

## RESOURCE MANAGEMENT GUIDE

Clark State Forest	Compartment	13	Tract 2
Forester Greg Roeder	Date	June 11, 2009	
Management Cycle End Year 2029	Management Cycle Length	20 years	

### Location

Compartment 13, tract 2 (C13T2) straddles sections 9, 10, 15, and 16 in T1N, R6E, in Clark County, Indiana. The tract is proximately 4 miles southwest of Henryville, Indiana as the crow flies.

### General Description

C13T2 is 154 acres of predominately oak-hickory cover type with 3 pine stands covering approximately 16 acres.

### History

The acreage in C13T2 was purchased in three different lots starting in 1926. Subsequent purchases in 1928 and 1942 make up the remainder of the tract. Most of the tract appears to have been in continuous forest cover except three small pine stands that were likely agriculture sites prior to state acquisition. Little resource management has taken place in this tract; it was last inventoried in 1986 when 2,860 board feet/ac were observed.

### Landscape Context

C13T2 is completely surrounded by forest cover. Contiguous forest exists in a several mile radius from the tract to the north, south and west. East of the tract lies the edge of the Scottsburg lowland geological area whose land use is predominately agriculture.

### Topography, Geology and Hydrology

C13T2 is dominated by a long slope that reaches 1000' above sea level until it plateaus at the Norman Upland region. The average slope across the tract from 640' in the Right Drain bottom to 1000' in the north is 5.5% across the two mile long tract.

Geologically this tract transitions from the Scottsburg Lowlands geological area to the Norman Uplands plateau via the Knobstone Escarpment. The Escarpment is the predominate geological feature on the property. C13T2 is within the Intermittent Right Drain, which feeds the perennial Blue Lick Creek before finding Silver Creek in Clark Military Grant 221 approximately three miles north of Memphis, Indiana.

## Access

The main access to the tract is on Bartle Knob road on its northern end. Bartle Knob road is primarily used as a horse trail, which connects to both West road and Pixley Knob road. The entrance from the east would be on Pixley Knob road and the entrance from the west would be on West road. Entering from Pixley Knob road would require crossing a small intermittent stream.

## Boundary

The entirety of this tract is surrounded by state forest with the northern part bordering Bartle Knob road for a short distance.

## Wildlife

White-tailed deer, eastern box turtle, song birds, and various herpes were observed within C13T2. The majority of the tract provides ample hard mast food for wildlife with small areas of wind-thrown Virginia pine providing excellent cover. Bachman's Sparrow returned on a search of the Natural Heritage Database Review. Bachman's Sparrow is endemic to the southeastern US. The species was observed in July, 1903. The bird is considered near threatened due to the loss of early succession habitat.

# Wildlife Habitat Feature Tract Summary

Inventory Filename: C:\Documents and Settings\Greg\My

State Forest: Clark      Compartment Number: 13

Tract: 02

Reference Number: 6301302

Tract Acres: 154

	Maintenanc e 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	1386		2937	1551				
20"+ DBH	462		583	121				
<b>Snags (all species)</b>								
5"+ DBH	616	1078	1261	645	183			
9"+ DBH	462	924	1261	799	337			
19"+ DBH	77	154	317	240	163			
<b>Cavity Trees (all species)</b>								
7"+ DBH	616	924	126	-490	-798			
11"+ DBH	462	616	126	-336	-490			
19"+ DBH	77	154	58	-19	-96			

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

The 'Wildlife Habitat Feature Tract Summary' uses inventory data to quantify trees and species beneficial to various forest specialist species with particular interest for Indiana bat habitat suitability. Legacy tree numbers for both size classes are well above their maintenance level. The three size classes of snag trees are all well above their optimal level. The abundance of standing dead snags will provide excellent habitat to those wildlife species that depend on standing deadwood for food and cover. All three categories of cavity trees are deficient of their maintenance level. The lack of cavity trees within the tract is likely due to the timing of the resource inventory. The leaf-on period makes cavity recognition very difficult because the upper reaches of each tree are obscured by foliage.

### **Communities**

Two primary communities are found in C13T2.

*Dry upland forest* is found on the upper half of the tract's slopes. This community is defined by thin, excessively drained soils, pincushion moss, chestnut oak, scarlet oak, and black oak. Trees grow very slowly, but are not stunted as on xeric sites.

The *Dry-mesic upland forest* community is found on lower elevations and less exposed aspects than the *dry upland forest*. The *dry-mesic upland forest* is characterized by; white, black, and scarlet oak overstories with oak, hickory, dogwood, ironwood understories.

One rare plant was identified in the Natural Heritage Database Search. Smooth veiny pea, (*Lathyrus venosus*) was found on the east ridge. Smooth veiny pea is a nitrogen fixing legume, enriching the soil surrounding it making it important to low fertility soils. Smooth veiny pea is known to occur at 6-10 sites in Indiana, putting it on the state threatened species list (Indiana Natural Resources Commission). Smooth veiny pea is listed as a threatened species in Indiana. It ranges from New York to Alabama, west to the Dakotas and Mexico. The Indiana Natural Heritage Database lists several observations at Clark State Forest, with the most recent from 2004. Smooth veiny pea is found on dry to mesic slopes, especially in base-rich soils and dry sandy soil in open upland woods and prairies. It also can be found in moist to wet mesic prairies, woods, and stream banks. Threats to this species include forest succession and excessive over-shading by woody species. Additionally, this species is greatly affected by non-native invasive species (Indiana State Forests Environmental Assessment 2007-2028).

Japanese stilt grass was the primary exotic species found in the tract. Stilt grass was found in most creek bottoms where it forms near monocultures. Stilt grass outperforms native species common to creek channels and banks such as

jewelweed and nettles. Extensive spraying of grass specific herbicide (Poast) is needed to combat the invasion, but may be cost prohibitive.

### Recreation

This section of Clark State Forest has two trails within its boundary. The first is a horse trail, which runs north to south through the tract. The other trail is the Knobstone Trail and is used for hiking. Last this tract of forest can be used for hunting purposes.

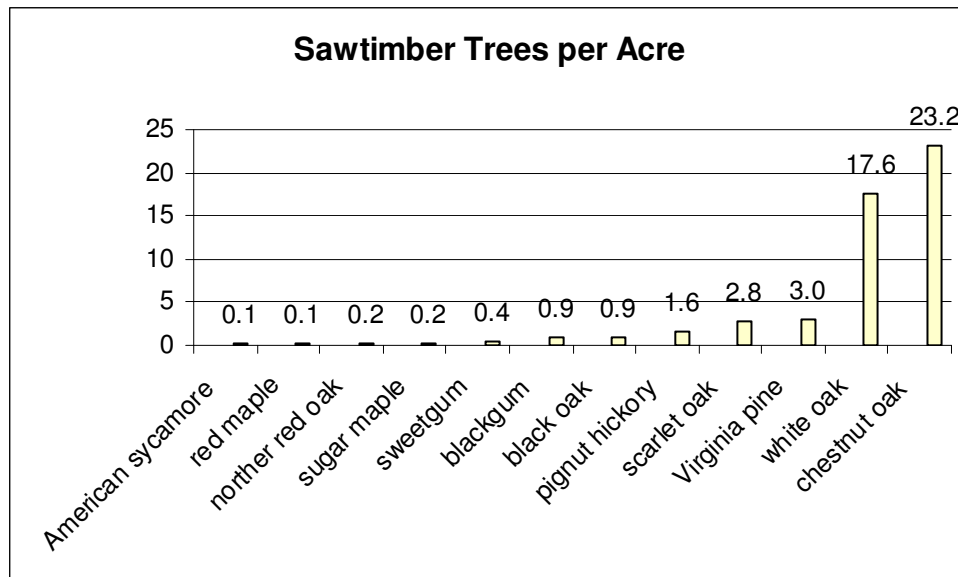
### Cultural

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.

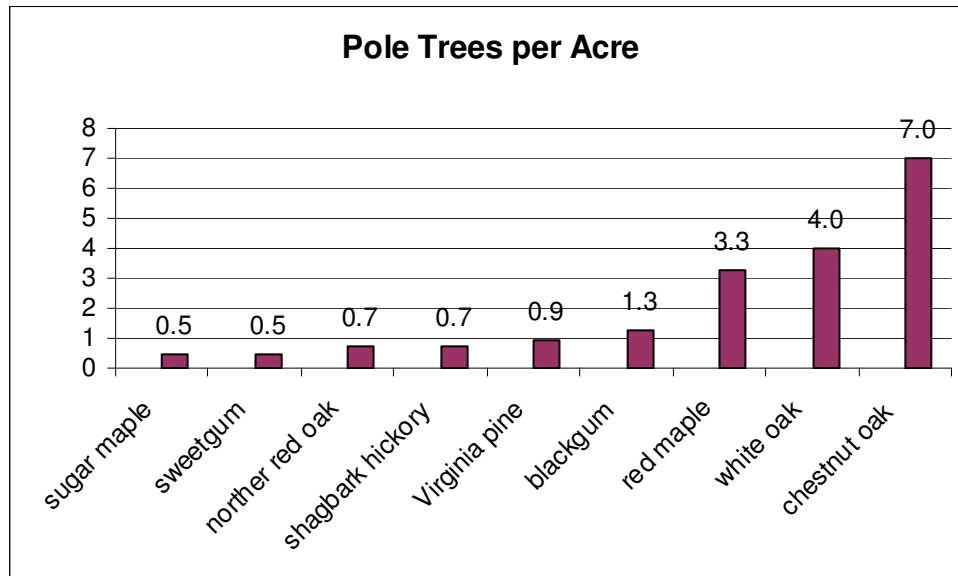
### Tract Subdivision Description and Silvicultural Prescription

C13T2 is dominated by oak sawtimber.

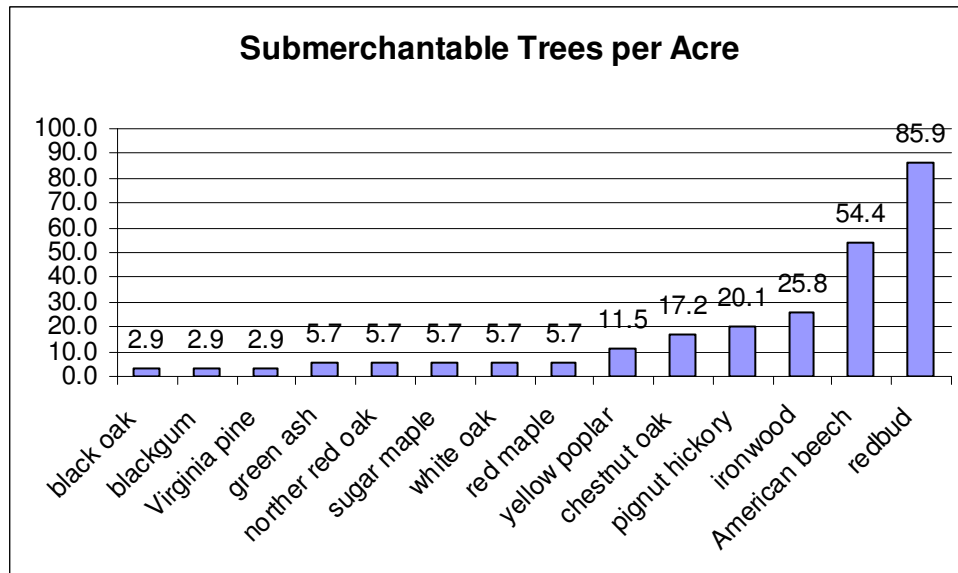
Chestnut oak is the most prevalent sawtimber size tree, sampling at 23.2 trees per acre followed by; white oak 17.6 trees per acre, Virginia pine at 3 trees per acre, and scarlet oak at 2.8 trees per acre.



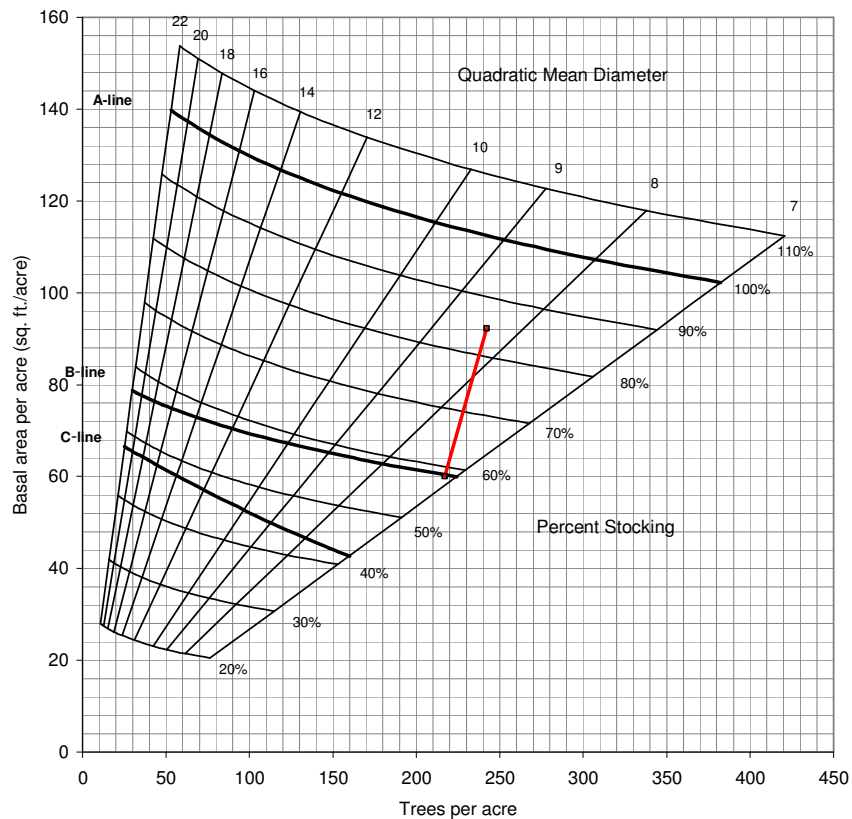
The intermediate size class, pole trees, is dominated by chestnut oak. White oak stems followed at 4.0 trees per acre, and red maple at 3.3 trees per acre.



Redbud sampled at the highest rate in the submerchantable size class. Thirty-four percent of all submerchantable trees are red bud, followed by American beech (21%), ironwood (10%), and pignut hickory (8%).



## Gingrich Stocking Guide Trees 4''+



With 242 trees per acre, and a basal area of 92.2, this stand is approximately 85% stocked. Although not fully stocked, portions of the tract would benefit from an intermediate harvest. Single tree selection should be used throughout the tract removing dying and deformed trees as well as trees not fully realizing its site potential.

The southern half of the tract has excellent early and advanced oak regeneration. Shelterwood treatment in these stands would release oak regeneration negating a slow death via shade tolerant dominance if no prescription is executed. Areas prescribed shelterwood treatments should be reduced to 40-60% stocking so that increased light may reach oak seedlings without spurring shade-intolerant species growth. After the regeneration layer is sufficiently developed so that it can be released without shade-intolerant species competition the residual overstory must be removed to complete the shelterwood system. The end result should be an even-aged young oak stand.

This tract should be managed in concert with tract three of the same compartment due to their similar characteristics, shared access and juxtaposition.

## Proposed Activities Listing

<u>Proposed Management Activity</u>	<u>Proposed Date</u>
Forest Inventory	2009
Resource Management Guide	2009
Shelterwood/Single Selection Harvest	2011
Post-harvest TSI	2013
Evaluate and Complete Shelterwood Treatments	2018-23

### References:

Clark County Soil Survey

Indiana State Forest Environmental Assessment 2007-2028

### NATURAL COMMUNITIES OF INDIANA

*7/1/02 Working Draft*

Ellen Jacquart (Indiana Chapter of The Nature Conservancy), Mike Homoya (Department of Natural Resources – Division of Nature Preserves), and Lee Casebere (Department of Natural Resources – Division of Nature Preserves)

### NATURAL RESOURCES COMMISSION

Information Bulletin #2 (Fourth Amendment) August 1, 2007

### Soils

**BcrAW—Beanblossom silt loam, 1 to 3 percent slopes, occasionally flooded, very brief duration**

#### Setting

*Landform:* Flood plains

*Landform position:* Natural levees and alluvial fans

#### Soil Properties and Qualities

*Parent material:* Channery, loamy alluvium

*Depth class:* Deep (40 to 60 inches)

*Drainage class:* Moderately well drained

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

*Available water capacity to a depth of 60 inches:* About 6.3 inches

#### Composition

*Beanblossom and similar soils:* 90 percent

*Dissimilar inclusions:* 10 percent

\* A deep, somewhat poorly drained soil in drainageways

\* Beanblossom soils, frequently flooded, on flood plains and alluvial fans

\* A moderately deep soil over hard black shale

**ComC—Coolville silt loam, 6 to 12 percent slopes**

#### Setting

*Landform:* Hills underlain with shale or siltstone

*Landform position:* Shoulders and backslopes

**Soil Properties and Qualities**

*Parent material:* Thin loess and clayey residuum

*Depth class:* Deep (40 to 60 inches)

*Drainage class:* Moderately well drained

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

*Available water capacity to a depth of 60 inches:* About 6.6 inches

**Composition**

*Coolville and similar soils:* 86 percent

*Dissimilar inclusions:* 14 percent

\* Coolville soils, severely eroded on shoulders and the upper part of backslopes

\* Rarden soils on backslopes

\* Weddel soils on summits

\* Stonehead soils on summits

\* Stendal soils on toeslopes

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

**Setting**

*Landform:* Hills underlain with shale or siltstone

*Landform position:* Shoulders and backslopes

**Soil Properties and Qualities**

**Coolville**

*Parent material:* Thin loess and clayey residuum

*Depth class:* Deep (40 to 60 inches)

*Drainage class:* Moderately well drained

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

*Available water capacity to a depth of 60 inches:* About 6.5 inches

**Rarden**

*Parent material:* Clayey residuum

*Depth class:* Moderately deep (20 to 40 inches)

*Drainage class:* Moderately well drained

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

*Available water capacity to a depth of 60 inches:* About 4.7 inches

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

**Setting**

*Landform:* Hills underlain with shale

*Landform position:* Backslopes

**Soil Properties and Qualities**

*Parent material:* Clayey residuum

*Depth class:* Moderately deep (20 to 40 inches)

*Drainage class:* Well drained

*Available water capacity to a depth of 60 inches:* About 4.3 inches

**Composition**

*Deam and similar soils:* 94 percent

*Dissimilar inclusions:* 6 percent

\* Rarden soils on shoulders and summits

\* Kurtz soils in areas on the upper part of backslopes

**GgfD—Gilwood-Wrays silt loams, 6 to 18 percent slopes**

**Setting**

*Landform:* Hills underlain with siltstone

*Landform position:* Shoulders and the upper part of Backslopes

**Soil Properties and Qualities**



**Gilwood**

*Parent material:* Silty residuum

*Depth class:* Moderately deep (20 to 40 inches)

*Drainage class:* Well drained

*Available water capacity to a depth of 60 inches:* About 5.0 inches

**Wrays**

*Parent material:* Loess and silty residuum

*Depth class:* Deep (40 to 60 inches)

*Drainage class:* Well drained

*Available water capacity to a depth of 60 inches:* About 7.5 inches

**Composition**

*Gilwood and similar soils:* 39 percent

*Wrays and similar soils:* 39 percent

*Dissimilar inclusions:* 22 percent

\* Spickert soils on shoulders and summits

\* Brownstown soils on shoulders and the upper part of backslopes

\* Gilwood soils, severely eroded on shoulders and backslopes and intermixed throughout the unit

\* Wrays soils, severely eroded on shoulders and backslopes and intermixed throughout the unit

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

*Landform:* Hills underlain with siltstone

*Landform position:* Backslopes

**Soil Properties and Qualities****Gnawbone**

*Parent material:* Silty residuum

*Depth class:* Moderately deep (20 to 40 inches)

*Drainage class:* Well drained

*Available water capacity to a depth of 60 inches:* About 6.0 inches

**Kurtz**

*Parent material:* Silty residuum

*Depth class:* Deep (40 to 60 inches)

*Drainage class:* Well drained

*Available water capacity to a depth of 60 inches:* About 7.1 inches

**Composition**

*Gnawbone and similar soils:* 48 percent

*Kurtz and similar soils:* 32 percent

*Dissimilar inclusions:* 20 percent

\* Coolville soils on shoulders and summits

\* Wellrock soils on shoulders and summits

\* Beanblossom soils on flood plains

\* Stonehead soils on shoulders and summits

\* A very deep, well drained soil formed in colluvium on footslopes

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