Indiana Department of Natural Resources
Division of Forestry
DRAFT
RESOURCE MANAGEMENT GUIDE

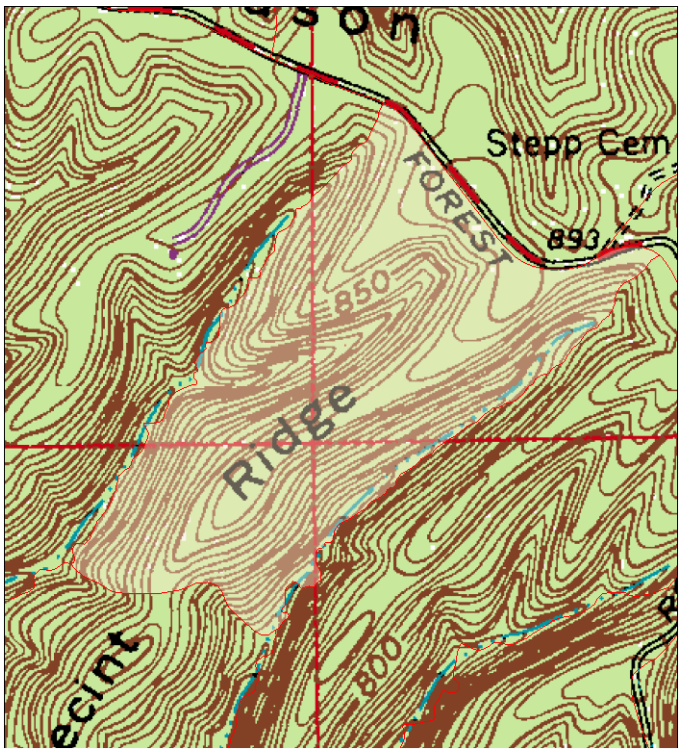
State Forest: **Morgan-Monroe**
Tract Acreage: **79**
Foresters: **A. Spalding & S. Sheldon**

Compartment: **13** Tract: **06**
Commercial Forest Acreage: **73**
Revised Date: **3/08/2013**

Location

This tract is located in parts of Sections 8, 9, 16, & 17, Township 10 North, Range 1 East, Monroe Co., Indiana. This tract is approximately 2.5 miles E of Hindustan and 2.5 miles inside the Morgan-Monroe State Forest entrance on the south side of Forest Road.

Figure 1. MMSF Compartment 13 Tract 6



General Description

M1306 (see Figure 1) contains 79 acres of which 73 acres are of mostly Oak-Hickory timber with a fair representation of Yellow Poplar. About 6 acres are currently in Riparian Management Areas along the east and west tract boundaries. These Areas are comprised of mostly Mixed Hardwoods along the intermittent drainages. The Oak-Hickory timber component is of mostly medium to large sawtimber in size and of fair to good quality. The 3 Lakes Hiking Trail runs along the ridgetop haul road known as Precinct Ridge Firetrail. A summary of the forest resources in M1306 in relation to species dominance is noted below in Table 1.

Table1. Overview of Forest Resources by relative abundance in M1306 as of November of 2011

Overstory Sawtimber Layer	Understory Poletimber Layer	Regeneration Layer
Chestnut Oak	Red Maple	American Beech
Black Oak	Sassafras	Sassafras
Scarlet Oak	Sugar Maple	Yellow Poplar
Yellow Poplar	Chestnut Oak	Black Cherry
White Oak	Yellow Poplar	Bluebeech
Pignut Hickory	White Oak	Blackgum
Northern Red Oak	Sassafras	Red Maple
Red Maple	American Beech	Black Oak
Shagbark Hickory	Pignut Hickory	Sugar Maple
Chinkapin Oak	White Ash	
American Sycamore	American Sycamore	
Sassafras	Scarlet Oak	
Largetooth Aspen		
Sugar Maple		
American Beech		
White Ash		

History
This tract was acquired by the State of Indiana through a few land purchases in the late 1920's to early 30's. As with much of the surrounding area, agriculture was a component of this tract's history under private ownership. A section of the ridgetop that adjoins Main Forest Road was noted to contain Apple orchard trees and Black Locust during a 1995 inventory. This could be a remnant of an old orchard. In 1973 a managed timber harvest of 51,913 BF in 503 trees on 51 acres of the tract (old M1508 - currently the northwestern portion of M1306) was harvested followed by a postharvest timber stand improvement (TSI) project. Species harvested were mostly REO, CHO, and YEP with the sale being sold for $1,500.00 to Charles Steele. Following the harvest a Woodland Demonstration Area for Morgan-Monroe State Forest was constructed in the form of a self guided interpretive trail. This was designated Area # 3 and highlighted "Group Selection and Singletree Selection in Mixed Hardwoods". In 1977, Forester Bill Bull conducted the initial tract resource inventory and management guide for a tract which was known then as M1509 (currently the southeastern portion of M1306 and portions of M1308). At that time a harvest was not deemed to be economically feasible due to a low expected harvestable sawtimber volume. In 1977-78, the Three Lakes Hiking Trail was constructed with a portion of it running down Precint Ridge to the then Beanblossom Lake (now dry). In 1995, Forester David Vadas completed the first tract timber resource inventory and subsequent guide for the current tract configuration. The inventory noted an overall volume of 6,659 BF/Ac with a harvest volume of 1,336 BF/Ac. A harvest was not recommended at that time due to the low harvest volume per acre. This area was again evaluated in 2011 by Forester Amy Spalding. The results of her work, the second tract resource inventory, are given below.

Landscape Context
This tract is completely surrounded by mostly closed canopy State Forest timberland. Eastern deciduous forest is the most dominant cover type across this landscape however there are some planted pines, mostly Eastern White Pine, were planted in abandoned crop fields by CCC and WPA workers in the early to mid 1900's to the northeast. Some residential and pasturelands lay southwest of the tract and the bottomland of the old Beanblossom Lake to the far south has emerged as an early successional forest timber type that is relatively similar to the some areas in the Beanblossom Creek watershed bottomlands.

Topography, Geology and Hydrology
This tract consists of a central ridge and Compartment 13 roadway known as Precint Ridge and Precint Ridge Firetrail that originate at Main Forest Road. There is a smaller ridge in the northwestern portion of the tract that also extends SW from Main Forest Road. Mapped intermittent drainages make up the west and eastern tract boundaries. Small ephemeral drainages interlace the ridges. These waterways drain into Greasy Creek and then into the Beanblossom Creek watershed. The underlying geology of the soils in this tract is a combination of sandstone, siltstone, and limestone bedrock.

Soils
BdB - Bedford Silt Loam
This soil is found in the northeast corner of the tract. It formed from loess over clayey residuum. It is deep to a fragipan and moderately well drained. It is moderately suited for most harvest operations but has severe ratings for soil rutting due to low strength. This soil has a site index of 70 for White Oak and 90 for Yellow Poplar. This soil type covers roughly 1% of the tract area or 1 acre.

BkF - Berks-Weikert Complex
This Complex is found on the upper ridgetops and sideslopes. It formed from loamy-skeletal residuum over shale and sandstone. This soil has severe limitations for haul roads, yards, and

equipment operability due to slopes. This soil has a site index of 60 for Northern Red Oak and 70 for Yellow Poplar. This soil type covers roughly 82% of the tract area or 64 acres.

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 Complex has a site index for northern red oak of 71 in Wellston and 80 in Gilpin. This soil type covers roughly 17% of the tract area or 14 acres.

Access
This tract has extremely good access as the northeastern boundary is Main Forest Road of Morgan-Monroe State Forest. A firetrail runs the length of the ridgeline of Precint Ridge which also includes a portion of the 3 Lakes Hiking Trail.

Boundary
This tract is completely surrounded by State Forest; therefore tract boundaries are delineated by natural and manmade features. As stated above the northeast boundary is the Main Forest Road of Morgan-Monroe State Forest. The east and west boundaries are mapped intermittent drainages. The southern boundary follows a prominent ephemeral drainage on the east and west side of Precint Ridge.

Wildlife
This tract provides excellent habitat for wildlife that prefer Oak-Hickory stands. This tract supports a good population of deer, songbirds, and wild turkey. Nearby Greasy Creek provides a water source during the wetter periods of the year. A few windthrow gaps were noted that provide some small early successional habitat otherwise the tract is predominantly a closed canopy hardwood forest. A Heritage Database Review was completed for this tract in 2012. 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.

The Division of Forestry has instituted special procedures for conducting forest resource inventories so that the documentation and analysis of critical live tree (legacy) and snag tree densities are examined on a tract basis in order to maintain long-term and quality forest habitats. These data are listed in Tables 2 & 3 noted below.

Table 2. Live Legacy Trees* inventoried November 2011 on 6371306

Size Classes	Maintenance Level	Inventory	Available For Removal
11"+ DBH	711	433	-278
20"+ DBH	237	170	-67

**** Species Include:*** *American Elm, Bitternut Hickory, Black Locust, Cottonwood,, Green Ash, Northern Red Oak, Post Oak, Red Elm, Shagbark Hickory, Shellbark Hickory, Silver Maple, Sugar Maple, White Ash, White Oak. These species of trees, whether dead, dying, or alive have a relatively high value as potential Indiana Bat roost trees and are encouraged for conservation.*

Table 3. Snag Trees inventoried November 2011 on 6371306

Size Classes	Maintenance Level	Optimal Level	Inventory	Available above Maintenance	Available above Optimal
5"+ DBH	316	553	877	561	324
9"+ DBH	237	474	106	-134	-371
19"+ DBH	39.5	79	45	5	-35

This tract is deficient in live legacy trees and snags 9" to 18" in diameter. In terms of Legacy trees, species such as Northern Red and White Oak and various Hickory should be encouraged for conservation. Furthermore, higher quality individuals should receive sufficient release from competing stems to hasten recruitment into larger size classes. In terms of snags, snag creation will be enhanced through a planned postharvest TSI project. Also, existing snags should be generally retained unless they present a safety hazard. Management practices conducted on M1306 will be conducted in a manner that will maintain the long-term and quality forest habitats.

Exotic Species

No significant populations of exotic species were identified at the time of inventory however a few Bush Honeysuckle plants were noted on the tract's north boundary adjacent to Main Forest Road. These were cut and later retreated with a foliar spray during the summer of 2012.

Communities

This tract is mostly dry-mesic upland hardwoods. The dominant overstory timber species include Chestnut Oak and Scarlet Oak. The understory layer contains these Oak species as well as an increase in the amount of shade tolerant species such as American Beech and Maple spp. The herbaceous layer is mostly Green Briar, Blueberry, and diverse Ferns. A Heritage Database Review was completed for this tract in 2012. 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

This tract contains a half mile portion of the Three Lakes Hiking Trail along its ridgetop and established firetrail. The Three Lakes Trail lies just inside the Morgan-Monroe State Forest entrance and is a rugged 10 mile loop trail that connects Cherry Lake, Bryant's Creek Lake, and the now dry Beanblossom Lake bottomland. For safety reasons recreational use of this area will be restricted during forest resource management activities.

Cultural

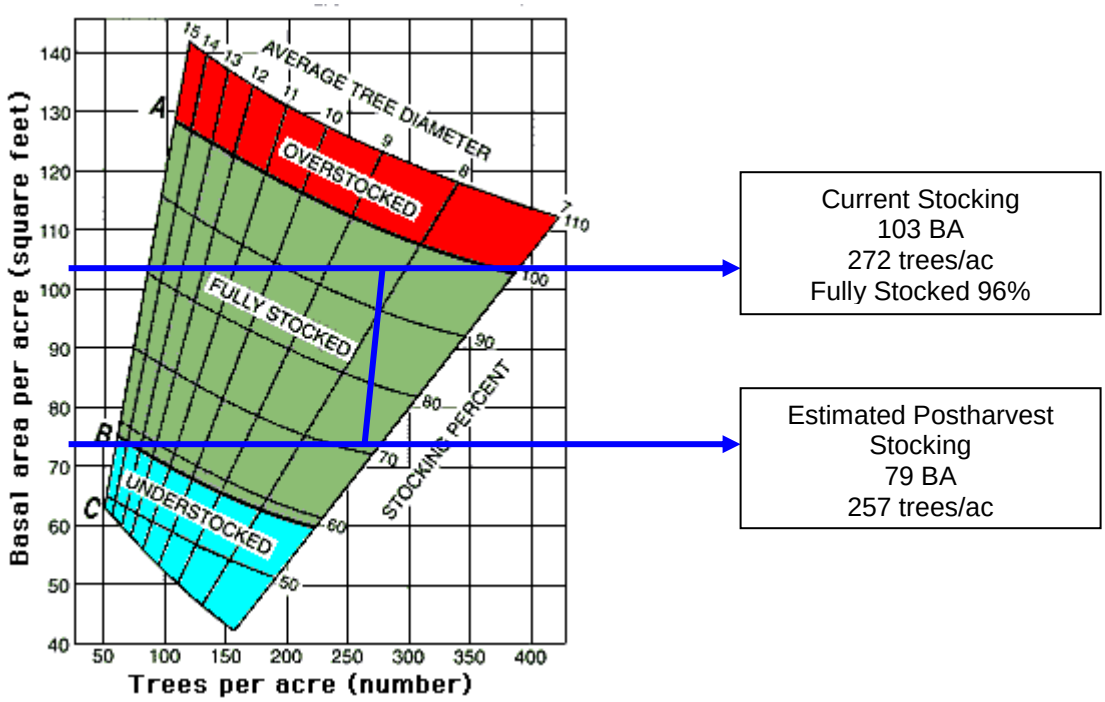
Cultural resources may be present on this tract. If present their location(s) will be protected. Impacts to significant cultural resources noted will be avoided during management or construction activities.

Tract Subdivision Description and Silvicultural Prescription

Tract Summary Data 6371306 from November 2011 Inventory

Total Trees/Ac.= **272**
Overall % Stocking = **96% (fully stocked)**
Sawtimber & Quality Trees/Ac.= **42**
BA/Ac= **103.2 ft^2/acre**
Present Volume = **8,475 BF/acre**
Harvest Volume = **2,555 BF/acre**
Growing Stock Volume= **5,920 BF/acre**

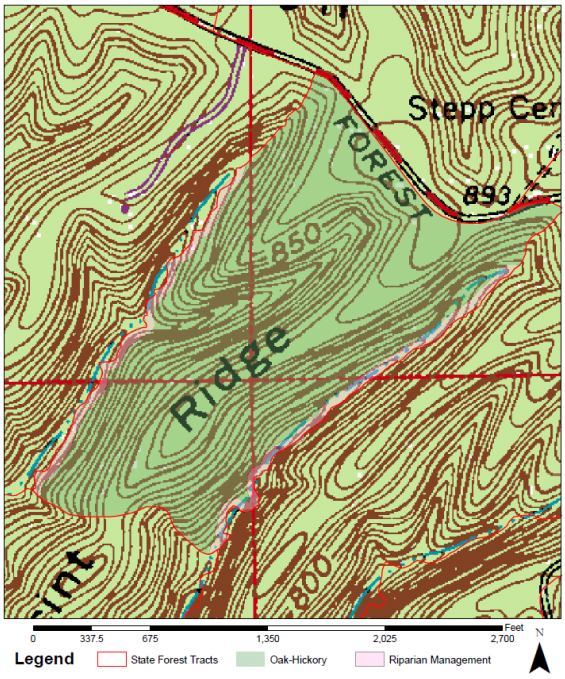
Figure 2. Gingrich Stand and Stock Table for M1306



The current resource tract inventory was completed in November of 2011 by Forester Amy Spalding. 25 prism points were sampled over 79 acres (1 point for every 3.16 acres). A tract summary of the forest resources is given above and a species breakdown of the summary is given in Table 4 below. This tract is fully stocked and a managed timber harvest is prescribed over the entire tract with projected yield of 125 – 225 MBF. The tract's forest resource is composed of 2 different stratums based on timber type and riparian areas as outlined below in Figure 3. The dominate timber cover type of M1306 is Oak-Hickory with small pockets of Mixed Hardwoods along the eastern slopes and bottomland areas. The Mixed Hardwood components were not large enough to be separated from the tract's major Oak-Hickory timber component.

Oak-Hickory Stratum

Figure 3. Management Stratum Designations for M1306



As the Oak-Hickory component of the Eastern Hardwood Ecosystem provides the most significant wildlife, timber resource, and value the retention of this stratum is important in the Property's longterm resource management program. The Oak-Hickory timber type covers roughly 92% of the tract or about 73 acres. The overstory of this tract is dominated by Chestnut Oak, Black Oak, Scarlet Oak, Yellow Poplar, White Oak and Pignut Hickory. To a lesser extent Shagbark Hickory, Northern Red Oak, Sugar Maple, and Sassafras were also present. The understory is mostly constituted of Red Maple, Sassafras, and Sugar Maple along with some Chestnut Oak, Yellow Poplar, and White Oak. The regeneration layer is dominated by American Beech, Sassafras, and Yellow Poplar although Black Cherry and Red Maple were also noted to a lesser extent on the forest floor.

In M1306 the Black and Scarlet Oaks are often in a dominant crown position however many are showing signs of decline. Modest areas indicating past wildfire, insect and disease as well as windthrow damage were noted throughout the tract. Singletree selection towards removing these poorly formed and diseased individuals and retaining the higher quality stems is recommended. The Chestnut Oak group has shown the largest increase in merchantable volume since the 1995 inventory. This species has increased just over 1,000 BF/acre since this last inventory. This growth is largely attributed to poletimber ingrowth where poletimber trees have moved into the sawtimber size class. This change in volume has also increased the basal area and would warrant thinning to utilize declining stems and improve croptree spacing. The postharvest forest resource should be comprised of healthier, higher quality trees of long-lived tree species that inhabit areas with adequate growing space. Out of the 25 inventory points, 4 areas were noted to have conditions that would favor group selection regeneration. This could calculate out to 12.6 acres (16% of tract); however, total regeneration acreage will depend on more intensive evaluations conducted during actual timber marking. Regeneration is typically recommended for areas with moderate windthrow damage, insect/disease induced mortality, fire/grazing damage, poor species composition or areas that contain insufficient timber stocking to carry into the next management cycle.

Riparian Management Stratum

These areas are defined as lying adjacent to the mapped intermittents along the west and east tract boundaries of this tract. Approximately 6 acres of a Mixed Hardwood/Oak-Hickory component of sawtimber and pole-sized timber comprise the Riparian Management Stratum. During this management cycle no harvest or TSI is planned in either of these Riparian Management Areas.

Due to the present condition of tract, this area is prescribed for timber sale marking and subsequent harvest. An archeological roadwork request has been submitted in early CY2013 for

reviewing the tract's haul road and log yard construction areas. Although some grapevines were treated during inventory, additional spot treatments could be completed during timber marking. A few old regeneration openings from the 1973 harvest were observed during the inventory. These areas should be included for croptree release in a planned postharvest TSI project. The Bush Honeysuckle noted along the Main Forest Road should be reevaluated prior to the planned harvest. The prompt reseeding of exposed surface roads and yarding areas during timber sale closeout can help reduce the spread and extent of exotic species into the tract.

Following the harvest a general postharvest TSI project will include completion of group selection regeneration openings as well as additional croptree release in unharvested stands as well as in the older regeneration openings. These treatments should contribute to help reverse the tract's snag deficiencies for the Indiana Bat as well as provide habitat for other cavity nesting wildlife species.

Given the current inventory data, this tract is suitable for a 15 year management cycle wherein growth and development of the tract's timber resource is evaluated by a forest inventory every 15 years. The current inventory data indicates a possible harvest of between 100 - 225 MBF. At present a single tract timber sale is proposed in CY2013 followed by a Timber Stand Improvement (TSI) project. A field review for successful regeneration is planned 3-4 years after opening TSI is completed.

Table 4. Overview of Sawtimber Volume Estimates in M1306 in November of 2011

Species	Harvest Stock	Growing Stock	Total
Chestnut Oak	43,687	135,169	178,856
Black Oak	43,687	99,935	143,622
Scarlet Oak	47,242	85,162	132,404
Yellow Poplar	40,211	59,882	100,093
White Oak	14,694	63,516	78,210
Pignut Hickory	3,476	10,270	13,746
Northern Red Oak	0	3,950	3,950
Red Maple	2,607	1,185	3,792
Shagbark Hickory	0	3,634	3,634
Chinkapin Oak	0	2,686	2,686
American Sycamore	2,686	0	2,686
Sassafras	2,370	0	2,370
Largetooth Aspen	1,106	0	1,106
Tract Totals (Bd. Ft.)	**201,766**	**465,389**	**667,155**
Tract Volume/Acre (Bd. Ft./Acre)	**2,554**	**5,891**	**8,445**

Proposed Activities Listing

Proposed Management Activity	***Proposed Period***
DHPA timber sale project submission & review	CY2013
Roadwork Rehabilitation	CY2013
Timber Marking	CY2013
Timber Sale	CY2013
BMP Field Review	CY2014-2016
Postharvest TSI Project	CY2014-2018
Regeneration Opening Review	CY2018-2020
Reinventory and Management Guide	CY2026

Attachments (Included in Tract File)

- Topo Map of Tract Features
- Tract Soils Map
- Aerial Photo of Tract
- INHD Review Map
- Stocking Guide Chart
- Printed 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.