Indiana Department of Natural Resources
Division of Forestry
Resource Management Guide

Clark State Forest **Compartment: 15 Tract: 10**
Christine Martin **Date: 1/15/14**

Acres Commercial forest: 121
Acres Noncommercial Forest: 0
Acres Permanent Openings: 0
Acres Other: 0

Basal Area ≥ 14 inches DBH: 19.3
Basal Area < 14 inches DBH: 57.3
Basal Area Culls: 0
Total Basal Area: 76.6

Acres Total: 121
Stocking Level : Fully Stocked (65%)

Number Trees/Acre: 132

Species	Harvest	Leave	Total
Black Walnut	0	1410	1410
Red Maple	0	2690	2690
Shagbark Hickory	0	8530	8530
Sweetgum	0	5160	5160
Yellow Poplar	0	6500	6500
American Sycamore	2690	0	2690
Chestnut Oak	3830	31910	35740
Black Oak	9950	17230	27180
Scarlet Oak	17260	24490	41750
White Oak	44670	321470	366140
Virginia Pine	87790	90650	178440
Totals	**166190**	**510040**	**676230**
Total/Acre	**1,373**	**4,215**	**5,588**

- Volumes are estimated in Doyle Board Feet

Location

This tract is located in Clark county Indiana, T1S R6E, Section 33.

General Description

In total this tract of land comprises 121 acres. There are three different cover types in this tract. The largest type is the oak-hickory which is 70 acres. The Virginia pine area is about 31 acres and the mixed hardwoods are about 20 acres.

There is a lot of blow down found in this tract throughout all the three cover types. The Virginia pine in this stand is over mature and is constantly blowing over.

History

1975- resource management guide written
1985- Tract lines were redrawn
1986- inventory summary states 4174 board feet to the acre.
2009-amendment for Hurricane Ike in 2008 and the ice storm in 2009
2009-salvage harvest 60,045 board feet in 1,826 logs were harvested. 1511 was also salvaged with this sale.

Landscape Context

This tract is bordered on 3 sides by Clark state forest. The 4th side is bordered by Deam Lake. The tract to the west is the campground for Deam Lake State Recreational Area.

Topography, Geology, and Hydrology

This tract is mainly one ridge that cuts to the south east therefore the tract is comprised of south and west facing slopes. This tract borders Deam Lake therefore all the drainages to this tract empty out into the lake.

Soils

Beanblosson Silt Loam(BcrAW) or Wakeland Silt (WaaAH)

The Wakeland series consists of very deep, somewhat poorly drained soils that formed in silty alluvium. These soils are on flood plains and flood-plain steps. The surface horizon is a plowed horizon with a dark grayish brown silt loam. After this horizon the rest of the profile is comprised of substratum. The substratum is mainly a grayish brown silt loam. The end of the profile is at 60 inches.
Degree Slope: 0-2%
Site Index: 80
Growth Range Potential: 342

Coolville (ComC)

The Coolville series consists of moderately well drained soils with amoderat 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 8-21inches thick and is comprised of a silty clay loam. At 21-37 soils is a silty clay. At 37-44 inches it is a parachannery silty clay loam. At 44-60 inches it is bedrock.

Degree Slope: 6-12%
Land capability: 3e
Management concerns: None

Deam Silty Clay Loam (DbR)

This soil series is formed from the residuum of shale. These soils are moderately deep, well drained soils found on hills. The surface horizon is a silty clay loam which grades into more the further in the horizon. In the Bt2 horizon there starts to be some parachanery silty clay showing up in the profile. The rest of the profile gets increasingly channery until bedrock.
Degree slope: 15-55%
Available water capacity: low
Permeability: slow to very slow

Gnawbone (GmaG)

The Gnawbone series consists of moderately deep soils with and available water capacity is moderate. 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. A typical profile starts with a 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 60inches.

Weddel silt loam (WeB2)

The weddel series consist of soils that were formed in loess with the underlying paleosol till and residuum of soft shale. These soils are found on backslopes, shoulders and summits of till plains. These soils tend to have fragic properties. The profile starts out as a silt loam. The subsoils is a silty clay loam. The depth to the fragipan is 26 inches. Underneath the fragipan is a silty clam loam. The substratum is a parachannery silty clay. The bedrock forms at 75-80 inches.
Degree slope: 2-12%
Drainage class: moderately well drained
Land capability: 2e

Access

There is good access to this tract. There is a horsetrail that runs through this tract. The horsetrail, which also serves as firelane access through runs the southern part tract and can be accessed easily by a vehicle. The road to the campground of Deam Lake runs just inside of the tract to the west.

Boundary

This tract is surrounded by Clark State forest. The majority of the boundaries are geographical. The southern tip of this tract is Deam Lake.

Wildlife and Communities

This tract is typical of Southern Indiana's flora and fauna. Deer, squirrels, chipmunks, song birds, and some birds of prey, were observed while inventorying.

The ridges on the upper slops provides great wildlife habitat with all the green brier used for cover. There is also a heavy component of chestnut oak, which provided a food source. The lower slopes of the tract are heavy to white oak and the American beech in the understory and drainages. These two areas will provide another food source for the wildlife.

Wildlife Habitat Feature Tract Summary

State Forest: Clark
Compartment 15 **Tract:**10
Tract Acres: 121

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Legacy Trees *					
11"+ DBH	1089		2703	1614	
20"+ DBH	363		610	247	
Snags (all species)					
5"+ DBH	484	847	977	493	130
9"+ DBH	363	726	790	427	64
19"+ DBH	60.5	121	114	53	-7

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

Indiana Bat

Recreation and resource management activities may have both positive and negative effects on the Indiana bat. Well planned timber harvests 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 positively to local populations. In cases of maternity trees this could provide conditions that increase growth and activity rates of young bats.

Suitable roost trees such as large diameter snags or live trees with loose or exfoliating bark will be retained in sufficient numbers to provide potential roosting habitat for the Indiana bat.

A Natural Heritage Database Review was completed for the tract. If Rare, Threatened or Endangered species (RTE's) were identified, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Invasive Species

Oriental bittersweet and Japanese honeysuckle was found extensively throughout this tract. These invasive plants are the heaviest along the horsetrail. These plants are also found in areas of heavy blow down. These invasive plants will need to be monitored and sprayed periodically to get them under control.

Recreation

This tract is highly utilized for recreation. There is a horsetrail that runs through this tract. This tract is also heavily hunted in because of the proximity to the handicapped hunter trail. This tract will be closed to recreation activities including the horse trail during resource management activity. Activity will be timed to minimize disruption.

Cultural

Cultural resources may be present, but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management activity

Summary Tract Silvicultural Prescription and Proposed Activities

<u>OAK-HICKORY</u>

There are approximately 70 acres in this stratum. The main species is white oak. The basal area per acre is 88sf, with approximately 13 square feet of basal area prescribed for harvest. There are approximately 507,790 Doyle board feet found in this stratum and 116,970 of that is tallied as harvestable, which is a little less than a quarter of the total volume.

A large component of this stratum is white oak. The overall size of these trees is mainly medium saw timber to small saw timber. These trees are mainly poor formed and stressed. There are some pockets where the oaks are dying due to being stressed for some time. This area is prescribed a light thinning and improvement harvest to groom out the dying, stressed, and poor formed trees to make room for the good quality and healthy trees to grow.

The regeneration is mainly red maple and American beech. There is a fair amount of oak regeneration found along the outside of the pine stand. There is not much sunlight hitting the forest floor in the interior of this stand 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 with follow-up TSI to reduce regeneration inhibiting maple and beech growing in the newly created openings.

The improvement harvest would also target the poor quality, stunted, and stressed trees 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 in order to facilitate oak regeneration. These openings should be created in areas with large groups of stunted or defective trees. There are also areas with a large amount of stressed white oak. These areas are also good candidates for openings.

VIRGINIA PINE

The main tree species is Virginia pine. There is not much variety. There are pocket of white oak regeneration that are waiting for the chance to be released from underneath the pine. This area is 31acres in size. There is a total of 66 square feet of basal area. The basal area is low on account of the plethora of blow down pockets. This area was planted in Virginia pine. These trees are stunted and in a state of decline.

Many of these pines have blown over. The pine that is still standing is over mature and will continue to break apart for the next couple years. There is already a couple acres of pure pine blow down. In this area there is only yellow poplar that is 2-4 inches in diameter. This area is hard to traverse through and will be for some time.

On the edges of the pine areas and in some of the pockets of moderate blow down there is an abundance of white oak regeneration. This regeneration should be encouraged. The best way to encourage the growth of this oak is to completely remove the standing pine thereby letting more light hit the forest floor and release the regeneration.

This harvest will improve the overall health of the stand and move it towards a mix of native hardwoods which is what was historically present before the pines were planted. There are too many trees that are stressed and over mature which leads to high mortality. Once the stressed trees are removed the stand is better able to fight off insect and fungal attacks.

MIXED HARDWOOD

This stratum is mainly found in the drainage. There are approximately 20 acres found in this type. There is 50 square feet of basal area in this stratum.

The main tree species is Virginia Pine. This stratum also contains a plethora of pine blow down. These pine should be removed in order to maintain stand health, if not removed

they will continue to blow over. The diameters of the trees are in the range of small to medium saw timber.

A light harvest is recommended for this stand type. This harvest will mainly consist of removing the pines and poor formed hardwoods to favor healthy native hardwood species. This harvest will also increase the amount of light hitting the forest floor thereby releasing any regeneration in the under and intermittent story.

Oak-Pine
There is about an acre of the oak pine stand there were no inventory plots located in this section of the stand but it would appear to contain about the same volumes as the stand in the tract to the north. This stand has a basal area of 120.

This stand consists mainly of chestnut oak and Virginia Pine. There is a thick layer of green brier in the understory. This stand starts to appear in elevation above 750.

This has steep sections which is a consideration for resource management. There are also many pines in this stand that are over mature and many have blown over. It would be prudent to harvest the over mature pines in this stand in order to promote overall stand vigor.

Proposed Activities Listing

2014-Road work and preharvest invasive species work
2014-Timber sale
2015- Timber stand improvement (TSI) and invasive control and regeneration check
2024- re evaluate for next managements cycle.

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