Resource Management Guide

Harrison-Crawford State Forest **Compartment:30 Tract: 3**
Christine Martin **Date: 9/09**

Acres Commercial forest:	94	Basal Area ≥ 14 inches DBH:	45.9
Acres Noncommercial Forest:	28	Basal Area < 14 inches DBH:	35.7
Acres Permanent Openings:	0	Basal Area Culls:	.6
Acres Other:	0	Total Basal Area:	82.2
Acres Total:	122	Number Trees/Acre:	289

Location

This tract is found in Harrison county Indiana, 18 T4S R3E, and 13 T4S R2E.

General Description

There are 6 different stand types on this tract. There is the Virginia pine stand which is the far west end of the tract which is 17 acres. There is a mixed hardwoods stand along the mapped intermittent stream, and in the center portion of the tract. There is an oak-hickory stand that is 37 acres on the east end of this tract. There is an 8 acre patch of cedar, which is along the private property. The last stand is 20 acres of steep ground on the east side of this tract, next to Indian creek.

There were sinkholes found on this tract. The sinkholes were not that large and most of them did not have an open bottom, therefore do not effect water quality.

There was found ailanthus along the firelane. This ailanthus patch will need to be treated if any management activity will be conducted in this tract.

History

The last management guide was written in 1991 by McQuade. The guide states that there was 1494 Doyle board feet to the acre.

In 1986 there was a possible timber theft from this tract. While marking the sale, McQuade found there were 4 yellow poplar stumps and one black oak stump observed. There were also copious amounts of cedar stumps removed without any file records.

There was an improvement harvest in 1987. This harvest took 84, 865 Doyle board feet. The main tree species removed were black oak and pignut hickory.

Landscape Context

This tract is surrounded on three sides by Harrison-Crawford State Forest. The north boundary is private property. The private property is mainly forested. There are also many hay fields located on the private property as well. These agriculture sites break up the continuity of the forest, and create edge habitat.

Topography, Geology, and Hydrology

The tract is made up of a north facing slope. Cold Friday Drainage is one of the boundaries to this tract on the west side. Cold Friday Drainage empties into the Ohio River. Indian Creek is another boundary to this tract on the east. Indian Creek also empties into the Ohio River.

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

Gilpin Silt Loam (GlD2, GlD3, GlE2, 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 (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

Zanesville Silt Loam (ZaC2, ZaC3, ZaD2) Deep, moderately sloping and strongly sloping, well-drained soils on uplands. Avery 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

The southern boundary is mostly comprised of a firelane that starts from Dutch Hollow Road. After the firelane reaches the cemetery the firelane is in need of repair. The firelane will need to be straightened in some places in order to get heavy equipment through the lane. The firelane also has had a lot of horse traffic therefore the lane is muddy and narrow in some places. There may need to be a length of the firelane rerouted in order to be functional as a firelane again. This lane will also need another coat of gravel if logged in the winter time.

Boundary

The north middle section of this tract is comprised of private property. There are three different landowners that make up the boundary line. On the west side there is an old cedar fence post that marks the boundary line. There are old cedar posts running north making up the western boundary line. The east side of this line is made of a bernstien monument. There is also some fencing that runs part of the way along this line.

The north west line is comprised of Cold Friday Drainage. The south east boundary runs along Indian Creek. The southern boundary line partially follows the firelane, and the ridgetop.

The Department of Forestry has an official licensed survey performed on this tract. The date of the survey was conducted in 1986.

Wildlife

The proposed activities that would affect wildlife would be a timber harvest and some timber stand improvement. The harvest would be single tree selection with some possible group selection openings.

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 early succession 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.

Jughole cave is a hibernacula for the Indiana bat. This cave is located on private property just north of the boundary line. There is a 20 acre exclusion zone that surrounds this cave. In this zone there is to be no timber harvesting activities.

Recreation

The firelane to the south doubles as a horse trail. There is a lot of horse traffic that travels this horse trail. There is also an illegal horse trail that starts from a neighbor to the north and ties into the horse trail system. There is also an illegal 4-wheeler trail that ties into the firelane system from a different neighbor to the north.

The adventure hiking trail runs along the steep edge of Indian Creek. This trail is well used by hikers all year round.

The tract of land can also be used for hunting and foraging for edible plants.

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

Virginia Pine

This stand has 92 square feet of basal area. According to the Doyle scale there is 3460 board feet per acre on this stand.

The average size Virginia pine is 14 inches in diameter. There is some blowdown scattered throughout this timber type. The regeneration varies in this stand type. In the blowdown areas there are oak seedlings present. In most of the stand there are sugar maple and American beech seedlings. The pines in this stand have stagnated and now are declining. It would be beneficial to this stand would be to remove the pine and let the hardwoods take over.

A suggestion after the harvest it would be beneficial to the stand to prescribe burn the site. The burning will knock back the beech, maple, and yellow poplar allowing the oak and hickory re-sprout. This would be dependent upon re-examination of the regeneration present after the harvest has taken place. If there is enough oak to permit a fire with results the fire should take place. If there is not enough oak then the stand will grow up to be a healthy mixed hardwoods stand.

Cedar

This stand is 8 acres in size. According to the Doyle scale thee are 2320 board feet to the acre in the stand. There is 77.5 square feet of basal area.

The cedars in this stand average 10 inches in diameter. The cedars in this stand could be removed in order to promote the hardwood regeneration underneath. The cedar are crowding out the regeneration and should be removed to promote a healthy mixed hardwoods stand.

Mixed Hardwoods

This stand has 80 square feet of basal area. There is 3450 board feet per acre according to the Doyle scale in this stand type. The two main species are black oak and yellow poplar.

The main stand type is mixed hardwoods with a strong component of oak. Before the last harvest is 1986 this stand used to be classified as oak-hickory. In order to put this stand back into oak-hickory there would need to be a harvest focusing on the yellow poplar and the maples. There also needs to be some timber stand improvement completed after the harvest focusing on the regeneration. It is possible to bring this stand back into an oak-hickory stand type; it will take a lot of effort and time.

Part of the 20 acre exclusion zone resides in the mixed hardwoods stand from Jug Hole cave. This 20 acre no harvest zone is set up so the Indiana bat will not be disturbed while the harvest is being conducted. In this area only some timber stand improvements can be made.

Cedar Pine Mix

There are 8 acres to this stand. This stand is located within the middle of this tract. There is 92 square feet of basal area in this stand. There is about 700 board feet to the acre in this stand type.

The majority of the timber in this stand is pole timber. This is a young stand of cedar, Virginia pine, and some hickory. There could be some timber stand improvement to favor the hickories that are growing in this stand.

Oak-Hickory

There are 37acres to this stand. There is 80 square feet of basal area per acre are in this stand. There is about 5000 board feet to the acre in this stand type. The main tree species are black oak and pignut hickory.

The stand is located on the eastern side of the tract. The far eastern section is rockier and has lower quality oaks. The far west is also rocky and has small black oaks and hickories. These two sections have low stocking and are smaller diameters than the middle section of the oak-hickory stand.

The middle section of oak-hickory has small to medium sawtimber. There were a plethora of hickories on this section. In scattered patches there are small poles of sugar maple throughout the stand. The trees are of good quality in this section. This stand could use a light improvement harvest. There is some damage form recent wind and ice stom in this region. The dead trees will make good wildlife habitat and some will be left for the wildlife, and others will be salvaged.

Steep

This area is located along Indian Creek. This area was too steep to inventory. There is approximately 20 acres in this stand type.

Proposed Activities Listing

Firelane Rehab	**2010**
Ailanthus control	**2010**
***Timber Harvest**	**2010**
Timber stand improvement	**2012**
***Timber Harvest**	**2012**
Timber stand improvement	**2014**
Re-evaluate/cruise for new Guide	**2030**

***The timber harvest is in either the pine section or the hardwood section, preferably both sales are not conducted at the same time.**

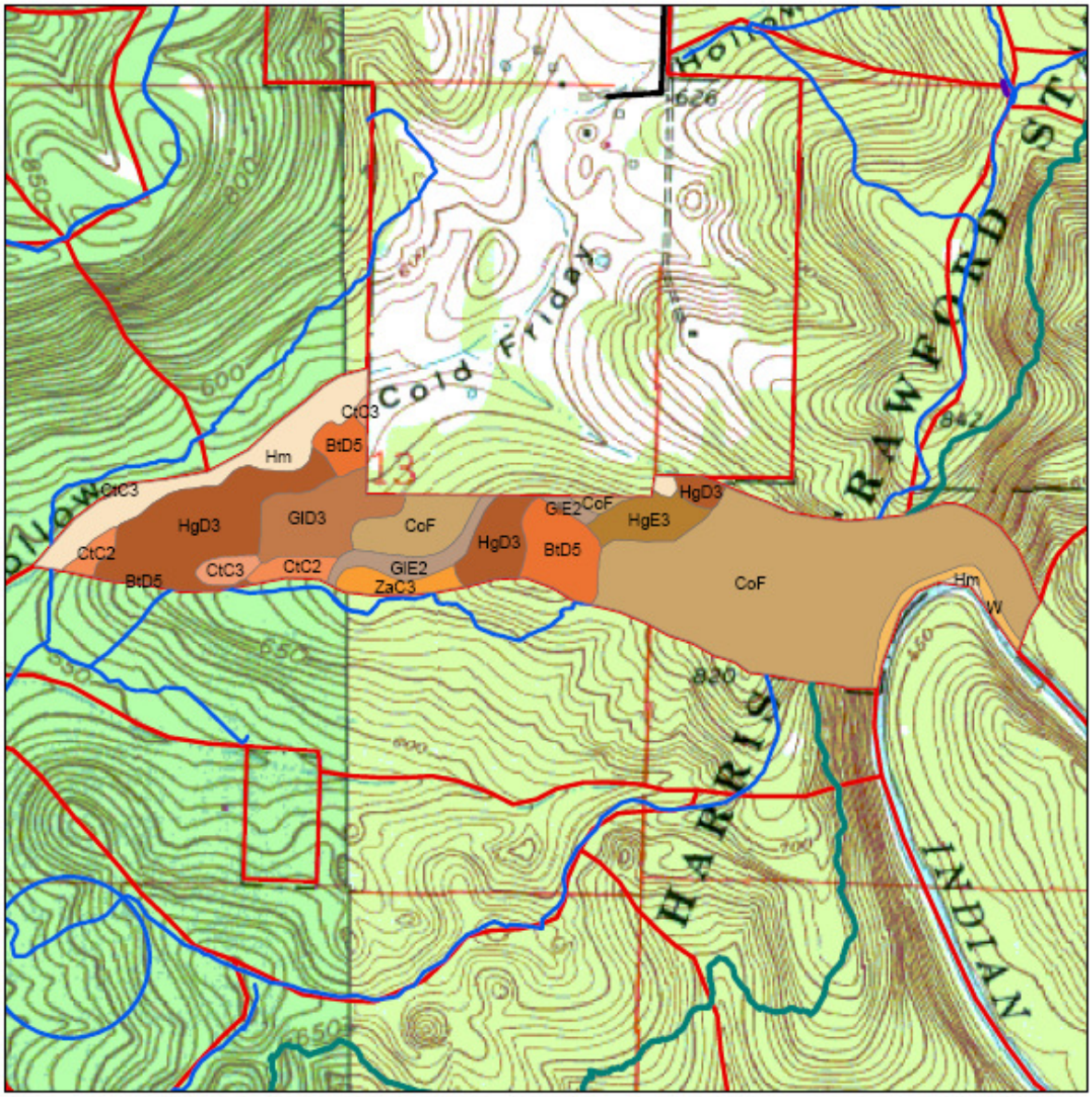
Average Site Index: 77 Stocking Level : fully Stocked (80 %)
Calculated annual Growth (bd. ft.): 232board feet/acre/year

Species	Harvest	Leave	Total
Yellow Poplar	17510	55690	73200
Black Oak	17520	54430	71950
White Oak	8210	44910	53120
Pignut Hickory	11390	39520	50910
Virginia Pine	0	26000	26000
Eastern Redcedar	2070	21770	23840
Sugar Maple	0	17240	17240
Northern Red Oak	0	9560	9560
White Ash	2490	6800	9290
Shagbark Hickory	1250	7490	8740
Black Cherry	0	7060	7060
American Beech	0	6660	6660
Chestnut Oak	4420	0	4420
Scarlet Oak	0	4380	4380
Chinquapin Oak	0	2960	2960
American Sycamore	0	2760	2760
Total	**64860**	**307230**	**372090**
Total/acre	**531.6393**	**2518.279**	**3049.918**

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 C30 T3" 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.

6453003
Soil Map



Legend

- HCSF Tracts
- Firelanes
- Adventure Hiking Trail

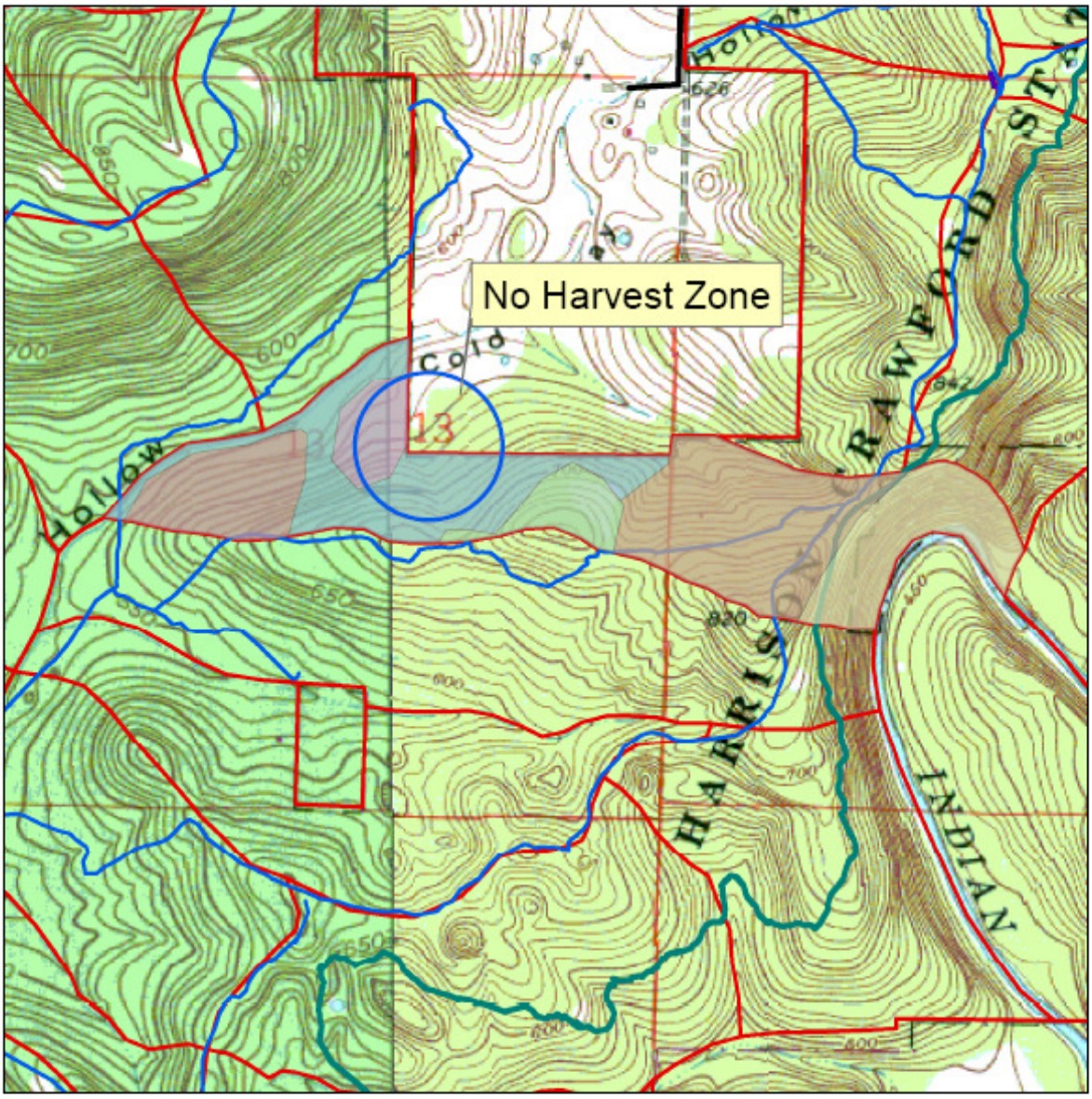
Soil Type

BtD5	GlD3	Hm
CoF	GlE2	W
CtC2	HgD3	ZaC3
CtC3	HgE3	

8

0 0.05 0.1 0.2 0.3 0.4 Miles

Jug Hole
20 acre exclusion zone



Legend

- HCSF Tracts
- Firelanes
- Adventure Hiking Trail

8

stands

- Cedar
- Cedar-Pine Mix
- Mixed Hardwoods
- Oak-Hickory
- Steep
- Virginia Pine

0 0.05 0.1 0.2 0.3 0.4 Miles