Indiana Department of Natural Resources
Division of Forestry
DRAFT

RESOURCE MANAGEMENT GUIDE

State Forest: **Morgan - Monroe** Compartment: **17** Tract: **12**
Tract Acreage: **97** Commercial Forest Acreage: **97**
Forester: **Amanda Smith (for Amy Spalding)** Date: **7/26/2012**

Location

M1712 is located in Section 26 of Township 9N, Range 1E of Monroe County. It is located roughly 3 miles northwest of Belmont and 3.75 miles southeast of Unionville. The tract is accessible by a firetrail off of the west side of Scarce O' Fat Ridge Road.

General Description

M1712 consists of a total of 97 forested acres of which 52.9 acres are of Oak-Hickory forest, 35.3 acres of Mixed Hardwood forest, and 8.8 acres of past regeneration or early successional forest in Morgan–Monroe State Forest. All 97 forested acres are considered commercial forest acreage. M1712's timber resource ranges from small to large sawtimber in size. Some of the regeneration openings from the past harvest in CY2000 have regenerated to YEP however are presently in decline due to the strains of persistent drought and the 2012 Tulip Poplar Scale insect epidemic. The overall timber quality of this tract is average. A summary of the forest resources in M1712 in relation to species dominance is noted below in Table 1.

Table 1. Overview of Forest Resources in M1712 in July 2012

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

* Species not captured in Prism Plots but present within the tract.

History

The land area that includes M1712 (see Figure 1) was deeded to the State of Indiana in 1962 by the United States Department of Agriculture. The land areas along Brock Road have had modest historic encroachments by the public due to a lack of boundary evidence, obtaining a larger survey of the area has been of lower priority for the DNR in the past. A partial boundary survey was completed by DNR Surveyor Bob Vollmer in June of 1965 along the tracts NW portion whereby the disposition of a 10 acre exception was resolved. Another encroachment of <1 acre along the northeast boundary line was mediated in 2009 by a land transfer.

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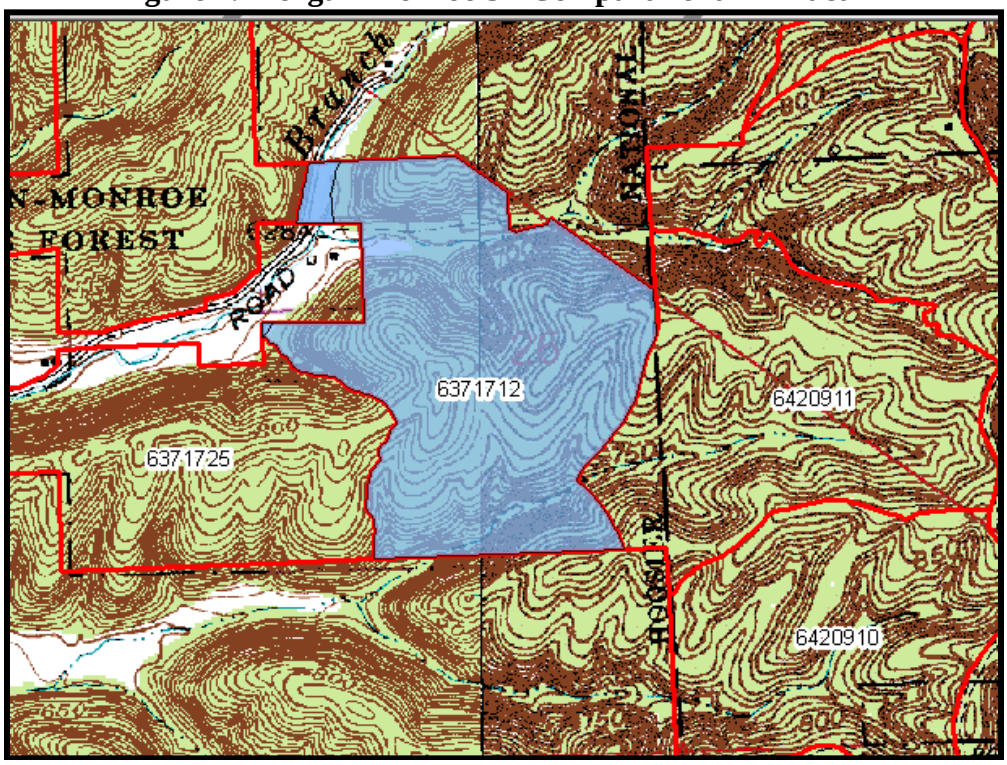
Historical aerial photography suggests that prior to government acquisition the valleys and ridgetops were farmed and the sideslopes likely to have been grazed. The first tract resource inventory was completed in February, 1999 by Forester Hal Kaina (4,995 BF/A present, 3,350 BF/A harvestable). A subsequent harvest in 2000 was marked on a small portion of the north facing slopes and sold to Taggart Hill Sawmill on May 16, 2000 by Forester Kaina This harvest yielded a total of 18,482 BF. The second and current forest resource tract inventory was completed on July 18, 2012 by Intermittent Forester Amanda Smith. The results of that inventory are highlighted in the report below.

Landscape Context

This ridgetop and sideslopes of this tract are mostly comprised of the dominant Oak-Hickory species known to occur in the Yellowwood/Morgan-Monroe State Forest ecosystem. The lowland areas of the tract have been influenced by agriculture or hobby equestrian users. Yellowwood Lake, which is approximately 133 acres in size, is located a little over a mile east of the Tract's east boundary and provides a significant watering source for migrating waterfowl as well as a public fishery. The Brummett Creek lowland areas to the west have modest acreages of row crops, pastureland areas as well as residential developments. The northern headwaters and intermittently flooded marshes of Monroe Reservoir lie approximately 1 mile southwest of the tract providing valuable and stable habitats for migrating waterfowl as well as prime habitat for lowland mammals, herptiles and birds.

Figure 1. Morgan-Monroe SF Compartment 17 Tract 12



Topography, Geology and Hydrology

Tract 12 is part of a large finger ridge that grades westerly toward the Brummett Creek Valley. The northern and southern slopes consist of smaller finger ridges that are interlaced with ephemeral drainages that drain into mapped intermittent drainages. The N ephemeral streams drain into Conrad Branch, which then flows into Brummett Creek, which then moves south into the North Fork Salt Creek, and eventually flows into Lake Monroe. The S ephemerals drain into an unnamed large intermittent that enters the afore mentioned Brummett Creek. In general, these upland soils were formed in residuum from sandstone, siltstone, and shale. The tract's topography ranges from 0 - 75% slopes with general north and south aspects.

Soils

BkF (Berks-Weikert Complex, 25 – 75% slopes) This is the dominant soil found on the tract. It is derived from sandstone bedrock about 38" under the surface. This soil has severe limitations for equipment due to slope and low strength. It is recommended that any road construction follow natural contours or land modifications must be employed. This Complex is well drained with a low available water capacity. Although unsuited for urban development due to slope and depth to bedrock, it is well suited for trees. This soil holds a 70 Site Index for northern Red Oak.

Bu (Burnside Silt Loam, 0 – 2% slopes) This soil is found in the tract's bottomlands. It was derived from channery alluvium deposited in floodplains. This soil has only slight limitations for woodland management. It is moderately well drained and has a moderate available water capacity. This soil holds a 90 Site Index for Yellow Poplar.

Access

M1712 is accessible for management purposes by a firetrail off of the west side of Scarce O' Fat Ridge Road. Tract 12 is most easily accessed by the public from the end of Sewell Road and traversing through Y0911 or from long hikes from the N and S ends of Scarce O' Fat Ridge Road. This tract contains the "X" Horse Trail that allows access from Brock Road onto Scarce of Fat Ridge. Management access will need to be upgraded for equipment from the long firetrail that proceeds from off of Scarce O' Fat Road. A DHPA roadwork project will need to be reviewed by the Division of Forestry Archaeologist prior to completing any timber sale roadwork improvements. Log trucks and equipment will travel in and out the north end of Scarce O' Fat Ridge Road during a timber harvest.

Boundary

M1712 is bordered by State Forest to its east and west. The tract is bordered by privately owned property to the north, northwest and south. The Northwest boundary surrounding a 10 acre exception was surveyed by DNR Surveyor Robert Vollmer in June of 1975. Property monuments were set or referenced by Vollmer at all four of these corners however one appears to be missing now. Most of the tract's boundaries have been marked and repainted by orange paint along the line for many years and are up to date. The west boundary of Tract 12 coincides with ephemeral streams that form the east boundary of Tract 25. The east boundary of Tract 12 connects with the west boundary of Tract 6420911 which is in Brown County and part of Yellowwood SF.

Wildlife

A Natural Heritage Database review was obtained for this tract. 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 current inventory was conducted during the mid summer of 2012 so summer breeding bird residents were present. Songbirds were heard and the following bird species were identified during the inventory:

American Crow	Pileated Woodpecker
Broad-winged Hawk	Red-tailed Hawk
Eastern Phoebe	Redbellied Woodpecker

Other species or sign observed within the tract indicates use by Timber Rattlesnake, Black Rat Snake, Star-nosed Mole, White-tailed Deer, Grey Squirrel, Eastern Chipmunk, Raccoon, Opossum, Coyote and other small mammals. Multiple deer trails were also noted throughout the tract. Tract 12 has an abundant supply of food resources such as soft and hard mast. The mapped intermittent stream that cuts through the northern section of the tract provides a water source for the area during nondroughty periods of the year.

The Indiana Division of Forestry recognizes the potential to improve the Indiana bat habitat on its lands by implementing comprehensive management practices. These management practices include obtaining data on size, species, and numbers of snag trees (See Table 2). Snag trees and the presence of some specific species of trees are a vital part of the Indiana bat policy as they provide prime roosting sites for maternal colonies. According to the Wildlife Habitat Feature Summary, all levels of snags and legacy trees met or exceeded maintenance levels.

Table 2. Live Legacy Trees* and Snags inventoried July 2012 on M1712

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Legacy Trees *					
11"+ DBH	873		2,259	1,386	
20"+ DBH	291		490	199	
Snags (all species)					
5"+ DBH	388	679	2,177	1,789	1,498
9"+ DBH	291	582	310	19	**-272**
19"+ DBH	48.5	97	63	15	**-34**

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

Communities

The ground cover of this tract consisted of mainly mesic to dry mesic species. Observed species included:

Appendaged Waterleaf	Gooseberry	Poison Ivy
Autumn Olive	Grape Vine	Red Raspberry
Beebalm	Grass	Sedge
Black Snakeroot	Greenbrier	Spicebush
Blackberry	Horseweed	Spinulose Wood Fern
Blueberry	Japanese Stilt Grass	Squawroot
Broad Beech Fern	Jewelweed	Stinging Nettle
Canada Violet	Large-flowered Bellwort	Sweet Cicely
Christmas Fern	Leeks	Tree Clubmoss

Cleavers spp.	Maidenhair Fern	Virginia Creeper
Dittany	Maple-leafed Viburnum	Wild Geranium
Dog Violet	Multiflora Rose	Wild Strawberry
Enchanter's Nightshade	Oxalis spp.	White Snakeroot
False Mermaid	Pawpaw	

Squawroot (Conopholis americana) is a plant that is parasitic on the roots of oak trees. Japanese Stiltgrass and Multiflora Rose were observed during inventory mainly along the firetrails. Autumn Olive was observed scarcely in a few lower density, flatter areas of the tract and in one of the old openings. Autumn Olive is an invasive species that has the potential to increase its population in short periods of time; populations of this exotic will be treated as observed. Multiflora Rose has become relatively common among the landscape, therefore, only large concentrations should be considered for treatment. With the improved accesses that Scarce O' Fat Ridge and Sewell Roads provide, the eradication of the Japanese Stiltgrass is unlikely. However, the prompt reseeding of exposed surface roads and yarding areas during timber sale closeout can reduce the spread and extent of infestation of Stiltgrass.

Recreation

Scarce O' Fat Ridge Road is heavily used by hikers, handicap hunters, and horseback riders. This tract contains the "X" Horse Trail that allows access from Brock Road onto Scarce O' Fat Ridge. Other uses of this area include wildlife viewing and gathering. A posting for restricted access or temporary closure in the event of a future timber harvest is planned for the "X" Horse Trail so as to reduce interactions by the timber harvest with recreators.

Cultural

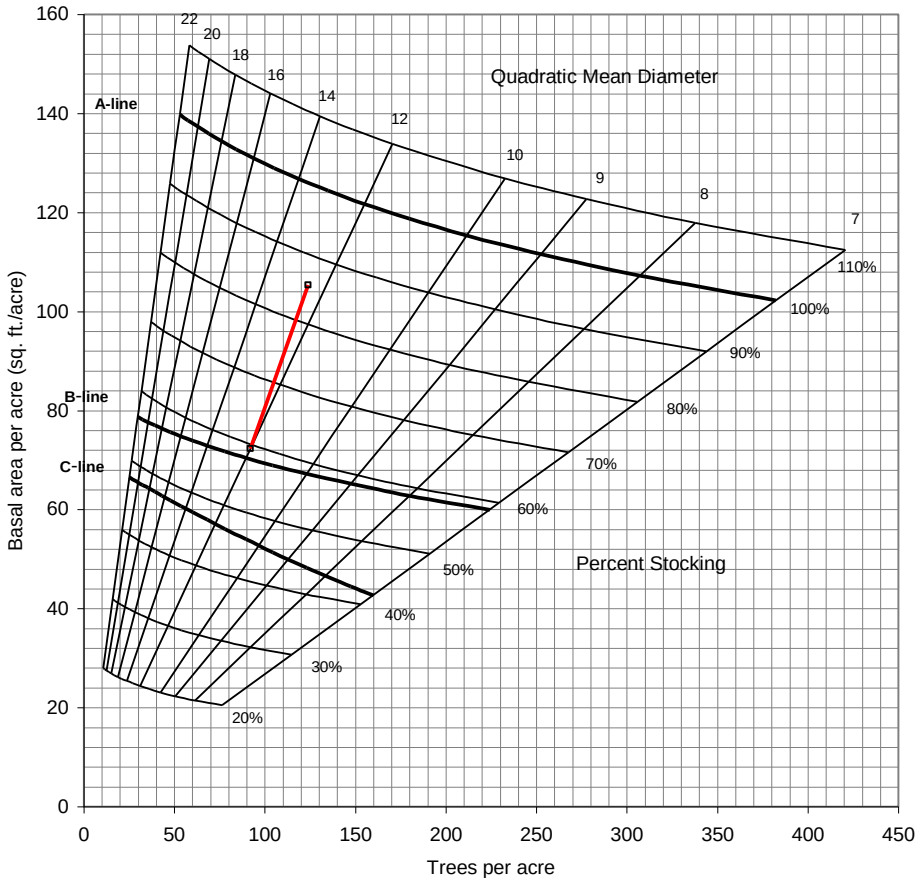
Cultural resources may be present on this tract but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities as prescribed by the Division of Forestry Archaeologist.

Tract Subdivision Description and Silvicultural Prescription

The overall stand structure for this tract is represented in the following Gingrich Stand and stock table that follows the individual stand summary.

Tract Summary Data

Total Trees/Ac. = **441**
Overall % Stocking = **86%** (Fully Stocked)
BA/A = **118.8 Sq. Ft./Ac.**
Sawtimber & Quality Trees/Ac. = **45**
Present Volume = **6,746 Bd. Ft./Ac.**
Harvest Volume = **2,335 Bd. Ft./Ac.**
Residual Volume/Ac. = **4,411 Bd. Ft./Ac.**



Summary Tract Silvicultural Prescription and Proposed Activities

The current forest resource inventory was completed on July 18, 2012 by Intermittent Forester Amanda Smith. 33 prism points were sampled over 97 acres (1 point for every 2.9 acres). A tract summary of the inventory is given above and a species breakdown of the summary is given in Table 3 below. This tract is fully stocked and would benefit from a timber harvest. The proposed timber sale on this tract would likely yield 220 MBF. The tract's forest resource is composed of 3 different stands based on the 3 major timber types and size classes mentioned below.

Oak-Hickory Stand

As the Oak-Hickory component of the Eastern Hardwood Ecosystem provides the most significant wildlife, timber resource, and value the retention of these stands is important in the Property's longterm timber management program. The Oak-Hickory timber type covers roughly 54.5% of the tract or about 52.9 acres. The overstory is dominated by WHO, BLO, REO, SCO, and PIH with an average basal area of 110.6 square feet per acre. Singletree selection is prescribed to remove lower quality stems and mature to overmature trees to release a growing stock of high quality, more vigorous stems. Likewise, careful selection of co-dominant stems will help to improve overall croptree spacing. Lower quality trees that include low-forking, leaning, overtopped/suppressed intermediates, epicormically sprouting, and deformed trees are planned to be marked for removal in an improvement cutting. Group selection should be used to create regeneration openings where there is an abundance of

advanced regeneration of oak and hickory seedlings or where the overstory has low stocking and should be regenerated. It was observed that some WHO crowns are experiencing decline this year. This decline could be from the past two years of drought or from a late spring frost at the beginning of this growing season. The affected WHO will need further observation to determine if they will recuperate from this crown decline.

Mixed Hardwoods Stand

The Mixed Hardwoods component of the Eastern Hardwoods Ecosystem can be very variable in their composition and thereby have more complicated prescriptions. The Mixed Hardwoods timber type covers roughly 36.4% of the tract or about 35.3 acres. The overstory is dominated by SUM, REM, AMB, YEP, BLW, CHO, and WHO with an average basal area of 85.8 square feet per acre. Singletree selection can be implemented to remove lower quality stems and mature to overmature trees which will help to improve croptree spacing. An improvement cutting is prescribed to release quality oaks, hickories and walnuts from crown competition of lesser-valued timber species. The result of these prescribed cuttings will increase timber diversity as well as provide for enhanced wildlife habitat as most of the species within the Mixed Hardwood component are not heavy mast producers nor tend to provide valuable timber resources. Improvement cuttings in this component will also be applied to remove low-forking, leaning, overtopped/suppressed intermediates, epicormically sprouting, and deformed trees. Group selections should be used to create regeneration openings within this Stand. In order to meet our Property's International Forest Certification goals, group selections will be marked in appropriate areas. Certification standards seek to provide 10% of the tract acreage in regeneration harvests to maintain longterm forest regeneration and sustainability. The Mixed Hardwood stand is often where most of these goals are applied as they tend to have lower Oak-Hickory elements. Planned regeneration openings will most likely return to mixed hardwoods with a strong component of YEP. Overall, marking objectives within this component should consider oak and other species of significant wildlife value as the best croptrees for future conservation. Sugar Maple borer damage was noted in understory SUM throughout both the Mixed Hardwoods stand and the Oak-Hickory stand. In time this pest creates a girdling dead area on the bole of the tree that result in the stem breaking apart during moderate and severe windstorms. The removal of these stems would be classified as a combination improvement and sanitation cutting.

Early Successional Regeneration Stands

The CY2000 regeneration openings cover roughly 9% of the tract or about 8.8 acres. These stands are dominated mostly by YEP, SCO, and BLO with an average basal area of 73.3 square feet per acre. The YEP regeneration appeared to be in modest decline as a result of the past two years of drought and the Tulip Poplar Scale insect infestation that occurred in the late spring of 2012. The affected YEP will need careful review prior to the planned post harvest timber stand improvement project as modest mortality is expected. All old regeneration openings should be scheduled for a croptree release and grapevine removal in the planned postharvest timber stand improvement project.

Given the recent inventory and growth of this tract's forest resources, this tract is suitable for a 15 year cutting cycle wherein growth and development of the tract is reevaluated by a forest inventory

every 15 years. The current inventory indicates a possible harvest of between 200 - 250 MBF. A combined tract timber sale to include Tract 25 of MM Compartment 17 is planned for FY12-13.

Table 3. M1712 Sawtimber Volume Estimates
(July 2012 Inventory Data)

Species	Harvest	Leave	Total
White Oak	28,730	141,100	169,830
Chestnut Oak	36,440	39,210	75,650
Scarlet Oak	38,110	35,100	73,210
Black Oak	29,560	34,270	63,830
Yellow Poplar	5,160	51,850	57,010
American Beech	25,860	10,070	35,930
Bitternut Hickory	5,810	25,010	30,820
Sugar Maple	15,450	12,880	28,330
Northern Red Oak	5,050	15,090	20,140
Shagbark Hickory	0	14,710	14,710
Pignut Hickory	0	14,510	14,510
American Sycamore	6,620	7,590	14,210
Largetooth Aspen	12,030	1,460	13,490
Black Walnut	0	11,910	11,910
White Ash	10,010	0	10,010
Red Maple	5,670	2,840	8,510
Black Cherry	0	3,860	3,860
Basswood	0	2,990	2,990
Blackgum	0	1,820	1,820
Sassafras	0	1,580	1,580
Tract Totals (Bd. Ft.)	**226,500**	**427,850**	**654,350**
Per Acre Totals (Bd. Ft./Ac.)	**2,335**	**4,411**	**6,746**

Proposed Activities Listing

Proposed Management Activity	***Proposed Period***
DHPA timber sale project review	Summer CY2012
AUO Invasives Treatment	Fall CY2012
Roadwork Rehabilitation	Fall CY2012
Timber Marking (in conjunction with 6371725)	Fall CY2012
Timber Sale (in conjunction with 6371725)	Spring CY2013
Postharvest Timber Stand Improvement Project	CY2014-2017
Reinventory and Management Guide	CY2027

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.