Indiana Department of Natural Resources – Division of Forestry

Draft

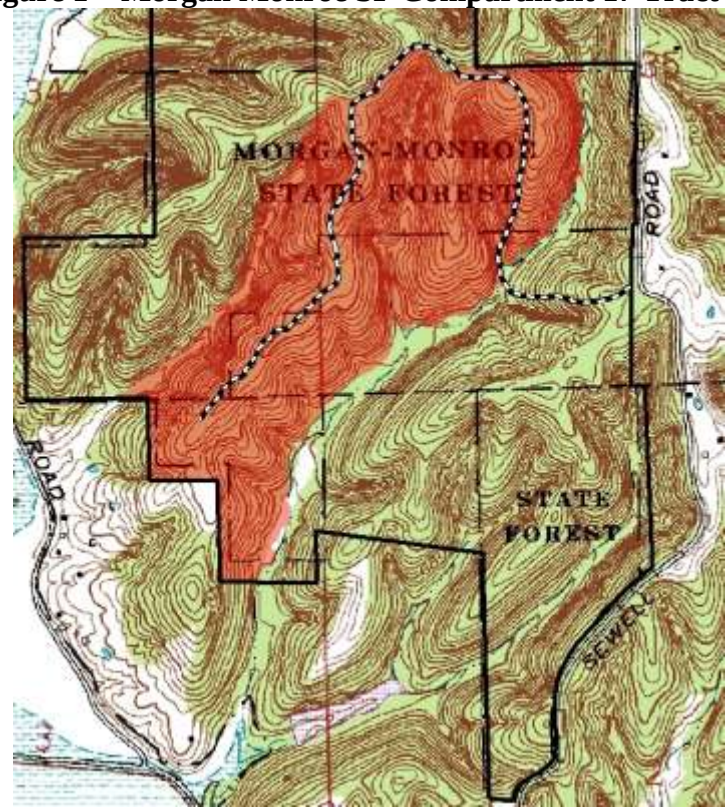
Resource Management Guide

State Forest: Morgan-Monroe
Compartment: 17 **Tract:** 15
Tract Acreage: 157
Commercial Forest Acreage: 157
Forester: Kaylee DeCosta for Mike Spalding
Date: Oct. 18, 2011; Amended August 6, 2014
Management Cycle End Year: 2026
Management Cycle Length: 15 years

Location

Morgan-Monroe Compartment 17 Tract 15 is located in Sections 34 and 35 of Township 9N, Range 1E as well as Section 3 of Township 8N, Range 1E of Monroe County. This tract is approximately 1 mile north of State Road 46 and 5½ miles east of Bloomington. M1715 lies in a large MMSF block of timberland between Brummett Creek Road and Sewell Road.

Figure 1 – Morgan Monroe SF Compartment 17 Tract 15



General Description

M1715 contains 157 acres of closed canopy, mostly Mixed Oak timberland in Morgan-Monroe State Forest. All acres are considered to be commercial forestland. The forest resource is predominantly medium to large sawtimber Mixed Oak. White Oak is the most abundant species with Black Oak being the next most abundant species. Chestnut Oak is interspersed but mostly concentrated along the northern uppermost ridgetop areas. Mixed Hardwoods exist along the creek bottoms, drainages, and on some areas of the north-east facing slopes. Overall timber quality is good especially in White

and Black Oak species. The tract inventory species composition is listed below in Table 1 according to their dominance.

Table 1. Overview of Forest Resources in M1715 in October 2011

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

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

The land within this tract was acquired by the Division of Forestry through several different acquisitions. The first purchase was 35 acres from Clara and Bernard Pogue on June 12, 1950. On June 23, 1950 an additional 100 acres were purchased from James and Nellie Pearl Woods. Thomas and Marilyn Hoadley sold the State of Indiana 160 acres on December 15, 1961. 80 acres was transferred to MMSF from the US Forest Service on August 8, 1965. The final acquisition was a 12 acre purchase from Archie and Beulah Baugh on July 7, 1987. Historical aerial photography suggests that prior to government acquisition portions of the valleys and ridgetops were farmed and the sideslopes likely to have been grazed. On 7/31/03, Forester Kaina completed a forest resource inventory of 133 acres of what was then Tract 15. That area is now Tract 15 and part of Tract 27. The inventory at that time resulted in 3,546 BF/ac. leave and 2,501.7 BF/ac. harvest. M1715's current acreage and tract boundaries were reconfigured in the 1980's. A second tract change occurred in 2011 wherein old M1715 and M1716 were merged prior to the October 2011 forest resource inventory. An adjacent tract, M1714, was sold and harvested in 2011. The past history of harvesting activity within the current boundaries of

M1715 is unavailable due to its private ownership before 1950. Some evidence of harvest (old stumps) was observed within the tract especially in the southernmost tract portion.

- 1950-1961 - State acquisitions from Pogue, Woods, & Hoadley families (D.R. #153:213, 223, 265).
- 8/8/65 – Transfer by Federal Exchange of pt of 80 acre property from the US Forest Service (D.R. #153:273).
- 1986 – Boundary recon and land acquisition project by Forester D. Breedlove.
- 7/7/87 – Acquisition of 12 acre parcel from Baugh (D.R. #153:285).
- 7/31/03 – Tract resource inventory by Forester H. Kaina over 133 acres completed (pt. of T15&27).
- 1980's – Tract realignment completed by Forester D. Breedlove; tract acreage = 133 acres.
- 1980's – Boundary lines in this Block of State Forest marked by Forester D. Breedlove.
- Late 1980's – Access improvement into tract from off Sewell Road completed by Forester D. Breedlove.
- 2011 – Tract realignment completed by Forester A. Zillmer; tract acreage = 157 acres.
- 10/25/11 – 2nd Forest Resource inventory completed by Forest Intermittent K. DeCosta.

Landscape Context

This tract is part of a unit of seven tracts of State Forest totaling 529.4 acres. Tract 15 borders private forestland on the northeast and southwest ends of the tract. Agricultural fields occupy much of the landscape to the west of this forested block and residential and private forestland to the east. A few field areas were found adjacent to the southern property boundary of tract 15. The areas to the west of these tracts along Brummett's Creek also serve as flood plain for Lake Monroe and are subject to seasonal inundations. This plain was flooded for the majority of the spring of 2011. Monroe Reservoir lies approximately 1 mile southwest of this tract.

Topography, Geology and Hydrology

M1715 is at the southwest end of a large ridge that ties into Scarce O' Fat Ridge of Yellowwood State Forest. The topography consists of several finger ridges that run mostly NE to SW. Within the tract, the topography ranges from nearly level to 75% slopes with northwest and southeast aspects dominating. The underlying soils range from 15 - 87 inches in depth to sandstone and/or shale bedrock. Limestone outcrops were found along some of the ridgetops. One mapped intermittent creek serves as the southeast boundary of the tract. Several other unmapped ephemeral drainages occur throughout the tract. Water resources from M1715 drain into Brummett's Creek and from there into the north fork of Salt Creek and eventually into the headwaters of Lake Monroe.

Soils

Bu (Burnside silt loam) This soil type is nearly level, deep, well drained on narrow flood plains in sandstone bedrock areas. It is subject to occasional flooding and so presents equipment limitations. This soil type comprises approximately 5% of the southern-most part of tract 15. This soil is well suited for the growing of Yellow Poplar, Red Oak, and Black Walnut trees. Erosion, equipment limitations, seedling mortality, and windthrow hazards are all slight for this soil type. The site index for this soil type is 95 for Yellow-Poplar.

BkF (Berks-Weikert complex, 25-75% slopes) This soil type has steep to very steep slopes and moderately deep and shallow well drained soils on side slopes. These tracts are comprised of approximately 85% of this soil type and presents moderate erosion hazards, severe equipment limitations, moderate – severe seedling mortality, and slight – moderate windthrow potential.

Surface runoff of this soil is rapid. Skid trails should be constructed on contours and naturally formed benches to prevent erosion. Site index for Northern Red Oak at this site is 64-70 and 70 for Black Oak.

BdB (Bedford silt loam, 2-6% slopes) Gently sloping, moderately well drained soil and moderately deep on narrow to broad ridgetops. Erosion, equipment limitations, seedling mortality, and windthrow hazards are all slight for this soil type. This soil types occupies approximately 10% of the tracts. Site index for White Oak is 70 at this site, 90 for Yellow Poplar, and 75 for Northern Red Oak.

Access

M1715 is accessible to the public as well as for resource management access from a gate on adjacent tract M1717 adjacent to Sewell Road where there is some limited parking. This firetrail crosses an intermittent stream and then proceeds into the north end of the tract. Access to this tract was first established in the 1980's by Forester D. Breedlove and was recently improved in 2010. Management access will use this roadway unless a timber buyer can negotiate access across the northeast private landowner. A timber sale in M1715 will utilize the haul road off of Sewell Road, unless the buyer is able to negotiate an access through adjacent private ownerships. A proposed sale could utilize two existing log yards that were utilized in the timber sale in Y1714.

Boundary

Other State Forest tracts border M1715 to the Northwest and the Northeast. Private forestlands border the northeastern and southwestern boundaries of the tract. Private boundaries for this block of State Forest were first reviewed and marked in the late 1980's by Forester D. Breedlove. Portions of these boundaries have been remarked every 5 to 6 years in orange paint and are up to date but the westernmost boundary lines of the south 1/4 of tract 15 have yet to be reestablished.

Wildlife

Wildlife resources are abundant within M1715. This tract contains a diverse vegetative structure 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 and forested riparian areas. 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 nearly all species and assists in controlling soil erosion.

A Natural Heritage Database Review was completed for M1715 in October 2011. If Rare, Threatened or Endangered species (RTE's) were identified in M1715 the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Communities

A Natural Heritage Database review was completed on the tract; no RTE records were found within the tract. If Rare, Threatened or Endangered species (RTE's) are identified for this tract,

the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.
The ground cover of the dryer south-facing slopes is composed mostly of various wood sedges and greenbriar. Christmas Fern, Partridgeberry, Dittany (*Cunila origanoiodes*), and Bottlebrush Grass was found interspersed throughout the tracts. Beechdrops (Epifagus virginiana) was also found throughout the tract; this plant is parasitic on Beech Trees. Squawroot (*Conopholis americana*) is another parasitic plant that was found in this tract; this plant is parasitic on the roots of oak trees. Spicebush, Greenbriar, and Maple-leaved Viburnum formed much of the shrub layer in these tracts.

Exotic and Invasive Species
Multiflora Rose, Autumn Olive, Japanese and Bush Honeysuckles, Japanese Stiltgrass and Beefsteak Plant (*Perilla frutescens*) were invasives noted during the inventory. The Multiflora Rose population was observed to be in very small concentrations throughout the tract with many of these plants being loosely rooted. The Autumn Olive, Japanese and Bush Honeysuckles were all seen adjacent to the privately owned field area along the south boundary of M1715. These plants occurred in mostly small populations. Japanese Stiltgrass was observed across portions of the old firetrail the runs along the central ridge in this tract. It was also noted growing along the roadway and along the creek beds. Beefsteak Plant was also noted along the roadway. These exotics and in some instances invasive species could be hand pulled, treated by basal bark spraying or foliage spraying prior to management activities. The presence of some of these species on adjacent private ownerships creates reinfestation problems for this tract in the future. Exotics will also be addressed in any postharvest Timber Stand Improvement (TSI) project.

Recreation
Public access into M1715 is available off of Sewell Road. A small parking area has been created there by the cable gate. The access gate was moved further off the road years ago to accommodate a school bus turnaround site. Possible recreational activities within this tract include hiking, mushrooming, wildlife viewing, and hunting.

Cultural
All portions of M1715 were reviewed for cultural sites during the forest resource inventory. Cultural resources may be present within M1715 but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Stand Descriptions and Silvicultural Prescriptions:

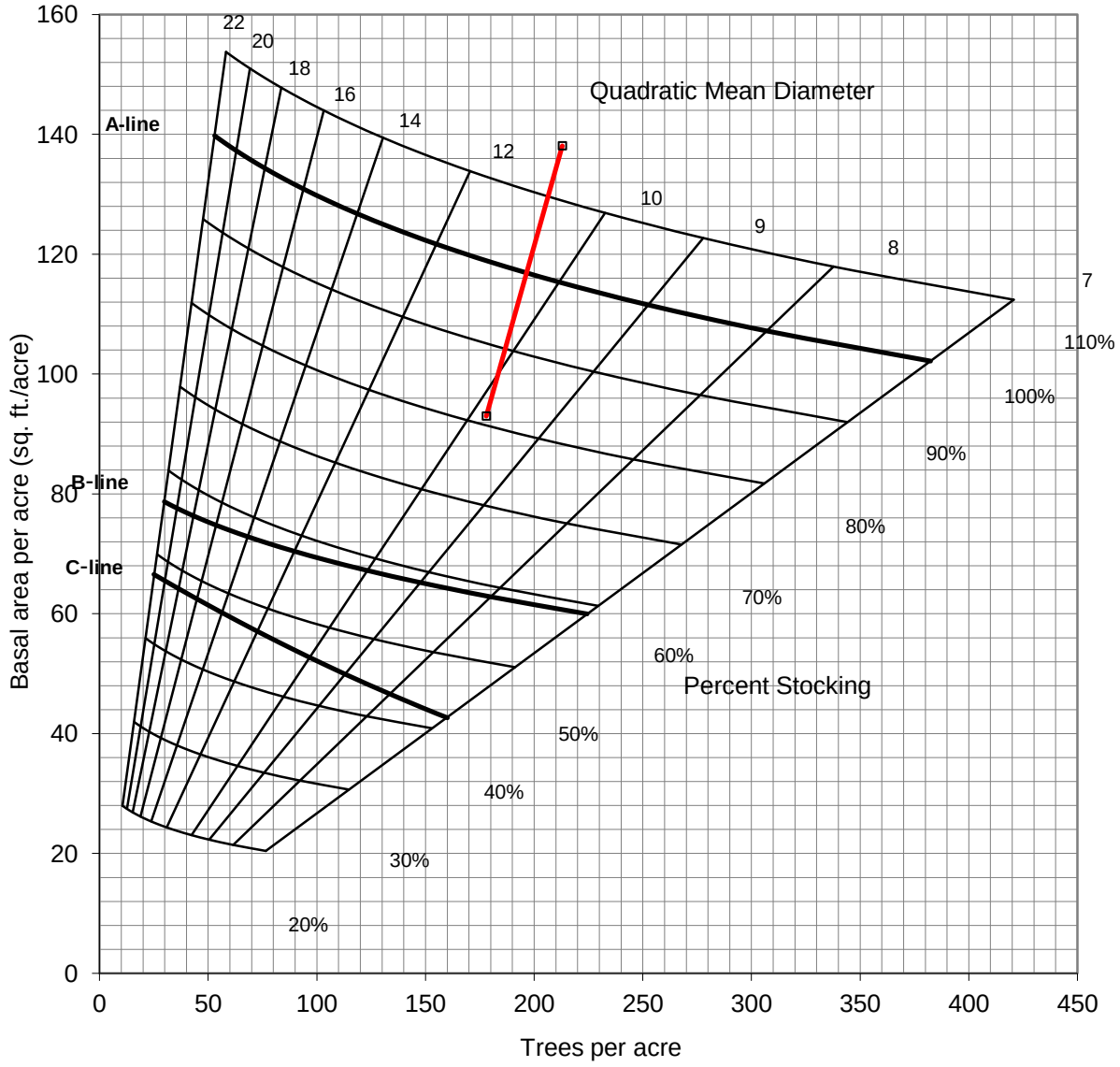
The current forest resource inventory was completed on October 25, 2011 by Forest Intern Kaylee DeCosta. 41 prism points were evaluated over 157 acres (1 point for every 3.83 acres). The summary tract inventory results are noted below. A species breakdown of the summary is given in Table 3 below. For this management cycle there is only 1 Management Stratum that is proposed which covers the major Oak-Hickory timber type and its various embedded Mixed Hardwoods timber types within the 157 acre merchantable portion of the tract. Overall, M1715 is overstocked and a timber harvest is prescribed for the commercial forested acreage.

Tract Summary Data

Total Trees/Ac.= **213**
Sawtimber & Quality Trees/Ac.= **66**
Present Volume = **10,945 Bd. Ft./Ac.**

Overall % Stocking = **118%** (Over-stocked)
BA/A= **138.1 sq.ft./Ac.**

Table 2. Gingrich Stand and Stock Table for M1715 in October 2011



Oak-Hickory/Mixed Hardwoods Stratum – 157 acres

Current Description

The timber in this Cover Type is predominantly large sawtimber Oak-Hickory with some Mixed Hardwoods such as Yellow Poplar, White Ash, American Sycamore, Sugar Maple, White Ash, Red Maple, and American Beech. Oak and Hickory species account for over 85% of the total volume within the Cover Type with White, Black, Chestnut and Northern Red Oaks being the most prevalent species by volume. The understory is dominated by Sugar Maple, Sassafras, Red

Maple, American Beech and Hickory spp. There are numerous old regeneration openings dominated with Yellow Poplar, Maple spp., and Sassafras. These openings were created prior to State acquisition. The majority of Yellow Poplar regeneration observed in the regeneration openings is in decline due to the drought and insect infestation from CY2012.

Prescription

The management goal of this Cover Type is to maintain a well stocked timber structure dominated by healthy and vigorous Oaks, Hickories, and other Mixed Hardwoods. The prescription that is recommended is an improvement cutting to be applied over the majority of the commercial forested area. This would be accomplished primarily through single tree selection. Trees selected for harvest would be primarily declining overstory trees, damaged or defective, poorly formed, stressed, or less desirable timber species that are competing with croptrees. Small group selections may also need to be prescribed in areas dominated by declining Yellow Poplar or in areas where excessive mortality was observed in aggregations due to the past few years of drought.

The improvement cutting that is prescribed would consist of mostly singletree selection to thin and release desirable croptrees and to remove suppressed and poorly formed trees. Trees selected for harvest would include low-forking, leaning, declining canopy, epicormically sprouting, overtopped/suppressed intermediates, or deformed trees. Harvesting these trees will relieve crowding and thin from above and below offering release for the healthiest and most vigorous croptrees. Some REO, BLO, and YEP trees throughout the tract have experienced crown decline due to age and recent weather effects and should be harvested this management cycle. White Ash should be marked for harvest in a sanitation cutting to slow the spread of the Emerald Ash Borer which has been reported in this county. A few small areas of Sugar Maple Borer infested timber was observed; moderate to heavily damaged SUM should be removed to improve the quality of timber in those areas. At least one area within M1715 would also benefit from group selection regeneration. This area is located on a portion of the tract's northeast facing slope and is characterized by large sawtimber American Beech culls, declining Yellow-Poplar and some windthrow damage. The removal of the declining YEP would result in low stocking of the residual stand and as the species composition is poor with mostly pole-sized SUM-AMB, regeneration is recommended. As this site has a NE aspect and the presence of seed trees, it is likely that more vigorous YEP will regenerate well.

Some preharvest exotic and invasive control measures could also be accomplished during the timber marking phase of the proposed harvest. Preharvest Wild Grapevine control may be required in some planned group selection openings. Overall, there are significant numbers of high quality growing stock in this Stratum especially in the WHO and BLO species groups with many WHO observed to be of veneer quality. Following the improvement cutting and thinning regimen proposed for this Stratum the residual stand should experience significant gains in vigor and quality.

Postharvest Timber Stand Improvement (TSI) is recommended and may include Wild Grapevine control, croptree release, large snag creation and possibly small opening completion. TSI work will be most intensively prescribed in the old regeneration openings and would include Wild Grapevine control, croptree release, coppicing, and potentially exotic/invasive control. Wild Grapevine TSI is recommended in the drainages as their presence has significantly damaged the

crowns of streamside trees. Large American Beech culls that may have not been harvested during the timber sale could be girdled in the planned postharvest Timber Stand Improvement (TSI) operation. This postharvest activity to create standing snags and cavity trees would be beneficial over several years by creating diverse habitats for cavity nesting birds, mammals and forest floor herptiles.

Given the recent inventory and growth of M1715'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. Inventory data indicates a possible harvest of between 300-450 MBF. A timber sale is proposed for FY2014-15.

Table 3. Volume Estimates: Morgan-Monroe SF Comp. 17 Tract 15

(October 2011 Inventory Data)

Species	Total
White Oak	600,430
Black Oak	318,600
Chestnut Oak	244,970
Northern Red Oak	135,450
Scarlet Oak	80,860
Yellow-Poplar	60,890
American Sycamore	45,330
Pignut Hickory	41,820
Bitternut Hickory	32,790
Sugar Maple	32,030
White Ash	30,300
Shagbark Hickory	25,040
American Beech	22,330
Basswood	13,730
Red Elm	13,600
Red Maple	9,880
Largetooth Aspen	7,540
Chinkapin Oak	2,810
Tract Totals (Bd. Ft.)	**1,718,400**
Per Acre Totals (Bd. Ft./Ac.)	**10,945**

Proposed Activities Listing

Proposed Management Activity	***Proposed Period***
Timber Marking & Invasive Evaluation	CY2014-2015
Timber Sale	FY2014-2015
Postharvest TSI & Invasives Follow-up	Within 2 years of harvest
Regeneration Opening Review	Within 3-4 years of Postharvest TSI
Reinventory and Management Guide	CY2026-30

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