

## Resource Management Guide

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

**Compartment: 29    Tract: 9**  
**Date: 4/10**

### Location

This tract is located in Harrison county Indiana, Sec 14, T4S, R2E. This tract is located within the contiguous land base of Harrison-Crawford State Forest, along Cold Friday Road.

### General Description

This tract mainly consists of an oak-hickory stand type. There are a few cedar patches near the drainage in the north of the tract. The tract turns to more of a mixed hardwood type when it gets close to the drainages.

### History

This land was acquired by the state in the 1930's.

The last inventory was performed on this tract in 1979. It was estimated that there was a total of 261,154 Doyle board feet of which 155, 970 board feet were harvestable.

There was a sale in 1987 where 124,361 Doyle board feet was removed form this tract. The species harvested the most were red and white oaks. There were 4 regeneration openings created. There were two yards used for this sale, one on the north side of the tract near the Cold Friday Road and one on the south side of the tract a little off of Cold Friday Road. The TSI was completed in the regeneration openings.

In 1988 Purdue planted the northern regeneration opening with northern red oak.

### Landscape Context

This land is surrounded by the Harrison-Crawford State Forest. There is one private residence that is located within a quarter mile to the north west of this tract. This residence is 4 acres in size and is currently forested.

The Ohio River runs approximately 1.25 miles to the southwest of this tract, as part of a research project.

### Topography, Geology, and Hydrology

This tract is comprised of a northeast facing slope. There is an intermittent stream that makes up the boundary to this tract. This stream flows into Potato Run.

In the north part of this tract on the lower slope the ground becomes rocky. This rockiness is not limiting to logging.

## 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

**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

**Gullied Land (Gu)** On uplands in areas that are mostly 3-15 acres in size but in places are as large as 40 acres. Underlain at a depth of 2-6 feet by bedrock of limestone, shale, or sandstone. Bedrock is exposed in the bottoms of gullies in many places. Most of the land is barren, but in places shrubs, weeds, and wild grasses are growing.

Woodland Suitability Group: 4r3

Site Index: 72-85

Growth range potential (Shortleaf and Virginia pine): 100-300 bd.ft./acre/year

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 (HcgAH, Hm, Ho)**

The Haymond series consists of very deep, well drained, soils that formed in silty alluvium. These soils are on flood plains and flood-plain steps. Slope ranges from 0 to 3 percent. Mean annual air temperature is about 55 degrees F, and mean annual precipitation is about 42 inches. The surface horizon is a brown silt loam plow layer that extends approximately 10 inches. The first subsurface horizon is a dark yellowish brown silt loam that extends to 25 inches. The second subsurface horizon is a yellowish brown silt loam that extends until 44 inches. The stratum is a massive yellowish brown fine sandy loam.

**Wellston Silt Loam (WeC2, WeC3, WeD2, WeD3)** Moderately deep and deep, moderately sloping and strongly sloping, well drained 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

**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 good access. It is found to the east side of Cold Friday Road.

### **Boundary**

This tract is surrounded by Harrison-Crawford State Forest.

This tract is bound by Cold Friday Road to the west and a firetrail to the south. There is an intermittent drainage that marks the east boundary and another smaller drainage that marks off the northern boundary.

### **Wildlife**

#### **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 guide discussions

The proposed management activities in this tract are a timber harvest, road building, and timber stand improvement. These are the activities that can alter the habitat present for the wildlife.

The harvest will affect the understory vegetation in the short term. Trees are removed thereby letting more sunlight hit the forest floor, creating more understory vegetation growth. As time passes the trees in the overstory will grow and overtake these holes in the canopy so therefore there is a decrease of light hitting the forest floor. The decreased light creates a decrease in understory vegetation growth. Approximately 5 years after the harvest the vegetation is what it was before the harvest took place.

The harvest will also provide more habitat for some wildlife. There will be more coarse woody debris on the ground after the harvest. This large amount of down material is great habitat for wildlife.

This harvest should not affect any travel corridors or drastically alter the cover types of the area. The method used in this harvest will be single tree selection. There may be areas of regeneration openings that may exceed 5 acres in size. These openings will not overall affect the continuity of the forest. These regeneration areas will provide habitat for wildlife.

The timber stand improvement should have minimal affect on overall forest continuity.

#### **Recreation**

The bald cypress horse trail runs to the south of this tract. This trail is heavily used by horsemen.

This tract is also used for foraging for mushrooms and berries. There was not much evidence that this tract was used for hunting.

#### **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 57 acres in size. There is 96 total square feet of basal area per acre. There are a total of 300,000 Doyle board feet in this stand of which 84,000 Doyle board feet are

harvestable. The three main tree species in this stand are white oak, red oak, and black oak.

This stand is dynamic; therefore some of the tree species vary depending which side of the stand you are currently in. The south side of this tract has a plethora of shagbark hickories. There are also patches of yellow poplars that are growing in the southern part of the stand. The northern section has many more red oaks growing than the southern section. It gets rockier on the northern section of the stand on the lower slopes. These rocks can be limiting to logging in certain areas, but are easily worked around.

This stand could use a timber harvest. There are some trees that have broken tops because of the recent wind events. There are also some trees that a poor quality that should be taken to improve stand health. The white ash should also be selected heavy because of the oncoming threat of the emerald ash borer. There are many white ash trees in this stand and it would be necessary to limit the food supply of the borer.

The regeneration in this stand is mainly sugar maple, and some American beech. When applicable the maples should be selected against to bring in more diverse regeneration. There are areas where there are some oak seedlings that should be released. These oaks will provide habitat in the future to many wildlife and should be selected for where possible.

#### Mixed Hardwoods

This stand is 9 acres in size and is mainly found along the drainage. The main tree species is yellow poplar. The average square feet of basal area are 105. There are 46,000 Doyle board feet in this stand of which 19,000 Doyle board feet are harvestable.

This stand has some larger poplar growing in it. These poplars have reached maturity and should be cut out of the stand to improve the stand vigor. There is a predominance of cedar in the understory of this stand. These cedars are shading the understory so only maple and beech can regenerate. These cedars should have some timber stand improvement completed in order to promote a more diverse range of regeneration in this stand.

#### Old Field

This stand is 8 acres in size. The most prevalent tree is yellow poplar, with a strong component of eastern red cedar. There are 22,000 Doyle board feet for the entire stand of which 1,000 board feet is harvestable. This stand is found along the edges of the cedar stand which is found in the adjacent tract.

There are many black oak poles growing in these areas. These oak poles should be released to provide for a conversion to more of an oak hickory stand type.

### **Proposed Activities Listing**

Timber Harvest-2011

TSI-2013

Re-inventory-2031

Acres Commercial forest: 66 Basal Area  $\geq$  14 inches DBH: 54sqft/acre  
Acres Noncommercial Forest:8 Basal Area < 14 inches DBH: 37sqft/acre  
Acres Permanent Openings: 0 Basal Area Culls: 5sqft/acre  
Acres Other: 0 Total Basal Area: 96sqft/acre

Acres Total: 74 Number Trees/Acre: 291

Average Site Index: 74 Stocking Level : Fully Stocked (90%)  
Calculated annual Growth (bd. ft.): 247 Bd.Ft./acre/yr

<b>Species</b>	<b>Harvest</b>	<b>Leave</b>	<b>total</b>
White Oak	12,550	74,510	87,060
Yellow Poplar	23,970	27,280	51,250
Northern Red Oak	7,560	37,810	45,370
Black Oak	18,560	21,840	40,400
White Ash	14,020	20,880	34,900
Shagbark Hickory		30,800	30,800
Sugar Maple	11,220	12,850	24,070
Pignut Hickory	6,790	11,880	18,670
Chinquapin Oak	2,180	8,150	10,330
Scarlet Oak	6,350		6,350
Bitternut Hickory		2,870	2,870
American Beech	2,160		2,160
Chestnut Oak		2,160	2,160
Black Walnut		1,910	1,910
Hackberry	1,470		1,470
Red Elm		800	800
<b>Total Hardwoods</b>	<b>106,830</b>	<b>253740</b>	<b>360,570</b>
<b>Total hardwoods/acre</b>	<b>1,618</b>	<b>3,844</b>	<b>5,463</b>
Eastern Red Cedar	2,770	4,790	7,560
<b>Tract Total</b>	<b>109,600</b>	<b>258,530</b>	<b>568,130</b>

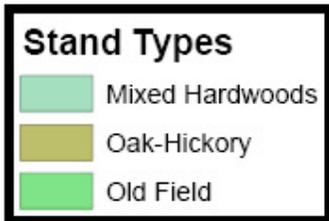
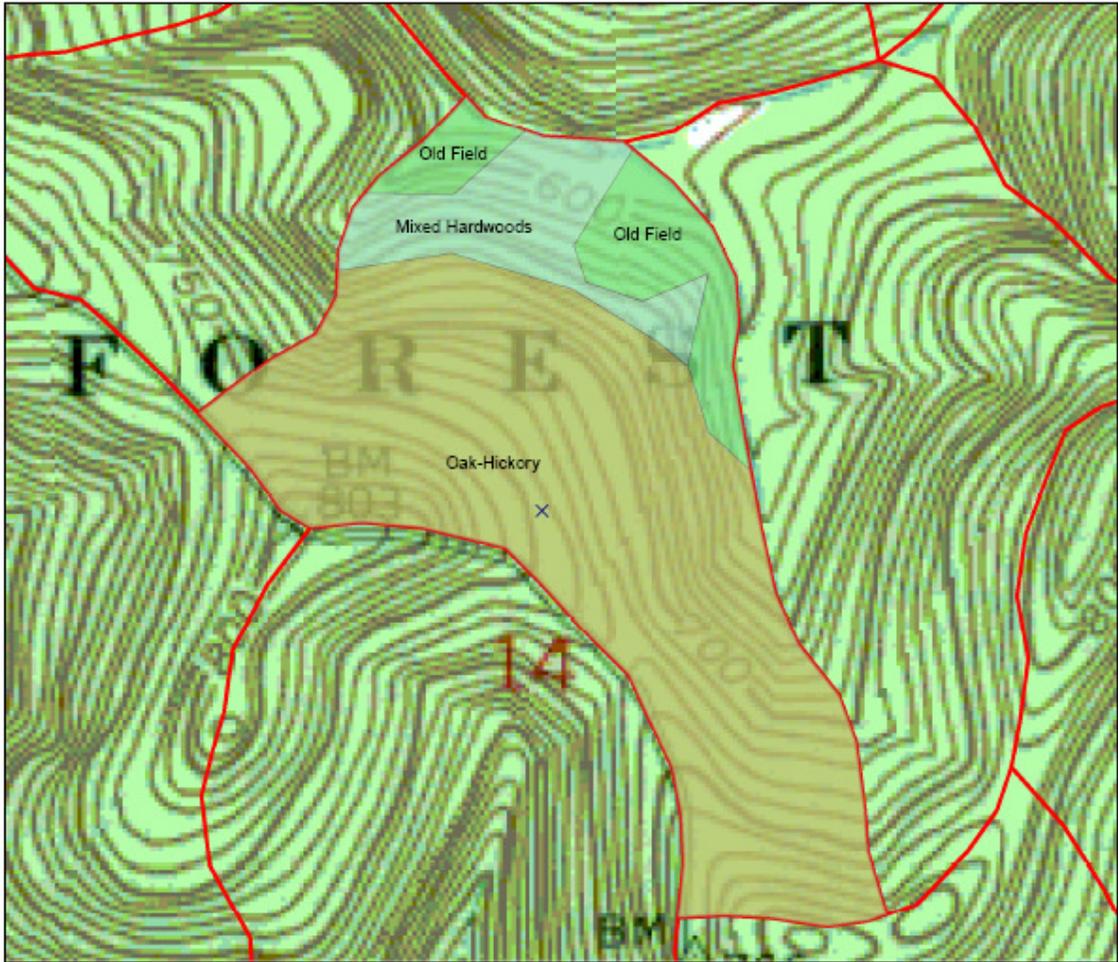
- Totals based on Doyle board foot scale

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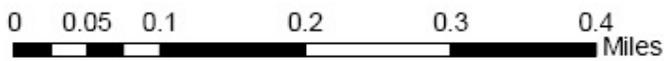
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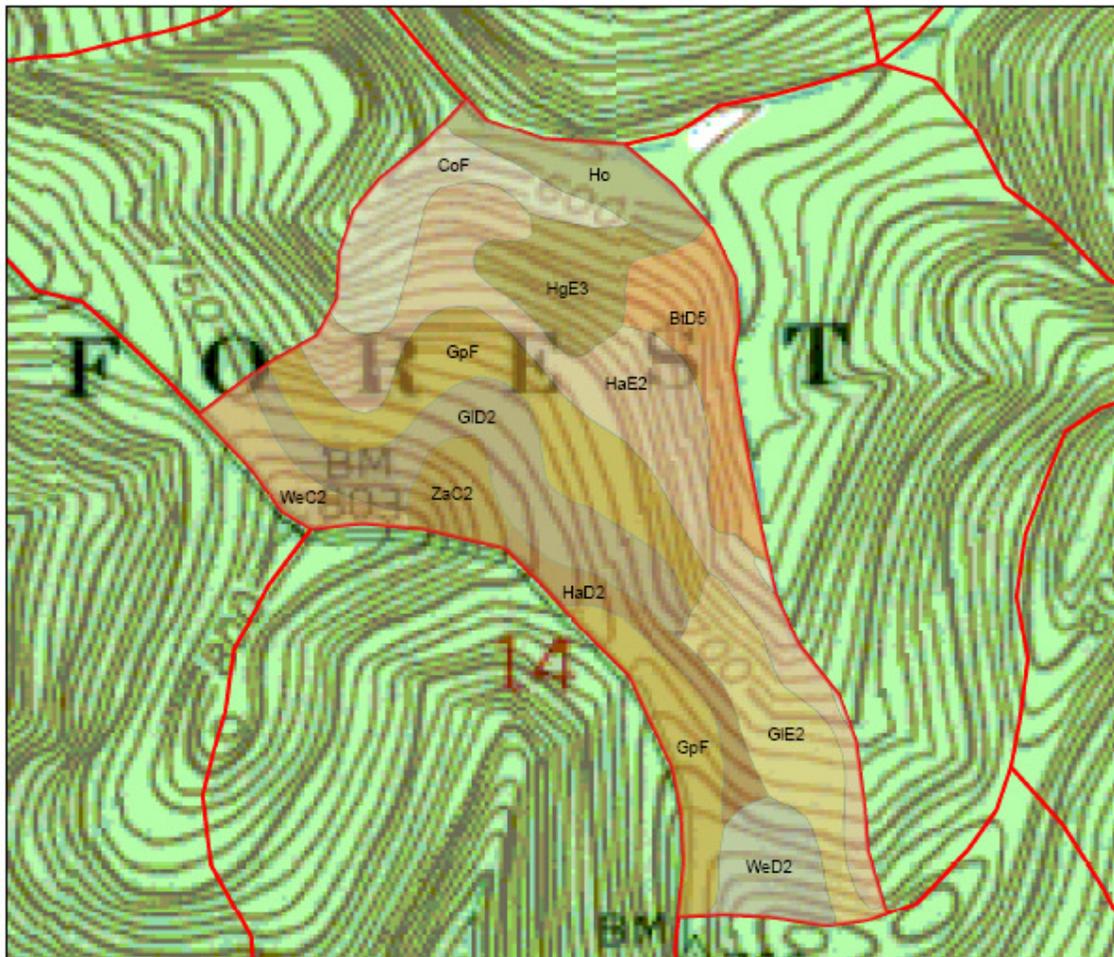
# Compartment 29 Tract 9 Stand Map



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# Compartment 29 Tract 9 Soil Map



Soil Types		
BiD5	GpF	Ho
CoF	HaD2	WeC2
GiD2	HaE2	WeD2
GiE2	HgE3	ZaC2

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