Resource Management Guide

Clark State Forest **Compartment: 12** **Tract: 09**
Christine Martin **Date 8/20/12**

Acres Commercial forest: 140
Acres Noncommercial Forest: 0
Acres Permanent Openings: 0
Acres Other: 0

Acres Total: 140

Basal Area ≥ 14 inches DBH: 52.8
Basal Area < 14 inches DBH: 31.5
Basal Area Culls: .8
Total Basal Area: 85.1

Number Trees/Acre: 204

Stocking Level : Fully Stocked 78%

Species	Harvest	Leave	Total
American Beech		1370	1370
Black Gum	2410	0	2410
Black Oak	16320	13890	30210
Chestnut oak	17490	67950	85440
Largetooth Aspen	2410		2410
Northern Red Oak	10020	22190	32210
Pignut Hickory		1700	1700
Red Elm		2070	2070
Scarlet Oak	17380	50150	67530
Sugar Maple		10020	10020
Sweetgum	10470	2400	12870
Virginia Pine	85770	54470	140240
White Ash	4710		4710
White Oak	14570	159370	173940
Yellow Poplar	14410	26990	41400
Totals	**195960**	**412570**	**608530**
Totals/acre	**1399**	**2946**	**4346**

Location

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

General Description

This tract consists of three cover types: oak hickory, mixed hardwood, and Virginia Pine. The largest cover type is the oak-hickory with 94.8 acres. The oak hickory is found on the slopes of this tract. There is a variety of oaks that are growing within this type. The Virginia Pine type has approximately 24.4 acres and is mainly located on the ridge top. This area has various sizes of Virginia pine. The pine are over mature and are blowing over. The mixed hardwoods type consists of 20.6acres. The mixed hardwoods type is found in the drainages of this tract.

History

This tract was not originally the 140 acres it is today. In 2007 we acquired an 80 acre parcel to the south of what was originally known as 1209. This 80 acre parcel was mostly added to this tract and now it is 140 acres.

1974 there was an inventory for this tract which showed that there was only 600 board feet to the acre. There was another inventory preformed in 1998. This inventory shows that there is 4600 bdft to the acre.

Landscape Context

The majority of the surrounding land is forested. Clark State Forest borders this tract on all sides. There are some farms and fields located to the northwest of this tract.

Topography, Geology, and Hydrology

This tract is mainly comprised of one main ridge and all the associated fingers that run off of it. The drainages on either side of this tract flow into Bowery creek.

Soils

Beanblossom (BcrAW)

This soil is a silt loam found in alluvial fans and flood plains. Theis soils is generally found on toeslopes. The beanblossom series are well drained and have a moderate available water capacity. The soil is 0-60 inches thick. The first Horizon being 0-7 inches and a silt loam. The next horizon is also a silt loam 7-24 inches thick. The third horizon is an extremely channery loam found at 24-54inches. The last horizon is bedrock. These soils have a mean annual temp of 52-56 degrees F and a mean annual precipitation of 40-46 inches.
Degree slop: 1-3%
Management concerns: occasional flooding
Land capability: 2W

Coolville (ComC)

The Coolville series consists of moderately well drained soils with moderate available water capacity. These soils are comprised of Loess with a clayey residuum over shale and siltstone. The first Horizon is a silt loam which is 8 inches thick. The next horizon is 8-21

inches thick and is comprised of a silty clay loam. At 21-37 inches the soil is a silty clay. At 37-44 inches it is a parachannery silty clay loam. At 44-60 inches it is bedrock. The mean annual precipitation is 40-46 inches. The mean annual temperature is 52-57 degrees F.
Degree Slope: 6-12%
Land capability: 3e
Management concerns: None

Gnawbone (GmaG)
The Gnawbone series consists of moderately deep soils with and available water capacity is moderate. The mean annual precipitation is 40-46 inches and the mean annual temperature is 52-56 degrees F. These soils mainly form on the backslope of hills. In a typical profile the soil is silt loam in the surface layer and in the substratum the soil is a parachannery silty clay loam with bedrock at 60 inches.

Kurtz
The Kurtz series consists of well drained soils which are from siltstone and shale bedrock. The mean annual temperature is 53 degrees F and the mean annual precipitation is 42 inches. A typical profile starts with an O layer which is 1-2 inches thick. The soil then grades from a silt loam to a silty clay loam. In the lower horizons the soil becomes channery. The bedrock consists of siltstone at 60 inches.

Rarden (Cocn)
The Rarden series are moderately deep soils with a low available water capacity. The mean annual precipitation is 40 inches and the mean annual temp is about 53 degrees F. These soils are mainly found on hills, more specifically the shoulders, back slopes and the side slopes. In a typical soil pedon the soil is primarily a silty clay loam grading to a silty clay. At about 28-36 inches there is an extremely parachannery silty clay overlying bedrock.

Access

There is good access to this tract. There is a gravel firelane that continues off of Flowergap Road. This firelane traverses on the central ridge of this tract. This road is mainly in good shape, it just needs to be graded. This road also is in need of being brushed out. The trees and shrubs are growing in making the road way narrow.

Boundary

This tract is completely surrounded by Clark State Forest. The east and west tract boundaries are made up of drainages. The north and south lines are arbitrary lines drawn on a map.

Wildlife and Communities

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

Wildlife Habitat Feature Tract Summary

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Legacy Trees *					
11"+ DBH	81		50	-31	
20"+ DBH	27		14	-13	
Snags (all species)					
5"+ DBH	36	63	1	-35	-62
9"+ DBH	27	54	1	-26	-53
19"+ DBH	4.5	9	0	-5	-9
Cavity Trees (all species)					
7"+ DBH	36	54	0	-36	-54
11"+ DBH	27	36	0	-27	-36
19"+ DBH	4.5	9	0	-5	-9

*** Species Include:** AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO

There is room for improvement on the large snags and number of cavities in this tract. The reason that there are not many large diameter trees is that the average diameter of tree is small pole to small sawtimber. There are not many large trees found on this tract. The only thing that could be done to mitigate these issues is to leave some of the bigger trees while marking. These trees can then be girdled in the post harvest TSI.

It also looks like there could be more cavities created. This inventory was completed in the middle of the summer. Some of the cavities could have been missed by the forester while performing the cruise.

One of the reasons to have a harvest is to get rid of the trees that have been stunted, which are not growing anymore. These trees would be replaced with the younger more vigorous trees that will eventually grow bigger in the future therefore there will be legacy trees in the future.

There were some invasive exotics found in this tract of timber, of which, the most prevalent being Japanese stiltgrass. This stiltgrass is found in the drainages and has been very well established. The stiltgrass has been thought to have come in from the county roads along the drainage corridors.

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.

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.

Recreation

The main road that runs through this tract is also a horsetail. This is a very popular horsetail because it connects Deam Lake with the Pekin Saddle Club. The Knobstone Trail also runs to the south of this tract. The horsetrail may also be used as a hiking trail. There is also evidence that this tract is heavily used for hunting.

This horsetrail will be closed throughout the duration of the harvest, due to safety hazards.

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 95 acres of timber. The main species are white oak, scarlet oak, and Virginia pine. The basal area per square foot is 92, which means there is approximately 20 square feet of basal area that can be removed. The stocking is around 81%. After the harvest the stocking would be around 67 % which is fully stocked and is more manageable for the future. There will be more room for the current trees to grow

and mature. There are approximately 485,640 Doyle board feet and 131,240 of that is harvestable which is roughly a quarter of the total volume.

This type still retains some trees that were remnants of past use. These large wolfy trees are located directly behind the Virginia pine and along the old roadbeds in this tract. These large oak trees are not good quality and take up a lot of canopy space. There is some oak regeneration growing around the outside of the canopy of these trees. When there is an improvement harvest some of these trees could be removed in order to provide room and ample sunlight for the younger more vigorous growing oaks next to these large wolfy oak trees. However many should be retained whenever possible to provide the large, old trees for legacy trees and cavities.

The majority of the area 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 the altitude the worse the quality of timber is; the more defects are found in the trees. The steeper the terrain the shallower the soils; therefore the more defects and poorer quality trees. Some of this area may be limiting to logging because of the steep terrain. In these areas they may be able to log on the ridgetops.

In the low areas of this tract the regeneration is mainly red maple and American beech. Where the soil is thinner more oak regeneration is present. There is not much sunlight hitting the forest floor to support oak regeneration in some parts of the area. 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 in areas with well established oak regeneration present. There will need to be follow-up timber stand improvement to remove the maples and beeches growing in the newly created opening that will be shading out the oak regeneration otherwise the beech and maple will out compete the oaks and the next openings will be a beech maple mix.

Despite the low stocking this area is 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 grown closely grown for some time. The recent droughts have also exacerbated the problem of dieback. These trees need to be removed in order to promote healthy timber instead of the dying trees. The poor quality and stunted trees should also be thinned out to make room for the young trees to take over. These young trees will improve vigor and overall health. There also needs to be some larger openings created in areas with large groups of stunted or defected trees are found. If the proper TSI is to be performed after the harvest these openings will improve the timber and in a few years we will end up with a good quality, healthy trees able to fight off insects and disease.

<u>Mixed Hardwood</u>

This type is mainly found in the drainage. There are approximately 21 acres found in this type. There is 73 square feet of basal area. There is 64,490 total Doyle board feet in this type. The stocking is around 69%. After the harvest the stocking will be reduced to 62%. This reduction makes the area more manageable for the future and there is more room for the trees to grow. The main tree species are Virginia Pine, sugar maple, and white oak. The diameters of the trees are in the range of small sawtimber to poletimber.

Despite the low stocking it could receive an improvement harvest. There are some areas where there is disease present. These trees will need to be removed so the disease does not spread to the healthy trees. By taking out the diseased and dying trees the residual trees will be healthier and more vigorous. This will ensure that this area will remain into the future and provide many ecological benefits.

There was a lot of Japanese stiltgrass found within this area. This grass was mainly found in the sunny areas of the drainage and the roadbeds.

Virginia Pine

There are 24 acres in this stratum. This has 74 square feet of basal area. In total there is 75,000 Doyle board feet of timber. This is 68 % stocked which is considered fully stocked.

This timber is located along the ridgetops of this tract. It is safe to assume that this area used to be a field at one time. This area is now filled with various sizes of Virginia pine trees. This timber is slowly decaying with time. There are various pockets of blowdown. Each pocket of blowdown fell at different times and is now at different ages of succession.

This type follows the firelane/horsetrail that we have in this tract. Every time there is a storm with strong winds another part of the trees comes down resulting in the roadway being blocked by blown down pine trees.

Despite the low stocking of this stratum the best option is to remove it from the tract. The timber is decaying and within the next 50 years won't be in existence any longer. By harvesting now we will also help facilitate oak regeneration growth. There is a plethora of oaks growing on the forest floor. There is unfortunately a lot of beech regeneration growing here as well. By harvesting all the pine we can hopefully burn off the beech regeneration before it has a chance to overtake the oak regeneration.

Proposed Activities Listing

2013-Timber Sale
2014- Timber stand improvement and regeneration opening recon
2018- (or 2 yrs after opening completion) recon and asses regeneration success.
2034- inventory and reassessment for future planning

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