

## RESOURCE MANAGEMENT GUIDE

**State Forest:** Morgan-Monroe

**Compartment:** 18

**Tract:** 18

**Date:** September 21, 2009

**Forester:** Amy Zillmer

*Updated February 12, 2010*

**Management Cycle End Year:** 2029

**Management Cycle Length:** 20 yrs

### Location

This tract is located in the Sections 14 and 11 T8N, R1E Salt Creek Township of Monroe County. This tract is approximately 7.5 miles east from the city of Bloomington and on the eastern side of the Lake Monroe Watershed.

### General Description

This tract consists of 76 acres of which all are considered commercial. Xeric oak-hickory is prevalent across tract, along with planted red pine, and mixed hardwoods.

### History

This tract consists of portions of the Carlson acquisition (purchased from Ruth Carlson in 2002) and land granted from the US government in 1965. Upon acquisition, portion of neighbor tracts were redistributed conjoined to the new acquisition to create the current management units. Because of this, portions of the tract have varying history.

Roughly 64 acres of the tract are made up from the Carlson purchase. Past management on the Carlson area included TSI across 97 acres of the 220 acre acquisition in 1974. A harvest was conducted on portions of the acquisition in 1985 along with follow up TSI in 1991. Harvest area is not believed to be included in the present day tract 18.

About 3.5 acres of tract came from the north neighboring tract 7. A timber sale in 1974 yielded 52,798 BF est. This sale was largely concentrated to ridgetops and only affected a small portion of the present day tract. A second sale was conducted in 2005 of 98,007 BF est. over 70 acres (1,400 BF/ac). Silvicultural, this sale was an improvement cut aimed at removing overmature trees, thinning overstocked areas, and regeneration. About 8.5 acres came from tract 8

A small red pine plantation is located in the south.

An inventory was completed for this tract on July 14, 2009. 30 points were conducted over 76 acres (1 point per 2.53 acres). The findings of this of this inventory are highlighted in this report.

## **Landscape Context**

This land purchase joined existing blocks of the Morgan Monroe State Forest, so closed canopy forest is prevalent. Much of the surrounding landscape is also managed by the Army Corp of Engineers. Land types include closed canopy forest, open water, and floodplains. Agricultural fields and houses dot the landscape.

## **Topography, Geology and Hydrology**

The tract consists of a main finger-like ridge that grade towards the southern boundary of the tract. East and west facing slopes are most common. Ephemeral and unmapped intermittent drainages move surface water toward Goodley Branch which drains into North Fork Salt of the Monroe Reservoir.

## **Soils**

### BkF-Berks – Weikert Complex

This is the most dominant soil found on tract. It is located along side slopes and bottoms of the tract's ridges. This soil forms from sandstone bedrock about 38" under the surface. Slopes range from 25% up to 75%. This particular tract does not approach the higher extreme. This soil has severe limitations for forest management due to slope and low strength. Roads should avoid soil when possible. It is recommended that any road construction follow contours or land shaping may 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.

### Bu-Burnside silt loam, occasionally flooded

This soil is found along the southern bottomlands. It generally forms in alluvial fans or floodplains and is made up of loamy-skeletal alluvium over siltstone or shale. This soil has severe ratings for many forest management activities such as yarding, trails, and rutting due to flooding and low strength.

### EkB-Elkinsville silt loam

Elkinsville is located along some of the bottoms of the tracts southern slopes. It generally forms on stream terraces. It is made up of loess over loamy alluvium. Slopes are generally 2 to 6%. It is a well drained soil with a high available water capacity. Moderate limitations exist for haul roads and landings, and severe limitation for rutting due to low strength. This soil holds a SI of 118 for yellow poplar and 90 for white oak.

### WmC- Wellston-Gilpin silt loams

This soil is found mainly on ridge tops and side slopes. This soil forms from loess over loamy residuum over shale 46" under surface. Slopes generally range from 6 to 20% slopes. WmC is well drained with a moderate to low available water capacity. Severe hazards to erosion due to silty loam texture. This soil holds a 71 site index.

**Access**

There is a well established firelane along Ferris Ridge that extends to the North of the tract. Also, an old county road borders to the south.

**Boundary**

The southern boundary of this tract also serves as a property line with the Army Corp. of Engineers. Carsonite posts marking line are located at elevation points along this south line. The rest of the tract is surrounded by state property. The northern boundary follows the Ferris Ridge firelane. The eastern boundary follows a drainages south of firelane to property boundary.

**Wildlife and Plant Communities**

Ongoing wildlife management has been occurring to the south of tract since 1998. Rex Watters, a Wildlife Specialist for the DNR, has bush hogged this area several times to maintain early successional habitat. Some woody wildlife plantings (wild plum, pin oak, shumard oak) were planted in 2005 with varied success due to high flood waters. Future plans for plant food plot strips are being considered. All plans include maintaining this area for early successional habitat.

Overall, the forest bestows a steady food source in the form of mast and the neighboring reservoir provides a constant source of water. This information was used to complete a Wildlife Review and Ecological Assessment report that are stored in tract file. The Natural Heritage Database did not report any rare, threatened or endangered species within tract boundaries. However, several sightings of the Timber Rattlesnakes were reported within the area.

*Crotalus horridus* or the Timber Rattlesnake is a species of special concern in Indiana. This species suffers from triad of obstacles. Namely habitat destruction and fragmentation, sport hunting, shading over, and road mortality. Future management activities will most likely employ group selection harvesting. The harvest will not only increase the tract's horizontal heterogeneity but it will also increase viable breeding grounds for the snakes in this area.

**Indiana Bat Guidelines**

The Indiana Division of Forestry recognizes the potential to enhance the Indiana bat habitat on its lands by implementing comprehensive management principles. These management principles include obtaining data on size, species, and numbers of snags trees. Snag trees and some specific species are an integral part of the Indiana bat policy as they are prime roosting sites for maternal colonies.

**Table 1. Legacy Trees inventoried July 14, 2009 on 6371818**

Size Classes	Maintenance Level	Inventory	Available For Removal
<b>11"+ DBH</b>	684	1501	817
<b>20"+ DBH</b>	228	229	1

*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*

**\* Species Include:**

*These species of trees, whether dead, dying, or alive have a relative high value as potential Indiana Bat roost trees and are encouraged for conservation.*

**Table 2. Snag Trees inventoried July 14, 2009 on 6371818**

Size Classes	Maintenance Level	Optimal Level	Inventory	Available above Maintenance	Available above Optimal
<b>5"+ DBH</b>	304	532	571	267	39
<b>9"+ DBH</b>	220	456	313	85	-143
<b>19"+ DBH</b>	38	76	51	13	-25

**Table 3. Cavity Trees inventoried July 14, 2009 on 6371818.**

Size Classes	Maintenance Level	Optimal Level	Inventory	Available above Maintenance	Available above Optimal
<b>7"+ DBH</b>	304	456	330	26	- 126
<b>11"+ DBH</b>	228	304	283	55	-21
<b>19"+ DBH</b>	38	76	92	54	16

Currently this tract is meeting all habitat guidelines. Although a harvest will most likely reduce the number of live legacy in the 20" + DBH size class below guidelines, it will also thin out the overstocked 11"-19" size classes. This improvement cutting will allow higher quality stems to grow into this larger size class for the next rotation.

Snags should be maintained in all size classes unless they present a safety hazard.

**Exotics**

Japanese stilt grass was noted along Ferris Ridge. Treatment along Ferris Ridge is recommended during appropriate months. Following any roadwork, disturbed trails and yards should seed promptly to minimize new colonization. Multi-flora rose was noted in several areas across tract. Some spot treatment could occur during marking.

## Recreation

This tract does not have any established recreational features. Likely uses of this tract include hunting, hiking, wildlife viewing, and gathering.

## Cultural

Cultural resources may be present on the tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction projects.

## Tract Subdivision Description and Silvicultural Prescription

Table 4. Estimated harvest/leave volume (Doyle) from July 14, 2009 inventory of 6371818.

Species	Harvest Stock	Growing Stock	Total Volume
American Beech	1660	2970	4630
American Sycamore	0	3560	3560
Bitternut Hickory	0	2970	2970
Black Cherry	0	5800	5800
Black Oak	38410	65560	103970
Black Walnut	0	2580	2580
Chestnut Oak	36250	81970	118220
Northern Red Oak	0	7570	7570
Pignut Hickory	2000	29040	31040
Red Maple	3220	0	3220
Scarlet Oak	27050	31480	58530
Sugar Maple	3750	3300	7050
White Ash	970	0	970
White Oak	17580	158190	175770
Yellow Poplar	0	3960	3960
<b>Total</b>	<b>130890</b>	<b>398950</b>	<b>529840</b>
<b>Total/Acre</b>	<b>1722</b>	<b>5249</b>	<b>6972</b>

### Oak-Hickory

Oak-hickory is the most dominant cover type across tract occupying about 59 acres. Presently this stratum contains an estimated 464,330 BF (7,870 BF/ac) with 107,380 BF (1,820 BF/ac) being harvestable and 356,950 BF (6,050 BF/ac) left as growing stock. There are 115 square feet of basal area per acre and this area is overstocked (104%).

Currently the stand is dominated by chestnut oak, white oak, scarlet oak, pignut hickory, and black oak. The majority of which is of moderate quality. Although, the understory is dominated by shade tolerant species such as sugar maple and American beech extremely xeric sites had high amounts oak regeneration (mostly chestnut with some black oak, white oak, and scarlet oak) and pole sized hickory. Areas with inadequate stocking levels or poor quality could benefit from regeneration treatment.

In general, harvest levels are expected to be high in black oak, chestnut oak, and scarlet oak. Many of the black oak are reaching maturity and declining. The chestnut oak could benefit from general thinning to improve spacing to release higher quality stems and improve growing conditions. Moderate to higher quality white oak should be released when able. Regeneration in areas of poor stocking or quality will be implemented across tract where needed.

### Mixed Hardwoods

This stratum covers about 13 acres. The inventory estimated 65,300 BF (5,100 BF/acre) with 25,480 BF (1,960 BF/ac) being harvestable and 40,820 BF (3,140 BF/ac) left as growing stock. Dominant overstory species included sugar maple, white oak, black cherry, white ash, northern red oak, black oak, American beech, and bitternut hickory. The understory has heavy levels of sugar maple and American beech, and sassafras, although white oak, black oak, and black cherry were also noted in smaller amounts. Regeneration is almost completely dominated by American beech, maple, and yellow poplar. This stratum is located on along the tract's sideslopes and holds 110 square feet of basal area and is currently overstocked (110%).

Thinning from above and below to favor higher quality stems is recommended. Ash should be removed in a sanitation thinning when able as to lessen the opportunity for emerald ash borer breeding hotspots.

### Red Pine Plantation

A small 4 acre red pine plantation is located along the southern portion of tract. The pine was planted in the late 80's. This area holds 160 square feet of basal area per acre. Much of this stand is below sawtimber size (only 3,430 BF/acre and 8 cords per acre). This area should be treated during post harvest TSI by girdling less vigorous stems to improve growing conditions for more vigorous stems.

### **Summary Tract Silvicultural Prescription and Proposed Activities**

In general, the recommendation of this guide is a timber harvest. Overall, the tract is overstocked. An improvement harvest will not improve the stocking, but will also improve the overall forest health by removing less vigorous/ declining stems and releasing higher quality stems. Actual harvest volumes are predicted to be between 100,000-125,000 BF. The timber harvest planned for tract 18 will be conducted in a manner to protect the Lake Monroe watershed. Harvest will comply with BMP regulations to minimize soil erosion and protect water quality. Prompt installation of water diversions in conjunction with seed and straw following harvesting will be employed to minimize any effects to neighboring water resources. Harvest will entail both single tree and group selection cutting methods. Single tree selection will remove poor formed, mature stems, and improve spacing of crop trees to increase growth of residual stand. Group selection will be implemented in areas of inadequate stocking, poor quality, or

mature timber. This tract will be marked and sold in the 09/10 fiscal year. Post harvest TSI will be conducted to complete any openings and should consider snag creation in various class sizes to increase the tract's viability for Indiana Bat habitat. Areas where midstory release to increase density of advanced oak regeneration should be noted during marking and incorporated into post harvest timber stand improvement plan. This tract will be up for a new management guide in 2029.

Proposed Management Activity

Mark Timber Harvest & Exotic Recon & Treatment  
Sell Timber Harvest  
Post Harvest TSI & Follow up Exotic Recon & Treatment  
New Management Guide

Proposed Date

2009/2010  
2009/2010  
2011  
2029

**Attachments (in Tract File)**

Gingrich Stocking Charts  
Ecological Resource Review  
Natural Heritage Database Review  
Wildlife Habitat Review  
Archeological Clearance/Roadwork Request  
Soil, Stand, and Roadwork Maps  
TCruise Reports

**Addendum for Marking Prescription to 6371818**

This tract was marked for the 09/10 fiscal year. During marking, the decision was made to regenerate the 5 acre red pine plantation on the south end of tract. A small amount of oak and hickory regeneration was noted across stand. This will not only add to early successional habitat but will also add to the tracts horizontal heterogeneity. Additional sunlight penetrating the forest floor will simulate the development of new ground flora, subsequently increasing nesting and foraging habitat. This is essential for game and non-game species as well as continued forest development.

**Note:**

This draft tract management guide was posted on September 21, 2009 for a 30-day comment period. This revision was completed and posted in February, 2010.