Indiana Department of Natural Resources – Division of Forestry

Draft

Resource Management Guide

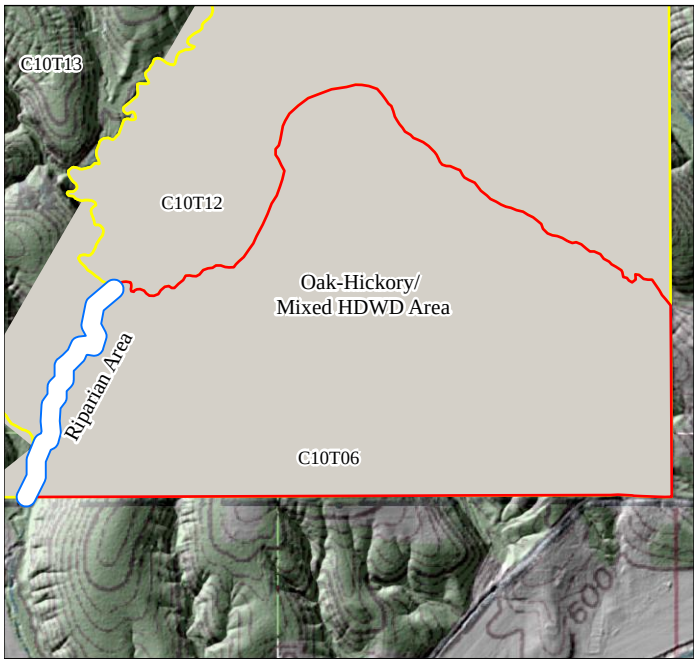
State Forest: Morgan-Monroe
Tract Acreage: 107
Foresters: Phil Jones & Dave Ramey
Management Cycle End Year: 2028

Compartment 10 **Tract** 06
Commercial Acreage: 105.4
Date: March 11, 2013
Management Cycle Length: 15 years

Location:

Compartment 10 Tract 6 lies in the southeast 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 – M1006



General Description:

M1006 consists of a total of 107 acres of which 105.4 acres are in Oak-Hickory and Mixed Hardwood forest. There are approximately 1.6 acres of the tract in permanently maintained wildlife openings. Mixed Hardwoods such as Yellow Poplar, Sugar Maple, White Ash, Red Maple, Beech and Largetooth Aspen are also present and interspersed throughout the tract. A Riparian buffer area exists along the west tract boundary. Overall, approximately 105 acres are considered commercial forest acreage. M1006's timber resource ranges from small to large sawtimber in size. The overall timber quality of this tract is good. A summary of the forest resources in M1006 in relation to species dominance is noted below in **Table 1.**

Table 1 – Basic Forest Structure of M1006 in January 2013

Overstory	Understory	Regeneration
Black Oak	**Sugar Maple**	**Sugar Maple**
Red Oak	**White Oak**	**Red Maple**
Yellow Poplar	*White Ash*	**Red Maple**
White Oak	*Pignut Hickory*	**American Beech**
Sugar Maple	*Sassafras*	**Flowering Dogwood**
Pignut Hickory	*Red Oak*	*Ironwood*
Shagbark Hickory	*Shagbark Hickory*	*Black Oak*
American Beech	*Red Maple*	*White Ash*
Bitternut Hickory	*Blackgum*	
White Ash	*Hackberry*	
Red Maple	*Black Oak*	
Scarlet Oak	*Bitternut Hickory*	
Basswood	*Yellow Poplar*	
Sassafras	*Scarlet Oak*	
Largetooth Aspen	*Basswood*	
Basswood		
Blackgum		
Red Elm		
American Elm		

Bold – Species that comprise ≥ 10% of the total TPA and/or BA in each structural class
Italicized - Species that comprise ≤ 10% of the total TPA and/or BA in each structural class

History:
M1006's boundary was recently changed and now includes all of what was once M1014. This was a small tract of 35 acre and now comprises the southwest portion of the tract. Below is a brief history for each area.

Old Tract 6

- 1947 – State acquisition from Schnaiter
- 1974– Timber Sale – 145MBF/912 trees in portions of T6&12 (Old C20BT9,10)
- 1975 – TSI – 70 ac (C20BT9)
- 1976– Timber Sale – 85MBF/ portions of T6,12,14 (Old C20BT9,10)
- 1982 – Boundary Line Painted
- 1988 – Boundary Line Repainted
- 1990 – Graded & Water barred Road
- 1991 – Repainted South Line
- 1993 – Boundary Line Repainted
- 1993/94 – Haul Rd Rehab/ Removed Old Auto
- 1994 – Wildlife Project Completed
- 1994 – Inventory and Management Plan Completed
- 1995 – White Pine Planting
- 1996 – Replanted White Pine
- 1998 – Repainted Boundary Line

- 1998 – Opening TSI: Storm Damage
- 1998 – Timber Sale – 98MBF
- 1998 – Closeout completed
- 2000 – TSI
- 2011 – Boundary Line Repainted

Old Tract 14

- 1947 – State acquisition from Schnaiter
- 1972 – Quick Cruise Inventory
- 1976– Timber Sale – 85MBF/ portions of T6,12,14 (Old C20BT9,10)
- 1982 – Boundary Line Painted
- 1988 – Boundary Line Repainted
- 1991 – Repainted South Line
- 1993 – Boundary Line Repainted
- 1998 – Repainted Boundary Line
- 1999 – Inventory & Management Guide Completed
- 1998 – Timber Sale – 98MBF/546 trees, 149 culls
- 1998 – Closeout completed
- 2000 – TSI
- 2003 – Timber Sale – 71MBF
- 2003 – Closeout completed
- 2011 – Boundary Line Repainted

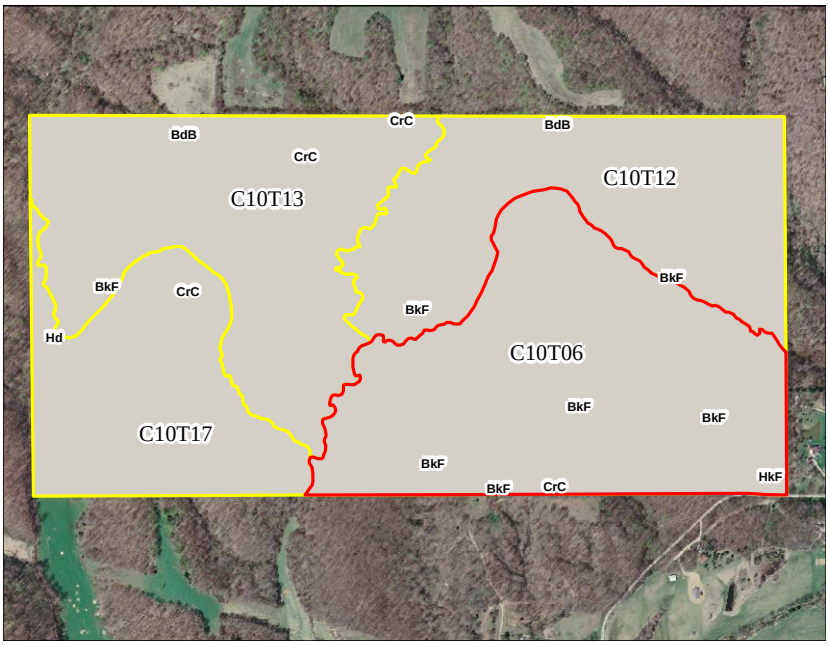
Landscape Context:

The land surrounding the south and east edge of M1006 is privately owned and consists of a mix of closed canopy deciduous forest and open pasture and grassland. An intermittent stream forms the southwest boundary of the tract. The north and west portions of the tract are surrounded by other Morgan-Monroe State Forest tracts.

Topography, Geology, and Hydrology:

M1006 consists of three main broad ridges with steep sideslopes that border large ravines. Slopes range from 2-6% on the ridge and 25-75% on the sideslopes. All aspects are represented within the tract. The two primary soils formed over limestone, underlain by sandstone, siltstone, or shale. Water resources from the intermittent streams and ephemeral drainages in this tract drain into Indian Creek which runs into Beanblossom Creek which feeds the White River.

Soils:



The dominant soil type in M1006 is the Berks-Weikert Complex (BkF), a soil type which is very common in Monroe County covering approximately 24.5 percent of the land. 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. 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.

The other soil type commonly found in this tract is Crider Silt Loam (CrC). Like the Berks-Weikert Complex, Crider Silt Loams are 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. The capability subclass is IIIe, and a woodland suitability subclass of 1o indicates very high soil productivity and no other pertinent restrictions.

Access:

M1006 is accessible via a small parking area on the north side of West Frye Road. The access road runs northwest up the main ridge through a cable gate. The last major improvements to this road were in August of 1994. The road will need dozer work and approximately a dozen loads of stone. All of the haul road rehab work will be within M1006 as this is where the two existing log yards are located. A suitable stream crossing location has been identified to gain access to the southeast portion of M1013.

Boundary:

Private boundary lays adjacent to the south and east portion of the tract. The boundaries are marked in orange paint and were last painted in 2011.

Wildlife:

Wildlife resources in this tract appear abundant. This tract contains an adequate amount of diverse vegetation conducive to habitat for a variety of wildlife species. Habitat includes a large

amount of mature Oak-Hickory and Mixed Hardwood cover types, Riparian areas, and a few small 15-20 year old regeneration openings. The tract also contains two permanent wildlife openings and an associated waterhole created by Forest Wildlife back in the mid 1990's.

The Oaks, Hickories, and scattered mature Beech provide hard mast for deer, turkey and squirrel. Snags (standing dead trees) and den/cavity trees provide nesting, bugging, and roosting opportunities for woodpeckers, songbirds, and small mammals. Rotten logs, crater knolls, water holes, and the mapped intermittent stream provide habitat for herptiles and aquatic vertebrates.

A Natural Heritage Database review was obtained for this Tract in 2012. 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 Structural Habitat Features:

Snags, standing dead or dying trees, may be one of the most 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.

Table 2 shows how this tract compares with the DoF guidelines for forest stand snag density. The data suggests that the tract meets maintenance levels in the smaller size classes, but is deficient in the medium size classes. This deficiency may be due to the relatively high vigor of the forest resource. The combination of improvement cuts, light thinnings, and small regeneration cuts over the past 40 years have resulted in a generally healthy and vigorous resource. Also, shallow soils and persistent wind action reduce the potential for long term snag retention except in cove sites. There was past evidence of scattered windthrow in M1006. Overall, larger diameter trees appear to be more effected by wind than those that are in the understory.

The inventory data does show that there may be opportunities to increase this habitat feature. According to the data, there are an estimated 158 sawtimber-sized Beech trees in M1006. Many of these are decadent culls that could be girdled in a postharvest Timber Stand Improvement (TSI) operation. This would not only provide an increase in this important habitat feature, but would free up resources and growing space for younger, more vigorous trees.

Table 2 – Forest Snag Density of M1006 in January 2013

	Target Snag Density		
Diameter (DBH) Distribution	**Maintenance Level**	**Optimal Level**	**C10T06**
Including at least this many snags per acre ≥ **5"**:	4	7	3.9
Including at least this many snags per acre ≥ **9"**:	3	6	.5

Including at least this many snags per acre ≥ **19"**:	0.5	1	.1

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 the Federally Endangered Species like the Indiana bat. As **Table 3** shows, Legacy trees of a particular species suitable as live roost trees for the Indiana bat are very well represented in all size categories.

Table 3 – Preferred Live Roost Trees in M1006 in January 2013

	Preferred Roost Trees per Acre	
Diameter (DBH) Distribution	**Maintenance Level**	**C10T06**
TOTAL minimum roost trees per acre ≥**11"**:	9	29
Including at least this many roost trees ≥ **20"**:	3	7.5

**Species include: AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO*

Legacy trees and standing dead trees (snags) will be given consideration for retention as habitat for the Indiana Bat and other wildlife as defined by the Resource Management Strategy for the Indiana Bat on State Forest Property and the Management Guidelines for Compartment-level Wildlife Habitat Features.

Communities:

M1006 is mostly dry-mesic upland hardwoods. The dominant and codominant overstory timber species include White, Black, Red and Scarlet oaks as well as Bitternut, Pignut and Shagbark Hickories. Yellow Poplar is also prevalent in the overstory on the ridgetops and north/east facing slopes. The mid canopy and understory layers contain some Oak spp., but consist mainly of Hickories, Maples and Beech.

A Natural Heritage Database review was obtained for this Tract in 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.

Recreation:

M1006 is accessible via a small parking lot located just off the north side of West Frye Road. A fire lane extends northwest from the Frye Road and the parking area through a cabled gate. 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 this area also offers opportunities for gathering, and wildlife viewing.

Cultural:

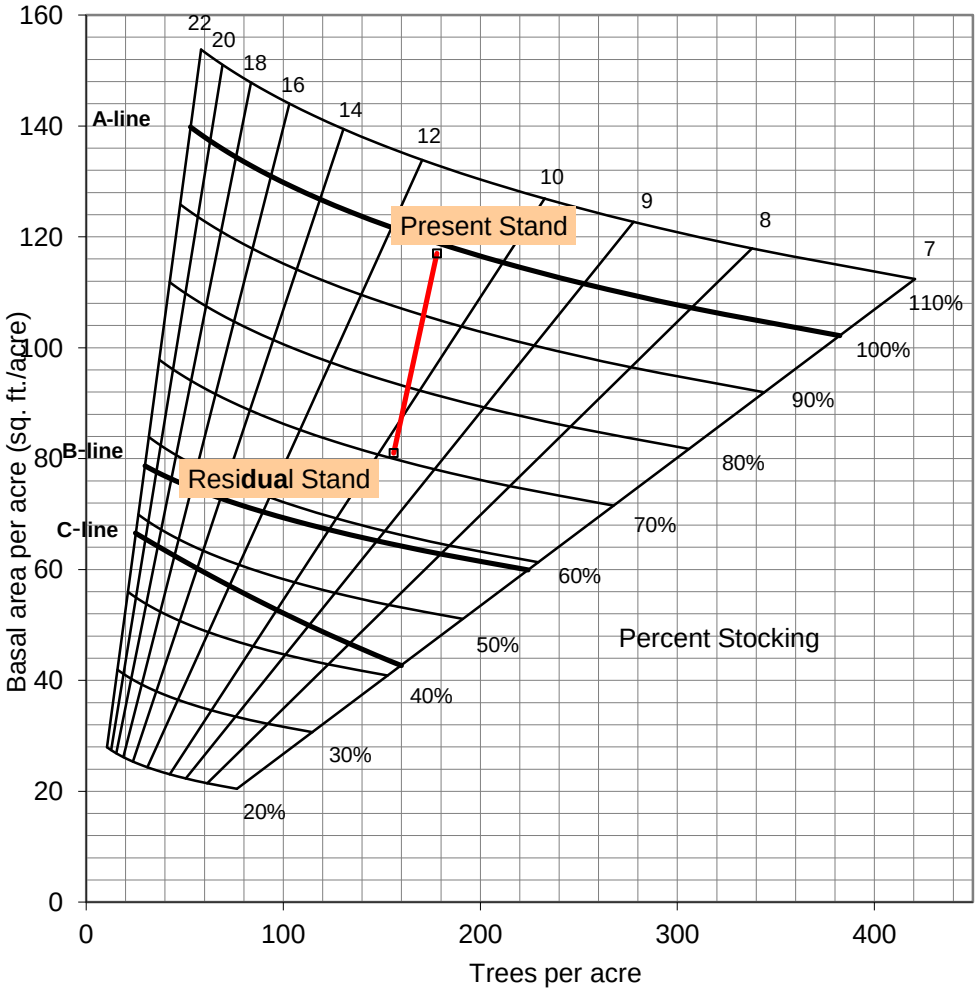
Cultural resources may be present on M1006 however their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

M1006 Tract Summary Data for January 2013 Inventory

Total Trees/Ac. = **178 Trees/Ac.**
BA/A = **117 Ft²/Ac.**
Present Volume = **10,460 BF/Ac.**
Residual Volume/Ac. = **7,068 BF/Ac.**
Overall % Stocking = **98%**
Sawtimber & Quality Trees/Ac. = **34 Trees/Ac.**
Harvest Volume = **3,392 Bd. Ft./Ac.**

	Acres		Sq. Ft. per Acre
Hardwood Commercial Forest:	105.4	Basal Area Sawtimber:	75.0
Pine Commercial Forest:	0	Basal Area Quality:	14.1
Noncommercial Forest:	0	Basal Area Poles:	16.2
Permanent Openings:	1.6	Basal Area Culls:	2.6
Other Use:	0	Sub-merchantable:	9.0
Total:	107	Total Basal Area:	116.9

Table 4. Gingrich Stand and Stock Table for M1006 in January 2013



Stand Descriptions and Silvicultural Prescriptions:

The current forest resource inventory was completed on January 31, 2013 by Foresters Jones and Ramey. 35 prism points were sampled. A tract summary of the inventory is given above and a specific species breakdown of the summary is given in **Table 5** below. M1006 is fully stocked and could benefit from an intermediate timber harvest. The proposed timber sale on this tract could yield approximately 300 - 360 MBF.

Oak-Hickory/Mixed Hardwoods – 105 ac

Current Condition

The timber type is predominantly Oak-Hickory with some Mixed Hardwoods such as Yellow Poplar, Sugar Maple, White Ash, Red Maple, Beech and Largetooth Aspen. There are two small (totaling 1.6 acres) permanent wildlife openings located on the main ridge. Both of these areas have been utilized as log landing areas in the past. Oak and Hickory species account for approximately 70% of the tract's total volume and 57% of the BA in the tract with Black, Red, and White Oaks being the most prevalent. Average Oak-Hickory stem diameters are 18" for sawtimber trees and 23" for quality trees. Yellow Poplar and Sugar Maple comprise the largest portion of the remaining composition. The understory is dominated by Sugar Maple, Flowering

Dogwood, Red Maple, Beech and Hickory spp. There are several older regeneration openings dominated with Yellow Poplar, Largetooth Aspen, Maple spp., and Sassafras. These are around 10 years old and total approximately 2.2 acres.

Prescription

The management goal of M1006 is to maintain a well stocked timber resource of healthy and vigorous Oaks and Hickories. The recommendation is to prescribe an improvement cutting over the majority of the tract. This would be accomplished primarily through single tree selection. However, small group selections may also be prescribed in understocked and/or areas dominated with poor growing stock. Trees selected for harvest would be primarily overmature, damaged or defective, poorly formed, stressed, or trees competing with croptrees. For logistical purposes, M1006 will be included in a combined tract sale with adjacent tracts M1012, M1013, & M1017.

A Riparian buffer area exists within 50 feet of the banks of the mapped intermittent stream located along the west tract boundary. No harvest or TSI is planned in this Riparian buffer area excepting in the incidental salvaging of downed valuable timber.

Postharvest Timber Stand Improvement (TSI) is recommended and could include grapevine control, croptree release, large snag creation and possibly small opening completion. Preharvest vine control may be required in potential group selection openings.

Table 5 – Estimated Tract Volumes in M1006 in January 2013

Species	Harvest (bd. Ft.)	Leave (bd. ft.)	Total Volume (bd. ft.)
Black Oak	86,100	192,650	278,760
Yellow Poplar	133,370	97,750	231,120
White Oak	25,700	178,590	204,290
Red Oak	42,300	157,240	199,550
Sugar Maple	35,600	22,030	57,620
Pignut Hickory	0	38,700	38,700
Shagbark Hickory	0	21,910	21,910
Bitternut Hickory	0	16,900	16,900
Scarlet Oak	7,360	8,510	15,860
White ash	15,160	0	15,160
Basswood	4,000	5,360	9,360
Red Maple	4,480	4,710	9,190
Largetooth Aspen	4,270	0	4,270
Sassafras	2,120	1,820	3,940
Hackberry	0	3,850	3,850
Blackgum	0	3,210	3,210
Red Elm	0	3,050	3,050
American Elm	2,470	0	2,470
Tract Total	**362,930**	**756,280**	**1,119,210**
Per Acre Total	**3,392**	**7,068**	**10,460**

Proposed Management Activities:	Proposed Period
Timber Marking	CY2013
Timber Sale	FY2013-14
Timber Harvest	CY2013-2016
Timber Stand Improvement Project	CY2015-2017
Regeneration Opening Review	CY2020
Inventory and New Management Guide	CY2028

The following attachments are kept in the tract file:

Ecological Resource Review

Topo Map with noted special features

Inventory Map

Soil Map

Indiana Natural Heritage Database Map

TCruise reports

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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.