

## Indiana Department of Natural Resources - Division of Forestry

### RESOURCE MANAGEMENT GUIDE

Clark State Forest	Compartment 14	Tract 5
Forester Greg Roeder & Matt Gee	Date 05/25/2010	
Management Cycle End Year 2030	Management Cycle Length 20 years	

#### Location

Compartment 14, tract five is a 126.6 acre tract of predominately hardwood timber located in the Clark military grant #234, in Clark County, Indiana.

#### General Description

C14T5 is predominately comprised of oak-hickory sawtimber. There are two management areas. oak-hickory and young mixed hardwoods. In the past, it has been Virginia pine and oak-hickory stands. Past storms have blown down the majority of the Virginia pine. Sweetgum, maple, black cherry, scarlet oak and white oak trees are taking the place of the pine. These blown down areas of Virginia pine are now considered mixed hardwoods.

#### History

1990- "loop" road built across tract from Flower Gap road to Johnson property; property lines flagged.  
1990- Timber inventory 2,770 bf growing stock; 2,690 bf harvest, 5,460 bf total.  
1991-Timber sale sold to Housewood 146, 735 board feet, \$32,804.  
1991-TSI, field & hill seeded, wells covered.  
1992 -TSI done by correction crews.  
2010 – Timber inventory & management guide.

#### Landscape Context

Private land surrounds the majority of this tract tract. There are several homes in the area, some agriculture, hay fields, beef cattle, and row-crops near here.

#### Topography, Geology and Hydrology

The topography of C14T5 ranges from 640' to 530' the steepest points being on the west side of the tract at 640' and the lowest at the east corner at 530'. Bowery Creek runs through the northern most quarter of this tract. It runs west to east, as the slopes are north and east facing. There are several other small hollows, which contain small creeks or drainage areas these drain into Bowery Creek. It empties into Blue Lick Creek, then into Silver Creek, and eventually into the Ohio River.

## **Soils**

BbhA—Bartle silt loam, 0 to 2 percent slopes

Setting:

*Landform:* Stream terraces

*Landform position:* Treads

Soil Properties and Qualities

*Parent material:* Thin loess and the underlying alluvium; or alluvium

*Depth class:* Very deep (more than 80 inches)

*Drainage class:* Somewhat poorly drained

*Water table depth:* 0.5 foot to 2.0 feet (perched)

*Available water capacity to a depth of 60 inches:* About 8.0 inches

Composition

*Bartle and similar soils:* 83 percent

*Dissimilar inclusions:* 17 percent

\* Peoga soils in shallow closed depressions

\* Pekin soils on slight rises

\* Bartle, rarely flooded soils on flood plain steps

BcrAW-Beanblossom silt loam

1-3% slopes, occasionally flooded, very brief duration

*Landform:* Flood plains

*Landform position:* Natural levees and alluvial fans

*Parent material:* Channery, loamy alluvium

*Drainage class:* Moderately well drained

*Water table depth:* 3.5 to 5.0 feet (apparent)

Yellow poplar site index: 95

ComC—Coolville silt loam, 6 to 12 percent slopes

*Landform:* Hills underlain with shale or siltstone

*Landform position:* Shoulders and backslopes

*Parent material:* Thin loess and clayey residuum

*Drainage class:* Moderately well drained

*Water table depth:* 1 to 2 feet (perched)

red oak site index: 66

ConD—Coolville-Rarden complex, 12 to 18 percent slopes

*Landform:* Hills underlain with shale or siltstone

*Landform position:* Shoulders and backslopes

Coolville

*Parent material:* Thin loess and clayey residuum

*Drainage class:* Moderately well drained

Water table depth: 1 to 2 feet (perched)

red oak site index: 66

Rarden

Parent material: Clayey residuum

Drainage class: Moderately well drained

Water table depth: 1 to 2 feet (perched)

black oak site index: 71

DbrG—Deam silty clay loam, 20 to 55 percent slopes

Landform: Hills underlain with shale

Landform position: Backslopes

Parent material: Clayey residuum

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

GmaG—Gnawbone-Kurtz silt loams, 20 to 60 percent slopes

Landform: Hills underlain with siltstone

Landform position: Backslopes

Gnawbone

Parent material: Silty residuum

Depth class: Moderately deep (20 to 40 inches)

Drainage class: Well drained

Kurtz

Parent material: Silty residuum

Depth class: Deep (40 to 60 inches)

Drainage class: Well drained

PcrB2—Pekin silt loam, 2 to 6 percent slopes, eroded

Landform: Dissected stream terraces

Landform position: Summits and shoulders

Parent material: Thin loess and the underlying alluvium; or alluvium

Drainage class: Moderately well drained

Water table depth: 1.5 to 2.0 feet (perched)

Yellow poplar site index: 85

StdAQ—Stendal silt loam, 0 to 2 percent slopes, rarely flooded

Setting

*Landform:* Flood plains

*Landform position:* Flood plain steps

Soil Properties and Qualities

*Parent material:* Acid, silty alluvium

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Somewhat poorly drained

*Water table depth:* 0.5 foot to 2.0 feet (apparent)

*Available water capacity to a depth of 60 inches:* About

12.8 inches

#### Composition

*Stendal and similar soils:* 88 percent

*Dissimilar inclusions:* 12 percent

\* Bonnie soils in backswamps and drainageways

\* Steff soils on higher lying flood plain steps

\* Stendal soils, occasionally flooded in drainageways

WedB2—Weddel silt loam, 2 to 6 percent

slopes, eroded

#### Setting

*Landform:* Dissected till plains

*Landform position:* Summits

#### Soil Properties and Qualities

*Parent material:* Loess, a paleosol in till and residuum from shale

*Depth class:* Very deep (more than 60 inches)

*Drainage class:* Moderately well drained

*Water table depth:* 1.5 to 3.0 feet (perched)

*Available water capacity to a depth of 60 inches:* About 7.9 inches

#### Composition

*Weddel and similar soils:* 95 percent

*Dissimilar inclusions:* 5 percent

Coolville soils on summits and intermixed throughout the unit

#### Access

Access to this tract is by using an abandoned county road that continues off of Percy King road, past the King property and through the middle of tract 1405, where it once connected to the East fork of Reed Road. There is also access from an old logging road that comes off the west fork of Reed Road in tract 1410 and continues through tracts 1409, 1407 & most of the way through tract 1405 it ends at the abandoned county road.

#### Boundary

Tract 1405 is surrounded by private property on all sides except or where the south corner touches up against Clark State Forest property, Tract 1407.

#### Wildlife

No endangered or threatened species were seen in this tract, the eastern box turtle, (*Terrapene carolina carolina*), a species of special concern was seen, and the timber rattlesnake was recorded being present in the past. The tract is abundant many species were seen including: deer, turkey, quail, songbirds, bullfrogs, Fowler's toads, lizards, five lined skinks, rat snakes, rabbits, squirrels, possum, raccoon, crawfish, minnows, and raptors. Other species are likely to occur in the tract, and the rattlesnake although not seen may be present. Timber rattlesnakes need downed woody debris and small forest openings, both of which are present, and will be improved once management has occurred.

# Wildlife Habitat Feature Tract Summary

Inventory State Forest: Clark      C:\Documents and Settings\groeder\My      Compartment Number: 14      Tract:5  
 Reference Number: 6301405      Tract Acres: 126.6

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal	Marked For Harvest	Residual Above Maintenance	Residual Above Optimal
<b>Legacy Trees *</b>								
11"+ DBH	1139.4		4627	3487				
20"+ DBH	379.8		680	300				
<b>Snags (all species)</b>								
5"+ DBH	506.4	886.2	1338	831	451			
9"+ DBH	379.8	759.6	1251	871	492			
19"+ DBH	63.3	126.6	154	91	28			
<b>Cavity Trees (all species)</b>								
7"+ DBH	506.4	759.6	135	-372	-625			
11"+ DBH	379.8	506.4	135	-245	-372			
19"+ DBH	63.3	126.6	80	17	-46			

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

Both the legacy and the snag categories met the guidelines for the wildlife habitat feature guidelines. This tract was lacking cavity trees. All size classes were lacking, however in this category the 19"+ was closest to the guidelines. One possible reason for the lack of cavities may be the time of the inventory. The inventory took place in summer and may have prevented cruisers from seeing the cavities because of the leaf out.

## Communities

C14T5 has two forest types, mesic upland and wet mesic floodplain. The ridges are characterized by the mesic upland species: white and chestnut oaks, American beech, sugar and red maple, pawpaw, and hickories. The wet mesic floodplain is characterized by the sweetgum, ash, hickory and maple species. Only one endangered species, Appalachian Quillwort was present. Quillwort was found in the north section of the property near and around Bowery Creek. The floodplain forest or low areas along the creek will not be drained or polluted by management activities, and the open areas along

the creek should provide good habitat for this endangered exotic. Several invasive species, such as multiflora rose, bush honeysuckle, and Japanese stiltgrass were found within the tract. The understory in the blow down areas contains many oak and hickory seedlings not of sub-merchantable size, as well as some serviceberry saplings. The creek bottoms also contain many pawpaws and hickory seedlings, not of sub-merchantable size. A wildflower species, Indian Pink was found on the north corner of the tract, it occurs on wet or moist sites.

**Recreation**

At the current time the main recreation activities include hiking, bird & wildlife viewing, and hunting. There are several illegal horse and four wheeler trails running through the tract. After management practices have been completed a legal horse trail may be set up.

**Cultural**

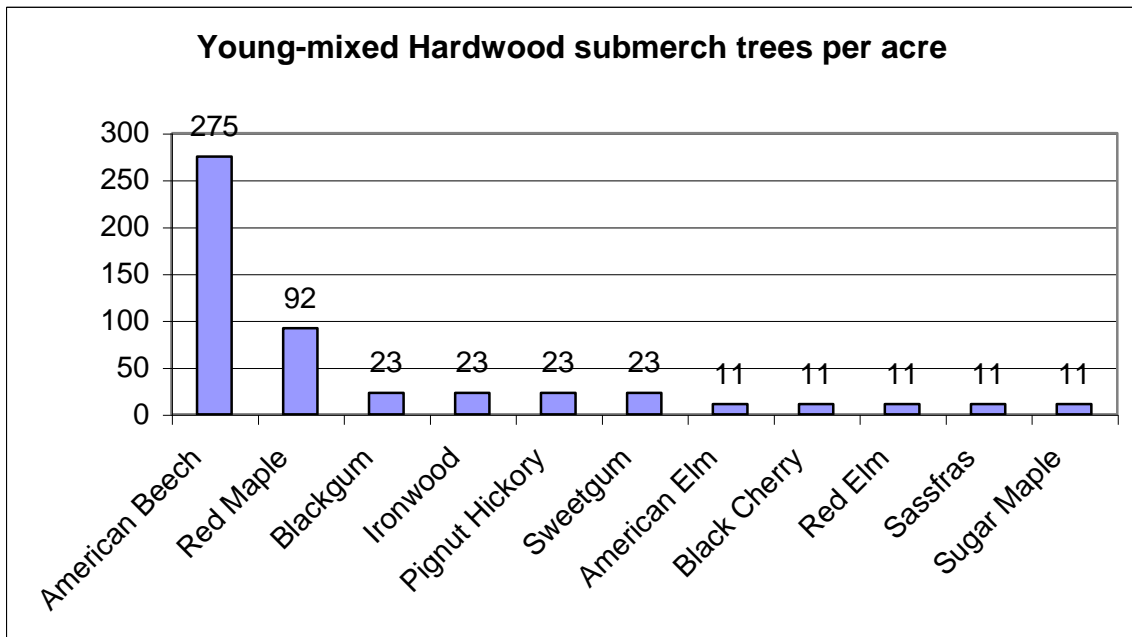
Cultural resources may be present on the tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction projects.

**Tract Subdivision Description and Silvicultural Prescription**

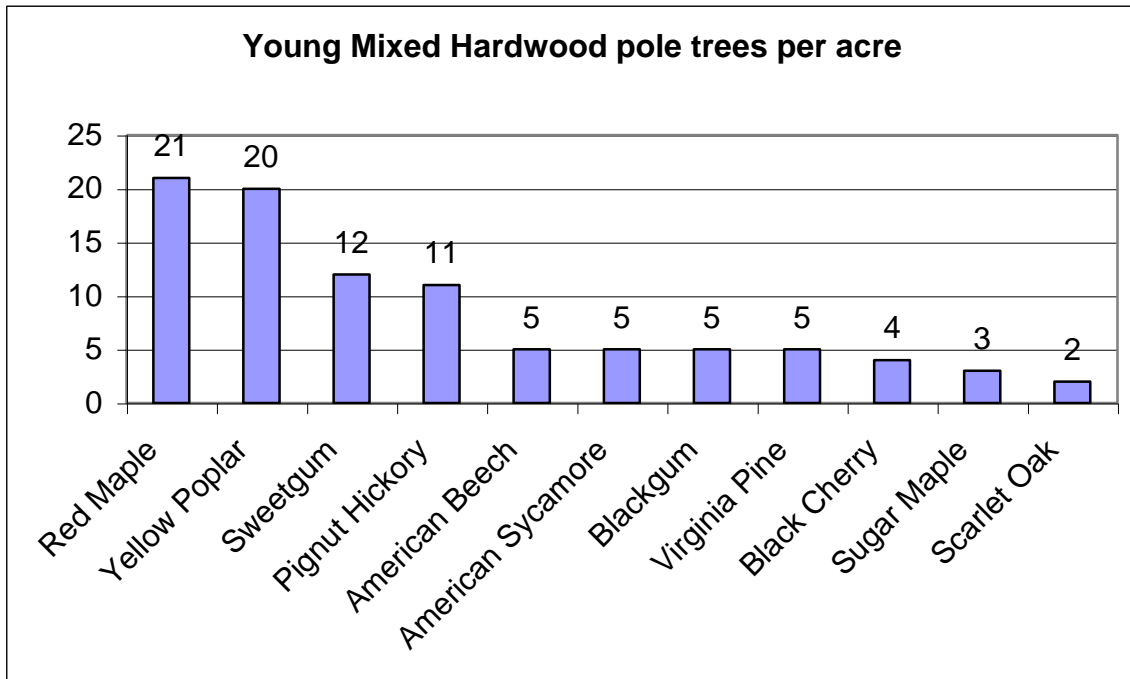
C14T5 contains two separate stands. The management areas are hardwood and young mixed hardwoods. In the past the young mixed hardwood was recorded as Virginia pine. Past storms have blown down the vast majority of the Virginia pine. This area is approximately 30 of the 126.6 acres. The other 96 acres is oak-hickory. It starts at the southern part of the tract and surrounds the blown down or mixed hardwood area.

**Young Mixed Hardwoods**

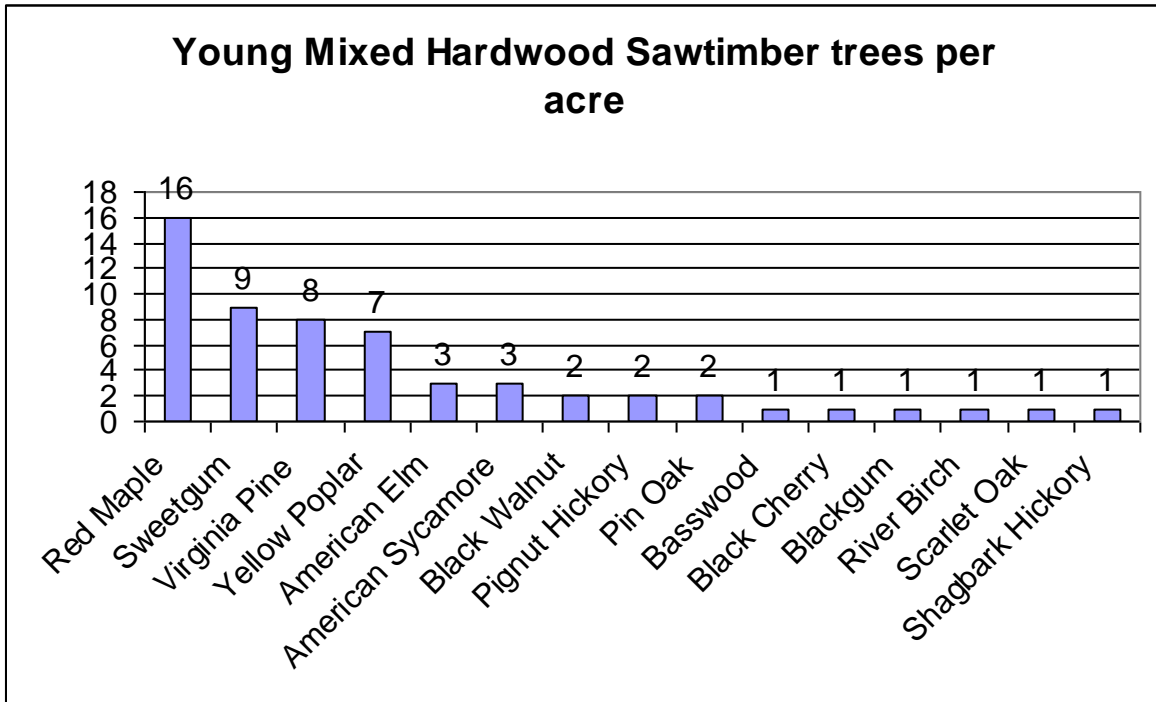
The submerch category is dominated by American Beech at 275 TPA and Red Maple at 92 TPA.



The pole tree category is dominated by Red Maple at 21 TPA, and Yellow Poplar at 20 TPA.



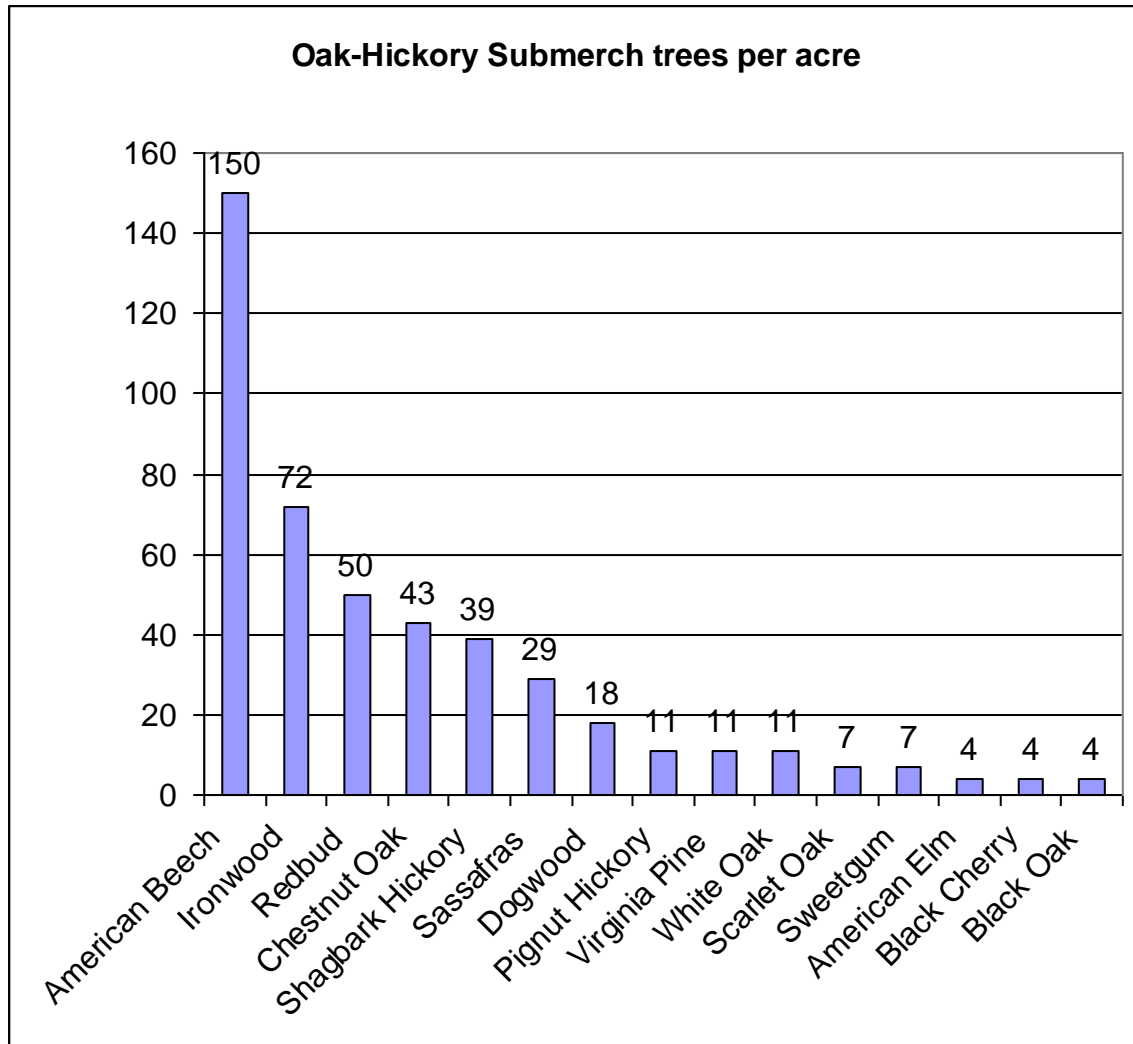
The sawtimber category is dominated by Red Maple (16TPA), Sweetgum (9TPA), Virginia Pine (8TPA), and Yellow Poplar (7TPA).



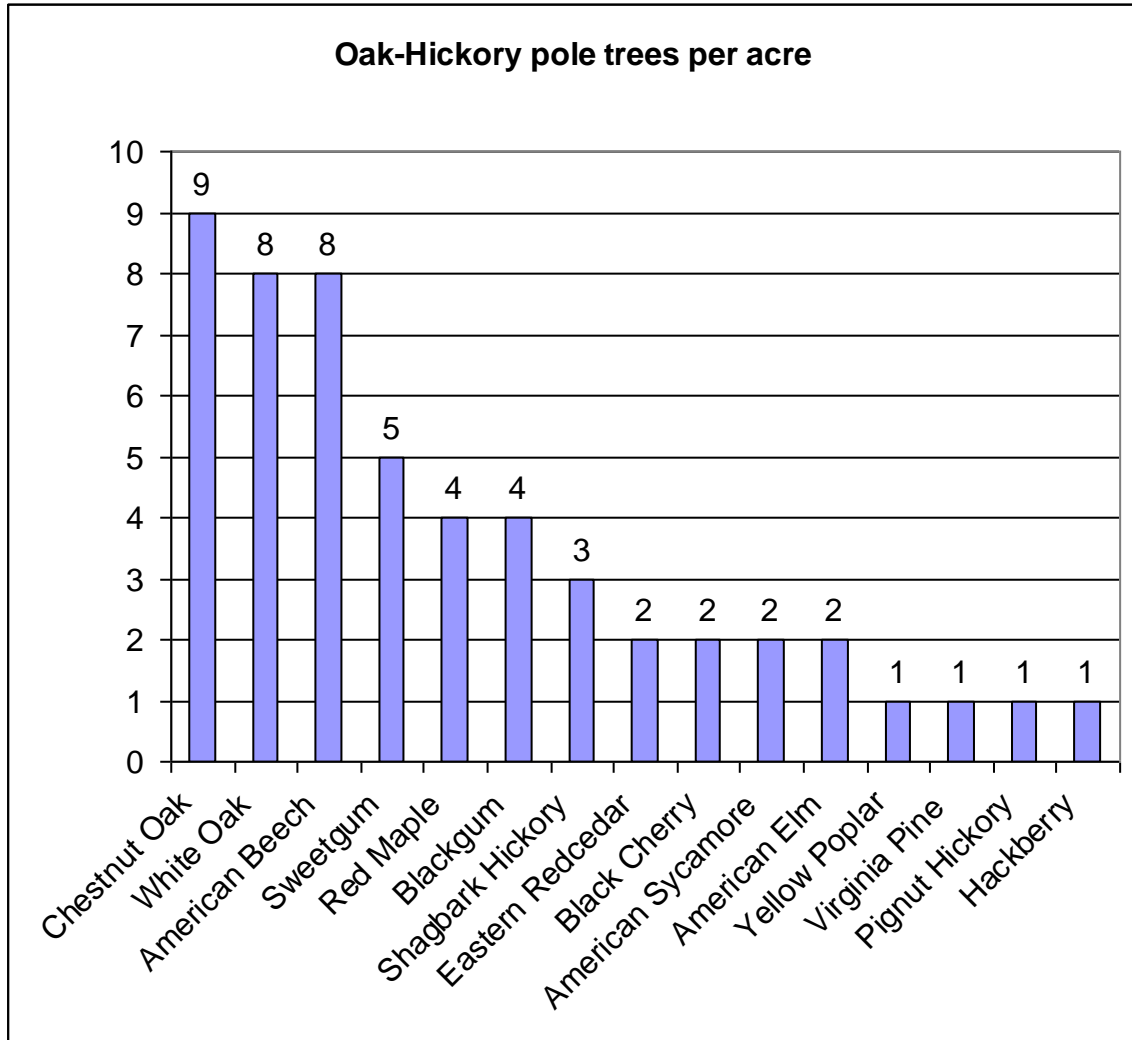


## Oak-Hickory

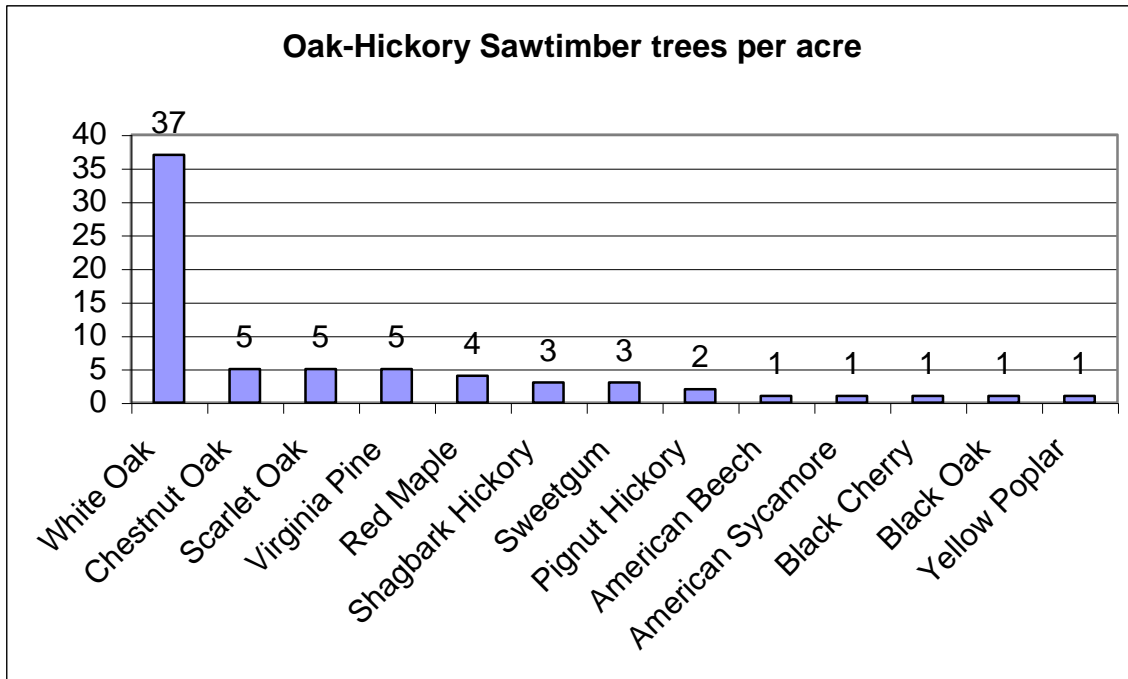
American Beech dominates the submerch category at 150TPA. It is followed by Ironwood (72TPA) and Redbud (50 TPA).



Chestnut Oak (9TPA), White Oak (8TPA), and American Beech (8TPA) dominate the pole tree category.



The sawtimber category is dominated by White oak at 37 trees per acre, two other desired species Chestnut Oak and Scarlet Oak follow both at 5 TPA. Virginia Pine is also at 5 TPA.

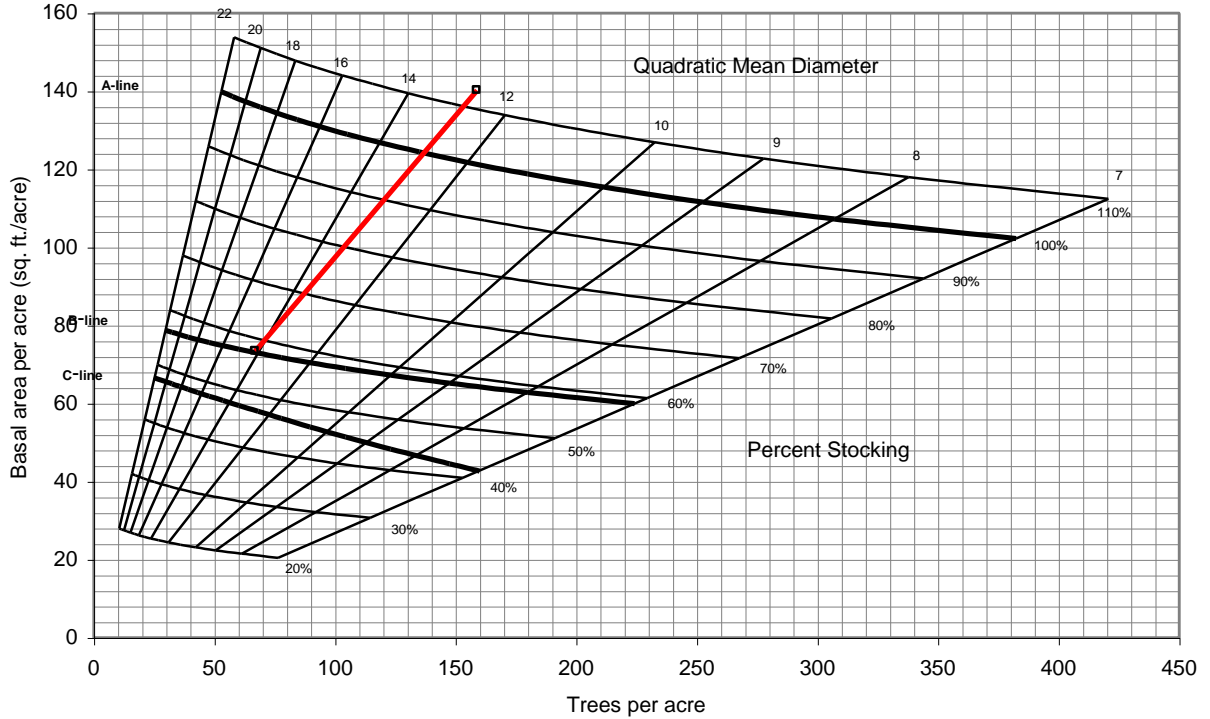


## Silvicultural Prescription

### Oak-Hickory

The oak-hickory stand is currently overstocked with 140.2 square feet and 159 trees per acre for approximately 110% stocking. An overstocked stand has little or no room for trees to continue growing. They also lead to a shade tolerant understory, which will eventually change the composition of the stand from oak hickory to beech-maple. Post-harvest timber stand improvement should greatly reduce the number of sub-merchantable and pole size red maple, beech, and ironwood. A prescribed burn would also help kill off any beech-maple species left in the understory. This should allow the oak-hickory mast production and regeneration rates to increase, insuring a sustained oak-hickory forest through the next rotation. Overall harvest stock for this stand is 2.504 MBF/Ac.

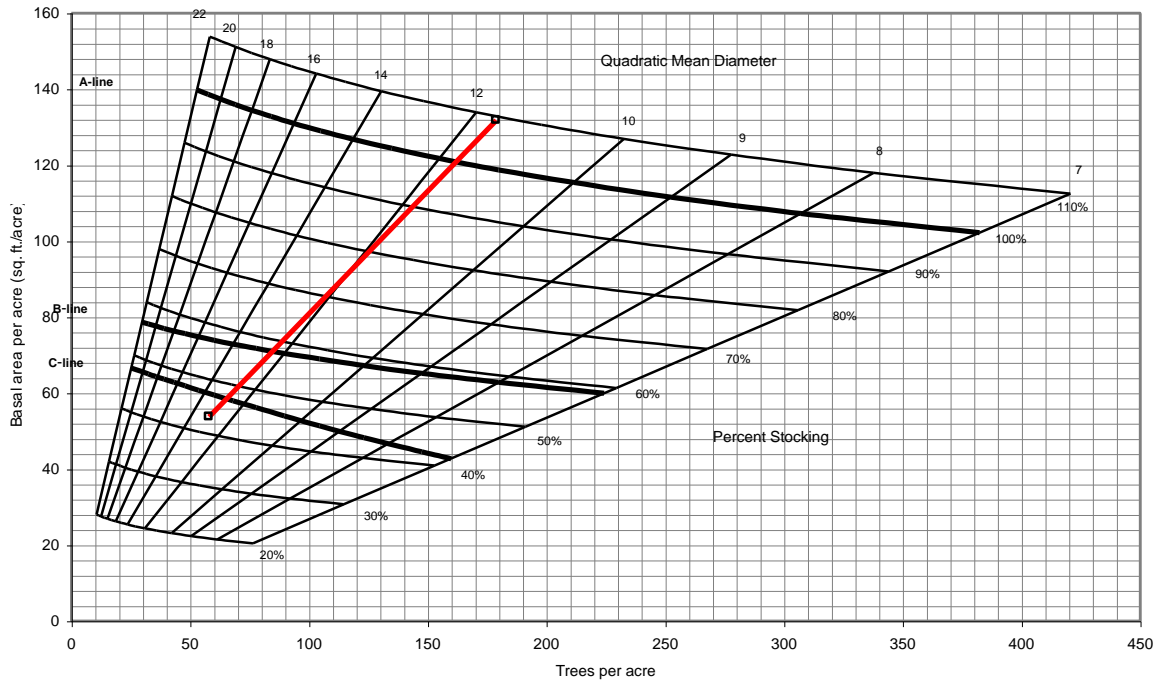
## Oak-Hickory Stocking Guide



## Young Mixed Hardwood

The young mixed hardwood stand is currently overstocked, with 131.8 square feet and 179 trees per acre for over 100% stocking. Almost all of the categories are lead by undesired species filling the understory with beech-maple type of growth. An intermediate harvest and post-harvest timber stand improvement should help to thin the young mixed hardwood stand. Along with TSI a prescribed burn would help to kill off any beech-maple species left in the understory. These management practices will allow the desirable species, such as Yellow poplar, White oak, and Black cherry to continue to grow and raise seed production and regeneration rates. This should work to sustain a mixed hardwood stand until the next rotation. Overall harvest for this stand is 2.938 MBF/Ac.

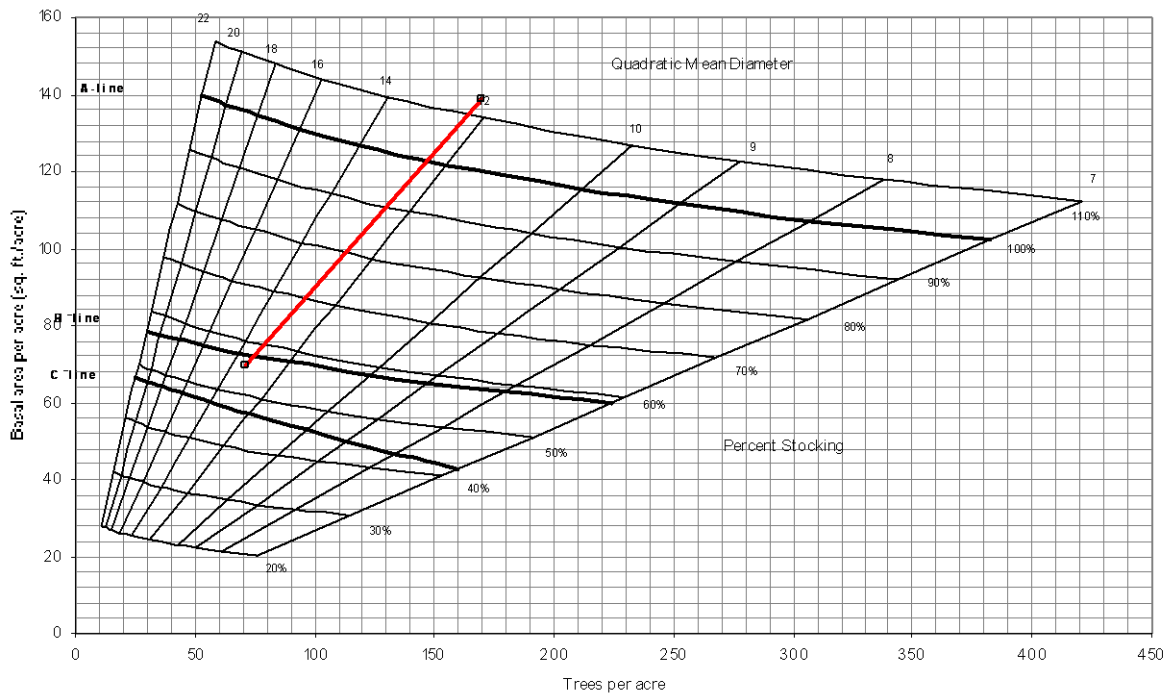
## Young mixed hardwood Stocking Guide



### Tract Total

The overall tract is overstocked between 100-110% and needs to be thinned. The understory is becoming, or in some cases already is shade tolerant. Timber stand improvement will need to be performed after the harvest. TSI should focus on killing any unharvested cull trees, completing group selection openings, killing grapevines, and releasing any crop trees that are deemed necessary to further improve the stand.

Prescribed fire is highly recommended especially in the oak hickory stand. After the stocking rates are lowered from an intermediate harvest and timber stand improvement work a good mast crop will be needed to establish oak-hickory in the understory, however the fire is necessary to eliminate understory competition, without it the mast crop will go to waste. The overall harvest for the two combined stands is 2.595 MBF/Ac.



Proposed Management Activity

Proposed Date

Intermediate Timber Harvest	2013
Timber stand improvement	2015
Prescribed burn	2015
Re-evaluate oak reproduction	2017
Resource Management Guide	2030

**Attachments (on file in property office)**

Attach the following items.

- A topo map of the tract created via GIS that delineates the tract subdivisions and identifies pertinent features in the tract (such as roads, trails, wildlife ponds, etc.)
- A map showing the soil types in the tract
- An aerial photo of the tract created via GIS that delineates the tract subdivisions
- A stocking guide chart with the tract level, and each stand level stocking condition plotted and identified.
- Two Dog reports
  - Tract Level Summary by Product-Species, Value, # of Trees and Volume 1 – Whole Stand
  - Tract Level Summary by Product-Species, Value, # of Trees and Volume 1 – Per Acre

- Stand Level Summaries by Product Species, # of Trees, Volume 1 w/ Means – Whole Stand
- Stand Level Summaries by Product-Species, # of Trees, Volume 1 w/ Means – Per Acre
- Stand Level Tables W/ DBH Classes By 1, 1-9 by Product-Species, Number, Volume 1, Basal Area – Per Acre
- Stand Level Tables W/ DBH Classes by 1, 10-19 by Product-Species, Number, Volume 1, Basal Area – Per Acre
- Stand Level Tables W/ DBH Classes by 1, 20-29+ by Product-Species, Number, Volume 1, Basal Area – Per Acre

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You **must** indicate the State Forest Name, Compartment Number and Tract Number 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.