. An educational hiking spur trail links the 3 Lakes Hiking Trail to the HEE information Kiosk on Main Forest Road. At present construction of a family biking trail that would link Bryant Creek Shelterhouse to the MMSF Campgrounds north of the MMSF office is under consideration. The proposed trail may run through the northern wooded portion of M1303, with initial trail work to begin in 2015. Implementation of resource management prescriptions will include recreational use considerations.

### Cultural Resources

All portions of M1303 were reviewed for cultural sites during the current forest resource inventory. Cultural resources may be present within this tract but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

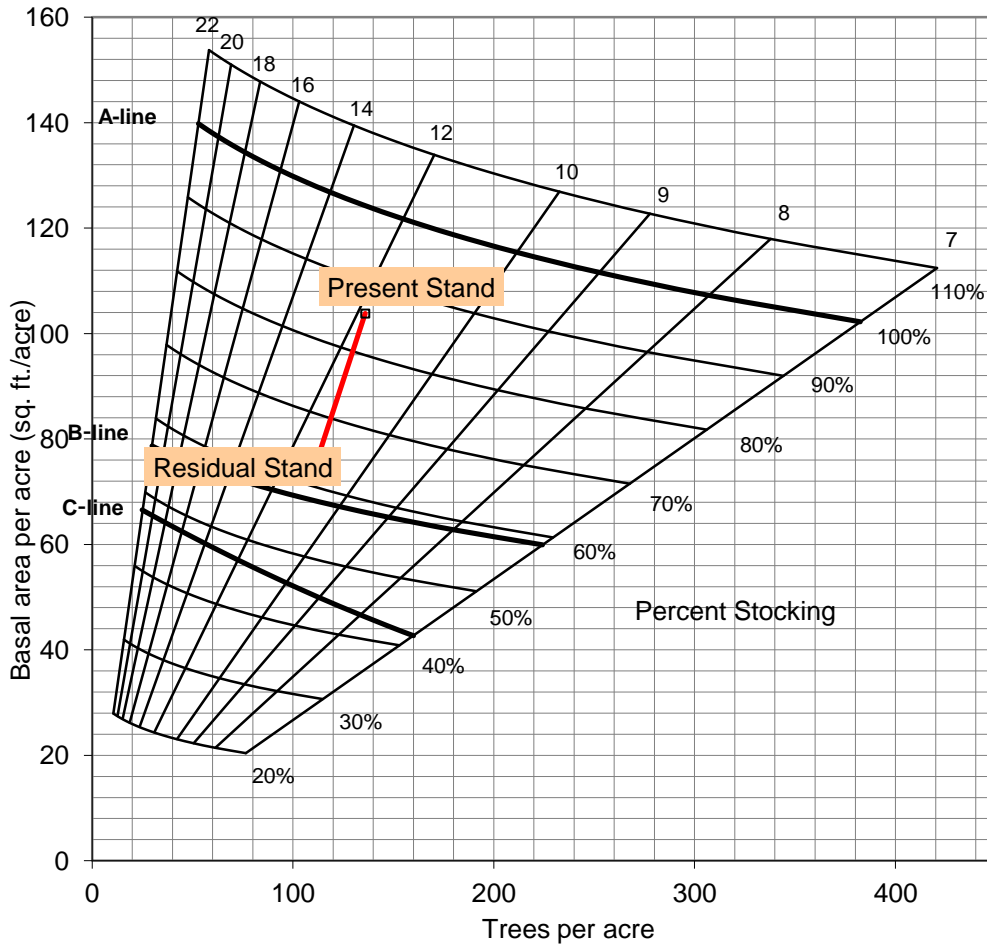
### M1303 Tract Summary Data from the July 2013 Inventory

Total Trees/Ac. = **136 Trees/Ac.**  
 BA/A = **103.8 Ft<sup>2</sup>/Ac.**  
 Present Volume = **8,990 BF/Ac.**

Overall % Stocking = **85% Stocking**  
 Sawtimber & Quality Trees/Ac. = **43 Trees/Ac.**

	Acres		Sq. Ft. per Acre
Hardwood Commercial Forest:	81	Basal Area Sawtimber:	74.3
Pine Commercial Forest:	0	Basal Area Quality:	4.3
Noncommercial Forest:	81	Basal Area Poles:	20.1
Permanent Openings:	0	Basal Area Culls:	2.1
Other Use:	0	Sub-merchantable:	2.9
<b>Total:</b>	<b>81</b>	<b>Total Basal Area:</b>	<b>103.8</b>

**Table 2. Gingrich Stand and Stock Table for M1303 in July 2013**



**Tract Subdivision Description and Silvicultural Prescription**

M1303’s current forest resource inventory was completed on July 19, 2013 by Forester Phil Jones and forest intermittent Allison Rubeck. 23 prism points were examined and sampled over 81 acres (1 point for every 3.52 acres). A summary of the inventory results are given above and a compilation of the total volume by species is presented in Table 3 below. M1303 is currently well stocked and a managed timber harvest is prescribed. Singletree and group selection cuttings are prescribed to thin and release desirable croptrees, remove suppressed and poorly formed trees and to regenerate areas that contain aggregations of low stocking, excessive fire or windthrow damage, or overmature timber resources. For the purpose of this guide M1303 has only one designated Management Stratum based on the tract dominance of its Oak-Hickory cover type.

**Oak-Hickory/Mixed Hardwoods Stratum – 81 acres**

### Current Condition

The timber type is predominantly mature Oak-Hickory with some Mixed Hardwoods mixed within. These Mixed Hardwoods consist of mainly Yellow Poplar, Sugar Maple, White Ash, Red Maple, and American Beech. Oak and Hickories account for 86% of the total volume in the tract with Black and Chestnut Oak being the most prevalent by volume. The understory is dominated by Sugar Maple, Sassafras, Red Maple, American Beech and Hickory species. The understory also contained numerous poletimber-sized Oak species in some areas. The 1989 origin regeneration openings are dominated with Yellow Poplar, Maple species, 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.

### Prescription

The management goal of this Stratum is to maintain a fully stocked, healthy stand dominated with vigorous Oaks and Hickories. This Stratum is prescribed an improvement and release cutting to release the highest quality and most vigorous residual Oak and Hickory stems. 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. An understory harvest is also planned in portions of this Stratum to reduce the density of Red Maple and American Beech so that Oak-Hickory advance regeneration is promoted and established. Overall, the prescription is to perform a light improvement cut over the majority of the area. This should be accomplished primarily through singletree selection. However, small group selections may be implemented in areas dominated with poor growing stock. Emerald Ash Borer is known to have infested a portion of MMSF approximately 3.5 miles southeast of M1303 and is expected within the tract. Ash utilization and regeneration will be incorporated into the tree selection strategies.

## **Summary Tract Silvicultural Prescription and Proposed Activities**

The prescription for M1303 is predominantly a combination improvement cutting and singletree selection cutting over the tract acreage. Group selections may be prescribed in portions of the tract where aggregations of low stocking, low quality, Pine plantations, ash seed sources or mature timber occur. In addition, the management that is proposed for M1303 will need to conform to the current management standards that are established for HEE Research Buffer tracts. The Indiana guidelines for Best Management Practices (BMP's) will be followed during the timber harvest and closeout activities to maintain water quality. The prompt installation of water diversions following harvesting will be employed to minimize any effects to neighboring water resources.

Riparian areas exist along portions of M1303's west, south and eastern tract boundaries which contain mapped intermittent streams. The management within these areas will be prescribed according to current Division of Forestry guidelines.

Portions of or all of M1303 will be submitted for a postharvest Timber Stand Improvement (TSI) project along with any invasive work if deemed appropriate by the administering forester. Post-

harvest TSI may include Wild Grapevine control, croptree release, large snag creation and possibly small opening completion. The existing Ailanthus population in one older regeneration opening is planned to be treated in 2015 or during the current management cycle. Preharvest Wild Grapevine control may also be required in potential group selection openings. TSI work is planned to be most intensive in the older regeneration openings. A field review for regeneration opening success is planned 3-4 years after opening TSI completion.

Given the recent inventory and projected growth of M1303's forest resources, this tract is suitable for a 15 year management cycle wherein growth and development of the tract's forest resource is evaluated by a forest inventory every 15 years. The current inventory indicates a possible harvest of between 150 to 200 MBF.

**Table 3. Volume estimates from the July 2013 inventory on M1303**

<b>Species</b>	<b>Total Volume (Bd. Ft.)</b>
Black Oak	241,120
Chestnut Oak	167,690
White oak	72,750
Scarlet Oak	59,580
Northern Red Oak	58,440
Yellow Poplar	37,190
Sugar Maple	24,460
Bitternut Hickory	20,400
Red Maple	19,480
Basswood	10,900
Chinkapin Oak	5,350
White Ash	4,740
Pignut Hickory	3,420
Largetooth Aspen	2,780
<b>Tract Totals*</b>	<b>728,280</b>
<b>Per Acre Total</b>	<b>8,990</b>

\*Rounded figures.

## **Proposed Activities Listing**

### Proposed Management Activity

Timber Marking/Invasive treatments  
 Timber Sale  
 Postharvest TSI & Invasives treatment (if needed)  
 Regeneration Success Review  
 Reinventory and Management Guide

### Proposed Period

CY 2015-16  
 FY2014-15 or FY2015-16  
 CY 2017-18  
 3-4 years after harvest  
 CY 2028

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