

Resource Management Guide

Harrison-Crawford State Forest
Christine Martin

Compartment: 16 Tract: 2
Date 12/9/08

Acres Commercial forest: 159
Acres Noncommercial Forest: 68
Acres Permanent Openings: 0
Acres Other: 0

Basal Area \geq 14 inches DBH: 51
Basal Area < 14 inches DBH: 44
Basal Area Culls: 2
Total Basal Area: 97

Acres Total: 227

Number Trees/Acre: 325

Location

This tract is located in Crawford county Indiana, T3S R2E 30; 31. To the east of this site is Mulzers Quarry. Interstate 64 is located approximately a half mile to the north of this tract.

General Description

This tract contains 221 acres and 5 different stand types. There is an average of 96 square feet of basal area per acre throughout the entire tract. There is one central ridge that runs to the south west.

The first stand that is encountered when entering this stand is a Virginia Pine stand. This stand runs the length of the ridge top. There are approximately 54 acres in this stand type. The main species of trees in this stand type are Virginia pine and yellow poplar. The yellow poplars are mainly located in the northeast region of this stand.

The second stand encountered on this tract is mixed hardwoods. This stand follows the edges of the Virginia pine stand. There is a hodgepodge of tree species found in this stand type but the main species are yellow poplar, eastern red cedar, and American beech. The acreage of this stand is approximately 45 acres.

The largest stand is the oak-hickory stand type. It encompasses 107 acres in this tract. The main tree species in this tract is white, black, and red oaks. This stand is mainly located on the sloping hillsides of this tract.

On the southern part of the tract there is a plantation of white pine about 7 acres in size. Records could not be found to as when the pines were planted

To the east of the white pine plantation there is a cedar patch that is 14 acres and runs to the drainage.

History

In august of 1931, 90 acres of land was acquired by the state from Clark. In December of 1940, 100 acres was acquired from Onstott and the last 25 acres from Pleasant.

In 1988 there was a timber sale on this tract and the tract to the north, 1601. In total the harvest area covered 202 acres, and 88,892 board feet were sold. There existed 2 yards on this sale. The first yard was located along the firelane on the northern part of the ridge. The second yard is located on the southwestern portion of the ridge where it starts to broaden.

Landscape Context

The majority of this tract is bordered by Harrison-Crawford State Forest. Tower road borders this tract for approximately a ¼ mile on the northern side of the tract. Along Tower road there are many residential houses. To the north of Tower road is a strip of residential houses, but behind them is more Harrison-Crawford State Forest. Approximately a quarter mile to the east is Mulzers Quarry. To the north of this tract about a half mile is interstate 64.

The main landscape context is forested land. There are also many fields associated with the powerline right of way and the residential houses along Tower road.

The next tract to the south east is part of the Leavenworth barrens nature preserve.

Topography, Geology, and Hydrology

This tract is made up mainly of a hill. The ridge runs to the southwest. Approximately half of this tract is made up of the south facing slope.

Texas creek makes up the boundary of part of the southern line. There are two more drainages that make up the boundary line to this tract. Both of these two drainages flow into Texas creek.

Soils

Adyeville Very Fine Sandy Loam (AbqE2, AciE)

The Adyeville series consists of moderately deep, somewhat excessively drained soils. Surface Horizon is 9 inches thick. The subsurface horizon then grades into 8 inches of silt loam then with the remaining 60 inches turns into a loam texture type soil. The bedrock consists of moderately cemented sandstone with some siltstone, and shale. The permeability is moderately rapid. The mean annual precipitation is about 43 inches and the mean annual temperature is about 54 degrees F.

Degree Slope: 8-60%

Woodland suitability group: 3o10

Site Index: 70

Growth Range potential: 200

Management Concerns: Runoff and erosion

Apalonia Silt Loam (AgrA, AgrB, AgrC2, AgrC3)

The Apalonia series consists of very deep, moderately well drained soils forms in loess and the underlying residuum from shale with limestone and siltstone. They are moderately deep or shallow to a fragipan. The surface horizon is a silt loam 8 inches

thick. The first 8 inches of the subsoil is a silty clay loam. The next 33 inches is a silt loam. The next 11 inches is clay then it turns into a clay loam for 9 inches. The last 21 inches of the subsoil is a loam. The bedrock is weakly cemented shale with moderately and strongly cemented sandstone. The mean annual precipitation is about 43 inches and the mean annual temperature is about 54 degrees F.

Degree Slope: 0-12%

Woodland suitability group: 3d9

Site Index: 60

Growth Range potential: 258

Management Concerns: runoff and erosion

Corydon Stony Silt (CqyG)

The Corydon series consists of shallow, well drained soils that formed in as much as 8 inches of loess and in the underlying limestone residuum. The Corydon soils are on hills underlain with limestone. The surface horizon is 8 inches of a silt loam. The subsoil is 9 inches of clay. The bottom of the profile is unweathered bedrock. Mean annual precipitation is about 44 inches, and mean annual air temperature is about 54 degrees F.

Degree Slope: 20-60%

Woodland suitability group: 1o8

Site Index: 64

Growth Range potential: 258

Management Concerns: runoff and erosion

Gatchel Loam (GacAW)

The Gatchel series consists of very deep, somewhat excessively drained soils on flood plains. They formed in loamy alluvium containing a high percentage of rock fragments in the lower part. The surface horizon is a loam that is 4 inches thick. The first 5 inches of the subsoil is loam, the next 9 inches is a fine sandy loam. The substratum is a coarse sandy loam turning into a sandy loam. Mean annual precipitation is about 43 inches and mean annual temperature is about 54 degrees F.

Degree Slope: 0-2%

Woodland Suitability: 1o8

Site Index: 60

Growth Range potential: 155

Management Concerns: runoff and erosion

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 from 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

Tipsaw Very Fine Sandy Loam (TbIG)

The Tipsaw series consists of moderately deep, somewhat excessively drained soils. They formed in loamy residuum from sandstone with shale and siltstone. The surface is a dark grey very fine sandy loam about 2 inches thick. The subsurface horizon is also a very fine sandy loam about 3 inches thick. The subsoil is 15 inches is a fine sand loam and the last 20 inches is a loam. The bedrock consist of a weakly cemented and moderately cemented sandstone with shale, siltstone. The mean annual precipitation is about 43 inches, and mean annual temperature is about 54 degrees F. Permeability is moderate or moderately rapid

Degree Slope: 20-70%
Woodland Suitability: 3r12
Site Index: 70
Growth Range potential: 342
Management Concerns: runoff and erosion

Access

There is good access to this tract. There is a firelane that runs to the south of tower road which runs the majority of the length of the ridgetop.

This firelane is in need of some repairs. The maples and beech have grown up along the ditch and have made the lane very narrow. In places the ditch has washed down to the bedrock. The lane would first need to be brushed out then re-shaped with a bulldozer. There is one area that would need to either be dug out or have rip-rap placed in the hole or a culvert needs to be installed. There could be a light layer of rock added to the surface of the road once completed.

Boundary

This tract has three different drainages for a boundary and a road. To the north is Tower Road and the tract follows it for a quarter mile. The northwest boundary is made up of one of the drainages that will eventually run into Texas creek. Before it runs into Texas Creek, it meets up with a private property line that is marked with some rebar posts. The west line follows this line until it meet up with Texas creek and then the line follows the creek east until the creek forks into two smaller drainages. The southeastern boundary is comprised of another drainage that also empties into Texas creek.

Wildlife

The wildlife was typical of what would be found in Crawford county Indiana. Some examples of wildlife observed on this tract while inventorying it were deer, turkeys, song birds, and an eastern newt.

A Natural Heritage Database Review Check was performed on this tract. There was nothing noted on the tract, but because of the close proximity to the Leavenworth barrens there were copious of species in the adjoining areas. There is a severe drainage that separates these two tracts and any management activity in this tract should not have much affect on these species.

Recreation

There are no recreation trails on this tract; therefore the recreation is limited on this tract. There were signs that this tract is 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.

Tract Subdivision Description and Silvicultural Prescription and Proposed Activities

Oak-Hickory

This stand is located mainly along the southern slope of this tract. The average square feet of basal area per acre for this tract is 94. There are 603,000 total board feet in this stand and 78,900 board feet is the estimated amount to be harvestable. There is an average of 11 square feet of basal area per acre removed from this stand, which will bring the residual to 83 square feet per acre.

The main tree species in this area are white, red, and black oaks. The diameters of these trees are small sawtimber, around 14-16 inches in diameter. There are some patches of oak regeneration in this stand. The maple and beech regeneration is currently out-competing the oak regeneration.

Because this area has low stocking it would be better served to hold off on a harvest and perform some timber stand improvement (TSI). There would be an understory removal of the beech and maple regeneration in order to promote the oak regeneration that is present. In a couple years after the regeneration grows then there should be a harvest to open the canopy up to let more light in for the oak regeneration to flourish.

Mixed Hardwoods

This stand is mainly the transition zone between the Virginia pine stand and the oak-hickory stand. There are 45 acres of this stand type on this tract. The average basal area is 81 square feet per acre. There are approximately 158,000 board feet in this stand of which 28,000 are harvestable.

The main tree species are yellow poplar, eastern red cedar, and American beech. The regeneration is mainly American beech with some sugar maple. There could be some timber stand improvement in this stand in order to promote the yellow poplar regeneration and discourage the red cedar and American beech. The stocking in this area

is low, but there could be some TSI in the overstory as well to promote the growth on the more desirable trees.

Virginia Pine

This stand is mainly located on the ridgetop. The basal area in this stand averages 117 square feet. This stand encompassed 54 acres. There is 141,740 board feet in this stand.

The main tree species is Virginia pine, and some shortleaf pine. These trees are of small diameters. The average size is 14 inches. The average size seems to increase when you travel further south along the ridge.

There is a hodgepodge of hardwood regeneration underneath the pines. These pines could be removed to promote the hardwood regeneration and convert the stand from a pine stand into a hardwood stand. The pines however are too small to be commercially sold. There could be some strategic TSI performed to create holes in the canopy so the regeneration has more light and can grow into the overstory more easily.

In the northeast corner of the tract there is a small pocket of yellow poplars in the pines. These poplars are not very large in size, an average of 15 inches in diameter. Growing underneath these poplars is a plethora of oak regeneration that is waist high in places. There is also a strong component of American beech present in the understory as well. This area would need some timber stand improvement in order to encourage the oak regeneration and discourage the beech.

White Pine

This stand is located on the south facing slope about 200 yards north of Texas creek. These pines have an average basal area of 150 square feet per acre, and there are 95,950 board feet in the entire stand.

The average size is 16 inches in diameter. There is a strong component of red maple growing underneath the white pine. There are a lot of red maple poles that are around 4-6 inches in diameter. There is a strong presence of sugar maple regenerating in the understory.

These white pines are large enough that a commercial harvest would be feasible. This white pine would need to be removed in order to convert this site from pine into hardwood.

Eastern red cedar

This stand is just to the east of the white pine stand. There are 14 acres in all in this stand. These cedars are not very large they average about 8 inches in diameter. There is 100 square feet per acre of basal area in this stand. There are approximately 22,000 board feet of cedar in this stand.

The regeneration in this stand is mainly of beech and maple. There are some hardwood white oak and yellow poplars growing throughout the stand. The more desirable

regeneration of white oak and sugar maple could be released from the cedar. This stand could easily be converted to hardwoods. There would need to be a buffer put in place for the drainage that runs to the east of this stand.

Proposed Activities Listing

2009- Improve firelane so TSI/timber harvest can be performed more easily

2010- Have a cedar harvest to convert that stand into hardwoods

2012- Perform TSI on entire stand especially on the previously harvested cedar stand

2016- Check to see if TSI worked or if there needs to be more TSI done to help the stand grow to more of a oak-hickory stand type

2017- If TSI worked perform a harvest on the stand

2019- perform post harvest TSI where necessary

2042-re-inventory and re-evaluate original plan and make adjustments where necessary

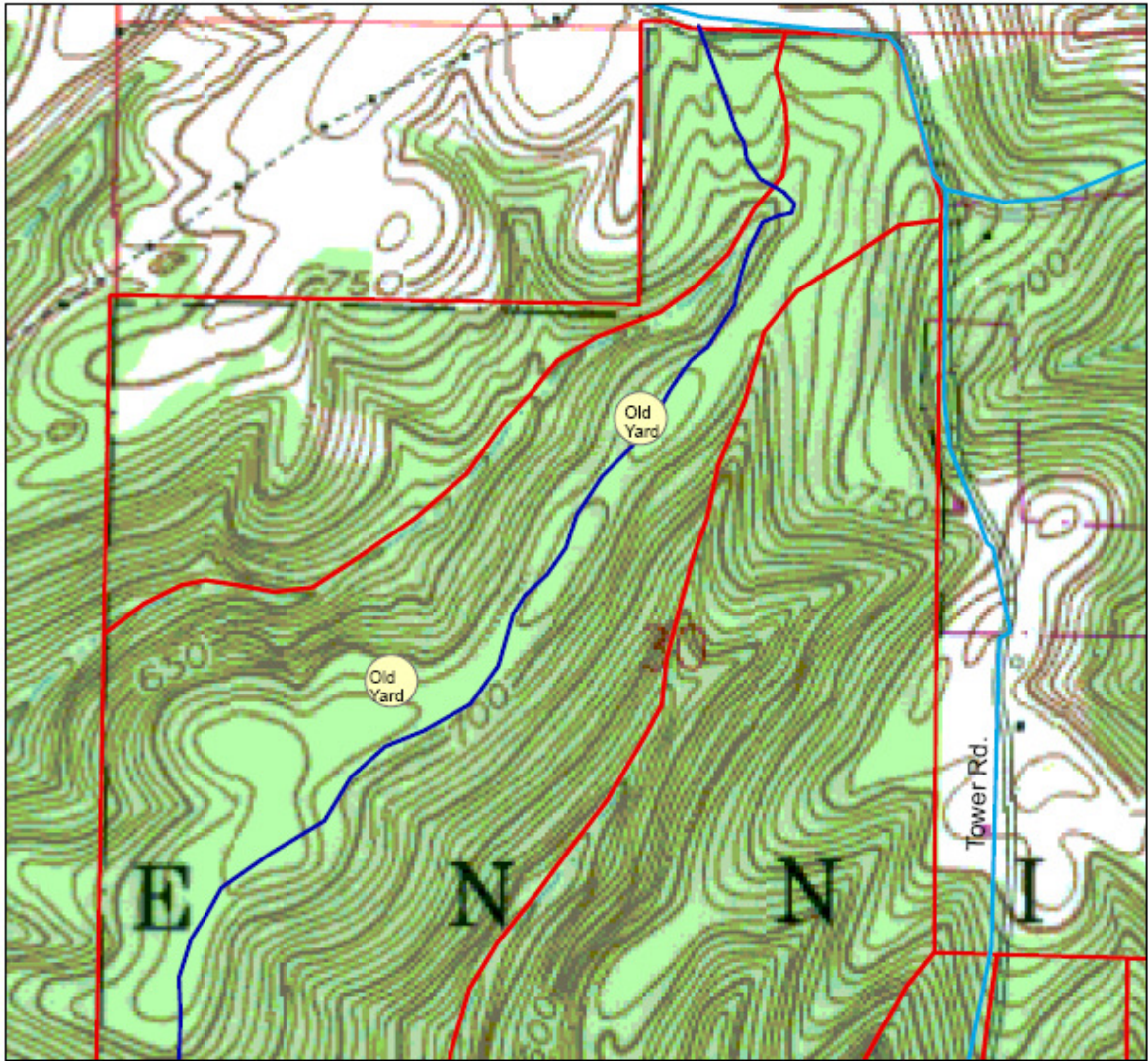
To submit a comment on this document, click on the following link:

http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

You **must** indicate “Harrison-Crawford C16 T2” 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.

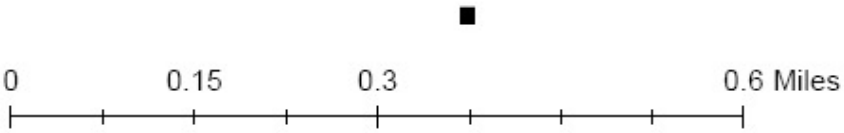
Compartment 16 Tract 2 T3S R2E 30,31

Tract Boundary Map

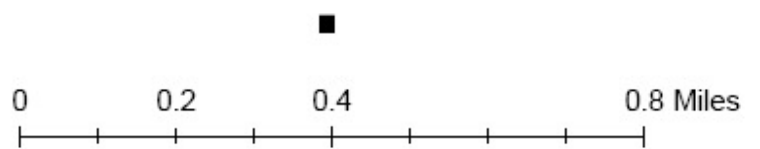
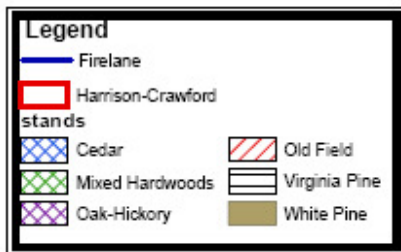
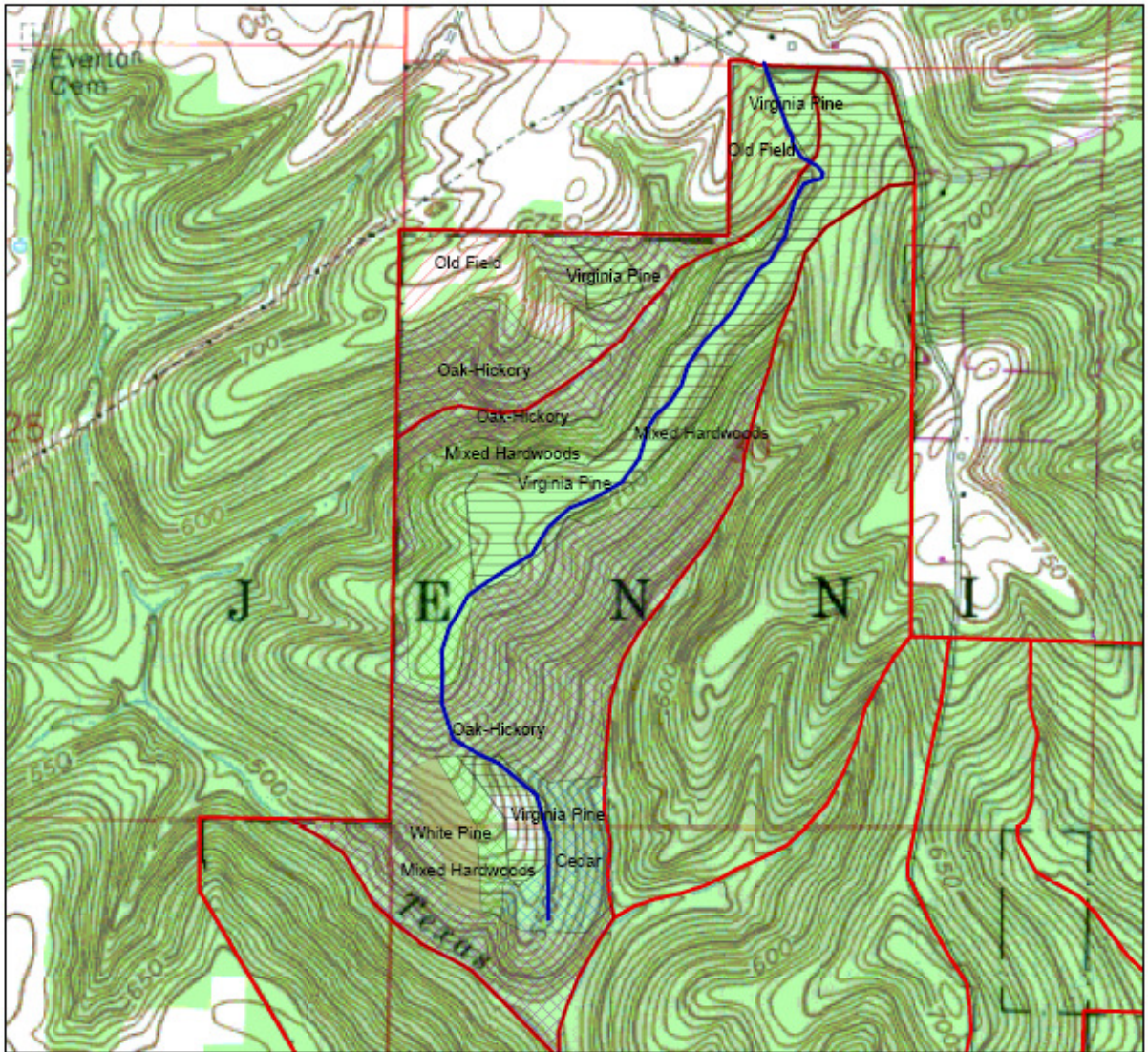


Legend

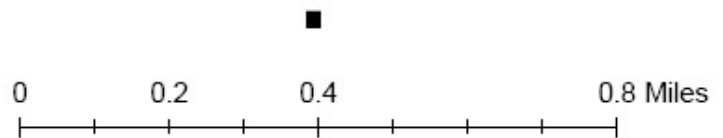
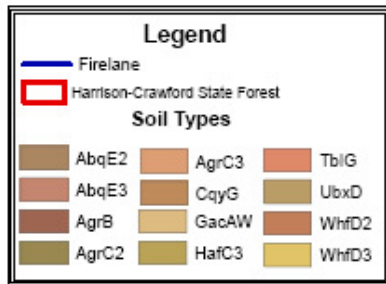
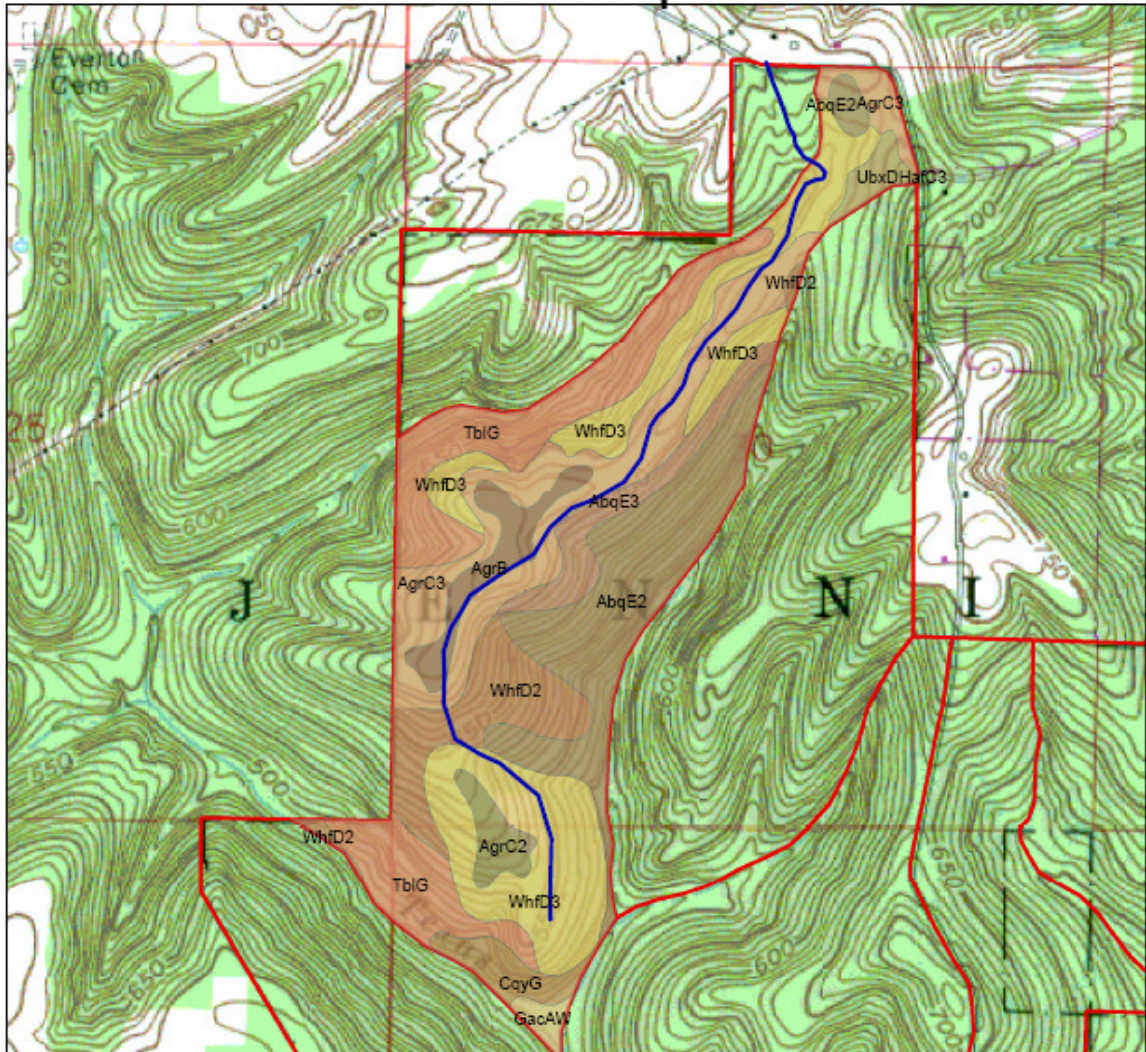
- ▼ Homesites
- Firelane
- ▭ HCSF Tracts
- County Road
- Old Log Yard



Compartment 16 Tract 2 T3S R2E 30;31 Stand Map



Compartment 16 Tract 2 T3S R2E 30;31 Soil Map



Average Site Index: 69

Stocking Level : Fully stocked (93%)

Calculated annual Growth (bd. ft.): 212 bd. ft. /acre/year

Tree Species	Harvest (board feet)	Leave (board feet)	Total (board feet)
Yellow Poplar	44580	93800	138380
White Oak	28610	326800	355400
Black Oak	27910	76470	104370
Blackgum	5770	3320	9090
Post Oak	4500		4500
Sugar Maple	4190	15100	19290
Scarlet Oak	3890	7780	11660
Northern Red Oak	3700	57210	60910
Red Maple	2160	8450	10600
American Beech		20080	20080
American Sycamore		7130	7130
Black Walnut		3320	3320
Chinkapin Oak		9280	9280
Pignut Hickory		22900	22900
Red Elm		3320	3320
Shagbark Hickory		23810	23810
Shingle Oak		1890	1890
White Ash		17400	17400
Hardwoods Total	125310	698060	823330
Hardwoods Total/Acre	824	4592	5417
Virginia Pine	18820	34640	53470
Eastern White Pine	11550	117020	128580
Eastern Red Cedar	5080	52800	57880
Shortleaf Pine		6710	6710
Softwood Total	35450	211170	246640
Softwood Total/Acre	473	2817	3288

* all board foot totals are based on the Doyle Log rule