

**Indiana Department of Natural Resources
Division of Forestry
DRAFT**

RESOURCE MANAGEMENT GUIDE

State Forest: **Morgan-Monroe**
Tract Acreage: **88**
Forester: **Amanda Smith (for Josh Kush)**

Compartment: **14** Tract: **08**
Commercial Forest Acreage: **81**
Date: **5/23/2013**

Location

M1408 is located in Section 16 of Township 10N, Range 1E of Monroe County. It is located roughly 1.5 miles north of Lake Lemon and 0.73 miles east of Beanblossom Lake. The tract is accessible by the Tincher Ridge firetrail off of Main Forest Road.

General Description

M1408 consists of a total of 88 forested acres of which 68.8 acres are Oak-Hickory forest and 19.2 acres are of Mixed Hardwood forest in Morgan-Monroe State Forest. Approximately 5 acres currently fall within the Riparian Management Areas along the east and west tract boundaries. Roughly 1.2 acres of the tract are located within the boundaries of the Sweedy Hollow Nature Preserve and are also excluded from any prescribed timber harvests. Overall, 81.5 acres are considered commercial forest acreage. M1408's timber resource ranges from small to large sawtimber in size. The overall timber quality of this tract is average. A summary of the forest resources in M1408 in relation to species dominance is noted below in Table 1.

Table 1. Overview of Forest Resources in M1408 in September 2012

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

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

History

The land area that includes M1408 (see Figure 1) was deeded to the State of Indiana in 1930 by Ralph Lowder. Historical aerial photography suggests that prior to government acquisition the valleys and ridgetops were farmed and the sideslopes likely to have been grazed. According to the 2001 Resource Management Plan for M1408, the current configuration of Tract 8 was created when old Compartment 14 Tract 9 was divided with half of Tract 9 becoming Tract 8 and half of the area becoming Tract 7. A 1977 inventory of Tract 9 concluded that the area was mostly Oak-Hickory timber type dominated by small sawtimber BLO and CHO. A timber harvest in 1980 marked by Forester Bill Bull removed 144,800 BF from 77 acres of Tract 8. This sale was purchased by Crone Lumber for \$28,300.00. The Sweedy Hollow Nature Preserve was created in 2008 and it includes a roughly 1.2 acre section of Tract 8. M1408's current tract resource inventory was completed on September 20, 2012 by Intermittent Forester Amanda Smith. The results of that inventory are highlighted in the report below.

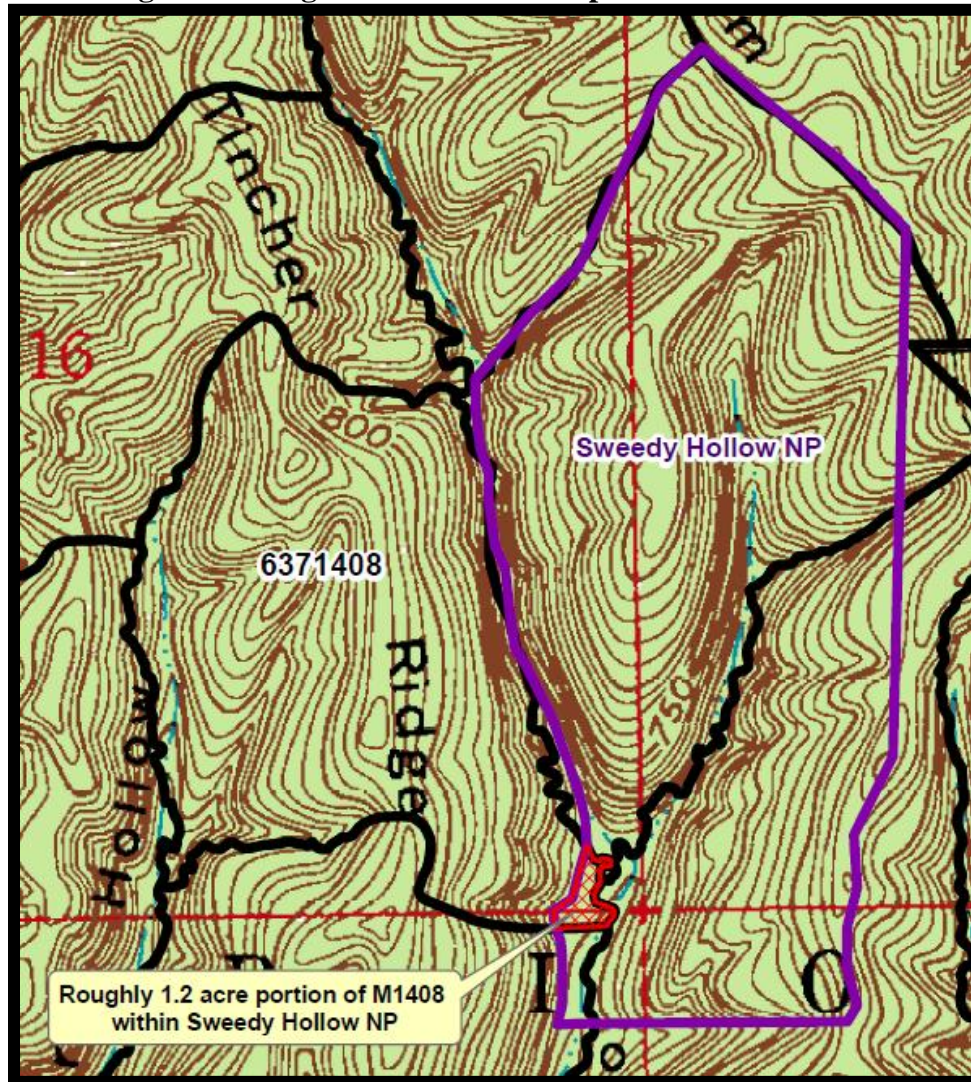
Landscape Context

The ridgetop and sideslopes of M1408 are mostly comprised of the dominant Oak-Hickory species known to occur in the Yellowwood/Morgan-Monroe State Forest ecosystem. The tract is completely surrounded by generally closed forest canopy of Morgan-Monroe State Forest with some maintained recreational openings and recreational buildings to the north and west of the tract. Lake Lemon lies approximately 1.5 miles south of the tract providing important habitats for migrating waterfowl as well as prime habitats for lowland mammals, herptiles, and birds. Anderson Road and Low Gap Road have productive lowland areas mixed with forested uplands that provide a rich diversity of field and woodland habitats. Some of these privately owned fields to the south have been recently replanted to trees by adjacent forest owners whereas other private lands contain residences, pastures or row crop farm fields.

Topography, Geology and Hydrology

Tract 8 consists of predominantly southwest and east facing slopes with ephemeral drainages that drain into the two mapped intermittent streams that form M1408's east and west boundaries. These drainages are locally known as Beecher and Sweedy Hollow. These intermittents eventually drain into Beanblossom Creek and then into the White River. In general, these upland soils were formed in residuum from sandstone, siltstone, and shale bedrocks. The tract's topography ranges from 6 - 75% slopes with general southwest and eastern aspects.

Figure 1. Morgan-Monroe SF Compartment 14 Tract 08



Soils

BkF (Berks-Weikert Complex, 25 – 75% slopes) This Complex consists of steep and very steep, moderately deep and shallow, well drained soils on sideslopes of uplands. These soils are poorly suited to trees and do not typically produce high quality timber. Erosion hazard, equipment limitations, and seedling mortality are concerns in management due to slope and depth to bedrock. These factors should be considered when laying out timber sales and implementing Best Management Practices for Water Quality. This Complex has a site index of 70 for Northern Red and Black Oaks. This soil type comprises approximately 75 acres or 85.2% of the tract acreage.

WmC (Wellston-Gilpin Silt Loams, 6 – 20% slopes) Moderately sloping to moderately steep. Parent material is loess over loamy residuum over shale bedrock. This soil type presents a slight risk for erosion hazard and equipment limitation. These soils have a site index for Northern Red Oak of 71 in the Wellston and 80 in the Gilpin. This soil type comprises approximately 13 acres or 14.8% of the tract acreage.

Access

M1408 is easily accessible by the Tincher Ridge Firetrail off of Main Forest Road. There is a public parking area at the head of the Firetrail. This Firetrail has undergone recent improvement work due to a recently harvested timber sale in M1409, which lies just south of M1408. The access for this sale roadwork was approved from the Division of Historic Preservation in May for construction. This construction will consist of improving the roadway and yard into M1408 only and is planned for the summer of 2013.

Boundary

M1408 is bordered on the north, west and south by other Morgan-Monroe State Forest tracts. The east boundary, an intermittent stream in the head of Sweedy Hollow, is jointly shared between MMSF and the Sweedy Hollow Nature Preserve which is administered by the DNR Division of Nature Preserves. The east and west boundaries are defined by mapped intermittent streams. The north and south boundaries are denoted by large ephemeral drainages that drain into the mapped intermittent streams.

Wildlife

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

American Goldfinch	Downy Woodpecker	Pileated Woodpecker
Blue Jay	Gray Catbird	Redbellied Woodpecker
Chirping Sparrow	Hairy Woodpecker	Red-eyed Vireo

Other species or sign observed within the tract indicates use by White-tailed Deer, Grey Squirrel, Eastern Chipmunk, Raccoon, Opossum, Coyote and other small mammals. Multiple deer trails were also noted throughout the tract. M1408 has an abundant supply of food resources such as soft and hard mast. The mapped intermittent streams that run along the east and west boundaries of the tract provide only an ephemeral water source for the area during nondroughty periods of the year.

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 Table 2 noted below. According to the Table 2, all levels of snags and legacy trees met or exceeded maintenance levels except for snag trees in the 9”+ DBH class. A Timber Stand Improvement (TSI) project following the completion of the proposed harvest should help reduce this deficiency as selected interior forest trees will be deadened. Management practices conducted on M1408 will be conducted in a manner that will maintain long-term and quality forest wildlife habitats.

Table 2. Live Legacy Trees* and Snags inventoried September 2012 on M1408

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Legacy Trees *					
11"+ DBH	792		2,042	1,250	
20"+ DBH	264		479	215	
Snags (all species)					
5"+ DBH	352	616	1,154	802	538
9"+ DBH	264	528	226	-38	-302
19"+ DBH	44	88	95	51	7

* 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	Grass spp.	Southern Fragile Fern
Black Snakeroot	Greenbrier	Spicebush
Blackberry	Horseweed	Spinulose Wood Fern
Blueberry	Jewelweed	Squawroot
Buttonbush	Leeks	Stinging Nettle
Canada Violet	Maidenhair Fern	Sweet Cicely
Christmas Fern	Maple-leaved Viburnum	Virginia Creeper
Cleavers	Pawpaw	White Snakeroot
Dittany	Poison Ivy	Wild Ginger
False Mermaid	Red Raspberry	Wild Strawberry
Grapevine	Sedge spp.	Witch Hazel

Squawroot (*Conopholis americana*) is a plant that is parasitic on the roots of oak trees.

Exotic Species

No exotic species were identified at the time of inventory. 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.

Recreation

Activities on this tract include hiking, bird watching, wildlife viewing, hunting, and mushrooming. The Rock Shelter Trail runs through the north and northeast portion of M1408 along a large portion of the Tincher Ridge Firetrail and then down the eastern slope and enters into the Sweedy Hollow Nature Preserve. A small public parking area for public access is located at the head of the Tincher Ridge firetrail along Main Forest Road. A posting for restricted access, a trail reroute, or temporary closure of the Rock Shelter Trail in the event of a future timber harvest is planned so as to reduce interaction with timber harvest and recreational values.

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.

Tract Subdivision Description and Silvicultural Prescription

The overall stand structure for this tract is represented in the following Gingrich Stand and Stock Table (Figure 2) that follows the individual area summary.

Tract Summary Data

Total Trees/Ac. = **813 Trees/Ac.**

BA/A = **144.8 Sq. Ft./Ac.**

Present Volume = **7,152 Bd. Ft./Ac.**

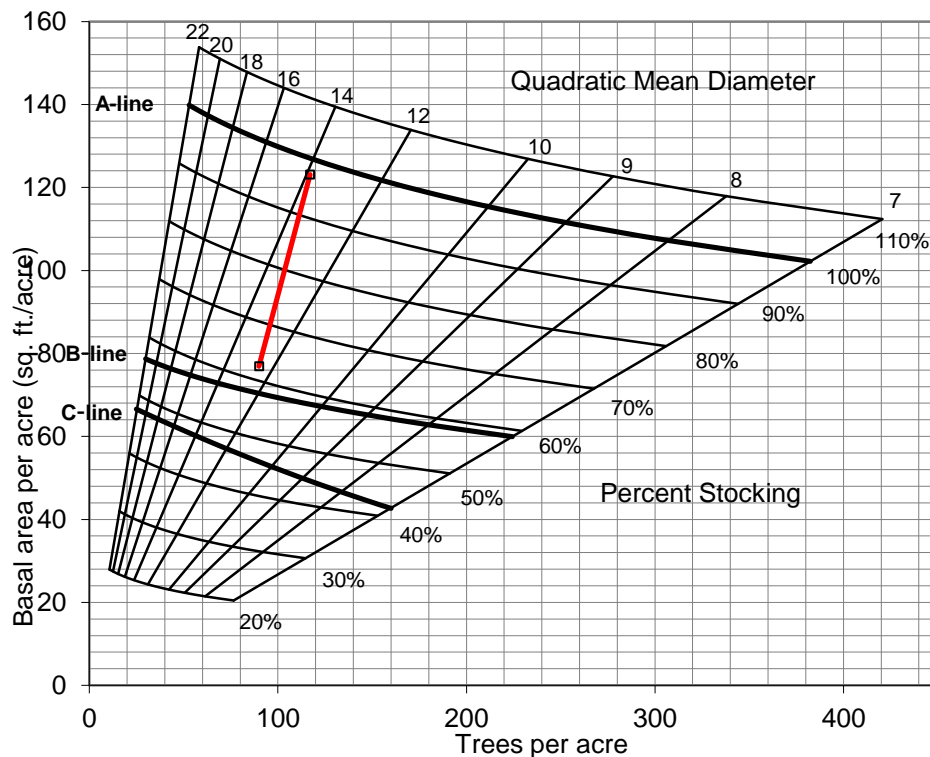
Residual Volume/Ac. = **4,169 Bd. Ft./Ac.**

Overall % Stocking = **97% (Fully Stocked)**

Sawtimber & Quality Trees/Ac. = **57 Trees/Ac.**

Harvest Volume = **2,983 Bd. Ft./Ac.**

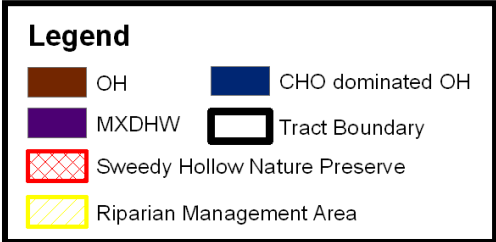
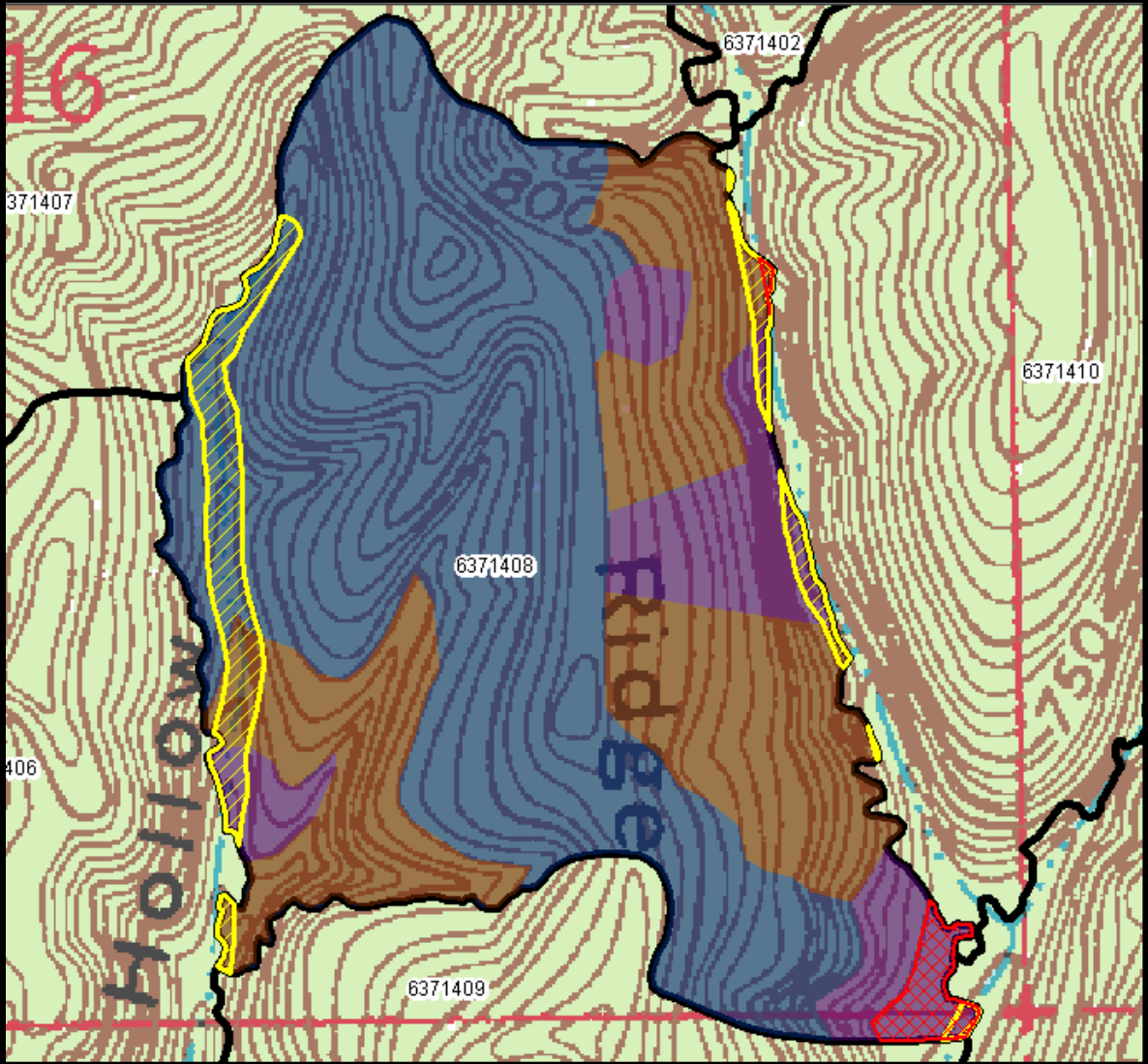
Figure 2. Stand and Stock Table for M1408 in September 2012



Summary Tract Silvicultural Prescription and Proposed Activities

The current forest resource inventory was completed on September 20, 2012 by Intermittent Forester Amanda Smith. 32 prism points were sampled over 88 acres (1 point for every 2.75 acres). A tract summary of the forest resource 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. A managed timber harvest over the entire area could yield between 120 – 360 MBF. The tract's forest resource is composed of 4 different strata based on the major timber types and varied management directions mentioned below.

Figure 3. M1408 Stratum Types Map



Oak-Hickory Stratum

As the Oak-Hickory component of the Eastern Hardwood Ecosystem provides the most significant wildlife, timber resource, and value the retention of these areas are important in the Property's longterm management program. The Oak-Hickory timber type covers roughly 78.1% of the tract or about 68.8 acres, however, roughly 5.1% or 3.5 acres of the Oak-Hickory component is located within 50 feet of a mapped intermittent stream and will be managed as a Riparian Management Area. Therefore, the Oak-Hickory stratum covers roughly 74.2% of the tract or 65.3 acres. The overstory is dominated by CHO, WHO, BLO, and SCO with an average basal area of 122 square feet per acre. Over half of this stratum is dominated by CHO and has a higher average basal area (136.8 square feet per acre) than does the WHO and BLO dominated portion (averaging 95.6 square feet per acre of basal area).

Singletree and selection cuttings are 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 by free thinning 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 selections should be prescribed to create regeneration openings where there are abundant advanced regeneration of Oak and Hickory seedlings or where the overstory has too low of stocking. A field review for successful regeneration is planned 3-4 years after opening TSI completion.

Mixed Hardwoods Stratum

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 21.9% of the tract or about 19.3 acres, however, roughly 10.4% or 2.0 acres of the Mixed Hardwoods component is located within 50 feet of a mapped intermittent stream and will be managed as a Riparian Management Area. Also, 1.2 acres or 6.2% of the Mixed Hardwoods component is located within the boundaries of the Sweedy Hollow Nature Preserve. Therefore, the Mixed Hardwoods Management stratum covers roughly 18.2% of the tract or 16.1 acres. The overstory is dominated by YEP, SUM, AMB, WHA, and WHO with an average basal area of 87.1 square feet per acre.

Singletree and selection cuttings are prescribed 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 longterm result of these prescribed cuttings will increase timber and wildlife habitat diversity. This is an important change in the Mixed Hardwood component as these timber species tend not to be heavy mast producers. Overall, marking objectives within this component should consider oak and other species of significant wildlife value as the best croptrees for future conservation. Improvement cuttings in this area will also be applied to remove low-forking, leaning, overtopped/suppressed intermediates, epicormically sprouting, and deformed trees. This year a fair amount the tract's YEP appeared to be in modest decline as a result of the past three years of drought and the Tulip Poplar Scale insect infestation that occurred in the late spring of 2012. Affected YEP will need careful review when the tract is marked as modest mortality is expected.

Group selections may be prescribed to create regeneration openings within this area. Planned regeneration openings will most likely return to mixed hardwoods with a strong component of YEP. A field review for successful regeneration is planned 3-4 years after opening TSI completion.

Sugar Maple borer damage was noted in understory Sugar maple throughout both the Mixed Hardwoods stratum and the Oak-Hickory stratum. In time this pest girdles the bole of the tree that results 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.

Riparian Management Areas

These Areas are defined as lying adjacent to the mapped intermittents along the west and east boundaries of this tract. Approximately 1.0 acre of the Mixed Hardwood and 0.5 acres of the Oak-Hickory component with dominantly sawtimber sized timber classes comprises the east Riparian Management Area whereas the west Riparian Management Area is comprised of 1.0 acre of the Mixed Hardwood component and 3.0 acres of the Oak-Hickory component with dominant sawtimber size classes. A portion of the east Riparian Management Area overlaps the Sweedy Hollow Nature Preserve. During the current management cycle no harvest or TSI is planned in either of these Riparian Management Areas.

Sweedy Hollow Nature Preserve Stratum

The Sweedy Hollow Nature Preserve covers roughly 1.36% or about 1.2 acres of Tract M1408. This portion of M1408 will be managed separately and will not be included in any prescribed timber harvest. Directional felling practices will be required during timber harvests in areas around the Nature Preserve to minimize residual damage. Skidding will also be avoided in this area.

Given the recent inventory and growth of M1408’s forest resources, this tract is suitable for a 15 year management 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 150 - 250 MBF. A timber sale is proposed for this tract in CY2013.

Table 3. Overview of Sawtimber Volume Estimates in M1408 in September of 2012

Species	Harvest	Leave	Total
Chestnut Oak	79,380	64,990	144,370
Black Oak	63,250	53,350	116,600
White Oak	15,950	90,900	106,850
Scarlet Oak	30,440	33,070	63,510
Northern Red Oak	8,850	35,250	44,100
Yellow Poplar	15,350	20,210	35,560
American Beech	10,850	17,940	28,790
Sugar Maple	10,460	15,510	25,970
White Ash	17,010	4,330	21,340
Bitternut Hickory	640	6,780	7,420
Red Maple	5,210	2,020	7,230
Black Cherry	0	6,040	6,040
Pignut Hickory	0	4,880	4,880

Red Elm	0	4,160	4,160
Shagbark Hickory	0	4,060	4,060
Sassafras	2,810	0	2,810
Chinkapin Oak	0	2,570	2,570
Largetooth Aspen	2,330	0	2,330
American Basswood	0	810	810
Tract Totals (Bd. Ft.)	262,530	366,870	629,400
Per Acre Totals (Bd. Ft./Ac.)	2,983	4,169	7,152

Proposed Activities Listing

<u>Proposed Management Activity</u>		<u>Proposed Period</u>
DHPA roadwork project submission & review		CY2013
Roadwork Rehabilitation		CY2013
Timber Marking	1	CY2013
Timber Sale		CY2013
Postharvest TSI Project		CY2014-2016
Regeneration Opening Review		CY2018-2020
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

Work cited

- Natural Communities of Brown County Hills. 18 February 2011. The Nature Conservancy. 18 October 2012
 <<http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/indiana/placesweprotect/bchcommunities-1.pdf>>
- Natural Communities of Indiana. (7/1/2002). Jacquart, E. , Homoya, M., Casebere, L.
 Unpublished document.

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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.