Resource Management Guide

Morgan-Monroe State Forest
Tract Acreage: 97
Forester: Andrea Wallis

Compartment: 9 Tract: 10
Commercial Acreage: 82
Date: 10/28/2009 Updated: 11/19/2009

Location:

This tract is located in the north east corner of Monroe County as well as along the southern portion of Morgan County. Access is off of Bear Wallow Road using a newly rehabilitated road through the Brunner tract acquisition. It is in Sections 1 and 2 Township 10 North Range 1 East and Section 36 Township 11 North Range 1 East. This tract is about 8 miles northeast from Morgantown, IN.

General Description:

This tract is 97 acres total with 82 commercial acreage, the remaining 15 acres comprises a lowland area with little timber value and difficult access issues. Fifty four acres are composed of oak species, 40 are mixed hardwood, and 3 acres are oak-hickory species. The canopy composition is as follows:

Overstory	Understory	Regeneration
Black Oak	Sugar Maple	American Beech
Red Oak	Red Maple	American Elm
Chestnut Oak	Pignut Hickory	Sugar Maple
White Oak	American Beech	Red Maple
Shagbark Hickory	Chestnut Oak	Black Oak
Pignut Hickory	White Oak	Pawpaw
Sugar Maple	Sassafras	Red Oak
Red Maple	Red Oak	White Oak
Yellow Poplar	Shagbark Hickory	Pignut Hickory
American Sycamore	White Ash	Black Cherry
Blackgum	Black Walnut	Ironwood
American Beech	Pawpaw	White Ash
Sassafras	Black Oak	
White Ash	American Elm	
Black Walnut	Ironwood	
Black Cherry	Yellow Poplar	
Scarlet Oak		
Largetooth Aspen		
American Elm		

History:

This tract was created through the acquisition of land in November 1940 and September 1963. Illegal firewood cutting reported in March of 1985 resulted in the establishment of the eastern property boundary by state forest personnel. The northern line in August of that year was also completed due to a private logging operation on neighboring property. In 1988 the north and northwest corners of the property were resurveyed and set accordingly by Morgan County surveyors. Storm damage caused a drainage blockage in November of 1990; a neighboring landowner cleared the drainage and used the debris as firewood. In August 1994 the east adjacent private landowner informed the Department of Natural Resources of plans to build a bridge and

levee with no objection. Boundary lines were remarked in 1996. Roadwork clearance was requested for haul road and landing construction from the Division of Historic Preservation and Archaeology in October 1996, clearance given the following year. A tract inventory and management guide was completed February 1997 by Forester Hahn. An Indiana bobcat sighting report was documented on 9/7/04.

Landscape Context:

The land around Bear Wallow Road is primarily used for agriculture; there are also residences and forest. The areas with direct proximity to this tract are forested. An agricultural field is visible to the north when standing in the middle of the tract on a ridge top.

Topography, Geology, and Hydrology:

There is a mapped intermittent stream to the south east that represents the tract boundary. There are also several unmapped intermittent streams and multiple ephemeral drainages. The following slopes are present on this tract: flat (ridgetops, flood plains, and creek bottoms), south, south west, south east, west, east, north east, north west, and north. The dominant aspect is flat with southern exposures being the next greatest. Xeric and mesic qualities are equally proportioned within the tract with a few areas that are mixed.

Soils:

This tract contains three counties with the following soils definitions:

Monroe: Wellston-Gilpin (WmC), Berks-Weikert (BkF)

Morgan: Wellston (WfC), Berks (BfG), Gilpin (GpE, 18-25%), Gilpin (GpD, 12-18%), Wakeland (Wa)

Brown: Berks-Trevlac-Wellston (BgF), Wellston-Gilpin (WeC2)

The tract is mainly composed of Wellston, Gilpin, and Berks or some combination of the three. The following information was taken from each counties soil survey publication.

Monroe: Berks-Weikert (BkF) soils typically have steep to very steep slopes ranging from twenty five to seventy five percent. Berks soils constitute the upper slopes while Weikert is restricted to the gradually sloped and lower land areas. Available water capacity is low to very low with rapid permeability and surface run off and moderate organic matter; this indicates low soil moisture and possibility of erosion. This soil type is not suited to any land management use however is recommended to be forest above all others. Bedrock depth limits the number of trees able to survive in the area and those that survive are not good quality trees. It is recommended that road construction follow contours to lessen erosion hazards. Berks-Weikert soils have a capability class of VIIe and woodland suitability subclasses of 3f (Berks) and 4d (Weikert). Berks soils are a moderate erosion hazard, have severe equipment limitations, moderate seedling mortality, and have a slight windthrow hazard. Weikert has moderate erosion hazard, severe equipment limitation, severe seedling mortality, and moderate windthrow hazard.

Wellston-Gilpin (WmC) soils have gentle to moderate slopes ranging from six to twenty percent 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.

Morgan: Wellston (WfC) is located in moderately sloped areas with well-drained soil. Other soil types included in this area are Gilpin, Berks, and Zanesville. The organic layer is limited; there is moderate permeability and high available water capacity with medium surface runoff. This soil type does puddle and form crust easily. The capability class is IIIe and the woodland suitability subclass is 2o. Erosion hazard, equipment limitation, seedling mortality, and windthrow are all slight. Wellston has no flooding frequency and hard bedrock, however potential frost action is high.

Berks (BfG) soils generally have steep to moderate slopes with well drained soil. Small areas of Gilpin, Weikert, Wakeland, and Wilbur soils are also included in these areas. There is root restricting bedrock at a depth of 30 inches; surface runoff is very rapid while the surface layer is friable. Available water capacity is low while permeability is moderate. Capability subclass is VIIe and 3f is the woodland suitability subclass. Seedling mortality and erosion for this soil is moderate while equipment use is severely limited. Windthrow is a slight hazard. This soil has soft bedrock and no frequency of flooding.

Gilpin (GpE, 18-25%) has moderately steep well drained soils. Zanesville, Berks and Wellston soils are also included in small patches. Root development is restricted to 34 inches due to sandstone bedrock. There is rapid surface runoff, low available water capacity, and moderate permeability. VIe is the capability subclass while 2r is the woodland suitability subclass. Erosion hazard, equipment limitation, seedling mortality are moderate with a slight windthrow rating. There is moderate potential for frost action with this soil, no frequency of flooding and the bedrock is soft.

Gilpin (GpD, 12-18%) is the same as GpE except in the following ways: the slope grade is less; bedrock is at 36 inches, a woodland capability subclass of 2o, and a slight rating for erosion hazard, equipment limitation, seedling mortality, and windthrow.

Wakeland (Wa) soils are in general flat areas that have brief flooding between January and May. Haymond and Wilbur soil types are also included in these areas but at small portions. The water table is only 1 to 3 feet deep in winter and early spring; there is very high available water capacity, moderate permeability, and very slow surface runoff. This soil similar to Wellston does crust and puddle easily. 2o is the woodland suitability subclass while IIw is its capability subclass. Erosion hazard, equipment limitation, seedling mortality, and windthrow are all slight. There is also high frost action potential.

Brown: Wellston-Gilpin (WeC2) soils are located on moderately sloping to steep slopes. This soil type can also include small areas of Tilsit soils, which have fragipans, and areas of sever erosion where the surface layer is completely removed. Wellston soil has high available water capacity and Gilpin has low. Surface runoff is rapid with moderate permeability for both. The land capability class is IVe and the woodland ordination symbol is 4A. This soil type is better suited to forest rather than any other use. Erosion hazard, equipment limitation, seedling mortality, and windthrow are all slight for this soil type. Log landings have moderate limitations, skid trail and site preparation in general are also slight. Wellston has a slight limitation for haul roads and Gilpin has a moderate limitation depending on bedrock depth. This soil type does not support gravel very well and may be

prone to sinking. There is no frequent flooding for this soil type; it has soft bedrock and a moderate to high potential frost reaction rating.

Berks-Trevlac-Wellston (BgF) has moderately steep to very steep slopes ranging from twenty to seventy percent grade. Berks and Trevlac soils are located on the steeper sloped area along the upper side slopes while Wellston soils are on lower less sloped areas, all have well drained soils. Berks and Trevlac have very low and low available water capacity while Wellston has high. All soils have very rapid surface runoff, Berks has moderately rapid permeability while Trevlac and Wellston have moderately permeable soils. This soil type is well suited for forest and has a moderate organic layer. Minimizing the amount of vegetative cover that is disturbed and constructing roads along the contours should control erosion. Skidder operation should be kept to a minimum with every opportunity being taken to cable logs instead of driving down to get them. VIIe is the land capability class and 4r is the woodland classification. Berks, Trevlac, and Wellston do not have any frequency of flooding however potential frost action does exist in each: Berks has low, Trevlac moderate, and Wellston high. The following is from the Woodland Management and Productivity Chart from the Brown County Soil Survey:

	Erosion Hazard	**Equipment Limitation**	**Seedling Mortality**	**Windthrow Hazard**
Berks	Moderate	Severe	Moderate	Slight
Trevlac	Severe	Severe	Slight	Slight
Wellston	Severe	Severe	Slight	Slight

The soil types listed above that have flooding potential do not constitute a large portion of the tract and will not hinder any harvest operation since none is planned for those areas. This tract has steep slopes in several areas that will require precaution when planning skid trail placement in order to reduce erosion. The land composition is as follows:

Soil Type	**Percentage Land**	**Acres**
WmC	20%	19
BkF	20%	19
BgF	10%	10
WeC2	2%	2
WfC	3%	3
GpD	7%	7
BfG	20%	19
GpE	8%	8
Wa	10%	10

The highest percentage of land is in WmC, BkF, and BfG. These soil types do not have any unfavorable limitations which would make the harvest more difficult. The haul road, landing, and majority of skid trails will be located on one of these three soil types. Wise use of best management practices will minimize soil and vegetation disturbance.

Access:

Access is off Bear Wallow Road through a pre-existing fire trail. There are two wildlife habitat management areas located on the fire trail; these are managed by the Indiana Division of Fish and Wildlife. There are also several pre-existing yards.

Boundary:

Private land boundaries exist along the west, north, and north east portions of the tract. Portions of Yellowwood State Forest and Morgan-Monroe State Forest form the southern boundary. The south eastern boundary is a drainage and intermittent stream that separate it from the neighboring Yellowwood State Forest property. The inner corner on the north west side of the tract is identified by a federal concrete marker along with another county concrete marker locating the county line not far from it; these are offset corners for Morgan, Monroe, and Brown County. Fencing and a metal T post signify the eastern property corner. The southern corner located on the county line is identified with carsonite posts. The boundary of this tract will be reevaluated and remarked before the harvest.

Wildlife:

The following wildlife was noted during inventory: white breasted nuthatch, chipmunk, white tailed deer, crows, red-bellied woodpecker, and red squirrel.

According to the Natural Heritage Database no threatened, rare, or endangered species have been identified within the tract. The following have been sighted however within a few miles of 6370910:

- To the north west: Timber Rattlesnake (*C. horridus*, 1994)
- To the west: Kirtland's Snake (*C. kirtlandii*, 2000)
- To the south west: Kirtland's Snake (*C. kirtlandii*, 2000) and Bobcat (*L. rufus*, 1989)
- To the south east: Kirtland's Snake (*C. kirtlandii*, 1997)

The following information comes from the Indiana State Forests Environmental Assessment (2008-2027). This tract has a high amount of woody debris present on the forest floor providing excellent cover for timber rattlesnakes. This species benefits greatly from small openings, as do all reptiles, providing basking areas and habitat for small prey mammals. Kirtland's snake habitat revolves around a water source or frequently flooded areas, most sightings have been associated with Robertson Creek and its branching about a mile away from this tract. The small creek on the eastern boundary and flood plain in the northeast corner would suffice for habitat, however no sightings have been made and this species is more prone to inhabit meadows and prairies rather than forest. State forest harvesting activities typically avoid wet areas and practice erosion and sedimentation control all of which protect the habitat and well being of Kirtland's snakes. Bobcat habitat varies greatly with bobcats preferring open woodlands and grassy fields that supply cover for their prey. Openings and even-age management promote habitat conducive to bobcat prey and wood debris piles provide excellent stalking opportunities. Management activities do not adversely affect any of the above mentioned species and may in some cases benefit the species greatly.

Legacy Trees*	Maintenance Level	Inventory	Available Above Maintenance
11"$^{+}$ DBH	873	2548	1675
20"$^{+}$ DBH	291	521	230

* 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	388	679	1502	1114	823
9"+ DBH	291	582	431	140	**-151**
19"+ DBH	48.5	97	29	**-19**	**-68**

Cavity Trees (All Species)	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
7"+ DBH	388	582	747	359	165
11"+ DBH	291	388	591	300	203
19"+ DBH	48.5	97	261	212	164

The only deficiency above maintenance for this tract was in snags greater than 19", deficiencies above optimal were also in snags 9" and greater. This tract has a lot of downed trees, woody debris, and cavity/snag trees. Many were noted in areas that where not included in the inventory points. Precaution will be taken when harvesting around snags, adequate numbers of cavity trees will be retained based on usefulness to potential species.

Communities:

Mutliflora rose and Japanese stiltgrass were present on this tract. Stiltgrass populations will be treated in the early summer prior to the harvest.

Recreation:

This tract is used for hunting. The access road to this tract passes through two wildlife plot areas maintained by the Indiana Division of Fish and Wildlife. The recent improvements to this road has aided in the public's access to this portion of the forest.

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 Prescription and Activities:

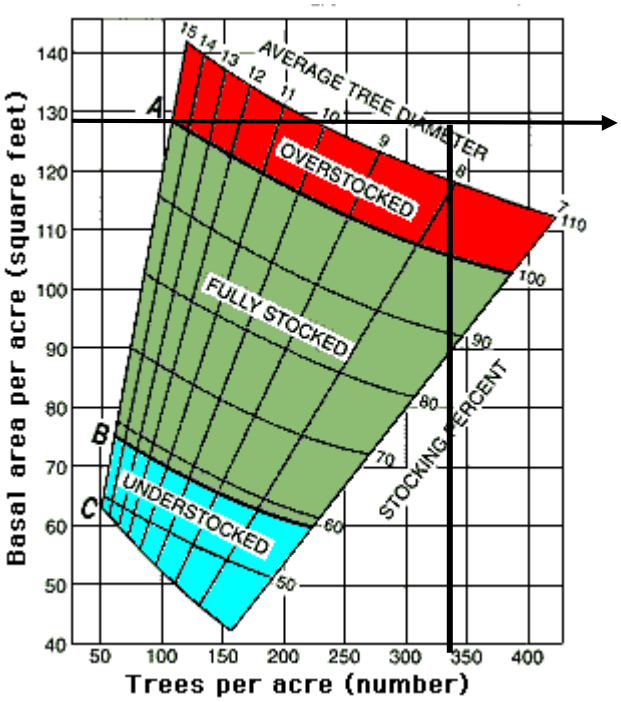
The current tract inventory was completed by Forester Wallis on November 12, 2009.
This tract averaged 7,330 board feet per acre, 342 trees per acre, and 129 average basal area (range = 80-210). Eighty-two acres out of 97 are harvestable; the exception is the far eastern tip which is mainly dense undergrowth and contains low quality timber with a few wolf trees. Past storm damage is evident mostly in the central portion of the lower western portion of the tract. Windthrow and limb loss appear to present great challenges within the tract. Grapevines are present mainly in the eastern area where they have stifled all regeneration and impacted larger trees. An old ATV trail is present in the eastern flood plain region coming from the private property to the east. The area appears to have been used for target practice. This tract needs to be harvested before any further revenue is lost due to wind and unstable soil. There is some merchantable timber in the eastern portion of the tract which would be more easily reached through an easement to cross the private

property corner on the ridgetop rather than access through steep slopes. Poor quality, deformed, and undesirable species will be the main type of trees removed. There are a few unmapped intermittent streams along with the topography in the eastern portion that will require special attention to erosion control and skid trail placement.

A potential timber stand improvement area was noted during inventory that contains 6 to 10 foot tall red oak saplings in the eastern flood plain of the tract that is unharvestable. This area would greatly benefit from a thinning of the present poor quality/unmerchantable trees to release the red oak potential. Most of the eastern flood plain is similar in structure; the area does not promote any quality timber with dense undergrowth and greenbrier toppling small saplings. An extensive timber stand improvement project for these 15 acres would be best to determine if any valuable or desirable species could be encouraged to grow. There is a strong hickory presence in the southern portion of the tract; this area also has experienced past storm damage. Removing the damaged trees would open up the area to the younger oak and hickory understory. The chestnut oak of this area is poor quality and mostly damaged however some of the red and white oak are healthy enough to continue to supply seed. This tract has characteristic steep to very steep slopes off the saddles with unstable ground causing significant loss to windthrow. Most sideslopes have windthrow evidence due to this tracts topography and steep slopes.

Volume Estimates:

Species	**Harvest BF**	**Growing Stock BF**	**Total BF**
Chestnut Oak	71,180	43,060	114,240
Black Oak	66,520	51,990	118,510
Yellow Poplar	59,320	36,980	96,300
White Oak	50,730	73,810	124,540
Red Oak	41,040	40,720	81,760
Red Maple	29,850	6,350	36,200
Sugar Maple	23,830	4,230	28,060
White Ash	7,730	0	7,730
American Beech	6,880	0	6,880
Pignut Hickory	4,000	37,150	41,150
American Sycamore	3,850	7,880	11,730
Black Walnut	3,820	3,200	7,020
Shagbark Hickory	3,550	19,560	23,110
Blackgum	2,640	0	2,640
Scarlet Oak	2,640	0	2,640
American Elm	2,210	0	2,210
Sassafras	0	7,000	7,000
Total	**379,790**	**331,930**	**711,720**



This tract is overstocked having 342 trees per acre and 129 basal area per acre. This tract is over crowded with medium to large trees.

Proposed Management Activities:	Proposed Dates:
Timber Harvest	2010-2012
Timber Stand Improvement/ Firewood	2012
Inventory and New Management Guide	2029

The following attachments are kept in the tract file:

- Ecological Resource Review
- Aerial photo map with noted special features
- Aerial photo map with noted unique areas
- Soil type tract map
- Indiana Natural Heritage Database Map
- TCruise reports

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