Indiana Department of Natural Resources – Division of Forestry

Draft

Resource Management Guide

Harrison-Crawford State Forest **Compartment: 20 Tract: 1**
Dieter Rudolph **Date: February 12, 2010**
Reviewed and updated by Dwayne Sieg, February 20, 2014

Acres Commercial Forest: 52
Acres Noncommercial Forest: 3
Acres Permanent Opening: 0
Acres Other: 0

Acres Total: 55

Basal Area >= 14 inches DBH: 34.73 sqft/ac
Basal Area < 14 inches DBH: 63.03 sqft/ac
Basal Area Culls: 6.35 sqft/ac
Total Basal Area: 96.90 sqft/ac

Number Trees/Acre: 251

Species	Harvest Volume(MBF)	Leave Volume(MBF)	Total Volume(MBF)
Loblolly Pine	9.67	14.34	24.01
Eastern White Pine	8.55	25.89	34.44
Scarlet Oak	7.69	10.87	18.56
Yellow Poplar	2.55	22.62	25.17
Sugar Maple	2.33	5.32	7.65
Black Cherry	2.27	0.96	3.23
Pignut Hickory	2.12	2.87	4.99
Eastern Red Cedar	2.01	2.06	4.07
Chinkapin Oak	1.23	0	1.23
Ohio Buckeye	1.14	1.96	3.1
American Sycamore	0.96	11.53	12.49
American Beech	0	1.55	1.55
Basswood	0	1.83	1.83
Blackgum	0	0	0
Black Walnut	0	1.19	1.19
Boxelder	0	0	0
Dogwood	0	0	0
Hackberry	0	1.79	1.79
Persimmon	0	0	0
Red Maple	0	0.87	0.87
Red Pine	0	0	0
Sassafras	0	0	0
White Ash	0	2.72	2.72
Total	40.52	108.37	148.89
Total per acre	0.75	1.98	2.73

Location

This 55 acre tract is located in Harrison County, Indiana. It is in section, 25 T3S R2E.

General Description

This tract is located next to SR 462 and near the intersection with SR 62. The western boundary is defined by the Blue River with SR 62 a short distance north of the river. A firelane off of SR462 runs along the southern border. There is also an open area with a demolished house, barn, and various outbuildings.

There are three reforestation plantations in the eastern half of the tract. They are, from southernmost to northernmost, a white pine plantation, loblolly pine plantation, and yellow poplar plantation. After these plantations, the greater portion of the tract is an Old Field stand. There are also small areas of mixed hardwoods, oak hickory, bottomland hardwoods, and cedar. Along the Blue River in the southeastern section of the tract are short cliffs and steep slopes.

There are 2 power line/telephone rights of way within this tract. A main line runs E-W near the southern border and crosses Blue River opposite of the Blue River Chapel. The other right of way is near the northern border, running in an E-W direction, that once served the house in the tract. A rural water main follows the west side of the highway and goes through the tract from the house area and eventually crosses Blue River opposite of the church.

History

The land in this tract was purchased in 1973 from Groft. Due to the peculiar shape of the land purchased, a survey was made after the purchase in 1973.

Shortly after being purchased, this tract went through a small veneer sale for some white oak individuals. In total, 34 white oak veneer trees were removed totaling 8,108 bf.

A great portion of this tract appears to be an old field which was likely associated with the house complex. Tree plantings occurred in 1976 where 5,000 white pine, red pine, and loblolly pine as well as 2370 yellow poplar trees were planted. The red pine individuals have mostly died and are currently standing snags while the remaining individuals have been out competed by the white pine. The other two pine species are in good health with the exception of pockets of blowdown and snapped tops from the ice storm a couple years ago. A minor amount of pruning in the white pine took place in 1999, using this area to provide an activity for a church youth group.

The former residence in this tract had become unsafe and unsalvageable and was demolished in the fall of 2013. The barn is still in fair condition and is currently used by the O'bannon Woods state park . There are various outbuildings in different states of disrepair.

Landscape Context

2001 is at the eastern edge of a mostly contiguous body of land owned by the State of Indiana. Private property neighbors this tract to the east on the other side of SR 462.

There is also a small area of private property to the north of the tract which is completely surrounded by this and the tract to the north. The majority of the land north, south and west of this tract is forested, with a couple single family residences, a church/cemetery, and a couple recreation facilities within a mile of it. The majority of the landscape within a mile east and southeast of this tract is private single family residences with several farms providing considerable amounts of open grasslands and row crop acres. As mentioned, Blue River is a moderate size stream flowing along the western edge of the tract and influencing much of the landscape in the immediate region.

Topography, Geology, and Hydrology

There are two main levels of flat land at different elevations. The northwest section along the Blue River is a flat floodplain and mainly made up of the opening with the buildings as well as a section of old field. The eastern section is the other flat area which is higher in elevation and defined as an upland site. This higher area houses the plantations and also a great portion of the old field. Between these two areas is a slope which is moderately steep in some areas and a short cliff in others. The elevation within tract 1 ranges from 430 to 570 feet (140 foot change) above sea level.

The underlying bedrock is limestone and the surrounding topography indicates a fairly active karst system (cave, sinkholes, depressions).

The Blue River runs along the western boundary of the tract and acts as the major watershed for the area.

Soils

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

Elkinsville Silt Loam (ElA, ElB2, ElC2, ElC3) Deep, nearly level to moderately sloping, well-drained soils on terraces. Surface layer is about 12 inches thick. Subsoil is about 50 inches thick. The underlying material is stratified layers of silt or sand and minor amounts of gravel. Moderate in content of organic matter. Available water capacity is high, and permeability is moderate. Runoff is slow to rapid.
Degree Slope: 0-12 %
Woodland Suitability: 1o1
Site Index: 85-95
Growth range potential (Upland oaks): 300-375 bd.ft./acre/year
Management Concerns: Runoff and erosion

Haymond Silt Loam (Hm) Deep, nearly level, well-drained soils on bottom lands and in basins of sinkholes in uplands. Surface layer is dark-brown about 9 inches thick. Subsoil dark yellowish-brown about 17 inches thick. Underlying material is dark yellowish-brown stratified silt loam that contains less prominent layers of loam. Moderate in content of organic matter. Available water capacity is high, and permeability is moderate. Runoff is slow.
Degree Slope: 0%
Woodland Suitability Group: 1o8
Site Index: (95-105- no rating for upland oaks)
Growth range potential (Tulip poplar-no rating for oaks): 375-450 bd.ft./acre/year
Management Concerns: Flooding between December and June

Wellston Silt Loam (WeC2, WeC3, WeD2, WeD3) Moderately deep and deep, moderately sloping and strongly sloping, well draineds soils on uplands. Surface layer is about 9 inches thick and yellowish-brown. The subsoil is about 31 inches thick. Depth to hard sandstone bedrock is about 40 inches. Moderate in content of organic matter and low in natural fertility. Available water capacity is moderate or high, and permeability is moderate. Runoff ranges from medium to very rapid.
Degree Slope: 6-18 %
Woodland Suitability Group: 3o10
Site Index: 70-80 (Upland oaks)
Growth range potential (Upland oaks): 185-260 bd.ft./acre/year
Management Concerns: Runoff and erosion

Access

Depending upon type of access needed, access generally is excellent. SR 462 forms the north and east boundary and the tract can be entered almost anywhere along it by foot. A firelane/disabled hunters trail/hiking trail/horse trail/ off of SR 462 borders the southern boundary of the tract. This firelane is in good condition in most conditions as it is graveled. The western portion of the tract has management access via the driveway to the set of buildings located there.

Boundary

This tract has well defined boundaries on all sides. The northern and eastern boundary is defined by SR 462. The northwestern boundary is the Blue River while the southwestern boundary is a side stream off of the river. The firelane acts as the tracts southern boundary. There is a minor length of boundary with private property inside the curve of SR 462 at the NE 'corner' of the tract. This boundary is vaguely defined and should be determined more exactly prior to management activities taking place in that area.

Wildlife and Plant Species

A Natural Heritage Database review was completed for the tract. If Rare, Threatened or Endangered species (RTE's) were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Roughly half of the habitat feature targets are met within this tract. Because most of the forest cover in this tract is less than 40 years old there is a general lack legacy trees- as would be expected. No individuals of the desired species were recorded above 20" in diameter and only about a third of the overall goal of those above 11" in diameter. There was also a lacking of large snags (those greater than 19" in diameter) and cavity trees above 7" and below 11" in diameter.

The wildlife that was noted during the inventory was typical with other areas in Harrison County. Evidence of deer, turkey, coyotes, squirrels, raccoons, and various birds were noted during the inventory. The vast difference between the stands creates a large range of habitat for the local wildlife. The pine plantations create a form of thermal cover for the colder months while the power line and Old Field stand creates a fringe habitat.

Wildlife Habitat Feature (Tract Wide)

Category	Maintenance level	Optimal Level	Inventory	Available Above maintenance	Available Above Optimal
Legacy Trees *					
11"+	495		131	-364	
20"+	165		0	-165	
Snags (all species)					
5"+	220	385	2281	2061	1896
9"+	165	330	562	397	232
19"+	27.5	55	7	-20	-48
Cavity Trees (all species)					

7"+	220	330	198	-22	-132
11"+	165	220	198	33	-22
19"+	27.5	55	60	33	5

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

Indiana Bat

Under current strategies for conservation of Indiana bat most management activities are performed in the winter months to minimize species impacts and avoid take. Resource management roads and trails 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.
As mentioned above, this tract does not possess tree related habitat features ideal for Indiana bat. .However, with the tract bordering the Blue River, 2 power line rights of way acting as feeding corridors and the opening around the former farmstead also serving as a feeding, zone, the tract should provide a habitat component to bat species.

Recreation

The firelane along the southern boundary is a popular trail for recreational use. This lane is both used as a horse trail and a popular access point to the adventure hiking trail for backpackers. The close proximity of SR 62 and 462 as well as houses makes it unlikely that this tract is used by hunters, with the exception that the firelane provides access for disabled hunters. The area around the farm buildings is posted off limits to hunting or unauthorized public.

Cultural

Cultural resources may be present on the tract, but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Areas of Special Concern

To minimize negative site impacts best management practices should be followed and buffers should be placed around any sensitive areas noted.

Summary Tract Silvicultural Description, Prescription, and Proposed Activities

Loblolly Pine (5 acres)

This small pine stand was planted in the 1970s and at the moment is dense with a basal area of 130 sqft/ac with a total volume around 2,750 bf/ac. There were areas within this stand that had large areas of dead trees. These trees had had their tops removed from the ice storm that passed through in 2009. In other areas the stand was overly dense. In

order to improve vigor and maximize the potential of this pine plantation, it needs to be thinned. While portions of it appear to have been planted in rows, the overall stand does not have an easily defined order to it so the thinning would need to be done on an individual tree selection focused on the quality of the residual trees. Local markets suggest the possibility of a commercial thinning and will be investigated. As the volume is low and those trees of volume are in the low teens, this thinning may not be a commercial thinning and could be performed through the use of double girdling the trees to be removed. Care should be given not to remove too many trees from any given area as pines show a high rate of blowdown when larger gaps are created. The prescription manages the pine as a temporary cover, with the long term objective being conversion of this area to native hardwood species.

White Pine (9 acres)

Like the Loblolly stand, the White Pine stand was a plantation which was planted around the same time. The basal area is also similar, being 125 sqft/ac with a slightly higher volume of around 3,500 bf/ac. At the time of planting, red pine was included in the plantation but has almost completely been removed since that time through natural causes, mainly due to the red pine not being well suited to the local soils. At the moment, few living red pine trees remain with a handful of red pine snags in the area. In most aspects, this stand is the same as the Loblolly stand with the exception that the overall size of the trees is slightly larger. This stand should also be thinned following the same guidelines described for the Loblolly pine stand with the long term objective being conversion of this area to native hardwood species.

Yellow Poplar (4 acres)

Yet another plantation, this hardwood stand was planted at the same time as the two pine plantations. The stand has a lower density than the other plantings, around 95 sqft/ac with a significantly lower volume of 1,200 bf/ac. The stand has the appearance of an old field stand based on the large amounts of small trees and brush present. There was also a high amount of autumn olive present in the understory of the stand which would in turn out-compete any regeneration from occurring- possibly originating when this species was planted along the plantation edges for wildlife purposes during the 1970s The autumn olive should be treated as well as a cleanup of the cull and poorly formed trees within the stand if it is determined to be feasible. Autumn olive eradication would be an extensive undertaking. After some maintenance, this stand should be able to grow into a large hardwoods stand in a short period of time based on the fast growth rates of yellow poplar trees.

Mixed Hardwoods (4 acres)

This stand occupied an area of sloped land, and showed to have a high amount of volume and basal area in comparison to the majority of the tract. The overall volume of the stand came out to be around 6,200 bf/ac with a basal area of 115 sqft/ac. This data is based on only one sample plot within the stand. While it might have a high amount of volume, the fact remains that the stand is small and almost completely on a somewhat steep slope, making most management practices problematic. Management of this stand will be deferred until a time that such activities in the adjoining areas can economically justify

including this stand. Furthermore, by leaving the stand alone, it offers a variety in the habitat with larger hardwood trees which will benefit the wildlife.

Oak Hickory (3 acres)
This stand shared many similarities with the Mixed Hardwood stand, such as its small size and a single sample point within it. The one point showed a volume of 7,300 bf/ac total with a volume of 105 sqft/ac. While this information alone is not reliable, visual observations substantiate a high volume estimate. No action should occur in this stand unless it does prove to be similar to its surroundings and a prescription is made for the surrounding tracts.

Old Field (12 acres)
Both the largest and most diverse stand, this cover type surrounded the plantations. The volume was minimal at roughly 800 bf/ac and the basal area was low at 80 sqft/ac. The trees within the stand were mainly early successional species typical with old field stands, as well as some pine from the two neighboring plantations. Old farm lanes existed in this stand, some were dirt roads while others were lined with rock, mainly the flint nodules from the area. While a thinning could occur within the stand, it would appear to be a waste of time as, at the moment there are few desirable species within it, making it likely that it will be seeded with the same early successional species. If left alone, it is likely that the small Mixed Hardwoods stand will begin seeding into this area making it more desirable. Also, by leaving the stand as is, it increases habitat diversity benefiting wildlife species that prefer brushy stands and fringe habitat.

COMPARTMENT 20, TRACT 1

PROPOSED ACTIVITIES	DATE
Demolished residence site remediation	2013
Check boundary location SR462	2012
Autumn olive control assessment	2012
Thin plantations	2014-15
Inventory	2030
Limited harvest	2030

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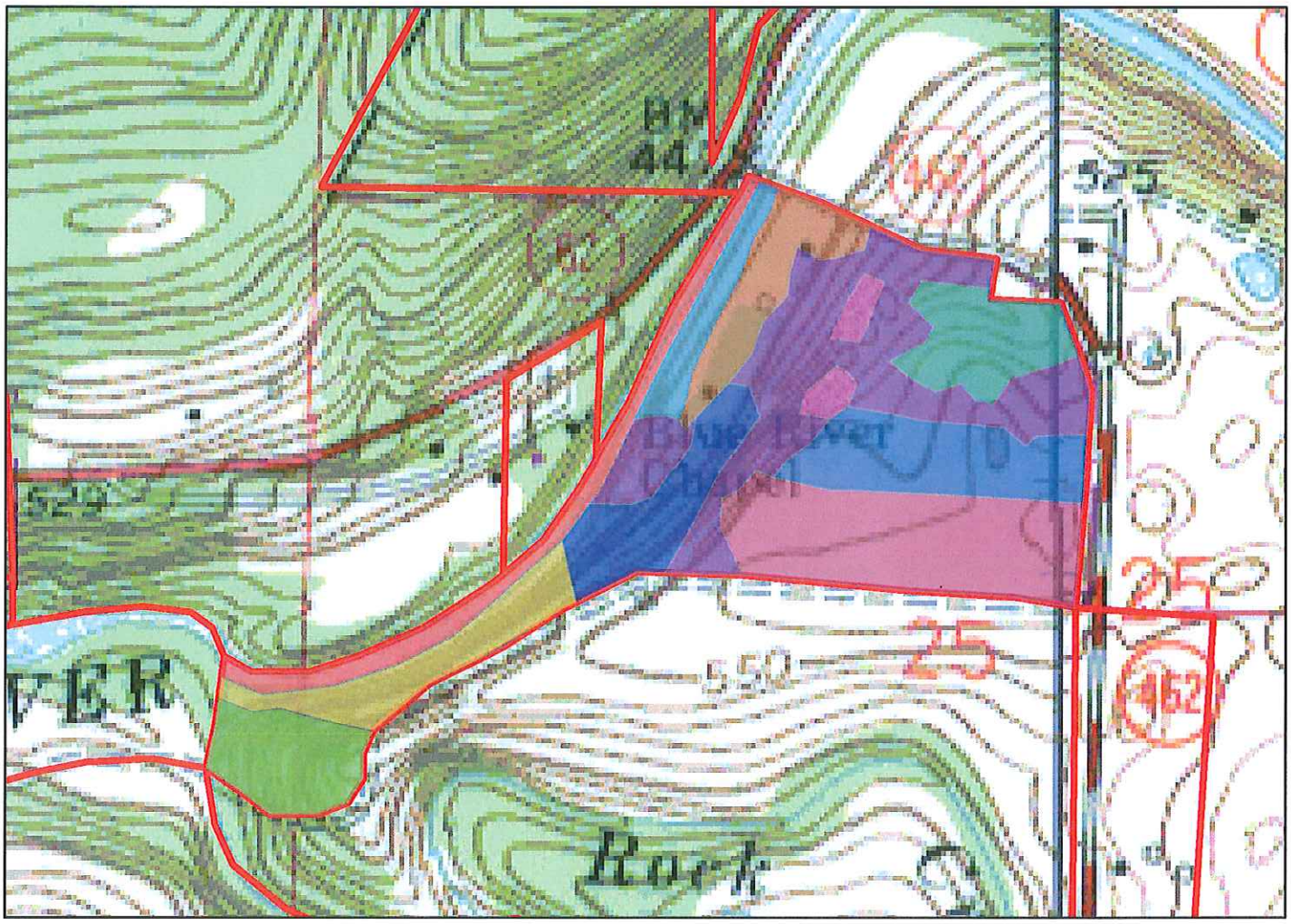
Harrison Crawford State Forest
Compartment 20 Tract 1



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Miles

Legend

stands

- Blue River
- Bottomland Hardwoods
- Cedar
- Field
- Loblolly Pine
- Mixed Hardwoods
- Oak-Hickory
- Old Field
- Steep
- White Pine
- Yellow Poplar

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