Indiana Department of Natural Resources
Division of Forestry

DRAFT

Resource Management Guide

Clark State Forest **Compartment: 1** **Tract: 07**
Christine Martin **Date 5/23/12**

Acres Commercial forest: 137.85
Acres Noncommercial Forest: 0
Acres Permanent Openings: 2.75
Acres Other: 0

Acres Total: 140.6

Average Site Index: 80

Basal Area ≥ 14 inches DBH: 28.2
Basal Area < 14 inches DBH: 59.6
Basal Area Culls: 3.6
Total Basal Area: 91.2

Number Trees/Acre: 190

Stocking Level : Fully Stocked 80%

Species	Harvest	Leave	Total
American Sycamore	0	1410	1410
Black walnut		2400	2400
largetooth Aspen	4150		4150
Blackgum	3930	3450	7380
Northern Red Oak		8000	8000
Shagbark Hickory		11040	11040
American Beech	8710	2580	11290
White Ash	19850	4440	24290
Pignut Hickory		29990	29990
Black Oak	5210	25820	31030
Scarlet Oak	6350	31330	37680
Sugar Maple	6050	49950	56000
Red Maple	45100	16070	61170
Yellow Poplar	12470	81700	94170
White Oak	10070	107080	117150
Chestnut Oak	27950	196140	224090
Totals	**149840**	**571400**	**721240**

Location

This tract is located in Washington County Indiana, T3N R6E S31.

General Description

This tract consists of three stand types' oak hickory, mixed hardwood, and wetland. The largest stand type is the oak-hickory with 107 acres. The mixed hardwood stand has approximately 17 acres and is mainly located near the drainages. The wetland stand consists of 2.75acres. This wetland stand type is located in the northeast of this tract near the outflow of the lake located on private land. There is mainly only tall grass and shrubs located within this stand type.

History

In 1979 this tract of land was acquired with help from the nature conservancy. The last known inventory was performed in 1991. The result of the inventory stated that there were only 84 square feet of basal area and 1,938 board feet to the acre.

Landscape Context

The majority of the surrounding land is forested. There are many houses but most of those are nestled in the forests. There are very few farms and fields located in this area.

Topography, Geology, and Hydrology

There are many fingers that comprise the landscape but the majority of this tract is made up a couple ridges running to the north and south.

There are also many minor drainages located within this tract. The main drainage flows to the east of this tract which flows into Elk creek.

Soils

Burnside silt loam (Bu)

This deep well developed soil is found on flood plains which is can be flooded for short periods in the spring. This profile averages from 40-60 inches deep. The top soil is 9 inches of silt loam. The subsoil consist of a loam grading to a channery loam. The underlying material is a channery loam and beneath that is sandstone bedrock. The soil is moderately permeable and the runoff is slow. The available water capacity is moderate.
Degree Slope : 0-2%
Site index: 95-YEP
Growth range potential: 588- YEP
Woodland suitability group: 7A
Management considerations: flooding

Cuba (Cu, Cw)
The Cuba series is found on flood plains and natural levees. These soils are well drained and formed is acid silty alluvium. In the typical profile the soils are only 60 inches deep. They start with a plow player and the substratum has a weak structure. The C layer starts at 47 inches. The mean annual temperature is 52 degrees and the mean annual precipitation is 42 inches.
Degree Slope: 0-3%
Management concerns: frequently flooded

Gilpin-Berks loam (GnF)
This soils is a moderately steep, moderately deep well drained soil. These soil are mainly found on side slopes in the uplands. This complex is approximately 50% Gilpin and 35% berks soil. This soil is moderately permeable and the available water capacity is low. The runoff is very rapid.
Degree slope: 18-50
Site index: 80
Growth range potential: 372
Management concerns: flooding

Berks-Gilpin-Weikert Complex (BgF) Upland soils. Mainly between benches or shelf-like areas, on hillsides. On long hillsides it is also in areas near the base of escarpmentlike slopes. Some areas are at the lower end of natural drainageways. These soils are also shallow, stony, and steep.
Degree Slope: 25-45%
Woodland Suitability Group: 3r12
Site Index: 70-80
Growth range potential (Upland oaks): 185-260 bd.ft./acre/year
Management Concerns: Runoff and erosion

Stendal (Sf, So)
This soil consists of deep moderately permeable soils found on flood plains. These soils are formed in acid alluvium. These soils are frequently flooded. The surface horizon is made up of a silt loam plow layer. This soil has not sub soil as it is mixed in the plow layer. The substratum is a silt loam and is very strongly acidic.
Degree Slope:0-2
Site Index: 90
Growth Range Potential:432

Wellston Silt Loam (WhfC2, WhfD2, WhfD3)
The Wellston series consists of deep, or very deep, well drained soils formed in silty material from loess and from fine-grained sandstone or siltstone and with bedrock at depths of 40 to 72 inches. These soils have moderate permeability. The surface horizon is a silt loam which is 2 inches thick. The subsurface horizon is a silt loam about 8 inches

thick. The first portion of the subsoil consists of 11 inches of a silt loam, the next portion consist of 4 inches of a silty clay loam. The last portion of the subsoil is one inch of a clay. The stratum is 9 inches of loam. The bedrock which is at 45 inches form the surface

is an acid fine-grained sandstone. Mean annual precipitation is about 40 inches, and mean annual temperature is about 53 degrees F. Well drained. Runoff is medium to rapid.
Degree Slope: 0-50%
Woodland suitability group: 3o10
Site Index: 80
Growth Range potential: 342
Management Concerns: runoff and erosion

Access

The access to this tract is going to need a lot of work. The main gate is located a mile north off of smith road. There is an old road that runs through tract 6300108 and stops after crossing into this tract. This old roadbed is sunken and is in need of major repair. There is some gravel to the entrance of this old roadbed, but quickly disappears.

Boundary

While performing the inventory no evidence of the boundary line was found. This tract is bordered by private property on two sides, to the north and the south. The west side's boundary is a minor drainage that mainly runs to the north and south. The east tract boundary is an intermittent stream that runs to the North West. The 2 sections of private property are found at the north end of the tract. There is a lake that is found on private property that appears to be located over the line on to state property. The other private line is the south line. The south line is also the southern section line for section 31.

Wildlife

This tract is typical of Southern Indiana. There were found deer, squirrels, chipmunks, song birds, and some birds of prey, while inventorying.

A Natural Heritage Database review was obtained for this tract. If rare, threatened or endangered species 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.

<u>Indiana Bat</u>
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.

In this inventory it is shown that the number of large legacy trees have been found not to meet the maintenance level for the Indiana bat. This tract has been found to have mainly small sawtimber (18 inch diameter – 14 inch diameter) and pole timber (8in-13 inch diameter). The average sawtimber sized tree is 17 inches DBH. Without large trees to begin with it is near impossible to have many snags that are over 20 inches in diameter. One of the objectives while marking the stand can be to limit the number of large trees harvested, to increase the habitat for the Indiana bat.

Recreation

The Knobstone Trail traverses through this tract; therefore hiking is a main recreational use. There are also a lot of deer stands and turkey blinds that have been found while inventorying. This tract can also be used for hunting and foraging for edible plants.

This stand is the site of a lot of illegal 4 wheeling. There are paths everywhere, which come and go out onto private property.

Cultural

Cultural resources may be present on this tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Summary Tract Silvicultural Prescription and Proposed Activities

Oak-Hickory

There are approximately 107 acres in this stand of timber. The main species are chestnut oak and white oak. The basal area per square foot is 90, which means there is approximately 20 square feet of basal area that can be removed from this stand. There are approximately 471,740 Doyle board feet found in this stand and 98,001 of that is harvestable which is roughly a quarter of the total volume.

This stand consists of small sawtimber to pole size timber. Some of the small sawtimber found in this tract seems to be trees that have been stunted in their growth and have stopped growing. This means the trees are vulnerable for a broad array of disease and insect attacks. The higher altitude the worse the quality of timber is, and the more defects are found in the trees. Some of this stand may be limiting to logging because of the steep terrain. Then southern end of this tract has steep topography. There are areas they may be

able to log on the ridgetops if there is a way found off the ridges without tearing up the drainages. A side slope skid would be a good option for some of the steep terrain.

The regeneration is mainly red maple and American beech. There is not much sunlight hitting the forest floor to support oak regeneration. With the shade tolerant species in the understory it exacerbates the oak regeneration problem. There should be some large openings created with the harvest to increase the sunlight hitting the forest floor. There will need to be follow-up timber stand improvement to get rid of the maples and beeches growing in the newly created opening that will be shading out the oak regeneration.

Despite the low stocking found on this site, the stand is still in need of an improvement harvest. There has been found in areas a plethora of chestnut oak mortality. What is killing the trees is not fully identified but it is suspected that these trees were stressed by being closely grown for some time. These trees should have been thinned out to promote a healthy stand of timber instead of the dying stand of today. The poor quality and stunted trees should also be thinned out to make room for the young stand of trees to take over. These young trees will improve stand vigor and overall health. There also needs to be some larger openings in order to facilitate oak regeneration. These openings should be created in areas with large groups of stunted or defected trees are found. This will improve the stand of timber and in a few years we will end up with a good quality stand of healthy trees able to fight off insects and disease.

Mixed Hardwood

This stand is mainly found in the drainage. There are approximately 17 acres found in this stand type. There is 92 square feet of basal area in this stand. There is approximately 22 square feet of basal area that can be removed in the harvest. There is 107,220 total Doyle board feet in this stand type. There is 23,730 Doyle board feet that is harvestable.

The main tree species are yellow poplar and sugar maple. The diameters of the trees are in the range of small to medium sawtimber. There was not much defect found within this stand type. In some places along the northern boundary the yellow poplars were overstocked. These areas will need to be thinned out before any major disease sets in. American beech is the primary regeneration in this stand.

Despite the low socking in this stand it could receive an improvement harvest. There are places that the poplars are over stocked and they will need to be thinned out before they get stressed out by competing for water and other resources. There are some areas where the trees are small sawtimber to poles. These areas need to be thinned out because these trees are growing to close together and are stunted.

The drainage which this stand follows on the east side of the tract is an intermittent stream. In order to comply with the riparian management zone there needs to be a 25ft, buffer in order to skid in the drainage. Some of the places in this drainage can get narrow therefore that will need to be taken into account when planning the skid routes.

There were some ailanthus trees found in this stand type. These trees will need to be treated before the harvest. The tract will need to be monitored following the harvest so the ailanthus does not get out of control.

Wetland

This wetland is located in the outflow of the lake located on private property. There are no trees growing in this area only tall grass and shrubs. This stand is approximately 2.75 acres.

Proposed Activities Listing

2013- Road work
2014-Timber Sale
2015- Timber stand improvement
2034- inventory and reassessment

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