TM 902 Date: 7/28/2008

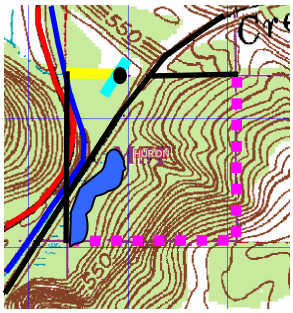
RESOURCE MANAGEMENT GUIDE

Compartment: 6 Tract: 2
County: Martin Section: 12 Township: 3N Range: 3W

FORESTER'S NARRATIVE

By: Andrew S Fox
Reviewed by: Abe Bear

ROADS AND BOUNDARIES:



There is only one truly distinct boundary to this tract, which happens to be a mostly downed woven wire fence line along the eastern boarder. Some bits of fencing that once made up the southern border of the tract were found in the southeast corner of the tract, from which a line was traversed using a hand compass. Both the eastern and southern borders were flagged pink at the time of the inventory (shown by pink dotted line on map to right), and old state forest property boundary signs were found along both borders.

When traversing the southern border and nearing the southwestern corner it was realized that the actual corner probably resides in the middle of wetland and as such the true corner was not found. From the corner in the wetland the western line is supposed to run north for about 240 feet where it crosses over a railroad track owned by the B&O Railroad Company (black diagonal line on map). On the opposite side of the railroad track is Beaver Creek (blue line on map), a 15-20ft. wide water way that is the major drainage for the area. From Beaver Creek the border runs about another 140 feet to the north where it intersects with a curve of U.S. Highway 50 (red line on map). The border then runs along US Highway 50 for about 380 ft. and finally veers from the highway, for another 205 feet to the edge of Beaver Creek again. Because of years of erosion and sedimentation from Beaver Creek the original northwest corner was not found.

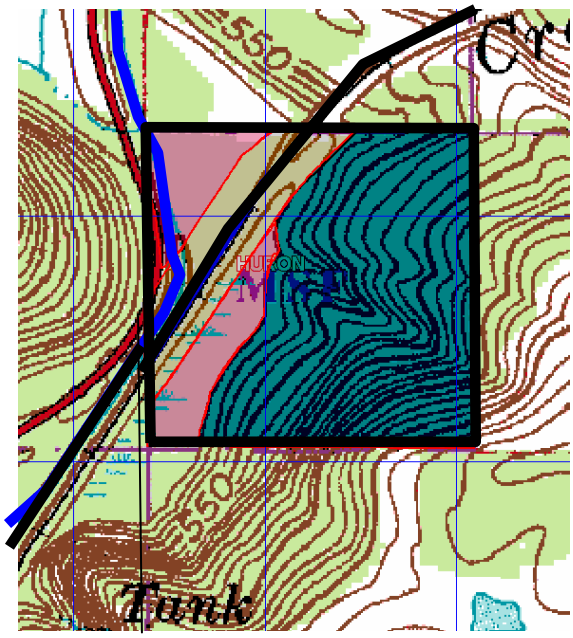
Yellow blazing (shown by yellow line on map above) intended to mark the boundary line between this tract and an adjacent piece of land formerly owned by Kimball International, Inc. was found. Because the actual corner was not found it is uncertain if this is the correct boundary line. The yellow blaze ran east from Beaver Creek for about 350 ft where a fence post and yellow painted piece of railroad track, shown as black dot on map, were set in the ground, and a downed woven wire (teal line on map) running at an azimuth of 45 degree were found. It is believed that this fence and railroad piece is the corner of the property line and the B & O Railroad Company's easement. The border was then traversed over the rail road tract to the woven wire fence that makes up the eastern border. The western and northern borders were not flagged at the time of the inventory due to the inability to confirm the true western and northern corners, because of the difficulty of keeping true azimuths due to obstructions.

Unfortunately because of the layout of this tract it is for all intents and purposes land locked and virtually inaccessible. Access would be available via US Highway 50 except for the fact that Beaver creek and the B & O Railroad block access to the major portion of the tract. Also the steepness of the southeast portion of the track would prevent access from adjacent private property.

TRACT DESCRIPTION:

Beaver Creek (shown as a blue line on the map below) is a major drainage for all the area within at least a mile radius of the tract. About a third of the tract is in the flood plain of Beaver Creek (shade red below) which allows for the growth of many bottomland tree species and provides habitat for many different wildlife species that are not commonly found on other tracts of the state forest.

Also as mentioned in the previous section of this report was B&O Railroad (black line on map to the right) which passes through this tract. Since the railroad tracks are in a floodplain they have been built up higher to avoid problems with flooding. Because of this an artificial wetland has formed from where runoff, that would normally flow from the east slopes of this tract directly into Beaver Creek, is now trapped by the railroad tracks. Standing water covers about an acre and a half (bright blue on map above in "Roads and Boundaries" section) in this wetland and is present nearly all year, during normal seasons of precipitation.



In terms of timber this tract is fairly basic as there are really only two different timber types found on the tract; oak/hickory and a bottomland hardwood mix. Over all on the 28.5 acres of commercial forest, plus a couple of acres of the railroad easement, there was a volume of 229,400 Bd Ft of which approximately 107,570 Bd Ft was inventoried as 'harvest' stock. Of the total volume 57% is comprised of oak/hickory species, while beech/maple and yellow-poplar comprise 5% and 17%.

The first of the two timber type is the oak/hickory timber, shown by the blue shading on the map above. This timber type covers the majority of the tract, 25.5 acres, and could more than likely be divided into two different sub-types as there is a little difference in age (roughly 30yr) between two areas of the type. In the younger portion of this timber type the majority of the trees are in the large pole to small saw log size classes. In the more mature portion of this timber type the size class is more in the range of medium to large saw logs. Overall in this timber type there is an approximate volume of 195,400 Bd Ft. Of the volume 67% is in the oak/hickory species group and 19% is in the yellow-poplar group. All other species groups made up 1% or less of the total volume for this timber type.

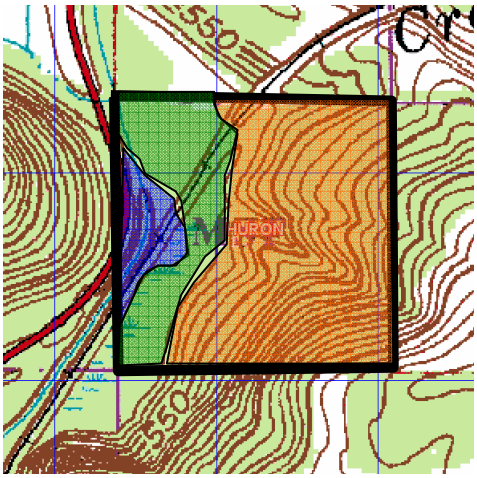
The second timber type found on the tract is a bottomland hardwood mixture (shade red on map), which includes species such as hackberry, boxelder, black cherry, etc. This timber type covers about 14.5 acres in total but about 6.5 are under easement by the B&O Railroad (grayish shading on map), and another 3 acres are in non-commercial forest or are under water, 85% of the year. The timber in this type ranges in size from medium poles to medium saw logs. There is an estimated volume of 33,340Bd Ft in this timber type, of which 11,710 Bd Ft were inventoried as 'harvest' stock. Within the timber type, American sycamore makes up the highest percentage of volume with 40%. The beech/maple species group makes up the second largest portion of the type with 27%, followed by oak/hickory and yellow-poplar groups at 10% and 7%.

One important point to mention about this tract is the lack of regeneration that was noticed. At nearly all points in the inventory there was little to no new regeneration. There are several reasons affecting the lack of regeneration, but the major issue is the amount of shade present on the tract. Because the majority of the tract is quite mature in most places, almost no sunlight is reaching the forest floor, suppressing regeneration. Another reason for the lack of regeneration in part of the tract could be that in the floodplains of Beaver Creek seedlings are often drowned during the spring flooding.

Some other issues concerning forest health noticed on this tract were the presence of grapevines,

invasive shrub species and fire damage. Grapevines were noticed through out much of the oak/hickory portion of the track, but there were not large concentrations - rather one or two here and there. The invasive shrub species Asian bush honeysuckle was also noticed throughout the tract with the more mature plants residing in the floodplains of Beaver Creek. The more mature plants of the invasive species were about 3-4 feet tall and retained about a ½ inch diameter stem. Fire damage in the form of swollen and/or hollow boles of larger trees in the oak/hickory stand was noticed throughout the eastern portion of the tract.

SOILS:



There are three soil types present on this tract, the biggest of which is the **Wellston-Berks-Gilpin complex, 18-70 percent slopes.** It is colored orange on the map. Individual areas 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 next two soil types comprise about the same amount of acreage and are both found on the floodplains of Beaver Creek. First is the **Wakeland silt loam, frequently flooded** (shaded blue on the map above). It is a nearly level, deep, somewhat poorly drained soil on floodplains. It is flooded for brief periods. Available water capacity is high and permeability is moderate. Surface runoff is slow, and organic matter content is moderate in the surface layer.

The final soil type on this tract (shaded green on the map) is the **Wirt Fine Sandy Loam, frequently flooded, (Wt)** this nearly level deep well drained soil is on the bottom land. It is flooded for brief periods. In a typical profile, the surface layer is brown fine sandy loam about 6 inches thick. The subsoil is about 34 inches thick. It is dark yellowish brown and brown, friable fine sandy loam and sand loam. The underlying material to a depth of 60 inches is brown loam. In places the surface layer is loamy sand. The available water capacity is high in this soil, while the permeability is low. The surface runoff on this soil is slow, giving it only a slight erosion hazard, and it has a moderate amount of organic matter in the surface layer. These soils are well suited to tree growth with vegetative plant competition being the biggest concern for seedling survival. The woodland ordination symbol for this soil is 7A, and the site index is 95 for yellow-poplar.

HISTORY:

From the deed records that are available at the state forest office it is not clear who originally owned this tract of land. It is shown in the records that on July 30, 1941, U.S. district judge Robert C Baltzell ordered the taking of a tract of land 215 acres in size, including this tract, via an act of congress and eminent domain. In the petition overseen by judge Baltzell the only defendant named was the 215 acre tract of land to be taken. The just compensation for the land taking was $1,185.00 which was paid

into an account under the jurisdiction of the court.

After the taking of the land it was placed in custody of the United States Forest Service who retained possession of the land until 1968. On October 29, 1968 a transfer of approximately 3,050 acres of USFS land, in which this tract was included, was made to the Indiana Dept. of Natural Resources, Division of Forestry.

Since the time the state took possession of this tract only a few operations have taken place on the tract. The first inventory of the tract was conducted sometime in the late to mid 1970's. This inventory showed a total volume on the tract of about 92,680 Bd Ft. It was recommended that only some minor TSI operation be completed immediately on the tract and to schedule another inventory a few years later to determine salability of the timber on the tract.

In 1981 an inventory was conducted on the tract by forester Janet Eger. At the time of the inventory it was found that there was about 109,977.6 Bd Ft of volume present on the then 36 commercial acres of woodlands. A timber sale was recommended for the portion of the tract that lies to the north and west of the railroad tracks and in December of that year a sale was conducted. The sale included 137 trees with an approximate volume of 25,600 Bd Ft, which was sold to Dean Kidwell for a net sum of $3,364.64.

At the time of the 1981 inventory it was recommended that the portion of the tract to the south and east of the B&O Railroad be re-inventoried for a potential harvest in 1988, but one was never conducted, making the timber sale in December of 1981 the last operation to be preformed on the tract until present time.

ADJACENT LAND USE:

This tract is surrounded by private property on all sides. State land touches the northeast and south west corners, but shares no boundaries. The majority of the surrounding land is forested with the exception being some small crop fields on the property east of the tract. These fields do not directly border the tract.

RECREATION AND WILDLIFE:

General Description

Unfortunately due to the lack of access on this tract recreation is very limited. Hunting and hiking are the most feasible forms of recreation for this tract, but even these will be difficult with no real area to park and with the challenge of crossing both Beaver Creek and the B&O railroad to access most of the tract.

In terms of wildlife this is quite a unique tract because of the wide range of habitat types. The artificially formed wetlands along the east side of the railroad tracks will provide both drinking water for wildlife and habitat for many reptile and early successional species. The floodplains of Beaver Creek and their composition of bottomland hardwood trees species (i.e. black cherry, hackberry, etc.) will provide more of a soft mast food source for wildlife, as well as a denser understory. And finally the mature oak/hickory forests will provide more of the hard mast needed by some large wildlife, while at the same time offering better hunting grounds for birds of prey such as hawks and owls. As mortality begins to affect the shade-intolerant species on the tract, the dead trees may also provide great nesting and den sites.

While inventorying the tract several species of wildlife were either directly observed or evidence of there presence was noticed. Some of these species include; white-tailed dear, wild turkey, flying squirrels, some small fish in Beaver Creek, many frog species, various woodpeckers, opossum, the American beaver, and several others. It is realized that the species that were directly noted at the time of inventory are more than likely not the only wildlife species present on the tract. A Natural Heritage Database search did not identify any threatened or endangered species found on this tract. A map of the heritage search is on file in the property office.

Tank Spring Nature Preserve touches corners with the southwest corner of this tract. Tank spring is a popular recreation area for hikers and other day use activities. Any forestry activities should consider the Tank Spring hiking trail viewshed.

Ecological Resource Review

The Indiana Division of Forestry Ecological Resource Review sets standards for the Number of snags of various size classes and the number of Indiana Bat Live Roost Trees per acre. These guidelines are compartment level standards. The results for C6T2 are listed below.

Live Roost Trees per Acre

Size Class	Actual Number	Recommended Number
≥ 11 inch	13.83	9
≥ 20 inch	3.58	3

Snags per Acre

Size Class	Actual Number	Maintenance Level	Optimal Level
≥ 5 inch	8.5	4	7
≥ 9 inch	2.7	3	6
≥ 20 inch	0.3	0.5	1

A deficiency exists in snags greater than 20 inches in diameter. It is important to remember that these are compartment wide standards and we have only examined Tract 2 above. The deficiency may be corrected when examining the entire compartment. In order to correct it on a stand level, it would be necessary create snags by girdling selected trees.

WATERSHED:

The majority of this tract is situated on a west facing slope that runs parallel to Beaver Creek. Because of a couple of rather large drainages that run down this main slope, there are a few north and south aspects as well. As mentioned before, normally runoff from this tract would just drain to the west and directly into Beaver Creek. Because of the B&O Railroad track, much if not all of the runoff is blocked from entering the creek, instead creating an artificial wetlands on the east side of the tracks.

On the west side of the railroad tracks the tract is mostly in the floodplain for Beaver Creek which of course drains directly into the creek. Beaver Creek flows to the southwest from the tract for about 8 miles where it empties into the East Fork of the White River, just south of Shoals, Indiana.

TM 903 Date: 7/28/2008

RESOURCE MANAGEMENT GUIDE

Compartment: 6 Tract: 2
County: Martin Section: 12 Township: 3N Range: 4W

SILVICULTURAL PRESCRIPTION

By: Andrew S Fox
Reviewed by: Abe Bear

The first silvicultural issues to address on this tract are the control of grapevines and the invasive shrub species Asian (Amur) bush honeysuckle. Controlling grapevines will help reduce mortality of mature trees by reducing the extra weight that needs to be supported during storm events and will improve tree vigor by reducing crown competition. Controlling the invasive plant species will ensure high stand vigor, as new regeneration will be allowed to become established in future years, with out being shaded out.

While conducting the removal projects, a TSI operation to establish and release crop tree should be conducted as well. This operation should focus on removing undesired tree species, as well as trees of poor quality and low vigor. The operation will be most necessary in the younger oak/hickory portion of the timber, in the northeastern quarter of the tract, and in the wetland areas.

The vine and shrub control along with the TSI will likely be done using a basal application of Element herbicide (triclopyr). Other options include foliar application of glyphosate on the honeysuckle and cut and treat application of Element or Tordon (picloram) on the vines.

A timber harvest should be scheduled a few years after the timber stand improvement project has been completed. The most of the harvest should be conducted on the oak/hickory stands in the eastern potion of the tract, if permission can be obtained to use private property to access the tract. The harvest should focus on the removal of overly mature trees, and those of poor quality and low vigor. An approximate volume of 2,500 to 3,000 Bd Ft per acre is recommended to be removed in order to try and establish some new regeneration in the understory. Because of the large amount of overly mature trees in the southeastern quarter of the tract, it is suggested that regeneration openings are considered as a management tool. The decision to create openings will be based on the quality of existing timber, quality of regeneration, and adjacent cover types.

As soon as possible, after the harvest is completed all log yards and skid trails should be stabilized following established Indiana Forest Best Management Practices to help prevent erosion. Finally a post harvest TSI operation should be conducted soon after the harvest in order to ensure the regeneration and development of desired trees species.

It should be noted that the lack of state owned access will be major hurdle in harvesting timber from this tract. It is likely that the lack of access is the cause of the limited management history. As mentioned in the narrative, only a small portion of the tract has any access at all. The access that exists will require the log trucks to enter and exit the property directly form Highway 50. Harvesting the majority or the tract will require access to be granted by neighboring landowners.

Indiana Division of Forestry Tract-level - Ecological Resource Review

Date of Review:	12-10-08		
State Forest:	Martin		
Forester:	Abe Bear		
Compartment:	6	**Township:**	3 N
Tract(s):	2	**Range:**	3 W
Total Acres:	40	**Section(s):**	12

1. Tract-level Habitat Overview

Using readily available resources (aerial photos, area maps, GIS, personal knowledge, etc.), estimate the proportion of each cover/habitat type within **1 mile** of tract center.

Habitat/cover type	0%	0 < 1%	1-10%	11-50%	51-90%	>90%	Unknown
Closed-canopy deciduous/mixed forest	☐	☐	☐	☐	☒	☐	☐
Pine/conifer plantations or natural stands	☐	☐	☐	☐	☐	☐	☐
Early successional forest (≤ 20 years old)	☐	☐	☐	☐	☐	☐	☐
Shrub-scrub or old field	☐	☐	☐	☐	☐	☐	☐
Grasslands/hayfield	☐	☐	☒	☐	☐	☐	☐
Cropland, pastures, feedlots	☐	☐	☐	☒	☐	☐	☐
Open water (lakes, ponds, rivers, streams, etc.)	☐	☐	☒	☐	☐	☐	☐
Riparian areas	☐	☐	☒	☐	☐	☐	☐
Developed areas	☐	☐	☐	☐	☐	☐	☐
Other:	☐	☐	☐	☐	☐	☐	☐

1.1. Consider whether the proposed management activities for the tract would significantly alter the relative proportion and availability of habitat/cover types throughout the assessment area. Consider both short- and long-term changes and conditions. Discuss in the tract Resource Management Guide the possible impacts on habitat/cover types that would be completely converted or significantly reduced due to the proposed management activities. Consult with DoF Forest Wildlife Specialist, if necessary.

1.2. Consider whether the proposed management activities would significantly disrupt travel/dispersal corridors or create isolated habitat units separated from larger units of similar habitat. This is especially important when species of special conservation need have been observed in the area and could be affected by such habitat fragmentation. If applicable, address these considerations in the Resource Management Guide, including short- and long-term impacts. Consult with DoF Forest Wildlife Specialist, if necessary.

1.3. Consider whether the proposed management activity will increase the likelihood that specialist interior forest species would be affected by generalist species using forest edge habitats. Where practical, avoid situations where the perimeter of proposed regeneration (or permanent) openings would be located within 200 feet of maintained forest edges. Maintained edges include those between forest and terrestrial habitats maintained to not naturally revert into forest, such as agricultural fields, developed areas, "daylighted" permanent roads, or maintained utility right-of-way corridors. **Consult with DoF Forest Wildlife Specialist if the proposed management activity will include one or more regeneration or permanent openings totaling ≥ 5 acres within 200 feet of maintained forest edges.**

1.4. Where applicable, discuss in Resource Management Guide compliance with guidelines regarding cover types affected by proposed activities, such as the use of Best Management Practices where open water and riparian areas occur.

2. Structural Habitat Features (Snags, Cavity Trees, and Roost Trees)

	YES	NO
2.1. Were structural habitat features included in tract inventory?	☒	☐
2.2. If done, did structural habitat feature inventories meet or exceed all compartment-level guidelines?	☐	☒
2.3. Are inventory summaries for structural habitat features included in this tract's management file?	☒	☐

If "no" is checked in any box above, provide an explanation in tract Resource Management Guide. If "no" is checked for **2.2**, consider if further tract-level management is necessary and address in tract Resource Management Guide.

3. Special Habitats

Are any special habitats present within or near tract? (check if 'yes')

☐ Permanent wetlands and pools (typically annual inundation; not including created "wildlife ponds")

- [x] Seasonal/ephemeral wetlands and pools
- [ ] Wildlife ponds (created)
- [ ] Springs/seeps
- [ ] Sinkholes, caves, or other karst features
- [ ] Ledges, rock outcrops, cliffs, talus slopes
- [ ] Other:

For each special habitat present, refer to appropriate guidelines in DoF Procedure Manual and address management/planning considerations in the tract Resource Management Guide. If impacts are unavoidable, describe possible short- and long-term impacts and how these may be mitigated. Also, be sure to document the location of each special habitat.

4. IDNR Natural Heritage Database Review

	YES	NO
4.1. Was a Natural Heritage Database review done?	☒	☐
4.2. If a review was done, has there been recent (≤ 20 years) documented evidence of plant or animal species listed as endangered, special concern, threatened, or rare within or near this tract?	☐	☒
4.3. Are the results of the Natural Heritage Database search included in this tract's management file?	☒	☐

If "no" is checked for **4.1** or **4.3**, provide an explanation in tract Resource Management Guide. If "yes" is checked for **4.2** and species, habitats, or communities of special conservation need could be affected by management activities, address this in the Resource Management Guide in terms of possible short- and long-term impacts. Include how you will address the conservation for each of these species/habitats/communities while planning for management activities.

5. Non-native Invasive Species

In the table below, list all non-native invasive species that were observed during inventory or are known to exist within or near this tract. Consider level of management needed for each species, address management/monitoring in the tract Resource Management Guide, and map occurrences.

	Management Actions (check all that apply)			
Species	**Immediate Management Required**	**Monitoring/ Re-evaluation Recommended**	**Addressed in Management Guide?**	**Mapped?**
Bush honeysuckle	☒	☒	☒	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐

6. Other Species Or Sign Observed During Inventory:

Comments/Notes:

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 "Martin C6 T 2" 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.