

Resource Management Guide

Harrison-Crawford State Forest
Christine Martin

Compartment: 19 Tract: 7
Date 2/11/09

Acres Commercial forest: 82
Acres Noncommercial Forest: 83
Acres Permanent Openings: 0
Acres Other: 0

Basal Area \geq 14 inches DBH: 50.4
Basal Area < 14 inches DBH: 39
Basal Area Culls: 4.3
Total Basal Area: 93.7

Acres Total: 164

Number Trees/Acre: 698

Location

This tract is located in Harrison county Indiana, Sec 35 T3S R2E and Sec 2,1T4S R2E which is found off of state road 462.

General Description

There are five different stand types on this tract. The largest stand type is the cedar hardwood stand which encompasses 63 acres which is about 40% of the tract area. The next stand type is the oak-hickory stand, which is 51 acres in size. This stand is about 30% of the tract. The mixed hardwood stand is 31 acres and is a little less than 20% of the tract. The remaining 10% of the tract is made up of an edge stand type and a drainage stand type. The edge is 17 acres in size and the drainage stand is 3 acres.

History

In 1932 the state acquired 95 acres of this tract from Conner and Rucker. In 1945 there was 5 acres added to this tract from Curtis. In 1963 the state added 10 acres that was acquired from Rothrock. The state acquired the last 50 acres to complete this tract from Breeden.

In January of 1976 there was a timber trespass by Wayne Schultz. There were 68 trees taken which is 8,299 board feet, according to the Doyle log scale, for a stumpage price of \$453.71. Wayne paid \$1,361.13 for the unlawfully taken timber.

There was a timber harvest that occurred in March of 1976. This sale had a total of 110,586 board feet, and the main species harvested were red oak and American beech.

Landscape Context

This tract is located within the Harrison-Crawford state forest. The forest mainly consists of contiguous forest closure. On the southern edge of the bordering tract there is a maintained open field (Browns Field), which is about 35 acres. Less than a quarter mile to the south of tract 1907 is some private property. On this property there is pasture for beef cattle. To the east of this tract approximately a half mile there is more private property. This private property is mainly forested.

Topography, Geology, and Hydrology

This tract is made up of a southwest facing slope. The southern boundary is made up of a drainage that will flow into the Blue River. The mid to southern portion of this tract is comprised of a rocky slope that is limiting to logging equipment. This area does not have much growth potential because there is a layer of thin soil covering the rocks.

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 (E1A, E1B2, E1C2, E1C3) 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

Gilpin Silt Loam (**GID2, GID3, GIE2, GpF**) Moderately deep, strongly sloping to steep, well-drained soils. Surface layer is very dark grayish-brown silt loam about 3 inches thick. Subsurface layer is pale brown silt loam about 9 inches thick. Subsoil is about 17 inches thick. Depth to hard sandstone and shale bedrock is about 29 inches. Moderate in organic matter. Available water capacity is low and permeability is moderate. Runoff is rapid to very rapid.

Degree Slope: 12-30 %

Woodland Suitability Group: 3o10 or 3r12

Growth range potential (Upland oaks): 185-260 bd.ft./acre/year

Site Index: 70-80

Management Concerns: Runoff and erosion

Hagerstown Silt Loam (**HaC2, HaD2, HgC3, HgD3, HgE3**) Deep, moderately sloping to moderately steep, well-drained soils on uplands. Surface layer is dark yellowish brown silt loam about 6 inches thick. The subsoil is about 46 inches thick. The depth to limestone is about 52 inches. Characteristically, this soil is eroded to severely eroded. Moderate in content of organic matter and medium in natural fertility. Available water capacity is moderate or high, and permeability is moderate. Runoff is rapid to very rapid.

Degree Slope: 6-25 %

Woodland Suitability Group: 1o1 or 1r2

Site Index: 85-95 (Upland Oaks)

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

Tilsit Silt Loam (TIB2) Deep, gently sloping, moderately well drained soils on uplands. Fragipan in the lower part of the subsoil. Surface layer is dark yellowish-brown silt loam about 8 inches thick. Subsoil is about 38 inches thick. Depth to interbedded shale and sandstone bedrock is about 66 inches. Moderate in content of organic matter and low in natural fertility. Available water capacity is moderate and permeability is very slow. Runoff is medium.

Degree Slope: 2-6 %

Woodland Suitability Group: 3d9

Site Index: 70-80 (Upland Oaks)

Growth range potential (Upland oaks): 185-260 bd.ft./acre/year

Management Concerns: Erosion, wetness early in spring, available water capacity, lack of moisture in mid and late summer if rainfall is below normal.

Zanesville Silt Loam (ZaC2, ZaC3, ZaD2) Deep, moderately sloping and strongly sloping, well-drained soils on uplands. A very firm fragipan in the lower part of the subsoil. Surface layer is very dark grayish-brown silt loam about 3 inches thick. The subsurface layer is about 5 inches thick and dark yellowish-brown. Subsoil is about 42 inches thick. The depth to sandstone bedrock is about 65 inches. Moderate or low in content of organic matter and low in natural fertility. Available water capacity is high, and permeability is very slow. Runoff is medium to rapid.

Degree Slope: 6-18%

Woodland Suitability Group: 3d9

Site Index: 70-80 (Upland Oaks)

Growth range potential (Upland oaks): 185-260 bd.ft./acre/year

Management Concerns: Runoff and erosion. Fragipan limits the available water capacity.

Access

This tract has great access. There is a firelane (103) which begins off of state road 462. This firelane is also used as a disabled hunter trail that comprises the northern boundary of this tract. This firelane is in good condition, it has some rock on it to help stabilize the road. In order for this road to be used by loaded log trucks there will need to be some road work performed on the road to improve the water drainage in certain sections. If this were to be logged in the winter there will need to be more rock placed on the west end of the firelane.

Boundary

There are two main boundary features. The northern boundary is firelane 103 which runs diagonal to the northwest along the ridgetop. The southern boundary is a mapped intermittent stream that runs diagonal to the southwest. The firelane does not meet up entirely to the intermittent stream in the northern point of this tract. There is about 400 feet where the boundary line skirts the bottom of the slope.

Wildlife

The wildlife is typical of what you would find in Harrison county Indiana. Some sights and signs of animals found while inventorying this tract were deer, turkeys, and multiple songbirds.

There was a natural Heritage Database review check performed on this tract. The Natural Heritage Database Review did not show anything inside of the tract. The Database did show in the next tract to the north that the Indiana bat was observed in 2004. The database also shows that within a quarter mile of this tract along the blue river there are various fresh water mussels, and a cluster of sand grapes living in this area.

Indiana Bat

Timber harvest activities may have both positive and negative effects on the Indiana bat. While undetected but occupied roost trees could be cut during spring, summer or fall, the probability of disturbance or direct injury or death to bats is extremely small. Timber harvest could create conditions that are beneficial to Indiana bats. Roads and/or skid trails provide improved canopy foraging conditions by reducing clutter. Roosting habitat could also be improved by reducing clutter around roost trees. Edges of log landings and regeneration openings could provide roost trees with improved solar exposure, thus improving microclimate/thermal conditions for roosting areas. This would improve reproductive success and fitness, contributing to local population stability or increase. In cases of maternity trees this could provide conditions that increase growth and activity rates of young bats, leading to reduced time for parental care.

Suitable roost trees such as large diameter snags or live trees with loose or exfoliating bark will be retained in sufficient numbers to provide continuing roosting habitat for the Indiana bat

According to the inventory of this tract there are a sufficient number of live trees per acre to support a timber harvest and still meet the requirements for the Indiana Bat Habitat Guideline. The inventory shows that there are an insufficient number of snags on this tract required for the bat. If it is decided that there should be more snag trees for the bat, a post-harvest TSI could generate the snags needed. This could be done by girdling the cull trees, especially the ones with the desirable bark characteristics.

Ecological Resource Review discussions

- 1.1 The timber stand improvement in this area would decrease some of the understory habitat cover. In time the understory trees will grow up and fill in the holes left by the trees that were cut out, and return to a similar state that the forest was in prior to harvest.
- 1.2 Since there will be no large holes created with the timber stand improvement it should not affect the wildlife travel corridors.
- 1.3 The interior forest species would not be affected by the timber stand improvement.
- 1.4 The best management practices (BMP) guidelines will be followed when there is any management activity in this tract.

Recreation

The two main recreational uses for this tract are hunting and hiking. The adventure hiking trail runs through this tract. The adventure hiking trail is one of the main hiking trails that the Harrison-Crawford State Forest/ O'Bannon Woods State Park have. The firelane 103 is also a disabled hunter trail. This is one of 5 disabled hunter trails that the Harrison-Crawford possesses.

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.

Summary Tract Silvicultural Prescription and Proposed Activities

Cedar Hardwoods

There is a total of 63 acres that are included into this stand type. There are approximately 16,000 board feet that could be removed from this site, which is about 300 board feet per acre. The current square feet of basal is 100, there would be 3 square feet removed knocking the basal area to 97 square feet/acre. The main species that would be harvested are chinquapin and post oaks.

This stand is located mainly along the steeper portion of this tract. The soil is also thinner along this stand type, there are many limestone rock outcroppings present in this area. The main species found in this area is eastern red cedar. There is twice the square footage of basal area found in cedar than chinquapin oak, which is the second most prevalent species. The main hardwood tree species include chinquapin oak, post oak, white oak, and sugar maple. These tree diameters average in the pole timber size range, which is about 6-12 inches. The main regeneration found in this area is of sugar maple. These maples are average 2-6 inches in diameter.

This area can be very limiting to logging equipment due to the exposed rocks. Because of the thin soil, there are a lot of small diameter trees. This area would not support a harvest at the current time.

Oak-Hickory

There is 51 acres in this stand type. There is 102 square feet/acre of basal area in this stand. If this stand were to be harvested in there would be 56,000 board feet removed according to the Doyle log scale. That figure equals about 1,100 board feet per acre. There would be 17 square feet of basal area removed leaving the stand at a respectable 84 square feet of basal area.

This stand is located mainly along the ridge top. The main overstory species in this stand are chestnut oak and white oak. The main understory tree species is sugar maple. These trees are mainly in the small sawtimber range which is 14-18 inches in diameter.

There could be a light thinning in this stand to help promote the growth of the small diameter trees in this stand. The majority of these diameters are in the small sawtimber range. This stand would benefit from a light harvest to release the desirable trees from the remaining stand of timber. This harvest would be in conjunction with the harvest of the tract to the north, 1908.

After the harvest this stand would need some timber stand improvement on this stand. The TSI would focus on promoting the growth of the more desirable trees such as oaks and discourage the sugar maples that threaten to overtake the stand.

Mixed Hardwoods

There are approximately 31 acres in this stand type. There is approximately 83 square feet of basal area present. There would be about 4 square feet /acre removed if a harvest was performed on this stand. There would be 5500 board feet removed from this stand which is equal to 200 board feet per acre.

There are three different pockets of mixed hardwood stand on this tract. Two of the pockets are in the northern portion of the tract, they are bisected by the cedar hardwood stand. The third pocket is found on the southern portion of the tract. This pocket serves as a transition between the edge and cedar hardwood stand type into the oak-hickory stand type. These stands are not unlike the oak-hickory stand with the exception of more white ash and chinquapin oak. Like the oak-hickory stand these trees are mainly in the small sawtimber range which is 14-18 inches in diameter. There is a strong presence of sugar maple regeneration.

These stands would also benefit from a timber stand improvement. These stands could benefit from releasing the more desirable species such as oak from the less desirable species such as white ash.

Edge

This stand has low stocking, the square feet of basal area is 60. The average diameter of this stand is in the pole timber range which is 6-12 inches. The trees are not currently of merchantable size.

This area is located along the edge of the field on this tract. This stand is a transition between the field and the mixed hardwood stand type. The main species found in this area are sugar maple poles, and immature eastern red cedars.

This area could use some timber stand improvement in order to promote the more desirable hardwoods.

Drainage

This stand is about 3 acres in size. The stand has good stocking about 80 square feet of basal area. This area would not have a harvest in at the current time because it is not

currently merchantable. There could be some possible timber stand improvement to help release the walnuts from the competing vegetation.

This area is found on the flood plain of the drainage on the northern portion of the tract. This area has many smaller diameter black walnuts growing here. These walnuts have good form.

Proposed Activities Listing

2011-light harvest in conjunction with 1908

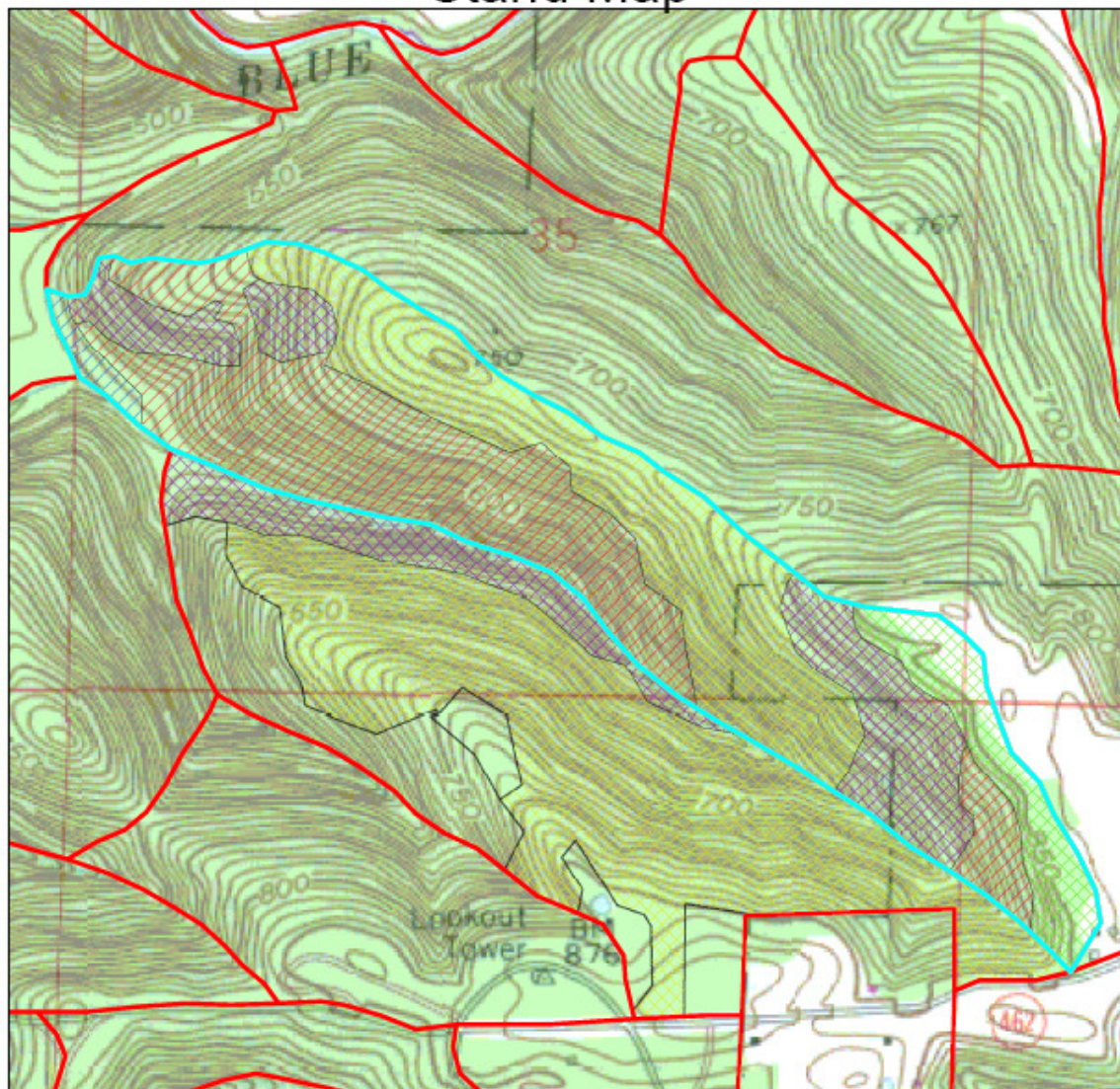
2012-Timber Stand Improvement (TSI) - to help promote growth on the oaks in this stand and discourage the ash, American beech, and some sugar maple regeneration.

To submit a comment on this document, click on the following link:

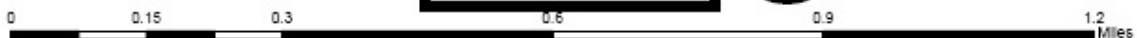
http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

You **must** indicate “Harrison-Crawford C19 T7” 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.

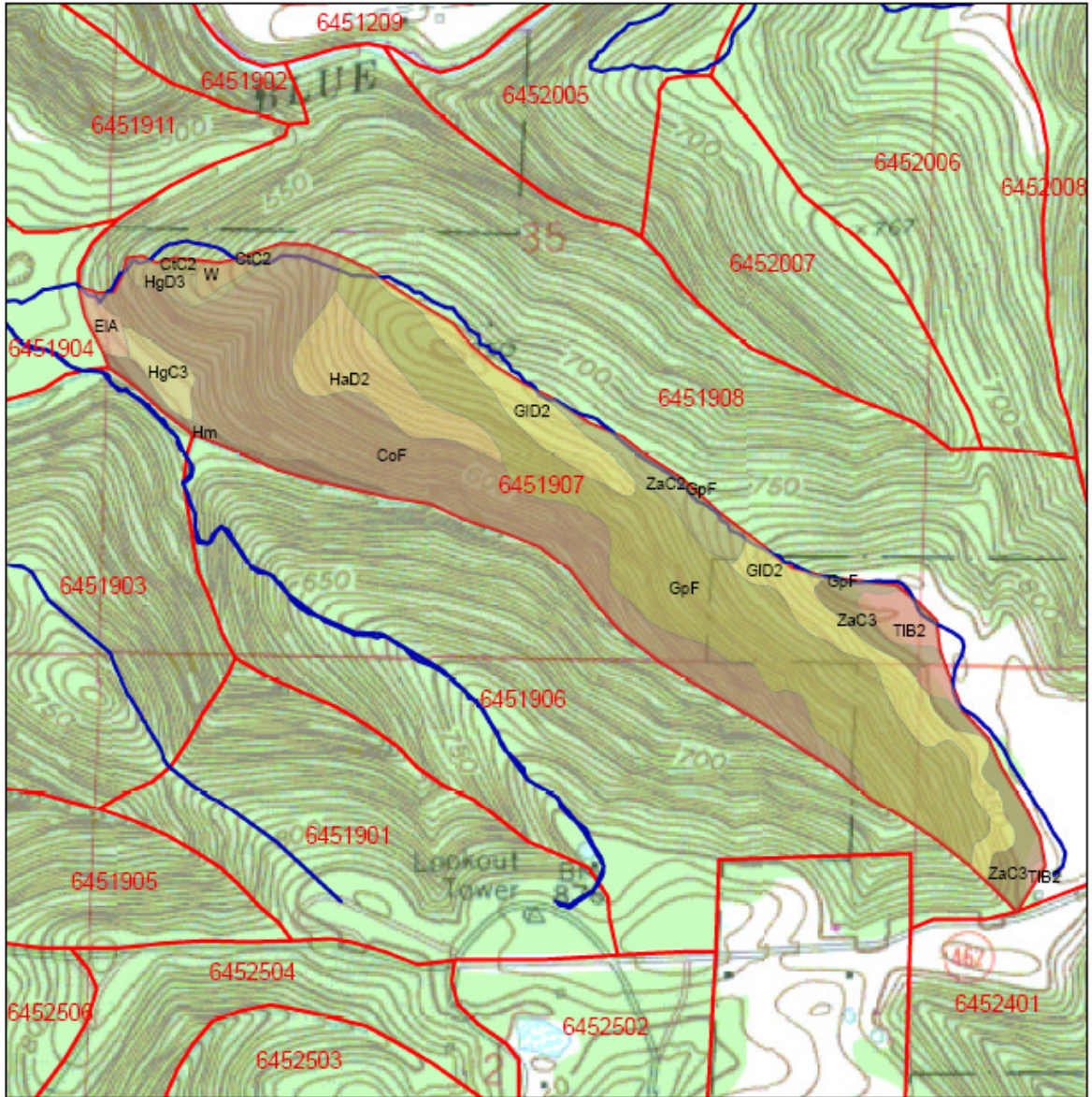
Compartmnet 19 Tract 7
 T3S R2E 35
 T4S R2E 2, 1
 Stand Map



5



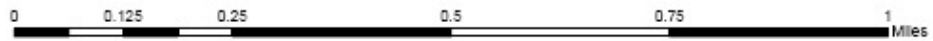
Compartment 19 Tract 7 Soil Map



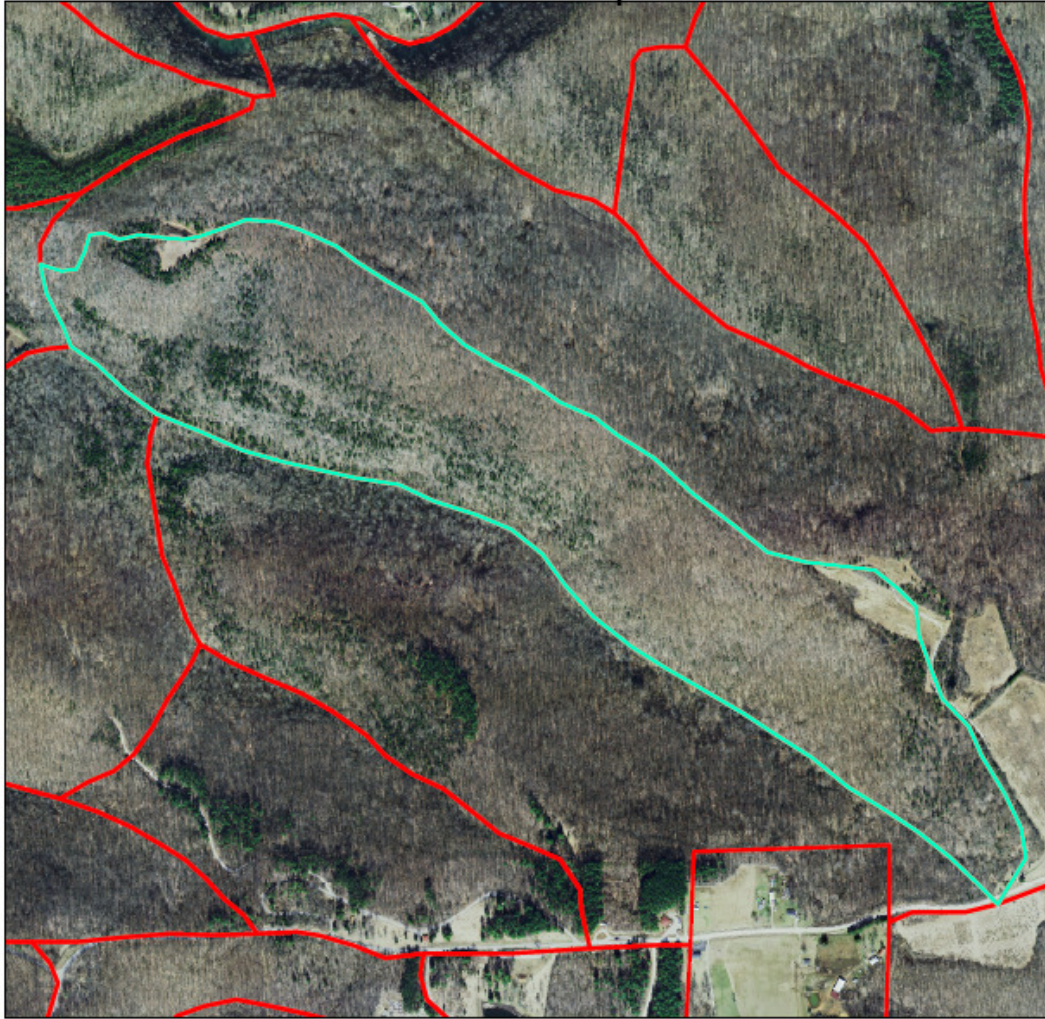
Soils Types		
CoF	HaD2	TIB2
CIC2	HgC3	W
EIA	HgD3	ZaC
GID2	Hm	ZaC
GpF		

Legend	
	Firelane
	HCSF Tracts

5



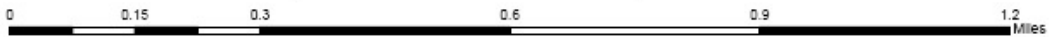
Compartmnet 19 Tract 7
T3S R2E 35
T4S R2E 2, 1
Aerial Map



Legend

-  1907
-  Harrison-Crawford Tracts

5



Average Site Index: 81

Stocking Level : Fully stocked (92%)

Calculated annual Growth (bd. ft.): 215 bd. Ft. / acre/ year

Species	Harvest Bd. Ft.	Leave Bd. Ft.	Total Bd. Ft.
White Oak	24,480	132,180	156,660
White Ash	13,900	32,250	46,140
Post Oak	11,870	17,430	29,300
Chestnut Oak	10,630	50,760	61,400
Northern Red Oak	7,470	2,5010	32,480
Chinquapin Oak	6,930	46,880	53,810
Black Oak	3,090	10,160	13,260
American Beech	2,000	2,650	4,640
Scarlet Oak	1,510	2,300	3,810
Black Cherry	0	4,530	4,530
Black Walnut	0	3,330	3,330
Blue Ash	0	5,680	5,680
Hackberry	0	2,650	2,650
Mockernut Hickory	0	3,090	3,090
Pignut Hickory	0	26,210	26,210
Red Elm	0	4,000	4,000
Red Maple	0	2,420	2,420
Shagbark Hickory	0	7,250	7,250
Sugar Maple	0	20,650	20,650
Yellow Poplar	0	8,290	8,290
Total	81,880	407,720	489,600
Total/ Acre	499	2,486	2,985
Eastern Red Cedar	0	17,230	17,230
Total/Acre	0	273	273

*values according to the Doyle Log rule