Indiana Department of Natural Resources – Division of Forestry

DRAFT

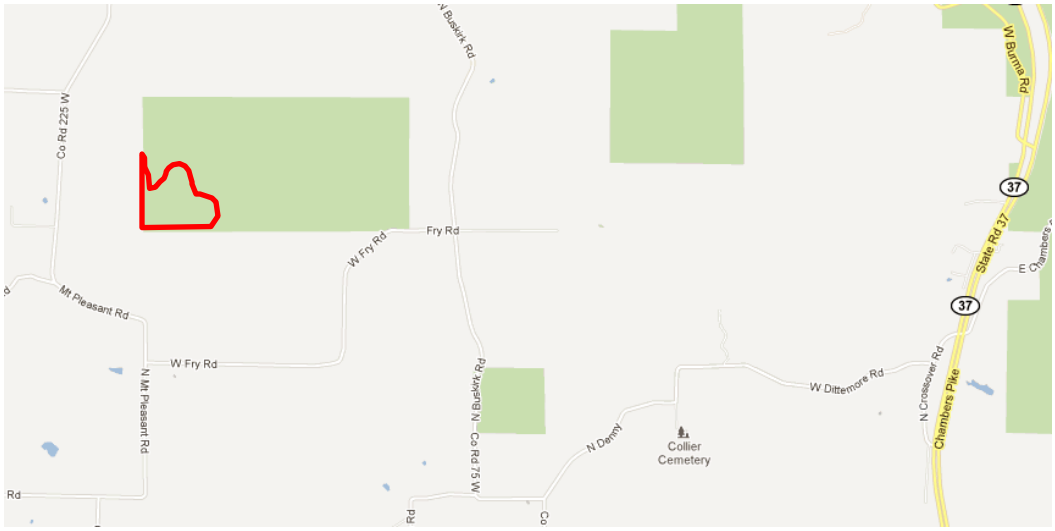
Resource Management Guide

State Forest: Morgan-Monroe
Compartment 10 **Tract** 17
Tract Acreage: 55
Commercial Acreage: 47
Forester: James Dye
Date: November 3, 2011
Management Cycle End Year: 2026
Management Cycle Length: 15 years

Location:

M1017 lies in the southwest corner of Section 7, Township-10-N, Range-1-W in Washington Township of Monroe County, Indiana. M1017 lies approximately 11 miles north northwest of the city of Bloomington, Indiana.

Figure 1 – Morgan-Monroe Compartment 10 Tract 17



General Description:

M1017 is a 55 acre managed, multiple-use parcel located in the west/southwestern half of the 320 acre block of Compartment 10 in Morgan-Monroe State Forest. The timber type varies from young Mixed Hardwood forest to shrub-scrub oldfield areas. The southeastern corner is closed canopy Mixed Hardwoods. M1017 is located approximately 3 miles west of Indiana Highway 37 and shares a little more than half its boundary with privately held property while the remaining boundary is shared with other State Forest tracts. The Tract can be accessed via a long fire trail that extends northwest, then southwest and west, crossing a mapped intermittent stream, from a small, day-use parking lot located just off of Fry Road. This area exhibits good opportunities for multiple use management, including timber management, wildlife management, and soil and water conservation.

It is also suitable for public recreational activities such as hiking, gathering, hunting, and wildlife viewing.

The following table is compiled from 2011 forest inventory data and shows the relative frequency of tree species in this Tract:

Table 1 – Basic Forest Structure of M1017 in September 2011

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

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 Forest purchased the eroded, abandoned land to create Morgan-Monroe State Forest beginning in 1929.

Originally the western block of MMSF Compartment 10 consisted of 4 tracts totaling 240 acres with the western portion of the block being M1013. In 1976, M1013 had a timber harvest conducted which removed 356 trees containing an estimated 72,110 board feet (Bd. Ft.) of sawtimber volume. About one third of the trees removed 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 shortly afterward following the harvest by MMSF staff and laborers. The south portion of this harvest occurred in the current configuration of M1017.

In 1996 the 80 acre Blackwell acquisition added 80 acres to the acreage of M1013. All 4 property corners of this new 80 acres had been surveyed. As a result M1017 was created in 2004 to reduce the size of the old M1013 tract. M1013 was divided into a northern tract (new M1013) and a southern tract (new M1017). Prior to the State Forest acquisition the private landowner harvested the 80 acres which included the western portion of the current M1017 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. In late 2003 and early 2004 the south and west lines of M1017 were marked and posted per the recorded land survey.

Today, White Oak, Black Oak and mixed Hickories are the dominant species in the forested areas of M1017 while Sugar Maple, Northern Red Oak, and Red Maple are well represented. The current and first forest resource inventory for M1017 was completed on September 30, 2011 by Forest Intermittent James Dye.

Landscape Context:

The east and north portions of M1017 are surrounded by closed canopy, Mixed Hardwoods and Oak-Hickory deciduous forests that make up Morgan-Monroe State Forest tracts M1013 and M1006. The east and northeast boundary of M1017 is formed by mapped intermittent streams. The land to the south of M1017 is privately owned with some pasture, woods and waterholes which are managed by them for grazing. The land adjacent to the west edge of the tract is also privately owned and contains a large mapped intermittent stream and deciduous hardwood forest. 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 M1017 contains approximately the southern three-fifths of the Blackwell acquisition of 1996. Prior to the State acquisition, a privately held timber harvest was completed over much of this section which resulted in modest areas of ephemeral, early successional forest. In addition the western portion of M1017 contains oldfields located on the ridgetop which were derived from eroded and abandoned cropland/grassland fields. These fields provide excellent early successional and grassland wildlife habitats for birds and mammals. The past history of private harvest and the old abandoned farm/grazing fields in M1017 contribute to make it a very diverse forest with some mostly permanent grassy/shrub areas that provide excellent wildlife habitat.

Topography, Geology, and Hydrology:

The east and north sideslopes of M1017 tend to have mesic south to east facing aspects draining into the Tract's east boundary which is a mapped intermittent stream. The western portion of M1017 is generally of drier western aspects that drain into a mapped intermittent and a flat, lowland bottomland oldfield. The western edge of M1017contains some modestly steep sections. Most of the sideslope soils in M1017

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 M1017 flow into Indian Creek which flows into Beanblossom Creek which feeds into the White River.

Soils:

The dominant soil type in M1017 is the Berks-Weikert Complex (BkF), a soil type which is very common in Monroe County covering approximately 24.5 percent of the county. These upland soils are formed in residuum from sandstone, siltstone, and shale. 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 soil type commonly found in this tract is Crider silt loam (CrC). Like the Berks-Weikert complex, Crider silt loam is also quite common in Monroe County, comprising roughly 11.9 percent of the soils found there. It is an upland soil formed in loess and residuum from limestone. Crider silt loam has high available water capacity and moderate permeability; however the organic matter layer is low. This soil type is suited to many management uses from agriculture to 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.

One last soil type, Haymond silt loam (Hd) makes up the west edge of the tract. These 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, and this can restrict management activities.

For additional information on soil types in this tract, see Table 5 near the end of this document.

Access:

Access is achieved through an old haul road that can be accessed via a small parking area on the north side of Fry road. The haul road extends northwest through M1006 to an old log yard, then turns southwesterly toward another log yard/wildlife opening. From this point, a skid trail has been laid out following natural contours and running generally southwest down to a mapped intermittent stream. An excellent stream crossing was located containing shallow banks and strong, rocky base.

The trail crosses into the southern tip of M1013 and extends approximately 130 ft through a flat bottom area before splitting to the north and west. To the north, the trail immediately ties into an existing skid trail used to access the main ridge in M1013. This trail is very steep for the first 200 – 300ft. The western trail continues into M1017 and stays in the flat for another 150ft. The trail then climbs a long hill at the southern end of the tract before connecting to the main ridge in M1017.

Boundary:

The west and south boundaries are adjacent to private land and are painted. A fence is present along part of the south line. When the Division of Forestry acquired the 80-acre Blackwell property all corners were surveyed and established. The north and eastern boundary of M1017 is shared by intermittent and ephemeral drainages with M1013. However, the southeastern edge of the Tract boundary consists of a large, mapped intermittent stream that separates the Tract from M1006.

Wildlife:

Wildlife resources in this tract seem abundant. M1017 contains habitat for a variety of wildlife species. Habitat includes mixed hardwoods and shrub-scrub, but there are some areas, particularly those adjacent to the mapped intermittent streams, which contain a few lowland hardwood species. The Oaks, Hickories, Black Walnuts, and 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 stream provide habitat for herptiles and aquatic vertebrates.

The appendix of this guide contains Table 2 with wildlife habitat features that were observed from M1017's resource inventory. 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. Snags tended to be rarer within M1017 as the recent private harvest in the Tract prior to

State acquisition was fairly heavy. Much of the acquired land is open grasses and shrub-scrub with the Mixed Hardwood areas are still very young stands.

The girdling of select cull trees could be performed through a postharvest Timber Stand Improvement (TSI) project should assist in increasing snag tree densities in all size classes.

Communities:

Due to its past history M1017 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 White and Black Oaks, Bitternut and Pignut Hickories, Sugar Maple, Yellow Poplar, Red Oak, and Red Maple. The mid canopy and understory layers contain some Oak and Hickory spp., but consist mainly of Sugar Maples, American Beech, Sassafras and White Ash. Some exotic plant species were noted in M1017 during the resource inventory. Multiflora Rose is common in light to moderate concentrations. Amur Honeysuckle, Autumn Olive, and Japanese Stiltgrass are present in portions of the newer acquisition areas of the Tract, particularly in and around the oldfield edges. Treatment of Honeysuckle and Autumn Olive will be completed during the postharvest TSI project.

A Natural Heritage Database Review was completed in 2011. If rare, threatened or endangered 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.

Recreation:

M1017 can only be accessed by the public via a long fire trail that extends northwest and then southwest and west crossing a mapped intermittent stream from a small, day-use parking lot located just off of Fry road. Although no permanently established recreation areas are present in this Tract, there are still several recreational opportunities. Hunting is permitted on State Forest property and M1017 also offers opportunities for off-trail hiking, gathering, and wildlife viewing.

Cultural:

Cultural resources may be present on M1017 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 – M1017 Forest Resource Summary in August 2011

Total Number of Trees per Acre: 253 **Average Tree Diameter:** 6.4"

Average Site Index: 73 **Stocking Level:** 81%

	Acres		Sq. Ft. per Acre
Hardwood Commercial Forest:	47	Basal Area Sawtimber:	45.5
Pine Commercial Forest:	0	Basal Area Poles:	22.2
Noncommercial Forest:	0	Basal Area Culls:	7.2
Permanent Openings(old fields):	8	Sub-merchantable:	10.9
Other Use:	0		
Total:	55	Total Basal Area:	85.9

M1017 was not divided into subdivisions (non-stratified). The 2011 forest resource inventory by species is summarized in Table 4 below and detailed in the Management Guide appendix. In the forested portion of M1017 the timber types are predominantly young Mixed Hardwoods and shrub-scrub. There is a small area in the southeast corner of the Tract (approximately 5 acres) that has relatively mature, Mixed Hardwood forest. There are some large open field areas totaling 8 acres that have succeeded from eroded farm or pasture land that are best retained for permanent wildlife habitat on the highest elevations located in the west and central portions of the Tract.

Overall, the current stocking level of approximately 81% indicates M1017's timber stocking lies right in the middle of a fully stocked condition. This figure is somewhat misleading as a fair percentage of the forested areas tend to be in young stands that are more fully stocked whereas the open field areas are understocked or in the very early stages of hardwood regeneration.

At this time an intermediate harvest is recommended using single tree selection, improvement cuttings and some group selection regeneration throughout the majority of the forested areas. The overall forest composition of M1017 should be greatly improved by harvesting low quality, damaged, diseased, dying and poorly formed trees. The first two treatments will result in a general thinning and reduction of competition between young quality poles and small sawtimber trees. The third treatment, group selection cuttings, may be prescribed in portions of the Tract where larger accumulations of these poorly stocked, low quality & vigor growing stock, or damaged timber occur. In the southeast portion of M1017 the first two treatments would vary in that they would be reducing competition among high vigor, mature sawtimber. A regeneration treatment may be prescribed in portions of this area that contains poor stocking, overmature and declining elements.

A postharvest combined Timber Stand Improvement (TSI) and exotic control project is planned with neighboring tracts M1006, 1012, and 1013. 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 included in this project. Pockets of Multiflora rose would likely be treated only in areas where group selection regeneration of hardwoods are planned. The upland ridgetop old field areas of M1017 are mostly open grasslands with scattered

Smooth Sumac, Yellow Poplar, Eastern Redcedar, and some Black Oak trees present. Along the slopes, some young Mixed Hardwoods are present. The recommendation in this area is to prescribe some limited croptree release TSI to favor quality & vigorous 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 M1017 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 a timber 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, reallocate water and sunlight resources for future croptrees through the removal of over-mature and declining trees, improve understory composition by promoting 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 M1013.

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 appendix:

- 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
- Soil type tract map
- Indiana Natural Heritage Database Map
- TCruise reports

Table 4 – Estimated Tract Volumes in M1017 in September 2011

Species	Total Volume (Bd. Ft.)
White Oak	48,360
Black Oak	31,620
Bitternut Hickory	20,110
Pignut Hickory	19,480
Sugar Maple	19,330
Yellow Poplar	16,100
Northern Red Oak	14,660
Red Maple	14,240
Shagbark Hickory	11,840
American Beech	6,780
American Sycamore	5,110
Black Walnut	4,720
Black Cherry	3,180
Mockernut Hickory	2,590
American Elm	2,060
Largetooth Aspen	2,030
Blackgum	1,400
Tract Total	**223,600**
Per Acre Total	**4,065**

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 – M1017 Gingrich Stocking Chart for September 2011 Forest Inventory

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