Indiana Department of Natural Resources - Division of Forestry
Resource Management Guide

Harrison-Crawford State Forest **Compartment: 8 Tract: 12**
Dieter Rudolph **Date: October 8, 2010**

Acres Commercial Forest: 139
Acres Noncommercial Forest: 0
Acres Permanent Opening: 0
Acres Other: 0

Basal Area >= 14 inches DBH: 34.32 sqft/ac
Basal Area < 14 inches DBH: 46.29 sqft/ac
Basal Area Culls: 2.79 sqft/ac
Total Basal Area: 80.61 sqft/ac

Acres Total: 139

Number Trees/Acre: 184

Species	Harvest Volume(MBF)	Leave Volume(MBF)	Total Volume(MBF)
Yellow Poplar	84.31	143.5	227.81
Sugar maple	23.21	55.74	78.95
White Ash	31.51	0	31.51
Black Walnut	0	11.92	11.92
Shagbark Hickory	0	10.97	10.97
Pignut Hickory	0	10.04	10.04
Shingle Oak	0	9.76	9.76
American Beech	0	8.42	8.42
Eastern Cottonwood	0	6.83	6.83
American Sycamore	0	6.52	6.52
Black Cherry	0	6.02	6.02
Shumard Oak	0	4.97	4.97
American Elm	0	4.57	4.57
Hackberry	4.57	0	4.57
Eastern Red Cedar	4.47	0	4.47
Sassafras	1.63	1.63	3.26
Sweetgum	0	2.74	2.74
Pin Oak	0	2.13	2.13
Blue Ash	0	1.93	1.93
Boxelder	1.93	0	1.93
Total	151.63	287.69	439.32
Total per Acre	1.092	2.07	3.162

Location

This 139 acre tract is located in Harrison County, Indiana. It is in section 36 of T4S R2E and section 1 of T5S R2E.

General Description

This tract is located in one of the southernmost points of Harrison Crawford State Forest in an area called Wolfpen Ridge. The tract is roughly a mile east of the Ohio River and southeast of Indian Creek. A county road runs along the western boundary of this tract which is also the bottom of the ridge. A drainage runs along the southern boundary and into Blue Springs Hollow which runs into Indian Creek.

There were three major stands within this tract while only two were mostly forested. The first two were the Old Field stand (81 acres) and Mixed Hardwoods (25 acres). These two stands were the focus of the inventory as the only commercially forested areas in the tract. The Mixed Hardwoods stand was in the steepest part of the tract located in the horn along the northern boundary. The steepness was likely the reason this stand was left forested when the rest of the area was a field. This stand was predominantly sugar maple but also had a noticeable yellow poplar and white ash component.

The Old Field stand was located around the field area and took up all but the central and northern portions of the tract. This stand had a large variety of trees but the only species worth noting were yellow poplar. This species was prevalent in pockets where it reached a larger height and diameter. The areas that weren't composed of yellow poplar were multiple smaller early succession species, often time with poor form.

In the center of the tract was a field which took up 29 acres. This field had pockets of trees scattered throughout it but was mostly covered in Johnson grass. The tall grasses overgrew many of the young trees and caused increased levels of competition for the trees present. The pockets within the stand were often times early succession species or black locust stands. The Black Locust stand total 5 acres and was likely the result of the area being mowed and the trees vigorously resprouting from root suckers. At the moment these areas are completely one species ranging from 4 to 8 inches in diameter.

History

This tract was purchased in 1998. The area was harvested heavily 5 years prior to being sold to the state. The heavy harvest is the reason for the low basal area and volume at this point in time and explains the fact that yellow poplar, a fast growing species, was the only tree in the sawtimber size class within the Old Field stand.

As can be seen in the 1940s aerial photo, the entire area with exception of the northern horn of the tract was a field. Records show that a large portion of the area was once used as an orchard that supplied a distillery across the river in Kentucky. It was used as an orchard as late as the 1960s. Along the edges of the field were a handful of apple trees that were the remnants of this orchard.

In 2001, the field area in this tract, along with the other still open fields in the 1998 acquisition were planted into mixed hardwoods. Species included black walnut, black cherry, yellow poplar, white oak, among others. This planting was funded with assistance from Cinergy, The Nature Conservancy, and the Hardwood Forestry Fund.

In the past 5 years, there were a couple efforts to treat the invasion of Ailanthus altissima (tree of heaven) in the immediate area of State ownership.

Landscape Context

812 is a part of a group of tracts along Wolfpen Ridge. Private property borders this tract on all sides with the exception of the southern boundary. The surrounding area is a mixture of forested

land and fields. The fields within the state property are similar to those within this tract. The fields on private land are used for hay production and grazing. There are scattered family residences in the immediate area, mostly along the county roads.

Topography, Geology, and Hydrology

The northern and western boundaries of this tract are at the bottom of Wolfpen Ridge while the other areas are less steep. The drainage in the southern portion of the tract also had steeper slopes than the majority of the tract but the rest of the area has a gradual elevation change.

The Ohio River is the primary watershed in this area. The water drains towards Indian Creek which then moves into the Ohio River. There was no evidence of any karsts within the area.

Soils

Alford Silt Loam (AfB, AfC2, AfF2) Deep, gentlysloping to steep, well-drained soils that formed in silty material on uplands near the Ohio River. Surface layer is about 8 inches thick. Subsoil is about 42 inches thick. Underlying material is silt loam. Moderate in organic matter. Available water capacity is high and permeability is moderate. Runoff is medium to very rapid.
Degree Slope: 2-35 %
Woodland Suitability Group: 1o1 or 1r2
Site Index: 85-95
Growth range potential (Upland oaks) : 300-375 bd.ft./acre/year
Management Concerns: Runoff and erosion

Corydon Stony Silt Loam (CoF) Shallow, moderately steep to very steep, well-drained, stony soils on uplands. Surface layer is about 3 inches. Subsurface is about 6 inches thick. Subsoil about 9 inches thick. The depth to hard limestone bedrock is about 18 inches. High in organic matter and low in natural fertility. Runoff is rapid or very rapid. Soil type is characterized by limestone outcrops, with as much as 15% on benches which are deeper than 20 inches to bedrock.
Degree Slope: 20-60 %
Woodland Suitability Group: 3d7
Site Index: 65-75 (Upland oaks)
Growth range potential (Upland oaks): 155-220
Management concerns: Runoff and erosion

Crider Silt Loam (CrB2, CrC2, CsB3, CsC3, CtC2) Deep, gently sloping and moderately sloping well-drained soils on uplands. Surface layer is dark-brown silt loam about 8 inches thick. Subsoil is about 62 inches thick. Moderate in content of organic matter and in natural fertility. Available water capacity is high and permeability is moderate. Typically, these soils are eroded. Runoff is medium to rapid.
Degree Slope: 2-12%
Woodland Suitability Group: 1o1
Site Index: 85-95 (Upland Oaks)
Growth range potential (Upland oaks): 300-375 bd.ft./acre/year
Management Concerns: Runoff and erosion

Markland Silt Loam (MaB2, MaD2, MaF, McD3) Deep, gently sloping to very steep, well drained and moderately well drained soils on terraces. Surface layer is dark grayish-brown silt loam about 3 inches thick. Subsurface layer is dark-brown silt loam about 4 inches thick. Subsoil is about 23 inches thick. The underlying material is yellowish-brown stratified silty clay and silty clay loam that has less prominent layers of silt loam. Moderate or low in content of organic matter and low in natural fertility. Available water capacity is high, and permeability is slow. Runoff is medium to very rapid.
Degree Slope: 2-70%
Woodland Suitability Group: 3r18
Site Index: 70-80 (Upland Oaks)
Growth range potential (Upland oaks): 185-260 bd.ft./acre/year
Management Concerns: Runoff and erosion

Access

A firelane goes into this tract off of the county road in the southwestern corner. This lane goes into the central portion of the tract within the field then changes directions to the south and into the neighboring tract. The rest of the area along the county road is too steep to act as a primary access. There are multiple old farm roads and skid trails within this tract which are in relatively good condition if cleared of debris.

Boundary

The western and northern boundaries of this tract are defined by the county road. The southern boundary is made up of the drainage which runs into Blue Springs Hollow. The northeastern boundary is marked by the top of the slope along the horn in the northeastern portion. The eastern boundary has no clear boundary but nears the top of the ridge. There were barbed wire fences throughout this tract which had been used by the prior owners for raising livestock on the flat areas of the tract, but are not to be considered as boundaries.

Wildlife and Special Plant Communities

The Natural Heritage Database Review showed two species of special concern within this tract, both of which were vascular plants and were last observed in 2005. The purple passion flower has been seen in this tract in the central area by the field as well as in the southwestern corner of the tract. There was also the American wild basil which was located in the field area. While not mentioned in the review, there was also a community of American sugar cane in the southwestern corner of the tract. A local botanist, William Thomas visited this area in late summer, early fall 2010. Other than the passion flower, he indicated that he found nothing else of 'interest'.

Only a couple of the maintenance level goals for wildlife features were met within this tract. The goals met were legacy trees between 11" and 20" and the two snag size classes between 5" and 19". The low number of goals met was the result of the harvest that occurred in 1995. At this time there were few trees large enough for the larger size class goals and most of the trees that were present were young trees that sprouted in high density after the harvest.

The wildlife that was noted during the inventory was typical with other areas in Harrison County. Evidence of deer, turkey, squirrels, and various birds were noted during the inventory. The areas around the field create fringe habitat which benefits certain species, especially birds while the difference between the field and the forested areas create a more diverse habitat type in the area.

Wildlife Habitat Feature (Tract Wide)

Category	Maintenance level	Optimal Level	Inventory	Available Above maintenance	Available Above Optimal
Legacy Trees *					
11"+	1251		1436	185	
20"+	417		115	-302	
Snags (all species)					
5"+	556	973	1802	1246	829
9"+	417	834	510	93	-324
19"+	69.5	139	0	-69.5	-139
Cavity Trees (all species)					
7"+	556	834	302	-254	-532
11"+	417	556	41	-376	-515
19"+	69.5	139	41	-28.5	-98

* species include: AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO

Indiana Bat

As management activities currently can only be performed in the winter months due to Indiana bat regulations, it is unlikely that direct harm will come to the Indiana bat as they are hibernating in nearby caves at this time. Any skid trails/haul roads created in this tract could improve the habitat for the Indiana bat by improving the canopy foraging conditions due to the reduction of understory clutter. Furthermore, the areas around likely roost trees can be opened up to benefit the bat. The edge of log yards can increase the solar exposure of roost trees which improves the microclimate and thermal conditions of the roosting areas.

Trees that are ideal for roosting bats such as large snags and large trees that have loose/exfoliating bark can be retained to provide for the Indiana bat. Furthermore, the growth of ideal tree species for the Indiana bat can be managed to promote growth to increase the recruitment of trees into the categories suitable for the Indiana bat.
At the moment this tract meets only three maintenance level goals as a result of the harvest in 1995. The low number of goals met show this tract to be a poor habitat for the Indiana bat to utilize.

Recreation

The main form of recreation on this tract is hunting. During the inventory, signs of hunters using this tract were noted. A wildlife camera and bait pile of corn was also located along one of the old farm roads. The camera was removed by the next day the area was visited but this should be monitored to see if it happens in the following years.

Cultural

A majority of this tract was once open with portions of it appearing to have been field and others a part of an orchard. Most of the stand still has old field characteristics in the species composition while the central 21 acres is still a field. 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.

Summary Tract Silvicultural Description, Prescription, and Proposed Activities

This is the first time this tract has been inventoried since acquired by the state. The overall tract data showed there to be 81 sqft/ac and 3,161 bf/ac.

Old Field (81 acres)

This stand was the largest of the tract and was around the field in all areas except for the northern horn. The stand had a basal area of 81 sqft/ac and a volume of 3,189 bf/ac, of which two thirds of the volume was yellow poplar and a little over half of the basal area was yellow poplar. The inventory showed 20 sqft/ac to be harvestable which had a volume of 1,034 bf/ac. The low residual basal area was a result thinning out the dense young trees in most area which was causing stress as a result of competition. Most of the volume came from yellow poplar which grew in pockets which could also use a thinning. Other than yellow poplar, most of the trees removed were below the sawtimber level and not desirable timber. As a result of the low volume and quality of the stand, this area would be a good candidate for a precommercial TSI which would aim to reduce the competition within the stand in order to improve future quality.

Mixed Hardwoods (25 acres)

Located in the northern horn of the property, this stand was mainly on steep land. The basal area for the area was 88 sqft/ac with a volume of 4,100 bf/ac. The dominant tree with about half of the basal area and volume was sugar maple. The stand had areas that were dense and then others that were sparse which was dependent on the level of slope and rock outcrops. Due to the severity of the slope in most of the areas and the already low basal area, this stand does not need a harvest. If any action is taken on the Old Field stand, then it can also move into the portions of this stand that have less slope in order to improve the quality of the stand but overall the entire Mixed Hardwoods does not need any action to be taken.

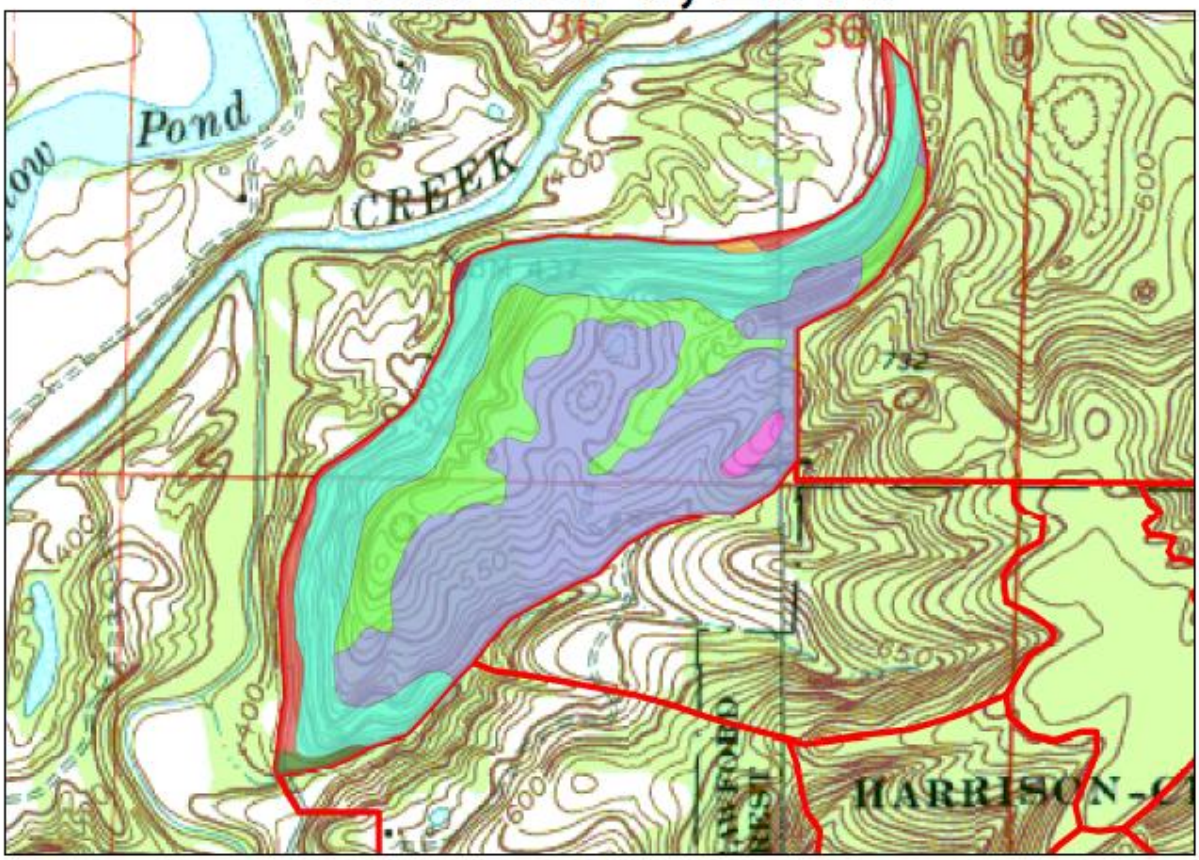
Field (29 acres) and Black Locust (5 acres)

Since the Black Locust stands are scattered around and in the Field stand, these two will be treated together. Both of these stands are dominated by the invasive species black locust and Johnson grass. Johnson grass is difficult to remove because it creates a dense seed bank which allows it to return as soon as any action is taken against it. Additionally, it has rhizomes that allow it to maintain itself by aggressive vegetative reproduction. The best option is to leave the Johnson grass alone so that the seeds are not spread to other area via the machines and in the hopes that the trees present will begin moving into the field area and overtopping the Johnson grass. Elsewhere, it has been observed that lack of mowing or other disturbance encourages this species to gradually diminish its dominance.

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 the 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.

Harrison Crawford State Forest
Compartment 8 Tract 12
October 6, 2010



0 0.125 0.25 0.5 0.75 1 Miles

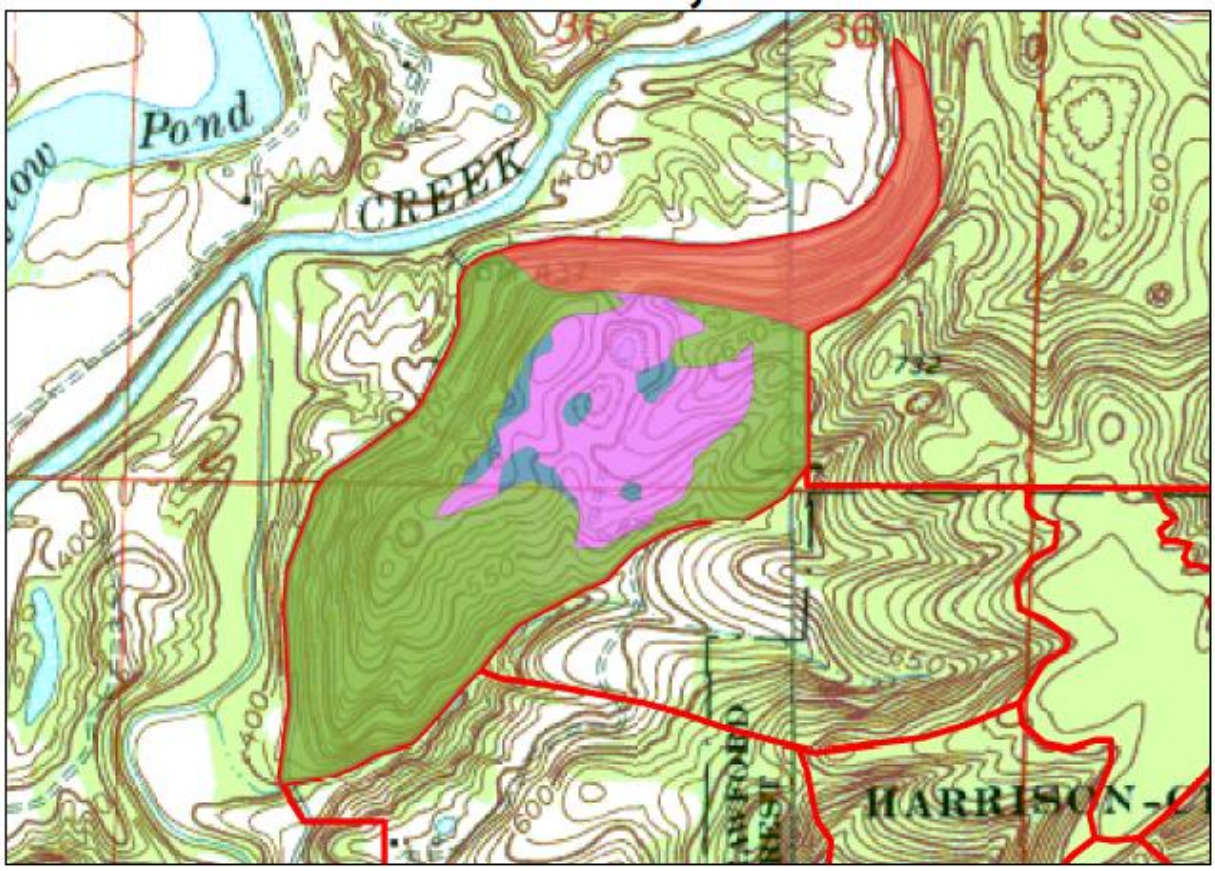
Legend

Soils

- AfC2
- AfF2
- CoF
- CtC2
- MaB2
- MaF
- McD3
- PrD2

N
W E
S

Harrison Crawford State Forest
Compartment 8 Tract 12
October 6, 2010



0 0.125 0.25 0.5 0.75 1 Miles

Legend

stands

- Black Locust
- Field
- Mixed Hardwoods
- Old Field

N
W E
S