RESOURCE MANAGEMENT GUIDE

DRAFT

State Forest: Morgan-Monroe **Compartment:** 18 **Tract:** 19
Forester: Amy Zillmer **Date:** December 5, 2008
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.

General Description

This tract consists of 76 acres of which approximately 61 is considered commercial. Xeric oak-hickory is prevalent across tract, along with planted walnut, 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 53 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 19.

About 23 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.

A small old field covering about 2.5 acres is located in the south. This area was planted sparsely to black walnut.

This area was cruised in September of 2008 by Amy Zillmer. A total of 31 points were conducted over 76 acres (1 point per 2.5 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. Small pockets of agricultural and houses dot the landscape.

Topography, Geology and Hydrology
The tract consists of two finger-like ridges that grade towards the southern boundary of the tract. East and west facing slopes are most common. Ephemeral and 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 mapped intermittent stream flowing into the Monroe Reservoir. 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. Old established lanes run along the tract's main ridges.

Boundary
Both the west and south boundaries also serve as property lines. These lines have been surveyed and are clearly painted and posted. The northern boundary follows the Ferris Ridge firelane. The eastern boundary follows a drainage south of firelane to property boundary.

Wildlife and Plant Communities
Sightings of deer, chipmunks, squirrels, box turtles, and numerous songbirds were noted on the tract. 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 is 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.

<u>Indiana Bat Guidelines</u>
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.

Live Trees - Entire Tract - Desired Species Only*

	Required	Inventory	Available for Removal
11" DBH+	684	1166	482
20" DBH+	228	202	-26

Snags - Entire Tract - All Species

	Required	Inventory	Available for Removal
9" DBH+	456	210	-246
19" DBH+	76	32	-44

*Desired Species Include: *AME, BIH, BLA, BLL, COT, GRA, REO, POO, REE, SAS, SHH, ZSH, SHO, SIM, WHA, WHO*

Currently this tract is only meeting requirements for live trees 11" + DBH. Current management proposal includes thinning and releasing higher quality oak species (i.e. northern red oak, and white oak) and retaining much of the volume found in hickory. Following harvest, these species will increase in growth and move into larger size classes. In terms of snag density, snag creation of cull trees should be considered in post-harvest TSI.

Aralia spinosa or more commonly known as Devils Walkingstick was also noted during inventory on a south facing slope. Although not endangered, this plant is locally rare.

Recreation
This tract does not have any established recreational features. Likely uses of this tract include hunting, hiking, wildlife life 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

Species	Harvest	Leave	Total
Chestnut Oak	36120	83570	119690
Black Oak	35920	18140	54060
Sugar Maple	26400	22050	48450
White Oak	18010	100060	118070
Yellow Poplar	8750	9640	18390
Northern Red Oak	7130	17120	24250
White Ash	6560	0	6560
Blackgum	6210	0	6210

Pignut Hickory	5640	66460	72100
Red Maple	5250	0	5250
Scarlet Oak	2500	0	2500
American Sycamore	2270	13420	15690
Largetooth Aspen	1570	0	1570
American Beech	0	850	850
Bitternut Hickory	0	1930	1930
Black Walnut	0	5240	5240
Chinkapin Oak	0	3020	3020
Shagbark Hickory	0	10930	10930
Sassafras	0	720	720
Totals	**162330**	**353150**	**515480**

Oak-Hickory

Oak-hickory is the most dominant cover type across tract occupying about 63 acres. Presently this stratum contains an estimated 443,520 BF (7,040 BF/ac) with 146,160 BF (2,150 BF/ac) being harvestable and 297,360 BF (4,720 BF/ac) left as growing stock. There are 99.3 square feet of basal area per acre.

Currently the stand is dominated by chestnut oak, black oak, white oak, and pignut hickory. 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) and high densities of pole sized hickory. Many of these areas possessed inadequate stocking levels and could benefit from regeneration.

In general, harvest levels are expected to be high in black oak and chestnut 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. Regeneration in areas of poor stocking or quality will be implemented across tract where needed.

A couple areas inside of strata were noted to have garlic mustard and Japanese stilt grass. Treatment of exotics would be beneficial.

Mixed Hardwoods

This stratum covers about 8 acres. The inventory estimated 50,080 BF (6,260 BF/acre) with 12,960 BF (1,620 BF/ac) being harvestable and 37,200 BF (4,650 BF/ac) left as growing stock. Dominant overstory species included sugar maple, white oak, yellow poplar, American beech, and pignut hickory. The understory has heavy levels of sugar maple, red maple, and white oak. Regeneration is almost completely dominated by American beech and maple.

Several areas along ridgetops were noted to having drought stressed mortality and decline. Other areas showed history of past grazing. In general, removal of

poor formed or mature stems to favor higher quality should be conducted to improve growing environment.

There were also high levels of multiflora rose located is this strata along the southern border. It would be beneficial to treat this following harvest.

Black Walnut

There is a small black walnut plantation located in an old field to the south of the tract boundary covering about 5 acres. Inventory results suggest that is a standing volume 3, 730 BF per acre. This result is likely inflated due to the inventory point picking up several American sycamore along the division edge. Results are more likely 1,410 BF per acre in 18 trees. Overall, the stand held 20 square feet of basal area per acre of black walnut. The walnuts were planted by private landowners. DBH ranges from 4-8 inches.

The soils in the area are most likely poor from years of farming and the walnut have little vertical height. Due to the low stocking-TSI would do little to improve this stand.

Summary Tract Silvicultural Prescription and Proposed Activities

In general, the recommendation of this guide is a timber harvest. Actual harvest volumes are predicted to be between 130,000-150,000 BF. Harvest will comply with BMP regulations to minimize soil erosion and protect water quality. It may be beneficial to examine adjacent tracts of recent acquisition to keep stands in the same rotation cycle. 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. This tract will be up for a new management guide in 2029

Proposed Management Activity	*Proposed Date*
Mark Timber Harvest	2009/2010
Sell Timber Harvest	2009/2010
Post Harvest TSI	2010
New Management Guide	2029

To submit a comment on this document, click on the following link:
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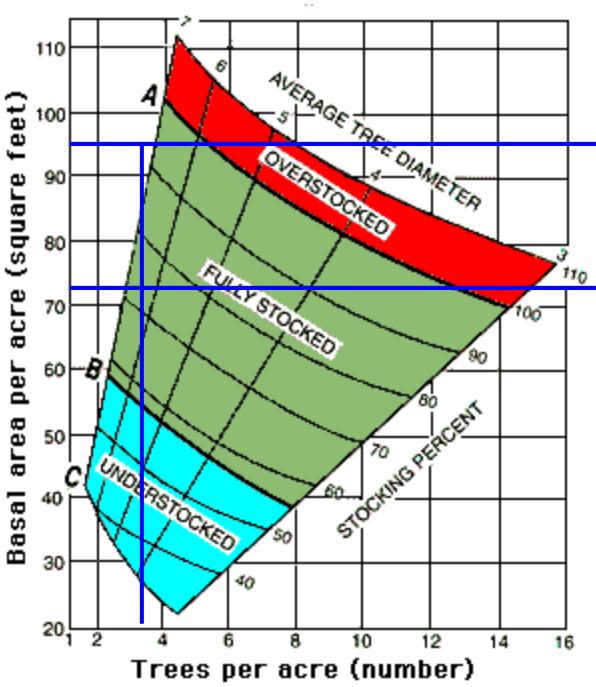
Gingrich Stock Charts
Morgan Monroe State Forest
Compartment 18 Tract 19

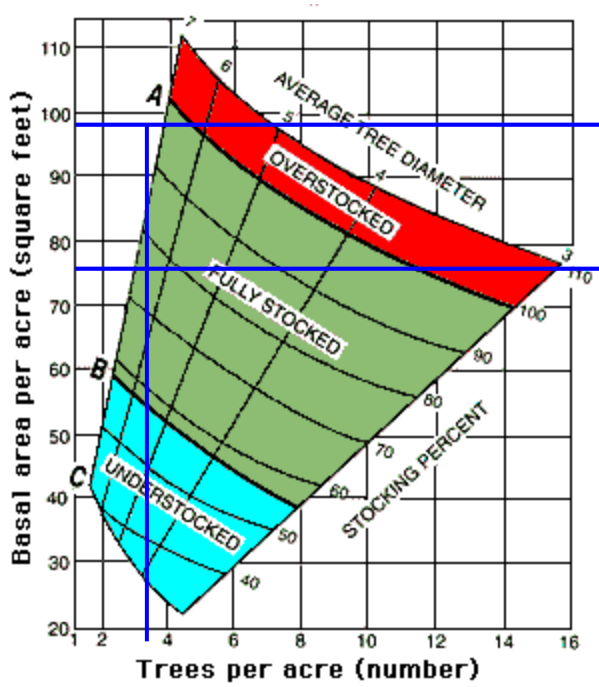
Tract Total



Current Stand
94.6 BA
255 Trees/Ac
Fully Stocked: 92%
Avg. DBH: 6.3”

Leave Stand
71.9 BA
231 Trees/Ac
Fully Stocked: 72%

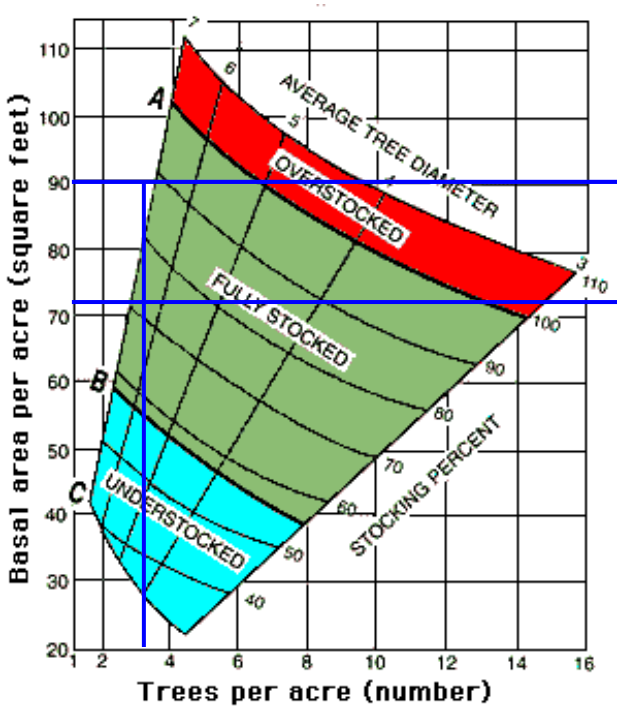
Oak-Hickory Strata



Current Stand
99.3 BA
276 Trees/Ac
Fully Stocked: 96%

Leave Stand
75.3 BA
249 Trees/Ac
Fully Stocked: 76%

Mixed Hardwoods Strata



Current Stand
91.5 BA
234 Trees/Ac
Fully Stocked: 87%

Leave Stand
71.5 BA
220 Trees/Ac
Fully Stocked: 72%

Stand Subdivisions Compartment 18 Tract 19

Morgan-Monroe State Forest