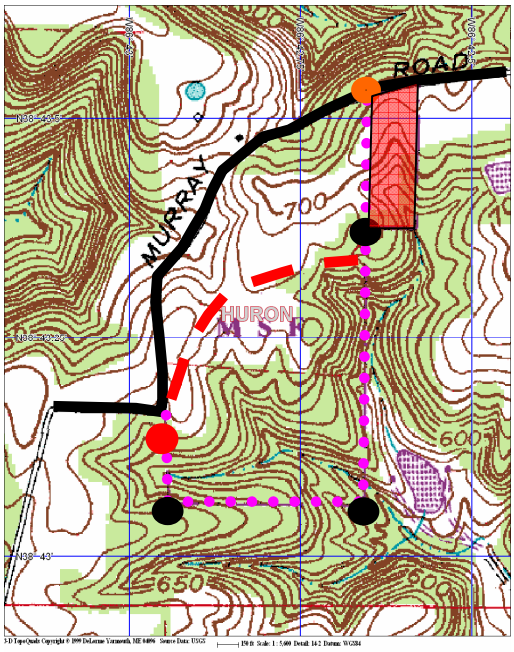
TM 902 Date: 5/13/08

RESOURCE MANAGEMENT GUIDE

Compartment: 5 Tract: 1 Acreage: 70
County: Martin Section: 2 Township: 3N Range: 3W

FORESTER'S NARRATIVE
By: Andrew S Fox
Reviewed and amended by: Abe Bear 2-1-2010

ROADS AND BOUNDARIES:



Murray Road (the heavy black line on the map) comes from the west and makes a sharp left turn about a tenth of a mile north of the southwestern corner of the tract, at this point the road begins to make up the eastern boundary of the tract. Murray Road then continues north for about two tenths of a mile where it gradually turns eastward and begins to make up the northern border for another three tenths of a mile to the northeastern corner of the property. An orange fence post (orange dot on map), set by a surveyor, on the side of the Murray road opposite the state forest property was used as the northeastern corner of the tract, because the state forest's ownership of a portion of land that lies to the east of this post (red rectangle on map) is under contest from a private landowner.

From the sharp left hand turn in Murray Road, an old barbed/woven wire fence line runs south for approximately 620 feet (which was flagged pink during the inventory, and shown as such on the map), at which point there is a survey stone (all marked by black dots on map) which supposedly marks the southwestern corner of the tract. The corner stone is approximately two feet to the west of the fence near the stump of and old oak tree. It was also noted that there was a fairly new piece of re-bar installed by a surveyor, approximately 210 feet south of Murray Road, along the fence line, shown by the red dot on the map.

There is some dispute as to whether the stone in the southwest corner is in the correct location as it does not quite line up with the survey stone in the southeast corner of the tract. On the other hand the survey stone in the southeastern corner may have been moved as well. Although, an old fence runs west from the survey stone in the southeastern corner of the tract the fence does not run straight to the stone in the southwestern corner. It appears that this fence line has been used as the property boundary before but it is not certain whether it is the correct boundary. If it is then there may have been a timber trespass by loggers on the property to the south of the state forest property. A line was traversed east from the southwestern corner stone and flagged pink, but again it is uncertain whether this line is correct as it ended intersecting with the western boundary at least twenty yards north of the southeastern corner stone.

Starting from the northeastern corner which is marked by the orange fence post mentioned above, a line was traversed south and flagged pink for approximately 900 feet at which point an up right railroad tie, flagged in pink, was found marking a corner stone. This stone marks the corner where the property boundary turns east into the portion of the tract that is now under contested ownership, and also the center

of the section in which this tract resides. A woven/barbed wire fence extends south from the railroad tie and makes up the eastern edge of the tract. Recent (<5 years old) pink flagging was found on trees about ten yards to the west of the fencing, and thus the fence was not flagged at the time of inventory, as previous reports mentioned that it may not be the actual property boundary. The fence extending south did however appear to run directly to the Southeastern corner stone.

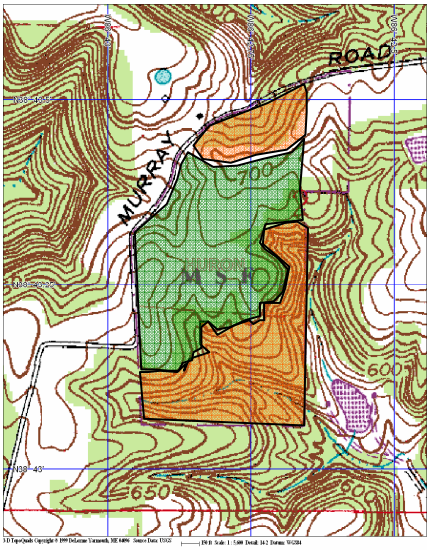
Where Murray Road makes a sharp left turn to head north, a small parking lot has been installed on the tract of state forest property. A fire lane/cable right-of-way (marked by the red dashed line on the map above) extends from this parking lot and heads to the northeast for about 690 feet at which point it turns due east and runs to the east boundary of the tract. Adjacent to the parking lot there is also an old log yard. Remnants of a main skid trail extend from the log yard to the southeast along a gradual slope. There are several small skid trails that run off of this main one to the northeast and southwest.

TRACT DESCRIPTION:

The area surrounding this tract is divided fairly evenly between forestry and agricultural pasture lands. There are several large hay fields in the areas as this tract is situated on top of a ridge that extends for quite some distance to the northeast and southwest. The is no real potential for a change in this area as it is rather remote and long time, local private ownership has controlled most of the region. The nearest municipality is the town of Shoals, which is located roughly five miles to the southwest of the tract.

As previously mentioned, a large flat ridge runs through a large portion of this tract running northeast from where Murray Road turns left sharply at the western border of the tract, past the survey post in the northeastern corner of the tract. The resulting aspects are mostly northwest and southeast. Although there is a finger ridge that extends to the south and east from the main ridge, which gives an almost direct west aspect to the slope which runs along the east border of the tract. Also another finger ridge that extends east along the bottom of the tract, results in a direct northerly aspect, along most of that border.

There was very minimal evidence of fire damage during the time of the inventory which is a good sign for wood quality concerns. Grape vines on the other hand were present across most of the tract but were not heavily concentrated, except in a few areas. TSI of the vines should be conducted before any future harvests are scheduled.



Nearly half of this tract is comprised of mixed hardwood forests shown in orange on the map to the left, while the other half of the tract was planted into a mix of pine species (shown in green) which now have some poplar intermixed as well. It appears that there is great potential to regenerate both oak and hickory seedlings as much of the tract had some regeneration of the species already. With the right silvicultural practices this may turn out to be a great high quality oak/hickory stand in the future.

The pine was planted along the ridge top to control erosion and to serve as a progeny test for the varying types of pine planted here. While some treatments such as thinning and pruning were implemented tests earlier in the stands rotation, more recent efforts appear to have been abandoned.

The hardwood component of this tract is dominated mostly by a mixture of yellow-poplar and oak/hickory tree species. In the sawtimber size class the oak/hickory timber type makes up about 52% of the total volume, with yellow-poplar and sugar maple making up 21% & 5%. In the pole size class the oak/hickory timber type only made up 33% and the beech/maple component holds 14% of the total

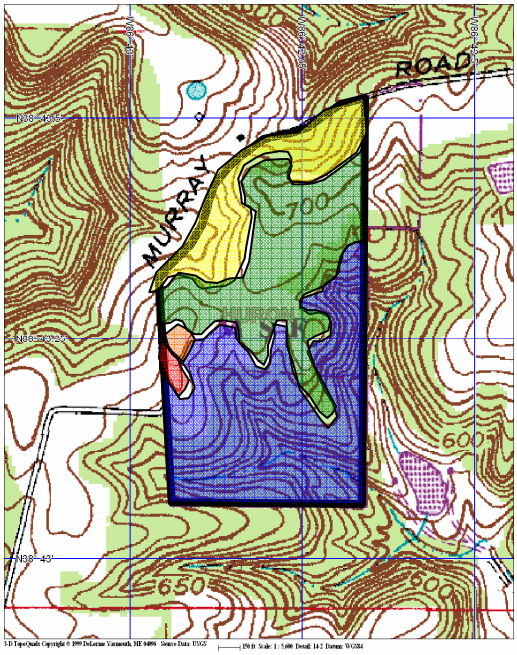
volume. Some of the other various tree species that were noticed with in this tract include black cherry, white ash, sycamore, honey locust, and several others.

INVASIVE SPECIES

Bush honeysuckle was found in the old log yard at the head of the fire lane. This area was used in the past to dump cut honeysuckle stems and as a result, some seedlings developed. Multiflora rose is present throughout the pine. The bushes appear to be dying out as the overstory develops.

SOILS:

There are five soil types found on this tract as you can see from the map below. The soil type that makes up the largest section of the tract, covering nearly the entire southern half, is the **Wellston-Berks-Gilpin complex, 18-70 percent slopes** seen in blue on the map**.** Individual areas of this soil are usually about 47 percent Wellston soil, 25 percent Berks soil and 18 percent Gilpin soil, but the mix of soil types is so intricate that it's impractical to map them separately. These well-drained soils are found on most of the side slopes in this tract and are characteristically deep to moderately deep. The surface layer is typically silt or channery silt loam and the subsoil, which is roughly 36" deep, is silt loam (Wellston), channery silt loam (Gilpin) or channery loam (Berks). Available water capacity is very low in the Berks soil, low in the Gilpin soil and high in the Wellston soil. Permeability is moderate to moderately rapid, and surface runoff is rapid to very rapid. Organic matter content in the surface layer is moderate to moderately low. Erosion hazards are moderate to severe on these soils, but can be compensated for by using gentle grades for skid trails and by installing water bars and outsloping the roads to remove water. Site indices for these soils are 70 to 80 for Northern Red Oak and 90 to 95 for Yellow Poplar.



The second most abundant soil type found on this tract is the **Zanesville silt loam, 6 to 12 percent slopes, eroded (ZaC2).** This soil is coded green on the map and is found mostly on the main ridgetop and upper side slopes. It is a moderately sloping, deep, well to moderately well drained soil. The surface layer is a five-inch thick layer of brown silt loam. The subsoil layer, about 39 inches thick, is friable silt loam over a silty clay loam. This is underlain by a silt loam fragipan, which restricts root penetration and downward water movement. This restriction to water movement often results in saturated soil conditions in the winter and spring. Available water capacity is moderate, and permeability is moderate above and slow in the fragipan. Surface runoff is rapid, requiring measures such as water turnouts and bars to properly remove water from roads and yards. The organic matter content is moderate in the surface layer. Erosion hazards and equipment limitations are slight for this soil; however, winter/spring logging may be restricted due to the saturated soil conditions. Site index for Northern Red Oak on this soil is fairly low at 68.

Next we have the **WeD2-Wellston silt loam, 12 to 18percent slopes eroded** soil type which follow along the northern border as you can see with its yellow coding on the map**.** This sloping, deep, well-drained soil is found along slopes along drainages in upper lands. The usually have an area of 10 to 30 acres. The surface layer is dark grayish brown about five inches thick. This layer is also mixed with some brown sub-soil material. The Subsoil is a firm silt clay loam about 5 inches thick. The upper part of

this is strong brown, and the lower part is yellowish-brown. The underlying soil is a yellowish-brown clay-loam with mottled channery and 15% sandstone fragments. This underlying soil runs to about 60 inches in depth. The available water capacity for this soil is high with moderate permeability, with very rapid surface run off. There is moderate organic matter content in the soil. Erosion will be a limiting factor when it comes to the logging operations, as this soil is highly erode-able.

The last two soil types only make up a small portion of the tract, as combined the only amount to about 10 acres. The first of these two types is the **WeC2-Wellston silt loam, 6 to 12 percent slopes, eroded.** This soil is coded red on the map. It is a moderately sloping, deep, well-drained soil found on some ridgetops and side slopes. The surface layer is typically a three to six-inch thick layer of grayish brown silt loam. The subsoil is around 42 inches and is a friable silt loam. Available water capacity is high and permeability is moderate. Surface runoff is rapid, requiring measures such as water turnouts and bars to properly remove water from roads and yards. The organic matter content is moderate in the surface layer. Erosion and equipment use hazards are slight on this soil. Site index is 71 for Northern Red Oak and 90 for Yellow Poplar.

Finally we have the **Zanesville silt loam, 2 to 6 percent slopes,** soil type which is coded orange on the map above. This soil type is a gently sloping, deep, well drained to moderately well drained soil. The surface layer is an eight-inch thick brown silt loam underlain by a roughly three-foot thick silty clay loam subsoil. A firm fragipan, which restricts root penetration, exists in the lower part of the subsoil. In some areas, the lower portion of the subsoil is extremely acid. Available water capacity is moderate and permeability is moderate above the fragipan and slow in the fragipan. This slow permeability restricts downward water movement through the soil and often results in the soil being saturated in the winter and spring. Surface runoff is medium. Organic matter content in the surface layer is moderate. Erosion hazards and equipment limitations are slight for this soil; however, winter/spring logging may be restricted due to the saturated soil conditions. Site index for Northern Red Oak on this soil is fairly low at 68. (Soil information obtained from Soil Survey of Martin County Indiana, Published in 1988 by the USGS)

HISTORY:

The state of Indiana purchased 77.7 acres of land, which is now C5T1, from Asa and Maude Fortner on September 8, 1941, for the sum of $800. Since then extensive work has been conducted on the tract. In 1966 the farm field that was located on the top of the ridge that runs through the tract, was planted to 5 different species of pine including white, loblolly, shortleaf, Virginia, and scots. In 1973 an inventory was conducted on the acres of the tract which were covered by a mixed hardwood forest. At the time there was an average of 2,581 Board Feet per acre found across the 40 acres of wooded land. In May of 1977, 3000 yellow poplar were inter-planted with some of the “pitch pine” plantations. In 1982, the white pine stands were pruned and thinned to improve vigor and wood quality, as part of an experiment. Another inventory was conducted in 1979 by forester Janet Eger, who found there to be approximately 229,688 board feet of merchantable timber on the tract. Finally there was a timber sale conducted on the tract in May of 1990, in which there were 43,109 board feet marked for sale. A bid process was used to sell the timber, and DMI Furniture, Inc. won the bid for a sum of $13,025.

RECREATION AND WILDLIFE:

While lacking numerous trails, the tract offers great opportunities for hiking with many different forest types from oak/hickory to beech/maple to several different species of pine, mixed over varying terrain providing some great views. Mushroom, turkey, dear and many other plant and wildlife species should provide great hunting experiences on the tract as well.

While the inventory was being conducted several species of wildlife were noticed including eastern fox squirrel, wild turkey, white-tailed deer, bobwhite quail, many song birds, wood peckers, and eastern box turtles. While only these few wildlife species were noticed at the time of the inventory, they are undoubtedly not the only species out there, as there are a wide range of habitats from upland pine stands to bottomland hardwood stands in which many forms of wildlife can utilize. A query of the Natural Heritage Database showed one report of a bobcat and several species of mussels in the White River in the last 20 years. The bobcat report was from 2003 and almost ¾ of a mile to the southeast.

During the timber inventory, a wildlife habitat feature inventory was conducted. This inventory showed slight deficiencies in large diameter legacy trees and snags greater than 19''DBH. For specific results, refer to the attached Wildlife Habitat Feature Tract Summary. (Note: This data was collected prior to the recording of Cavity Trees)

WATERSHED:

The previously described large ridge that runs through this tract serves as the watershed divide for the tract. The southern border of the tract follows another large ridge that runs east and west, and drains north onto the state forest property. Between these two ridges a small stream runs along the south border of the tract, flowing to the east. Another drainage flows from the ridge that runs through the tract to the south along the west border of the tract. The two drainages later combine and continue to flow south and east, eventually dumping into Beaver Creek.

The northeast corner of the tract drains to the north down the slope of the ridge that runs through the tract, and the northwest corner drains to the west off of the same ridge. Both drainages make a westward turn and empty directly into the east fork of the White River after traveling about a mile.

SILVICULTURAL PRESCRIPTION

By: Andrew S. Fox
Reviewed by: Jim Lauck

Grapevine TSI would be the most logical course of action to take in the immediate future, along with the possibility of invasive honeysuckle removal. Removing the grapevines will help to ensure good vigor in stand growth as well as promote good timber quality. The eradication of invasive species will also help to ensure good stand vigor along with the higher possibility of regeneration establishment after any harvests.

It was noted that in several locations within the pine plantations there are pockets of good oak regeneration, which should probably be released in the near future. A full harvest may not be the best thing to help regenerate the desired oaks and hickories as a harvest may open the stand too much and allow more vigorous growing shade intolerant trees species (such as Yellow-poplar) that are fast height producers to over take the current oak seedlings. Rather a series of thinnings may be better suited to the application of trying to regenerate desired oak species. These thinnings should clean the understory of undesired regeneration as well as remove any pines that are spaced too closely together and are prohibiting

penetration of sun light.

On the remaining hardwood dominated portions of the tract, the biggest operation that would benefit the tract would be the release of crop trees established in the prior harvest and a cleaning of the midstory trees to promote regeneration. In many areas the overstory is not completely closed (85-90%) from the last harvest, but midstory sugar maples have filled in the gaps and are shading any possible regeneration, as well as beginning to compete with crop trees for resources. A midstory cleaning would help to establish a new cohort of regeneration, as well as possibly define some new crop trees for later rotations. To accomplish this a reduction in basal area across the hardwood portion of the stand to approximately 90 sq.ft, from the current 119 in these areas, should provide sufficient room from crop trees to grow, as this would reduce the number of trees per acre to around 115 in the pole size or larger.

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.

Commercial Forest	36.4	**Average Site Index**	70 N Red Oak
Non-commercial Forest	0	**Average Annual Growth**	n/a
Pine Plantations	32.6	**Total Basal Area**	119
Permanent Openings	0	**B.A.-Trees > 14"**	75
Other Openings	1	**B.A.-Trees < 14"**	44
Total Acres	70		

Species	**Saw Timber Leave**	**Saw Timber Harvest**	**Saw timber Total**
Yellow-poplar	56,820	31,620	88,440
Eastern White Pine	15,170	62,600	77,770
Loblolly Pine	6,370	44,170	50,540
Black Oak	29,960	14,680	44,640
White Oak	24,070	8,450	32,520
Northern Red Oak	16,420	8,580	25,000
White Ash	7,570	7,430	15,000
Sugar Maple	6,380	5,770	12,150
Pignut Hickory	8,690	1,630	10,320
Scarlet Oak	4,970	2,560	7,530
Red Maple	3,550	3,230	6,780
Black Cherry	1,020	1,830	2,850
American Beech	1,530	1,250	2,780
American Sycamore	-	2,620	2,620

Honey Locusts	1,070	-	1,070
Black Walnut	1,020	-	1,020
Totals (tract)	184,610	196,420	381,030
Total (per acre)	5,072	5,396	10,468

TM 904 Date: 2-1-2010

RESOURCE MANAGEMENT GUIDE

Compartment: 5 Tract: 1 Acreage: 70
County: Martin Section: 2 Township: 3N Range: 3W

Specific Practices For Accomplishment
By: Abe Bear

Year Planned	Practice	Year Accomplished
2009	Grapevine/Honeysuckle TSI	Winter 2009
2010	Pine thinning and light hardwood harvest	