RESOURCE MANAGEMENT GUIDE

DRAFT

State Forest Morgan Monroe **Compartment** 16 **Tract** 05
Forester Laurie Burgess/Joshua Kush **Date** June 29, 2010
Management Cycle End Year 2040 **Management Cycle Length** 20 years

Location

This tract is located in Benton Township, Section 19, T9N, R1E, Monroe County, Indiana. It is approximately 2.5 miles northwest of Bloomington on E Ratliff Rd. Access to the tract is through an easement onto private property utilizing an old county road.

General Description

This tract is 86 acres predominately of mixed hardwoods with patches of Sassafras and Yellow Poplar. Overstory hardwoods range from small to large sawtimber size classes. This tract holds an incredible amount of White Oak and Yellow Poplar timber. Some invasive species of Ailanthus and Japanese honeysuckle are present within the tract. Commercial forest acreage on this tract consists of 85 acres with 1 acre composing the various utility vehicle trails, log landing, and the cultural site. The 2010 field inventory identified the following species in the tract's timber strata with the tree species listed in order by dominance.

Table 1. Species composition by relative abundance from June 2010 inventory on 6371605

Overstory	Understory	Regeneration
Yellow Poplar	Sassafras	Sugar Maple
White Oak	Sugar Maple	American Beech
Black Oak	Black Oak	Dogwood
Northern Red Oak	American Beech	Black Oak
Sugar Maple	Red Maple	Yellow Poplar
Pignut Hickory	White Oak	Sassafras
Basswood	Basswood	Red Maple
American Beech	Yellow Poplar	Ironwood
Largetooth Aspen	American Elm	Pawpaw
Scarlet Oak	Chestnut Oak	
Red Maple	Blackgum	
American Sycamore	Pignut Hickory	
Shagbark Hickory		
Bitternut Hickory		
Virginia Pine		
Sassafras		
White Ash		

History

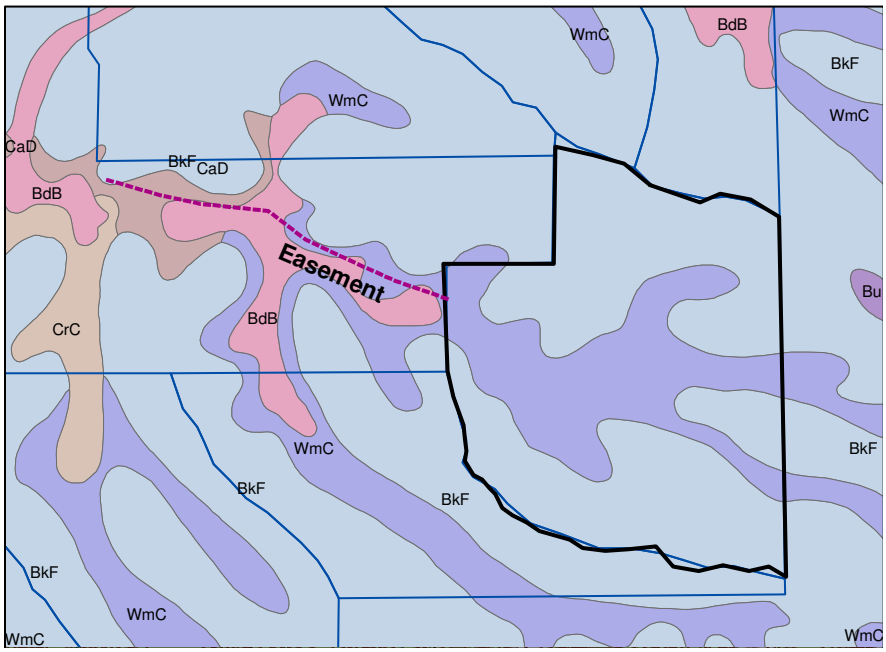
This area of Morgan-Monroe State Forest was acquired from a private land owner in 1950. There is no noted management history recorded in the tract file. A resource

inventory was completed in June 2010 by Forester Joshua Kush. The results of which are highlighted in the report below.

Landscape Context
The most dominant cover type on the landscape is closed canopy forest. Pockets of Sassafras and Yellow poplar exist through the tract. Quality is variable within the WHO species groups with future potential in the smaller sawtimber stands along with observed WHO regeneration on the southern aspects. Private holdings to the northeast of the tract consist of maintained grassy fields whereas some croplands lie on private lands to the southeast.

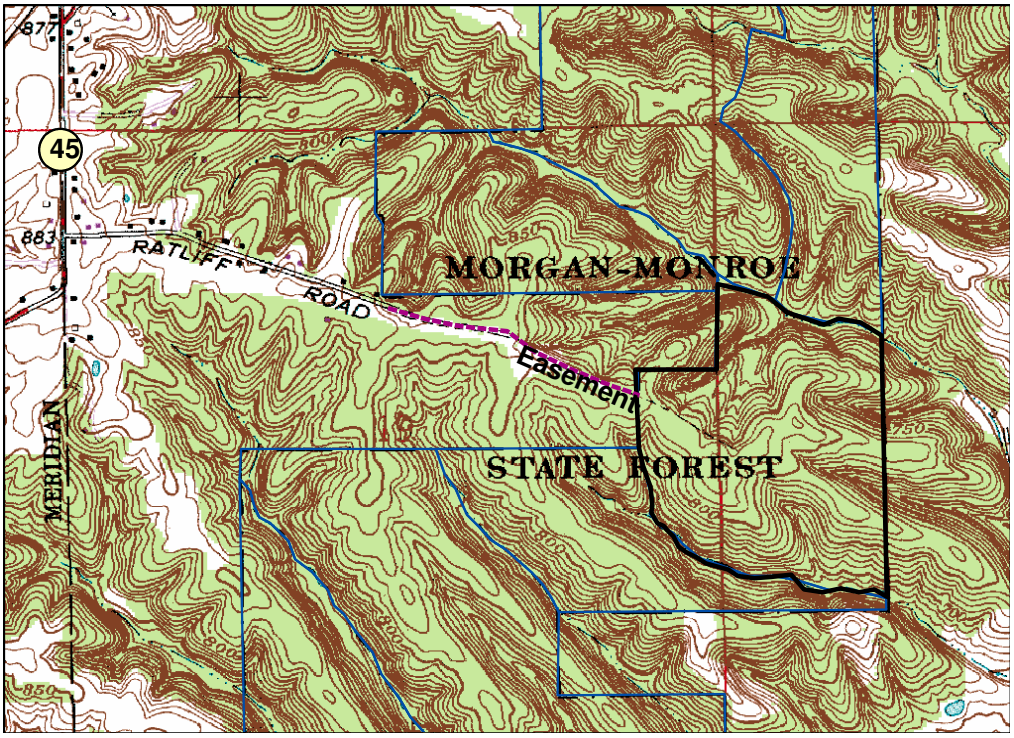
Topography, Geology and Hydrology
This tract is made up of short north and south facing finger ridges. Small ephemeral drainages direct water flow into a mapped intermittent stream near the southeast and northeast boundaries. Water flows south to southeast into Stephens Creek which in turn drains into the north portion of Monroe reservoir. The underlying geology of this tract is most likely a combination shale, sand, and siltstone. This tract lies within the Stephens Creek watershed.

Soils
(**WmC**) Wellston Gilpin silt loam - 3 acres. Slight limitations noted for logging, 6 – 20% slope. Moderately well drained. 60% of tract.
(**BdB**) Bedford silt loam - 3 acres. Slight limitations noted for logging, 2 – 6 % slope. Moderately well drained. 40% of tract.



Access
Access is through the current easement (recorded Dec. 27, 1990) from east off Ratliff Road through the adjacent private property utilizing an old county road. This access road

needs to be improved through stoning and grading prior to any prescribed management activities as well as have a log landing site reviewed by the Division of Historic Preservation and Archaeology.



Boundary
Tract is bordered by State Forest acreage to the northwest and east with the mapped intermittent stream as the tract's south boundary. The tract's southeast boundary is adjacent to 15 acres owned by Sycamore Land Trust. Not all property lines are documented and marked at this time. No corner or line evidence was discovered during the June 2010 inventory for the west side of tract. A State Forest boundary sign was noted at the tract's southeast corner.

Wildlife
The tract provides a variety of habitats for many species. Sightings of deer, chipmunks, and numerous songbirds were noted within the tract during the resource inventory. The forest overstory trees provide a steady food source in the form of hard and soft mast. Permanent water sources are available from streams and from a small pond on a neighboring private landowner property.

An official ecological review was completed on the tract. This review focuses on wildlife habitat looking at what is present in the tract and what can be created through management activities. The inventory for this tract also included recording structural habitat features at each data point; these records include snag (dead, standing tree) and cavity tree counts. The results of these collected data for snag counts are included in the following table.

Table 2. Legacy* Trees inventoried on June, 2010 on 6371605

Size Classes	Maintenance Level	Inventory	Available For Removal
11"+ DBH	774	2368	1594
20"+ DBH	258	679	421

**** Species Include:*** *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*

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 3. Snag Trees inventoried June, 2010 on 6371605

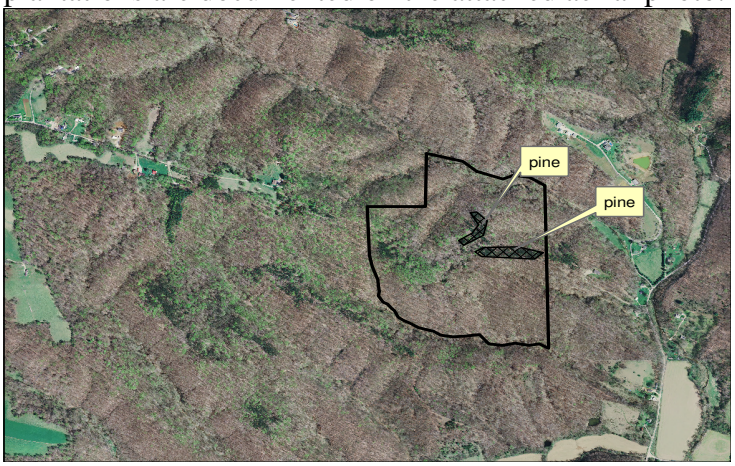
Size Classes	Maintenance Level	Optimal Level	Inventory	Available above Maintenance	Available above Optimal
5"+ DBH	344	602	131	-213	-471
9"+ DBH	258	516	131	-127	-385
19"+ DBH	43	86	26	-17	-60

Table 4. Cavity Trees inventoried June, 2010 on 6371605

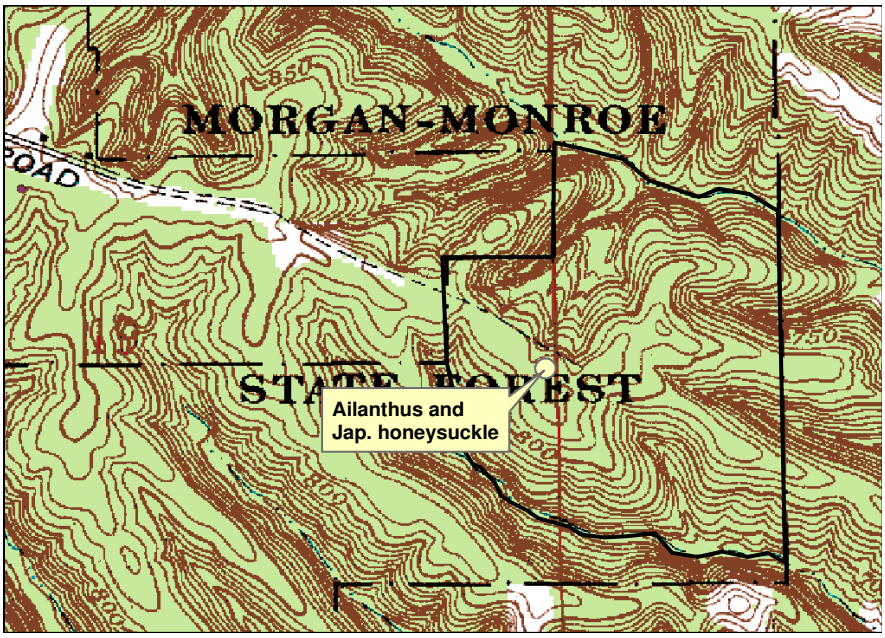
Size Classes	Maintenance Level	Optimal Level	Inventory	Available above Maintenance	Available above Optimal
7"+ DBH	344	516	177	-167	-339
11"+ DBH	258	344	38	-220	-306
19"+ DBH	43	86	0	-43	-86

Communities

A Natural Heritage Database search was completed June 29, 2010; a copy is placed in tract file. The Natural Heritage Database indicated sightings of rough green snake and timber rattlesnake to the northwest of the tract. Also, two small patches of VIP totaling 3 acres are noted within the tract. These pine were often planted during the WPA period (1950's) to stabilize and reforest eroded pasture & cropfields. The Virginia pine plantations are documented on the attached aerial photo.



Invasive exotic species
Ailanthus was noted during the June 2010 inventory. There were 50-100 trees from tiny saplings to modest trees of seed bearing size. This area will require extensive treatment to remove this forest exotic from the stand. The best method would be the Garlon 4 (20%) + basal oil surfactant (80%) mix applied as basal treatment. Tiny saplings would be foliar sprayed. Japanese honeysuckle is also in this area – the recommended treatment is foliar spray of Garlon 3A (3-5%). For this exotic the best timing would be during late fall when all other vegetation is dormant.



Recreation
This tract does not contain any established recreational facilities. Hunting and hiking are the dominant usages of this property although access is limited to the southeast area through the Sycamore Land Trust property. The Ratliff road easement acquired in 1990 is only for resource management and is not for general public usage. There also exists some unauthorized quadrunner traffic and vehicle use of the tract that needs addressed by conservation officers.

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 5. Harvest/Leave summary based on June, 2010 inventory on 6371605

Species	Harvest Stock	Growing Stock	Total Present Volume
Yellow Poplar	181200	95460	276660
Black Oak	99050	84950	184000
Northern Red Oak	85240	63180	148420
White Oak	30290	183540	213830
Sugar Maple	25240	24120	49360
Basswood	21040	2610	23650
Scarlet Oak	17900	4310	22210
American Beech	17150	3890	21040
Pignut Hickory	6880	41000	47880
Largetooth Aspen	6850	11790	18640
Black Cherry	4780	0	4780
American Sycamore	3430	13940	17370
Bitternut Hickory	3240	7400	10640
Sassafras	2350	0	2350
White Ash	2000	0	2000
Shagbark Hickory	1940	1210	3150
Red Maple	1670	5930	7600
Virginia Pine	870	0	870
Tract Total Board Feet	511,120	543,330	1,054,450
Total Board Feet Per Acre	5,940	6,320	12,260

Currently, this tract contains an estimated 5,940 BF/A harvest, 6,320 BF/A designated as growing stock and total present volume of 12,260 BF/A. The tract has 131 square feet of basal area per acre and is presently overstocked at 110%.

This tract is prescribed for an improvement harvest. This improvement cutting will consist of predominantly single tree selection. Thinning will greatly increase the vigor throughout much of this acreage. Some group selection areas have also been selected on YEP stands and overmature oak stands. Openings will range in size from 1 acre to 10 acres. Overall, the main harvest species, per the 2010 inventory, will be YEP, BLO and REO. Top growing stock species by volume will be WHO, YEP and BLO.

The marking objective will be the removal of mature/over-mature stems, as well as those of low quality in an effort to improve the overall health, vigor and composition of the stand. The reduction of stocking levels should provide space for pre-selected crop trees to move forward into the next cutting cycle. Species composition will likely become more diverse and less susceptible to insect and disease infestation which can be a common problem with homogeneous stands. These management techniques will also allow the utilization of stems that decline and die due to natural successional processes through mortality, overstocking or maturity. TSI following the harvest is planned to reduce stocking in other areas of pole sized stems with high basal area as well as release crop trees not successfully released through the timber harvest.

Wildlife will also be benefited from this harvest as well. Additional sunlight penetrating the forest floor will simulate the development of new ground flora, subsequently increasing nesting and foraging habitat. This is essential for both game and non-game species as well as providing regeneration that promotes forest development. Post-harvest TSI will increase snags per acre while diversifying diameter distributions of both snags and growing stock trees.

Summary Tract Silvicultural Prescription and Proposed Activities
A harvest is recommended for the 2010-2011 fiscal year. Post harvest TSI of regeneration openings created through the harvest will also be included in this management cycle. Treatments of exotic species, especially the invasive Ailanthus trees are planned prior to the harvest and will need follow-up review & treatments for a few years. Improvement to the access for timber harvesting will require some road improvement including the establishment of a stone base for the tract's haul road.

Proposed Activities Listing

Proposed Management Activity	Proposed Date
Exotic Control/TSI	Summer-Fall 2010
Timber marking, road improvement and timber sale	2010-2011
Post Harvest TSI	2011-2012
BMP Field Review	2011-2012
New Resource Inventory & Management Guide	2030

Attachments (in Tract File)

Gingrich Stocking Charts
Ecological Resource Review
Natural Heritage Database Review
TCruise Reports

To submit a comment on this document, click on the following link:
http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

You **must** indicate 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.