Indiana Department of Natural Resources – Division of Forestry

DRAFT

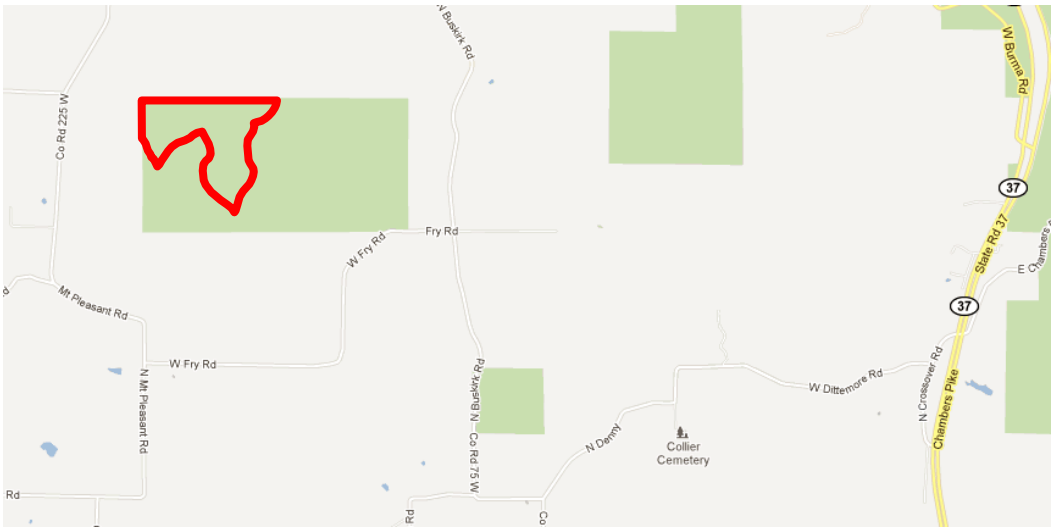
Resource Management Guide

State Forest: Morgan-Monroe
Compartment 10 **Tract** 13
Tract Acreage: 87
Commercial Acreage: 87
Forester: James Dye
Date: August 22, 2011
Management Cycle End Year: 2031
Management Cycle Length: 15 years

Location:

Compartment 10 Tract 13 lies in the southwest corner of Section 7, Township-10-N, Range-1-W in Washington Township of Monroe County, Indiana. The Tract lies approximately 11 miles north-northwest of the city of Bloomington, Indiana.

Figure 1 – Morgan-Monroe Compartment 10 Tract 13



General Description:

M1013 is an approximately 87 acre managed, multiple-use parcel located in the westerly 320 acre block of Compartment 10. The timber type is predominantly closed canopy Mixed Hardwoods, though stands of Oak-Hickory are also present. There are some large fairly open, oldfield areas present on the ridges of the western half of the Tract. This tract is located approximately 3 miles west of Indiana Highway 37 and shares approximately half of its boundary with privately held property while the other half of boundary is shared with other State Forest tracts. It can be accessed via a long fire trail that extends northwest from a small, day-use parking lot located just off of W. Frye Road. This area exhibits good opportunities for multiple use management, including timber management, wildlife management, and

soil and water conservation. It is modestly used for public recreational activities such as hiking, gathering, hunting, and wildlife viewing.

Table 1 is comprised from 2011 forest inventory data and shows the relative frequency of tree species in this tract:

Table 1 – Basic Forest Structure of M1013 in August of 2011

Overstory Sawtimber Layer	Understory Poletimber Layer	Regeneration Layer
Black Oak	American Beech	Hickory spp.
Yellow Poplar	Sugar Maple	Sassafras
Northern Red Oak	Sassafras	American Beech
White Oak	Red Maple	White Ash
Sugar Maple	Flowering Dogwood	Black Oak
White Ash	Hickory spp.	Pawpaw
Scarlet Oak	Yellow Poplar	White Oak
Bitternut Hickory	White Oak	Northern Red Oak
Shagbark Hickory	Elm spp.	Yellow Poplar
Black Walnut	Bluebeech	Red Maple
Pignut Hickory	Blackgum	Sugar Maple
American Beech	Black Oak	Flowering Dogwood
Hackberry	Eastern Redbud	Sumac spp.
Chinkapin Oak	Northern Red Oak	Eastern Red Cedar
Largetooth Aspen	Pawpaw	Eastern Redbud
Black Cherry	White Ash	Scarlet Oak
	Black Cherry	Bluebeech
	Hackberry	

History:

Morgan-Monroe State Forest encompasses more than 24,000 acres in Morgan and Monroe counties in southcentral Indiana. The forest land encompasses many steep ridges and valleys, and is forested with some of the State's finest hardwoods. The original settlers of the area cleared and attempted to farm the ridges but were frustrated by rocky soil unsuitable for agriculture. The State purchased the eroded, abandoned land to create Morgan-Monroe State Forest beginning in 1929.

The 320 acre west block of Compartment 10 was formed from three separate acquisitions. Portions of Tract 13 lie in each of them. The eastern portion is split, where the upper portion of the Tract lies in the 200 acres purchased from the Schnaiter family in 1947 and the lower portion lies in the 40 acre

parcel acquired from the Sater family in 1950. The western portion of M1013 lies in an 80 acre parcel acquired from the Blackwell family in 1996.

Prior to 2004, the boundaries of M1013 were quite different. They did not include the western portion of the current tract and extended significantly further south. A change in M1013's boundary occurred following the purchase of an 80 acre block (from the Blackwell family in 1996) which added acreage to the Tract's west side. M1013 was then redrawn with new boundaries and Tract 17 was created to occupy the southern portion of the newly purchased land as well as some of the south portion of old M1013.

In 1976 in the old M1013 tract configuration, a timber harvest was conducted which harvested 356 trees containing an estimated 72,110 board feet (bd. ft.) of sawtimber volume. About one third of the trees were Black Oak and another 49 trees were Northern Red Oak. Sugar Maple, Yellow Poplar, and White Oak evenly comprised most of the rest. Timber Stand Improvement was completed following the harvest by MMSF staff and laborers.

Prior to State Forest acquisition in the 1990's the private landowner harvested the western portion of the current Tract configuration. This harvest removed a great deal of the standing quality sawtimber as preparation for a proposed strip mining operation which plans were ultimately abandoned. Following the harvest and acquisition of this parcel, MMSF foresters and Fire Headquarters equipment operators promptly entered the tract and completed a closeout of existing yarding and skid trails.

Today, Black Oak is still the dominant species in the forested areas of M1013 while Yellow Poplar, Northern Red Oak, and White Oak are well represented. The current and first forest resource inventory for this new configuration of M1013 was completed on August 22, 2011 by Forest Intermittent James Dye.

Landscape Context:

The east and southern portions of M1013 are surrounded by closed canopy deciduous forests of Morgan-Monroe State Forest. The eastern boundary is formed by a mapped intermittent stream. Across this stream lie M1012 and M1014. To the south lies M1017. The land adjacent to the north edge of M1013 is privately owned and consists of a mix of deciduous forest and open pasture or grassland. The land adjacent to the west edge of this Tract is also privately owned and contains a mapped intermittent stream with deciduous forest.

The western portion of M1013 contains a more recently acquired 80-acre parcel of land purchased in 1996. Prior to acquisition, a heavy harvest was conducted over much of this section which resulted in modest areas of ephemeral, early successional forest. In addition the old fields located on the

ridgetop of M1013 were derived from eroded and abandoned cropland/grassland fields. These fields provide excellent early successional and grassland wildlife habitats for birds and mammals.

Topography, Geology, and Hydrology:

The eastern half of M1013 tends to have mesic south to east facing aspects draining into the Tract's east boundary which is a mapped intermittent stream. Portions of these slopes contained oldfield areas with a past history of erosion. The western portion of M1013 is generally of drier south and western aspects that drain into a mapped intermittent and a flat, lowland bottomland oldfield. The western edge of M1013, particularly near the northwest corner, contains some modestly steep sections. Most of the sideslope soils in M1013 were formed in residuum from sandstone, siltstone, and shale whereas the ridgetops were derived from loess deposits with limestone outcrops. The mapped intermittent streams of M1013 flow into Indian Creek which into Beanblossom Creek which feeds into the White River.

Soils:

The soil types that reside in M1013 are listed in Figure 2. The dominant soil type within the Tract is the Berks-Weikert Complex (BkF) which is very common in woodlands of Monroe County making up 24.5% of its land acreage. Available water capacity is low to very low with rapid permeability and surface run off. Organic matter is moderate. These factors indicate low soil moisture and the possibility of erosion. Bedrock depth limits both the number and quality of surviving trees, particularly in the Weikert soils which typically have a bedrock depth of only 15 inches. It is recommended that any road construction follow contours to lessen erosion hazards. Berks-Weikert soils have a capability class of VIIe and woodland suitability subclasses of 3f (Berks) and 4d (Weikert), indicating Berks to have moderately high soil productivity and a high content of coarse fragments while Weikert has moderate soil production and restrictive root depths.

Figure 2 – Monroe County Soil Survey Map (1981)
Tract boundaries are approximations

The other major soil type in M1013 is the ridgetop Crider Silt Loam (CrC).

Crider Silt Loams are also quite common in Monroe County comprising roughly 11.9 percent of its soils. It is an upland soil formed in loess and residuum from limestone. CrC has high available water capacity and moderate permeability; however the organic matter layer is low. This soil type is well suited to agriculture and forest management. The main concern with forest management is the occasionally high clay content of the soil which may restrict activities to dry months or when the ground is frozen. The bedrock layer is at a depth of 67 inches in Crider soils and about 35 inches in Caneyville soils. The capability subclass is IIIe, and a woodland suitability subclass of 1o indicates very high soil productivity and no other pertinent restrictions.

Two other minor soil types within M1013 are Bedford Silt Loams (BdB) and Haymond Silt Loams (Hd). BdB soils are found in a very small upland area at the north portion of M1013. These soils have very slight slopes ranging from 2-6 percent with well-drained soils and a fragipan present in some areas at about 20 inches which can restrict root penetration. Hd soils are found along the western edge of M1013 but contain only a small acreage. These soils are deep, mostly level floodplain soils formed in alluvium and are well-suited for timber production although plant competition can be intense. Flooding is the primary concern particularly from January through May which can limit some management activities.

Additional information on soil types in M1013 is contained in the appendix.

Access:

M1013 is accessible via a small parking area on the north side of Fry Road. A series of fire trails exist throughout this large parcel of Compartment 10 in MMSF. The major access trail leading to M1013 from the Fry road parking area is generally in good condition. There are at least two old stream crossings in the west central portion of M1012. The northern most crossing will be utilized and a new section of skid will be developed that will side straddle a short slope in the northeast portion of M1013. The trail will come into an old, small Virginia Pine planting. It will then run close to the north property line and come out into the old field.

Boundary:

M1013's north boundary is adjacent to private land and is painted along its northeast portion. When the Division of Forestry acquired the 80-acre Blackwell property all corners were surveyed and established. The northwest and northeast corners of the Blackwell property were set by rebar and the center of Section 7 was established. Currently the North line of this Blackwell acquisition is unmarked and needs resolved as there is a fence/usage encroachment. This western portion of this north boundary line (from Blackwell acquisition) needs to be run and painted. The west tract boundary is painted and also lies adjacent to private land. The south boundary of M1013 is shared by intermittent and ephemeral drainages with M1017.

The eastern Tract boundary consists of a large, mapped intermittent stream that separates the Tract from M1006 & M1012.

Wildlife:

Wildlife resources in this tract appear abundant. M1013 contains mixed forest habitats that provide for a wide variety of wildlife species. Habitats include Mixed Hardwoods & Oak-Hickory timber types as well as old fields and lowland areas adjacent to mapped intermittent streams. The Oaks, Hickories, Black Walnut, and American Beech provide hard mast for deer, turkey and squirrel. Snags (standing dead trees) and cavity trees provide nesting, bugging, and roosting opportunities for woodpeckers, songbirds, and small mammals. Rotten logs, crater knolls, small ponds, and the mapped intermittent streams provide modest habitat for herptiles and aquatic vertebrates.

A Natural Heritage Database review for M1013 was conducted on September 30, 2011. If Rare, Threatened or Endangered species (RTE's) 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.

Wildlife Habitat Features:

Snags, standing dead or dying trees, may be one of the most important wildlife habitat features in Indiana's forests as 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. The appendix of this guide contains Table 2 with wildlife habitat features that were observed from M1013's resource inventory. The eastern forested portion of M1013 is generally healthy and vigorous and there is a lack of significant widespread damage caused by wind, insects, diseases, etc. which normally produce snags. The western portion of M1013 contains several acres of open grasses containing some Eastern Red Cedar and smooth sumac bushes. Forested areas in the western portion of M1013 were heavily harvested a number of years ago, leaving mostly younger and smaller diameter trees.

The girdling of select cull trees could be performed through postharvest Timber Stand Improvement (TSI) to increase snag tree densities.

Communities:

Due to its past history M1013 contains a wide variety of timber types, size classes and land uses. The forest community is mostly dry to mesic upland hardwoods. The dominant and codominant overstory timber species include Black Oak, Yellow Poplar, Red and White Oaks, and Sugar Maples. The mid canopy and understory layers contain some Oak spp., but consist mainly of Sugar Maples, American

Beech, Sassafras and Red Maples. Some exotic plant species were noted in M1013 during the resource inventory. Multiflora Rose is common in light to moderate concentrations. Amur Honeysuckle, Autumn Olive, and Japanese Stiltgrass are present in some portions of the newer acquisition areas of the Tract. Treatments of some invasive exotic species will be handled during the postharvest TSI project.

Recreation:

M1013 is accessible via a small parking lot located just off the north side of Fry Road. A fire lane extends northwest from Fry Road though a cabled gate. Although no permanently established recreation areas are present in M1013 there are still several recreational opportunities. Hunting is permitted on State Forest property and this area also offers opportunities for off-trail hiking, nut and berry gathering, and wildlife viewing.

Cultural:

Cultural resources may be present on M1013 however their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Tract Prescription and Silvicultural Prescription:

The current resource inventory was completed in August of 2011 and is summarized in Table 3 below and in the Gingrich Stand and Stocking Chart in Figure 3 at the end of this plan.

Table 3 – M1013 Forest resource summary in August 2011

Total Number of Trees per Acre: 219 **Average Tree Diameter:** 7.9"
Average Site Index: **Stocking Level:** 98%

	Acres		Sq. Ft. per Acre
Hardwood Commercial Forest:	80	Basal Area Sawtimber:	77
Pine Commercial Forest:	0	Basal Area Poles:	19.3
Noncommercial Forest:	0	Basal Area Culls:	7.7
Permanent Openings:	7	Sub-merchantable:	9.1
Other Use:	0		
Total:	87	Total Basal Area:	113.1

M1013 was not divided into subdivisions (non-stratified). The 2011 forest resource inventory by species is summarized in Table 4. In the forested portion of M1013 the timber types are

predominantly Mixed Hardwoods and Oak-Hickory. However, there are some large, open field areas, primarily on the highest elevations located in western portion of the Tract. The Oak-Hickory present in M1013 is dominated by Black Oak although portions of this Tract indicate White Oaks are becoming more prominent.

The current stocking level of 98% indicates that M1013 is fully stocked and nearing an overstocked condition. The future management concerns within this Tract are possible windthrow (due to large timber occupying shallow soils) and modest grapevine populations.

The recommendation is to prescribe an intermediate harvest within the Tract using single tree selection, improvement cuttings and some group selection regeneration. The first two treatments will result in thinning and reducing competition among the maturing quality sawtimber trees and preferred hardwood species. The composition of M1013 will also be improved by harvesting low quality, damaged, diseased, dying and poorly formed trees as well as harvesting less desirable species. Yellow poplar is also noteworthy to harvest due to its poor form and quality, significant stress from recent droughts and competition with more desirable species. Lower quality and declining black oaks should be considered for removal as well as ones which are competing with or suppressing white oaks. These efforts should both maintain and/or improve the overall tract quality and composition throughout the forested areas. The third treatment, group selection cuts, may be prescribed in portions of the Tract to harvest larger pockets of poor quality, low vigor growing stock, fire-damaged timber or where advance Oak regeneration is present.

A postharvest combined Timber Stand Improvement (TSI) and exotic control project is planned. The TSI would be performed to control grapevines, release croptrees that were insufficiently released from the harvest, and to encourage early successional (Oak) regeneration via the reduction of understory shade tolerant timber species. Exotic treatments of Autumn Olive and Amur Honeysuckle are planned in this project, primarily in and along the old field edges in the western 80 acres. Prompt reseeding of skidtrails will reduce the influx and establishment of Japanese Stiltgrass. Pockets of Multiflora rose could be treated especially in those areas where group selection regeneration of hardwoods is planned. The upland ridgetops of M1013 are mostly open grasslands with scattered Smooth Sumac and Eastern Redcedar trees present. To the west and along the boundaries, some young Mixed Hardwoods are present. The recommendation here is to prescribe some limited croptree release TSI to favor high quality timber species.

Where present existing skidtrails will be reused. In laying out new skid trails, the contours of the land should be followed in consideration of soil types and occasional steep slopes. Skidtrails entering M1013 will allow timber to be extracted into the adjoining tracts M1012 & M1006 using existing and coordinated new crossings. Best Management Practice (BMP) guidelines will be followed to preserve soil and water quality.

The overall goal of this prescription is to harvest using improvement cuttings, selection cuttings and group selection cuttings in the Tract's forested areas. The combination of these cuttings should reduce competition among the larger canopy trees, provide resources for future croptrees through the removal of over-mature and declining trees, improve understory composition favoring Oak and Hickory regeneration, and improve overall timber species composition while providing a wide variety of forest wildlife habitat. A proposed combined tract harvest is planned for FY13-14 to include M1006, M1012 and M1017.

Proposed Management Activities	Proposed Period
Timber Marking	CY2013-14
Timber Sale	FY2013-14
Timber Harvest	CY2014-2016
Timber Stand Improvement & Exotic Control Project	CY2014-2017
Regeneration Opening Review	CY2020
Inventory and New Management Guide	CY2026

The following attachments are kept in the tract file:

Ecological Resource Review

Table 2. Wildlife Habitat Features

Old growth and RSA assessments

Table 4. Detailed Inventory summary

Table 5. Soil Productivity summary

Aerial photo map with noted special features

Aerial photo map with noted unique areas

Indiana Natural Heritage Database Map

TCruise reports

Table 4 – Estimated Tract Volumes of M1013 (Doyle Rule)

Species	Total Volume (bd. ft.)
Black Oak	270,280
Yellow Poplar	113,920
Northern Red Oak	100,460
White Oak	93,310
Sugar Maple	28,470
White Ash	17,140
Scarlet Oak	17,000
Bitternut Hickory	14,900
Shagbark Hickory	13,860
Black Walnut	10,840
Pignut Hickory	6,920
American Beech	5,420
Hackberry	3,260
Chinkapin Oak	2,710
Largetooth Aspen	2,680
Black Cherry	2,210
Tract Totals	**703,380**
Per Acre Total	**8,085**

To submit a comment on this document, click on the following link:
http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

You must indicate the State Forest Name, Compartment Number and Tract Number in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered. Note: Some graphics may distort due to compression.

Figure 3 – Gingrich Stocking Chart for 2011 Forest Inventory of M1013

Yellow lines indicate current values; Purple lines indicate projected values after timber harvest