

## Resource Management Guide

**Harrison-Crawford State Forest**  
**Christine Martin**

**Compartment: 23    Tracts: 12**  
**Date: 9/09**

Acres Commercial forest:	58	Basal Area $\geq$ 14 inches DBH: 57.4bd.ft/acre
Acres Noncommercial Forest:	36	Basal Area < 14 inches DBH: 28.4 bd.ft/acre
Acres Permanent Openings:	0	Basal Area Culls: 1.8 bd.ft/acre
Acres Other:	0	Total Basal Area: 87.6 bd.ft/acre
Acres Total:	94	Number Trees/Acre: 234

### Location

This tract of land is located in Harrison county Indiana, 18 T4S R3E. Indian Creek flows near this tract.

### General Description

There are five different stand types on this tract of land. The largest stand is the oak-hickory stand type, this stand is 58 acres. The next four stands comprise the remaining 35 acres. In order of the largest acreage to least acreage there is the oak-rocky stand, the mixed hardwoods stand, the steep stand, and the cedar stand.

There were many ailanthus trees found on this tract as well. There was one major group of 8-10 inch diameter trees. There was also some paulownia found along with the ailanthus. There were many ailanthus found along the Adventure Hiking Trail and the horse trail. These tree species will need to be chemically treated, and under control before a harvest can take place.

There are also some rock outcroppings located on this tract. These outcroppings provide habitat for drier site plants. This provides diversity in the landscape, and diverse vegetation for the wildlife to eat.

### History

The last management guide was written in 1985. The guide states that there were 169,847 board feet according to the Doyle scale available for removal.

There was a timber sale completed in this tract in 1986. In this sale there were 585 trees taken. 101, 660 board feet according to the Doyle scale were removed from this sale. The main two species harvested were black and chestnut oaks. There were 8 regeneration openings created in this sale totaling 5 acres.

There were also a few trees removed in 1991 when a timber sale was conducted in tracts 2311 and 2310. These trees were removed from the firelane, which the loggers were using as a skid trail. These trees were used as bumper trees and were damaged. These trees would have died if not taken in the sale. There were 5 trees in total that were removed, 4 white oaks and 1 scarlet oak tree.

### **Landscape Context**

There are various types of land uses located within a mile of tract center. The main land use is forested land. There are also many hay fields and cattle pasture. There is also Indian Creek which is open water, and there are riparian areas associated with this land use.

The hay fields and cattle pastures break up the continuity of the forest and create edge habitat. This habitat is beneficial to the edge species, and creates diversity within the wildlife community. Indian Creek provides a water source which is vital to the wildlife on this tract.

### **Topography, Geology, and Hydrology**

This tract is located on an east facing slope. The slope is steep on the northern portion of the tract as the slope gets closer to Indian Creek the grade lessens. There is a rock wall that is limiting to logging in the northern section of this tract. This rock wall traverses through most of the tract.

This tract has a couple of minor drainages that flow into Indian Creek. Indian Creek flows less than 100ft to the east of this tract in some places. Indian creek empties into the Ohio River.

### **Soils**

#### **Baxter Silty Clay Loam ( BIC3)**

The Baxter series consists mainly of deep well drained soils on uplands. These soils formed in loess, as much as 20 inches and the underlying material is weathered bedrock. The surface horizon is 2 inches thick of a dark brown silt loam. The subsurface is 6 inches of a yellowish brown silt loam. The subsoil is 70 inches of which the first 5 is a yellowish brown friable silty clay loam. The last 65 inches is red firm to very firm cherty silty clay loam. The lower part has mottling and is 20-40 percent chert fragments. The available water capacity is high and the permeability is moderate.

Degree Slope: 0-35%

Site Index: 75

Growth Range Potential: 222

Management Considerations: 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

**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

**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.

### **Access**

There is a firelane that comprised the western boundary to this tract. This firelane is in need of some minor repairs, and it is in desperate need of being brushed out. This lane will also need to have rock placed upon it to make it passable for winter logging activities.

This lane doubles as a horse trail. There are some places that would need to be widened for a heavy equipment to pass through. If rock is placed on this road the small grades

should be used to ensure that the horse's don't bruise their hooves on the coarse grade of rock.

### **Boundary**

The west boundary is comprised of the firelane that runs along the ridgetop. The east boundary is private property. There is corner evidence at the north and south end of the east line. The south and north boundary lines are more convoluted than the east and west boundaries. The north line runs down the middle of a hill. The south line runs along the south side of a hill and crosses a minor drainage and then runs up the north side of the hill across the drainage.

### **Wildlife**

The proposed activities that would affect the wildlife would be a timber harvest and some timber stand improvement. The harvest would be a single tree selection with some possible group selection openings. The single tree selection would focus on grooming out the trees in low vigor. Taking out the trees of poor quality will help the stand be healthier. When the overall stand is healthier the wildlife will thrive better.

With single tree selection there should not be any disturbance to the corridors or the overall continuity of the forest. There will be more sunlight that will reach the ground thereby increasing the understory vegetation. The increased vegetation increases habitat and possible food sources for the wildlife. There may be some group selection opening that will provide a more diverse habitat for the wildlife. A few years after the harvest the canopy will start to close in and the vegetation will return to what it was before the harvest took place. This will revert most of the forest ecosystems back to pre-harvest conditions.

### **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.

### **Recreation**

The adventure hiking trail runs through this tract. This trail is a well used hiking trail by the general public. There are also a couple legal and illegal horse trails on this tract. The firelane doubles as part of the legal horsetrail. There is an old roadbed that skirts the side of the hill on the south part of the tract. This old roadbed eventually ends at Indian Creek. This old roadbed is the illegal horsetrail on this tract. There are also some illegal horse trails that start from private property and tie into the old roadbed illegal horsetrail, which in then tie into the State horsetrail system.

### **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 Description, Prescription and Proposed Activities**

#### *Oak-Hickory*

This stand is 58 acres on this tract. There are 93 square feet of basal area in this stand type. There are approximately 70,000 board feet available for removal according to the Doyle scale.

This stand is the largest on the tract. The main tree species are white oak and chestnut oak. The chestnut oaks are located mainly along the ridge top. These trees mainly range from small to medium sawtimber size. There are some trees that are stressed within this stand. There are also some trees that have been damaged from the previous storms. There is a predominance of sugar maple regeneration in the understory.

This stand could use an improvement harvest. There are many trees that are stressed and are declining from previous storms and droughts. It would benefit the overall vigor of the stand to remove these dying trees. There are some of these dying trees that should be left as snags for wildlife habitat.

There has been some ailanthus found in this stand type. The ailanthus mainly occurs along the adventure hiking trail. There is another pocket of ailanthus and paulownia on the southern ridge leading toward Indian Creek. These exotic species will need to be dealt with before the harvest can take place.

#### *Oak-Rocky*

There are 8 acres of this stand type on this tract. This area was filled with rock outcroppings. The main tree species is chinquapin oak. There are 70 square feet of basal area in this stand type. This area is limiting to logging because of the rock outcroppings.

### Mixed Hardwoods

There are 6 acres in this stand type on this tract. There are a total of 72 square feet of basal area in this tract. There are a total of 23,440 board feet according to the Doyle scale.

This stand is located along part of the steep stand type and on part of the southern ridge. The section of this stand that is located along the ridge was oak hickory in the past. Previous management on this tract has pushed this to more of a mixed hardwood stand type. There are more red oak, and yellow poplars located in this stand than the oak hickory stand type. As with the oak hickory stand there is a predominance of sugar maple regeneration in the understory.

This stand could use an improvement harvest to help put this stand type back into oak-hickory stand type.

### Steep

There are two areas of the steep stand. Together both stands are 14 acres.

The first area is found along Indian Creek. This area is 5 acres in size. This area is very steep, and in places consists of a rock face. There is not much growing in this stand type. There are a couple shrubs and tree saplings growing where they can find enough soil to take root.

The second area is 9 acres in size and is also located close to Indian creek on the southern portion of the tract. This area is not as steep as the first.

### Cedar

This stand is mainly located on the southern portion of this tract. This stand is 8 acres in size. The square footage of basal area is 96.

This tract has many cedar trees. The average size of cedar in this stand is 12 inches in diameter. There are also many grape vines growing on the mature cedar trees. There is some oak and maple regeneration found in the herbaceous layer of this stand. The oaks in the herbaceous layer are very small and it would be beneficial to remove the cedars and let the oak regeneration take over. This would convert the cedar stand into a more desirable mixed hardwoods stand.

## **Proposed Activities Listing**

**Ailanthus Control- 2009**

**Firelane Rehab- 2010**

**Improvement Harvest**

**in the oak hickory and mixed hardwoods stands- 2011**

**Timber stand improvements (if applicable)-2013**

**Possible cedar harvest-2013**

**Cruise for new management guide-2031**

Average Site Index: 75      Stocking Level : Fully Stocked(82%)  
 Calculated annual Growth (bd. ft.): 198bdft/acre/yr

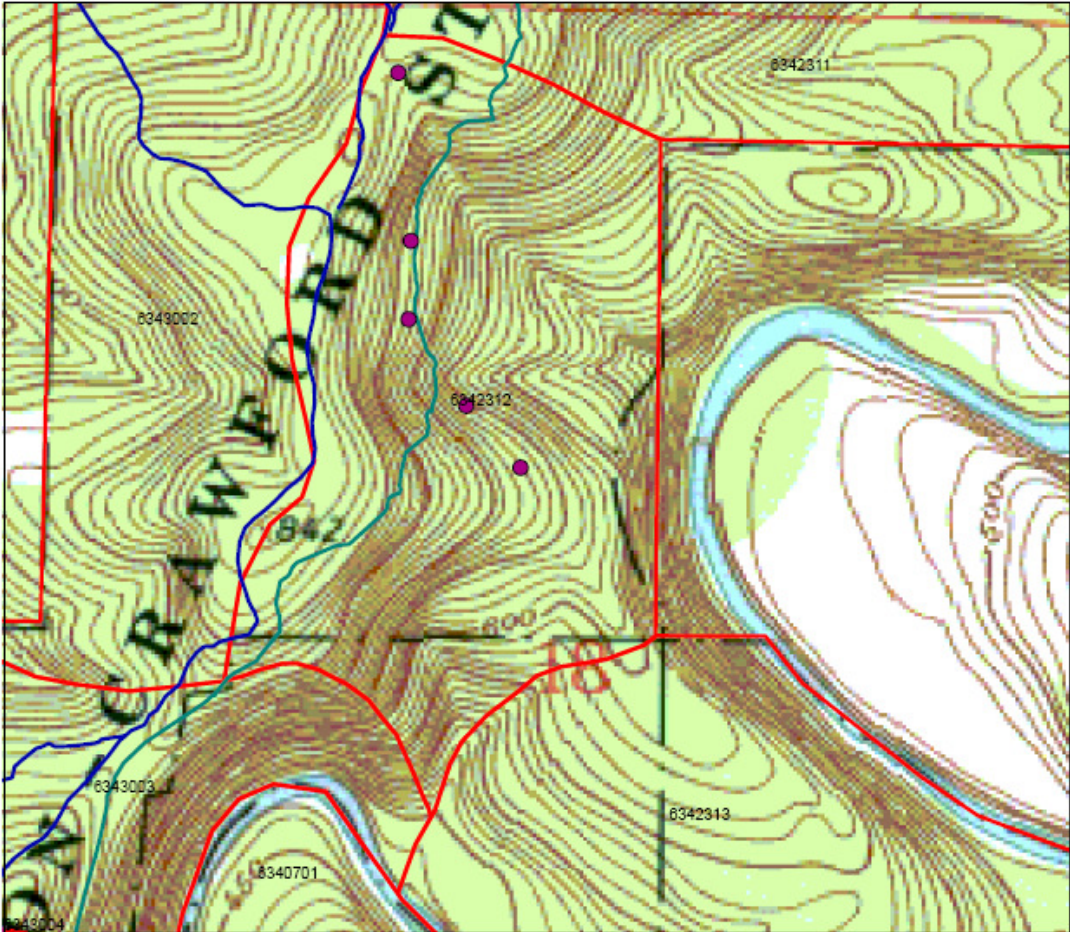
<b>Species</b>	<b>Harvest</b>	<b>Leave</b>	<b>Total</b>
White Oak	15210	94790	110000
Chestnut Oak	11430	59260	70690
Northern Red Oak	5840	41840	47680
Yellow Poplar	8880	31120	40000
Black Oak	8460	23590	32050
White Ash	3530	15450	18980
Pignut Hickory	3100	12320	15420
Shagbark Hickory	0	12380	12380
Sugar Maple	5180	4810	9990
Chinquapin Oak	1070	7820	8890
Eastern Red Cedar	0	7280	7280
American Beech	0	4970	4970
Post Oak	0	4230	4230
<b>Total</b>	<b>62700</b>	<b>319860</b>	<b>382560</b>
<b>Total/Acre</b>	<b>755.4217</b>	<b>3853.735</b>	<b>4609.157</b>

**\*Volumes based on the Doyle log scale**

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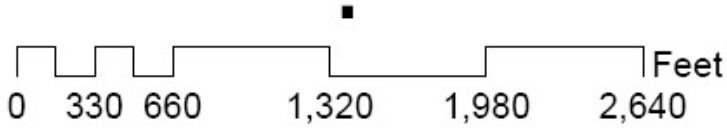
You **must** indicate State Forest Name, Compartment Number and Tract Number in the “Subject or file reference” line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered.

# Compartment 23 Tract 12 Ailanthus Map



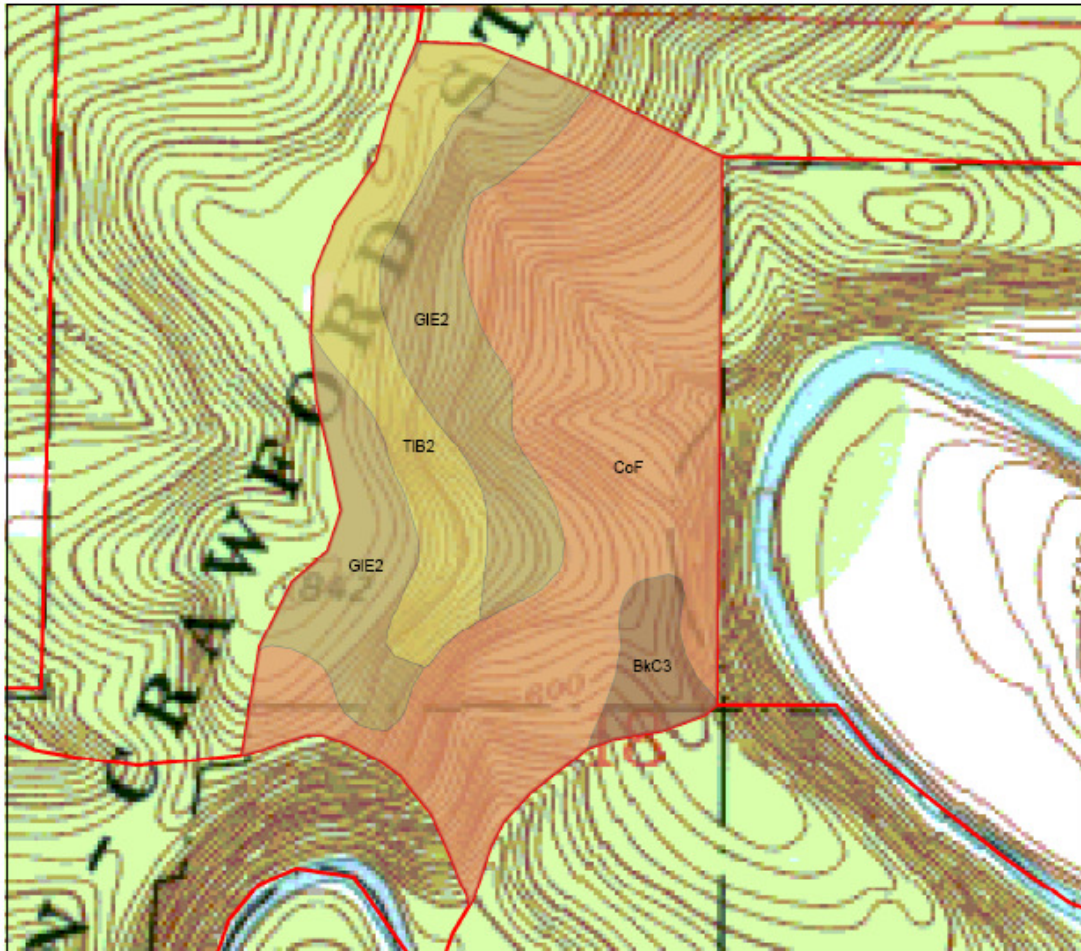
**Legend**





- Major Ailanthus Pockets
- Adventure Hiking Trail
- Firelane/Horsetrail
- HCSF Tracts





# Compartment 23 Tract 12 Soil Map



Soil Types	
	BkC3
	CoF
	GIE2
	TIB2

