Draft Resource Management Guide

Morgan-Monroe State Forest Compartment: 6 Tract: 9
Tract Acreage: 100 Commercial Acreage: 72
Forester: Andrea Wallis Date: 31 March 2010 Updated: May 20, 2010

Location:
Tract 9 of compartment 6 in Morgan-Monroe State Forest is approximately 6.5 miles south of Martinsville, IN. The tract is off of Low Gap Road in Section 10 T10N, R1E of Monroe County.

General Description:
This 100 acre tract has 49 acres of oak stand types, 45 acres of mixed hardwoods, 3 acres of oak-hickory, and 3 acres are associated bottomlands and creeks that run throughout the tract. Seventy-two acres are commercial, 28 are inaccessible. Most of the oak stand type is located on the central ridge of the tract and accompanying slopes, portions are also located in the inaccessible portion of the tract. The mixed hardwood cover type is usually close to a water source. Canopy composition is as follows:

Overstory	Understory	Regeneration
Black Oak	American Beech	Sugar Maple
White Oak	Sugar Maple	Red Maple
Chestnut Oak	Red Maple	American Beech
Northern Red Oak	Sassafras	Yellow Poplar
Sugar Maple	Chestnut Oak	American Elm
American Beech	White Oak	Sassafras
Largetooth Aspen	Yellow Poplar	Witchhazel
Yellow Poplar	Black Oak	Northern Red Oak
Red Maple	Northern Red Oak	Dogwood
Pignut Hickory	Dogwood	White Oak
Shagbark Hickory	American Elm	Pignut Hickory
Black Cherry	Pignut Hickory	
Chinkapin Oak	White Ash	
White Ash	Black Walnut	
Blackgum	Blackgum	
Sassafras	Chinkapin Oak	
White Ash		

History:
This tract was created through the following acquisitions or purchases: 77.5 acres from Lowder (1930), 77.5 acres from Hunleth (1934), 40 acres from Karshey (1948), and 20 acres from Kansen (1943). The acreage from Karshey and Kansen makes up the majority of the tract. The 60 acre purchase in 1987 completed the present tract.
-7/29 to 8/10/1976: First tract inventory completed
- 8/7/1978: Timber sale in western portion of tract sold(118,290 BF) with a net revenue of $6,263.15.
- 1986-87: 16 acres added to tract 9 through 60 acre purchase.

- 1/1994: Established corners on 40 acre private ownership, survey monuments placed and boundary lines painted.
- 7/26/1996 & 10-15-96: Second tract inventory and management guide completed.
- 3/20&21/2010: Third tract inventory & management guide completed by Forester Andrea Wallis.

Landscape Context:
Managed State Forest property lies to the south, west, and northeast of this tract. There is private property to the north and a portion of private land on the southeast side of the tract. The private properties are mainly used for residences.

Topography, Geology, and Hydrology:
There are two main ridge lines in this tract both on the western half of the tract. There are two other ridge lines in the eastern portion however only portions are located within the tract with access being from private property. There is a larger mapped intermittent stream that constitutes the west boundary of the tract. Two other mapped intermittent streams split acreage in the east portion of the tract. There are several other ephemeral drainages within the tract. All of these streams will need to be considered in timber marking and sale layout planning. The eastern most mapped intermittent stream also drains into a private lake at the southeast private ownership. There is some limestone bedrock within the tract and a report by a deer hunter of a collapsed "cave / overhang" was received and reviewed in the 1980's by Forester Vadas. This site was noted to have subterranean water movement proceeding underground and exiting into the SE tract drainage. Western aspects dominate the commercial acreage while eastern aspects are more prevalent on the portion of the tract in which no harvest activities will take place. Berks and Weikert series soil types form from sandstone, siltstone, and shale residuum while Wellston-Gilpin forms from sandstone.

Soils:
According to the NRCS Soil Survey of Monroe County there are two predominant soil types present on this tract: BkF (85%) and WmC (15%). Berks-Weikert (BkF) soils typically have steep to very steep slopes ranging from 25% to 75%. Berks soils constitute the upper slopes while Weikert soils are restricted to the gradually sloped and lower land areas. Available water capacity is low to very low with rapid permeability. Overall, the surface run off rate and the moderate organic matter in this soil type dictate lower soil moisture levels and higher erosion hazards. This soil type is not suited to farmland uses, however is recommended for forest resources. Bedrock depth limits the number of trees able to survive in the area and those that survive tend to be low quality trees. It is recommended that road construction follow contours to prevent excessive erosion. Berks-Weikert soils have a capability class of VIIe and woodland suitability subclasses of 3f (Berks) and 4d (Weikert) indicating Berks to have moderately high productivity with a high content of coarse fragments and Weikert to have moderate productivity and a restrictive root depth. Berks soils have a moderate erosion hazards, have severe equipment limitations, moderate seedling mortality, and a slight windthrow hazard. Weikert have moderate erosion hazards, severe equipment limitation, severe seedling mortality, and moderate windthrow hazards.

Wellston-Gilpin (WmC) soils have gentle to moderate slopes ranging from 6-20% and very well drained soils. Wellston has moderate water capacity and permeability with medium

surface run off while Gilpin has low water capacity, moderate permeability and rapid runoff. These characteristics combined with the low organic content of both soils and the acidic surface layer tendencies indicate high probability for erosion and moderate difficulty growing timber. This soil type is preferable to forest over any other land use type, if the following is observed: logging roads are constructed on the contours and management focuses on removal of mature trees and protection of healthy seed trees. The soils capability subclass is IIIe and woodland suitability class is 2o. Erosion hazard, equipment limitation, seedling mortality, and windthrow hazard are all moderate for Wellston and Gilpin soils. Northern red oak is the only species that will perform well on all the above soils.

Personal observation of the tract indicates some limestone shelf underlayment typical of possible Crider soils that is not verified in the Monroe County Survey.

Access:

Access to this tract is difficult. There are two options: an easement with a north neighboring private property owner or access using the old road bed that passes through 6370610. The best long-term option would be through an easement however the most current access will be through the previously harvested 610. The access using 610 leads out to Low Gap Road through the recently acquired Weaver property.

Boundary:

This tract has managed state forest to the south and west. Private property borders the remainder of the tract along the north and southeast. There are 5 property corners. A small, steep portion of the tract does border Low Gap Road. All corners have State Forest carsonite property markers with the exception of one of the northwest corners which appears to be in an ambiguous position.

Wildlife:

The following wildlife was noted during 2010 inventory: white-tailed deer, various songbirds, crow, and woodpeckers.

According to the Natural Heritage Database Timber Rattlesnake (*C. horridus*) was identified within the tract in 2002. The following have been sighted within a few miles of 6370609:

North: Timber Rattlesnake (*C. horridus*, 2003), Bobcat (*L.rufus* 1989)

South: Dry-mesic Upland Forest (1995), Dry Upland Forest (1995), Timber Rattlesnake (*C. horridus*, 1992), Illinois Blackberry (*R. centralis*, 1922)

East: Dry-mesic Upland Forest (1995), Dry Upland Forest (1995), Mesic Upland Forest (1995)

West: Indiana Bat (*M. sodalist*, 2004), Timber Rattlesnake (*C. horridus*, 1998), Green Adder's-mouth (*M. unifolia*, 1995)

Timber rattlesnakes (endangered) and bobcats (special concern) require similar habitats that provide denning and foraging sites. Bobcats use early successional areas such as fields and regeneration openings as hunting grounds for small mammals. Bobcat habitat is mainly dictated by prey availability therefore management should consider the creation or preservation of downed woody materials, cavity trees, and early successional growth. Timber rattlesnakes also utilize downed woody material for ambushing prey and protective cover. Indiana bats (endangered, federal) forage mostly around forest edges and openings. They favor open deciduous forest like those created from properly managed forests. The edge around regeneration

openings and canopy gaps within the forest create favorable foraging habitats for the Indiana bat. Hibernacula have not been identified in or around this tract therefore harvest activities will not negatively impact this species but enhance habitat by creating more favorable foraging habitat. Mist-netting activities by Fish and Wildlife researchers were the reason for the Indiana bat sighting in this area. There are no known roosting areas around or within this tract, however the captures indicate the area to contain areas of modest foraging habitat and/or are used as travel corridors. Open tree canopies benefit bat movement: a canopy level that is decreased below 30 percent would be the most beneficial. This type of management would also benefit other bats not just the Indiana bat. Snag removal will be kept to a minimum by only removing recently dead or hazardous trees. Harvesting activities will provide more foraging habitat for the Indiana bat and the conservation of snags will provide roosting opportunities. The following tables represent data collected from the 2010 inventory conducted by Forester Wallis.

Legacy Trees*	**Maintenance Level**	**Inventory**	**Available Above Maintenance**
11"+ DBH	900	2227	1327
20"+ DBH	300	565	265

* Species include: American Elm, Bitternut Hickory, Cottonwood, Green Ash, Red Oak, Post Oak, Red Elm, Shagbark Hickory, Shellbark Hickory, Silver Maple, Sugar Maple, White Ash, and White Oak

Snags (All Species)	**Maintenance Level**	**Optimal Level**	**Inventory**	**Available Above Maintenance**	**Available Above Optimal**
5"+ DBH	400	700	965	565	265
9"+ DBH	300	600	309	9	-291
19"+ DBH	50	100	33	-17	-67

Cavity Trees (All Species)	**Maintenance Level**	**Optimal Level**	**Inventory**	**Available Above Maintenance**	**Available Above Optimal**
7"+ DBH	400	600	419	19	-181
11"+ DBH	300	400	363	63	-37
19"+ DBH	50	100	172	122	72

This tract meets all requirements except in the capacity of large diameter (19"+) snags. It is suggested that some of the larger low valued trees within the tract be girdled during timber stand improvement to rectify this issue, other species may be chosen according to the marking foresters discretion.

Communities:
Areas of Multiflora rose have been identified and GPS located for management. An area of possibly native, remnant Eastern hemlock has grown near the bottom point of the tract next to the creek. This site is popular with Draper Cabin recreationists and is noted for its cool

temperatures in summer. It is suggested that the area up slope from these trees be left undisturbed to preserve the area.

Recreation:
This tract is utilized for hunting, hiking, wildlife viewing, mushroom hunting, and other outdoor activities by neighboring landowners and Low Gap Road visitors. Draper Cabin renters frequent the bottomland area of this tract.

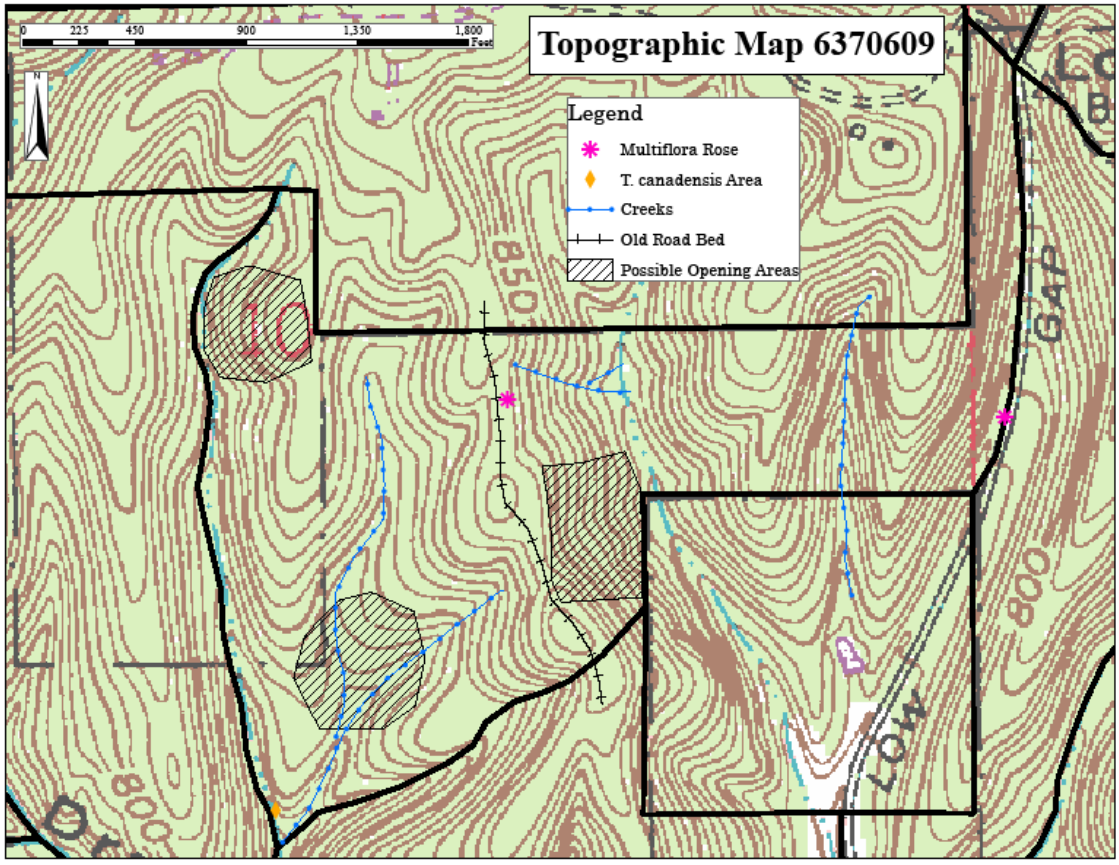
Cultural:
No cultural resources have been identified at this time.

Tract Prescription and Activities:
This tract covers 100 acres; however due to steepness and private property boundaries, 28 acres of it is inaccessible. Most of the tract had been previously harvested during the 1978 harvest activity however some areas were excluded due to topography such as the very steep slope along Low Gap Road. There is an old road bed that runs on the only complete main ridge in the tract. This road bed continues down through tract 610 and out to Low Gap Road as a result of the logging of 610. The acreage west of the mapped stream that meets the southeast property corner is accessible. There are three opportunities in this tract for a large opening (see topo map): the area between the main ridge and the mapped stream (center of tract), the west slope and plateau next to the south west property corner, and an area near the bottom of the tract where two unmapped intermittent streams meet. These 3 regeneration openings are described below:

1) The slope between the mapped creek and the old road bed is a prime opportunity for a large opening. Large yellow poplar and oak have reached diameters of 25 inches and more with the surrounding area being maples or scrub species with grapevines.
2) The area next to the southwest property corner is mainly yellow poplar, largetooth aspen with an understory of American beech and maple. This area should be regenerated to produce a more desirable species mix with better diversity.
3) The area where two mapped intermittent streams meet is much like opening 2 in composition however there are also some large (20”$^{+}$) maple and yellow poplar. This area also has a nice understory of young oak and medium to small diameter hickory species. Removal of the undesirable species and older trees will allow this area to regenerate into a preferred oak-hickory stand type.

There is also an area between the two western openings on the east slope of the far western ridge line that has very large single trees and large double-stemmed trees. Small diameter hickory has developed in the understory along with a few sparse oaks. It would benefit the area to remove some overmature trees and release the young understory to take their place. The remainder of the tract has relatively good spacing and stocking. A light improvement cutting is needed using singletree selection and in a few areas the removal of maple and beech will promote better species regeneration. The western slope on the main ridge has a diverse understory that would benefit from a release with mostly small diameter oak species present that would make up the next stand. If access can be gained to the eastern portion of the tract that has been designated inaccessible single tree selection should be utilized to reduce stocking in this area. Some trees have reached maturity and over crowding is a major issue. Steep slopes and access are limiting this area from being harvested however if an easement can be obtained to access the area the area could be harvested.

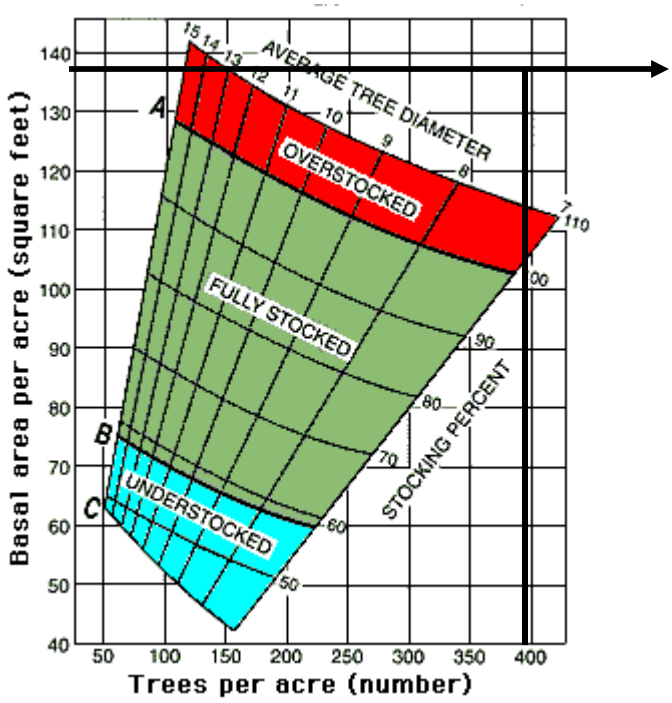
This tract is overstocked with 398 trees per acre and an average basal area of 137. Removing the larger mature trees and selection thinning to reduce crown competition will decrease the stocking of this tract to the upper end of the fully stocked portion of the Gingrich chart.



2010 Volume Estimates:

Species	Harvestable BF/Acre	Growing Stock BF/Acre	Total BF/Acre
Black Oak	1,634	1,325	2,959
Chestnut Oak	1,035	399	1,434
Yellow Poplar	600	247	847
Northern Red Oak	579	992	1,571
White Oak	475	1,281	1,756
Largetooth Aspen	254	53	307
Red Maple	197	63	260
Sugar Maple	185	26	211
American Beech	129	111	240
Pignut Hickory	29	336	365
Black Cherry	0	25	25
Chinkapin Oak	0	81	81
Sassafras	0	27	27

Shagbark Hickory	0	70	70
Totals	**5,117**	**5,036**	**10,153**



There are 398 trees per acre with an average basal area of 137.

Proposed Management Activities:	Proposed Dates:
Timber Harvest Marking	2010
Timber Sale	2010-11
Timber Stand Improvement	2011-12
Inventory and New Management Guide	2030

The following attachments are kept in the tract file:

- Ecological Resource Review
- Aerial photo map with noted pertinent features
- Topographic map with stand delineation
- Soil type tract map
- Indiana Natural Heritage Database Map
- TCruise reports

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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.