Resource Management Guide

Clark State Forest	Compartment 5	Tract 6
Forester Greg Roeder, Brian Backhaus	Date	June 29, 2009
Management Cycle End Year 2029	Management Cycle Length 20 years	

Location
Compartment 5 tract 6 (C5T6) is located in section 25 and 26 of T2N, R6E in Clark County. The tract is approximately three miles northwest of the town of Henryville, Indiana.

General Description
C5T6 is 157 acres of predominately oak-hickory with a trace of mixed hardwoods found only in the mesic valleys. The southern portion of the tract has 12 acres that extends into Shaw Lake.

History
C5T6 is the combination of three sales bought around the mid 20th century. The first property bought contained 80 acres and was purchased from James B. Whittington on April 19, 1940. This was followed by the purchase of Jane E. Collings 80 acres on May 25, 1940. Last the state purchased John H. Pound's land on October 19, 1940, which contained 105 acres. C5T6 is only 157 acres, allowing only portions of the above properties to be added to this tract.
The last timber sale was in February 1982 when 91,500 bd ft were sold from tracts 5, 6, and 7. The timber removed was part of a clearcut that allowed Shaw Lake to be constructed, the result being only trees inside the lakes border were removed.

Landscape Context
The entire tract is surrounded by forest with a similar cover type. To the west it is bordered by private property and on the southern portion is a watershed management lake that is also used for recreational purposes. Besides the lake, the main land use would be timber and wildlife management.

Topography, Geology, and Hydrology
The starting elevation begins at around 670 feet and transitions to areas close to 1,000 feet. Across the entire tract are ridges that descend from the high point known as Oak Knob. The majority of the tract is a south-facing slope.
At a micro scale the tract is part of a knob that rises up 400 feet from the surrounding valley. Taking a more abstract look the tract is part of the Knobstone escarpment that serves as a transition from the Norman Upland to the Scottsburg lowland. The ridges present in this tract run in a north-south direction, which directs most of the water toward Shaw Lake. This lake is part of a watershed management that controls the flow into Pigeon Roost creek. The water flow continues to Pigeon Roost, Fairview Run Creek, before going into Underwood Run four miles north of Henryville, IN.

Access
Direct access to the tract can be gained from a horse trail that intersects Brownstown Rd. Adjacent to the road is a small parking lot that is used for people wishing to access the lake or to unload their horses. The horse trail loops around the western part of the lake before its winds through the middle of C5T6.

Boundary
C5T6 is bordered on the east and partially on the north side by additional state forest. Along its southern edge is Shaw Lake, which extends into the tract. The western and part of the northern edge borders private property. In order to locate the boundary lines we used a TDS Ranger with GPS capabilities.

Wildlife
Wildlife seemed to be abundant throughout the tract with numerous toads, box turtles, fawn, and woodpeckers. Sign of deer scat was also extensive. There was understory vegetation present with a few noticed berries.

Wildlife Habitat Feature Tract Summary

Inventory Filename: C:\Documents and Settings\Greg\My
State Forest: Clark Compartment Number: 05 Tract: 06

Reference Number: 6300506 Tract Acres: 145

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal	Marked For Harvest	Residual Above Maintenance	Residual Above Optimal
Legacy Trees *								
11"+ DBH	1305		3430	2125				
20"+ DBH	435		735	300				
Snags (all species)								
5"+ DBH	580	1015	1447	867	432			
9"+ DBH	435	870	1304	869	434			
19"+ DBH	72.5	145	258	185	113			
Cavity Trees (all species)								
7"+ DBH	580	670	92	-488	-778			
11"+ DBH	435	580	92	-343	-488			
19"+ DBH	72.5	145	40	-32	-105			

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

Legacy trees met the maintenance levels for Wildlife Habitat Feature Guidelines as shown above. Snags were also plentiful with all the classes meeting the optimal level. The category in the stand that fell short was cavity trees;

maintenance levels were not met. Cavities are difficult to spot during leaf out. Proposed management activities would have little effect on the habitat/cover types found in this tract.

Communities
The major plant community present in this tract is the *dry upland mesic forest*. It is typically identified by white oak, black oak, and shagbark hickory, all of which are present. The area is typically a transition between to different moisture gradients caused by its sloping gradient. Exotic plants have been kept in check within this tract, although two species were noticed, Japanese stilt grass and tree of heaven. The tree of heaven was uprooted, however, the Japanese stilt grass would need extensive herbicide treatment to control its growth.
On the Natural Heritage Database, Thread-like Naiad was listed as a threatened species. This is an aquatic species that is located within the State of Indiana. It requires still clear water to survive. Threats to the species include turbidity, increased sedimentation, and eutrophication. The sighting of this species was noted on 07/17/2005 around the area of Shaw Lake. Since the species is affected by increased sedimentation, care would have to be taken in any forest management activities around the lake.

Recreation
This tract is ideal for recreation since there are many opportunities available within its boundary. The lake can be used for fishing or a relaxing stroll around its edge in a canoe. A trail that leads to the lake also doubles as a horse trail that travels inside of the tract. Lastly the tract can be used for different hunting purposes.

Cultural
There are no known cultural features within this tract.

Tract Subdivision Description and Silvicultural Prescription
C5T6 is a mature oak-hickory forest with many large trees. The dominant species are white oak, chestnut oak, and pignut hickory. Just below the pignut hickory is a group of Virginia pine. The Gingrich stocking guide shows that the stand is about 94% stocked with a mean diameter of 8" and a basal area of 105 ft^2. This shows that the stand has a lot of smaller diameter trees that should be cut to promote more diameter growth.

My recommendation for this tract would be a combination single tree selection/shelterwood harvest. Single tree selection would remove some of the sawtimber trees of poor form and quality. Single tree selection should be used in areas that lack advanced oak regeneration. Single tree selection would aid the growth of the healthier trees and shorten the cutting cycle for some larger diameter trees while keeping undesirable shade tolerant species suppressed. Decreased stocking will also encourage acorn production, which will be important to establishing oak regeneration after some sort of understory prescription.

Further steps will need to be taken in areas of undesirable regeneration. Understory removal or prescribed fire are two methods of clearing the understory of undesired species. Prescribed fire is likely the most economic and time feasible.

A shelterwood treatment should be used on sites with adequate advanced oak regeneration. A shelterwood treatment will increase diffuse light on the forest floor enough to further advance oak regeneration, but not enough to trigger rapid in-growth of shade-intolerant species such as yellow poplar.

Overall, a harvest in this tract should reduce the overall stocking from 94% to approximately 65%.

Post harvest timber stand improvement (TSI) will follow any timber management in the tract. TSI will focus on killing cull trees that were not harvested, completing small openings, and eradication of invasive species.

Proposed Management Activity	*Proposed Date*
Single tree selection/shelterwood harvest	2010
Timber stand improvement	2012
Prescribed fire	2013
Resource Management Guide	2029

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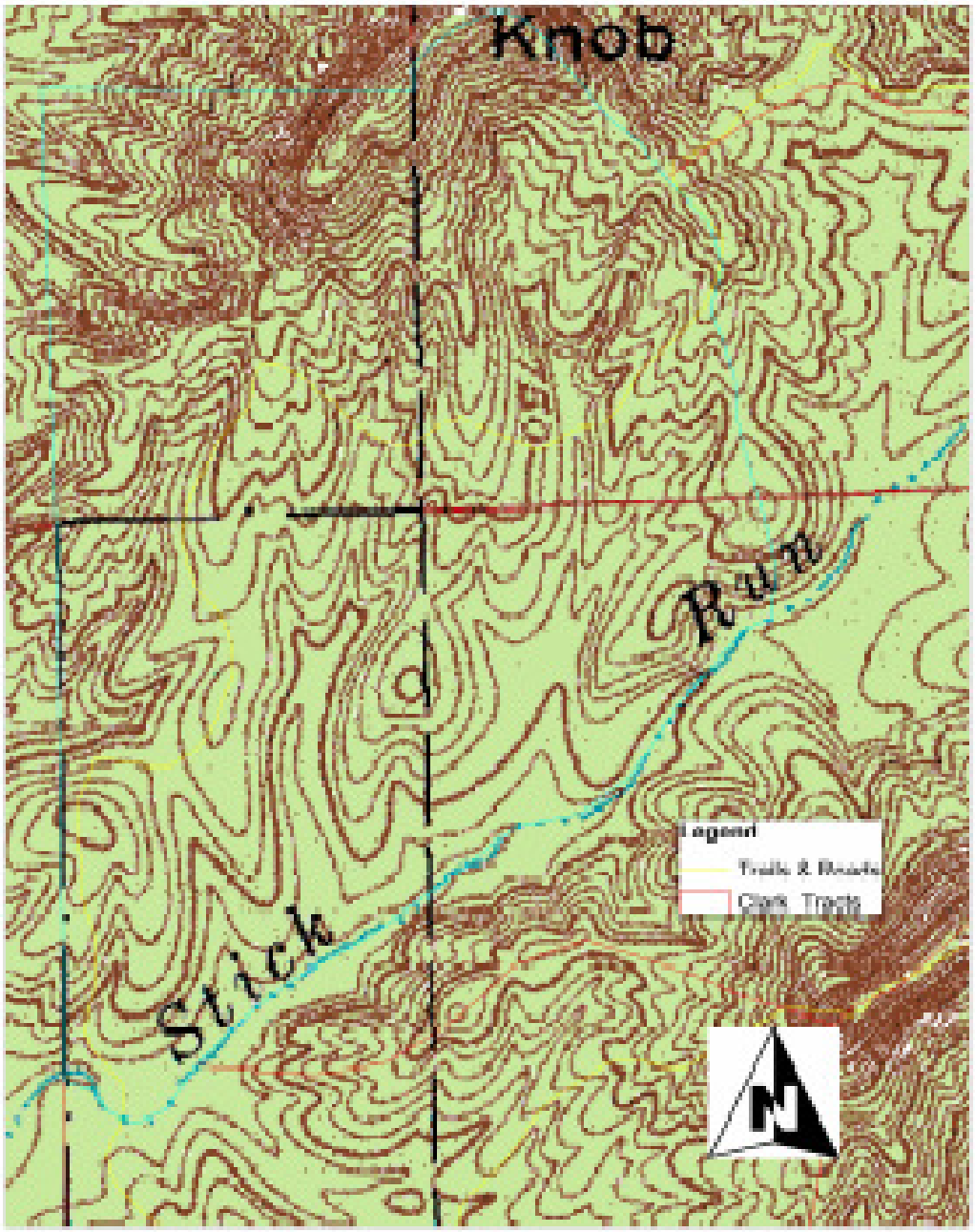
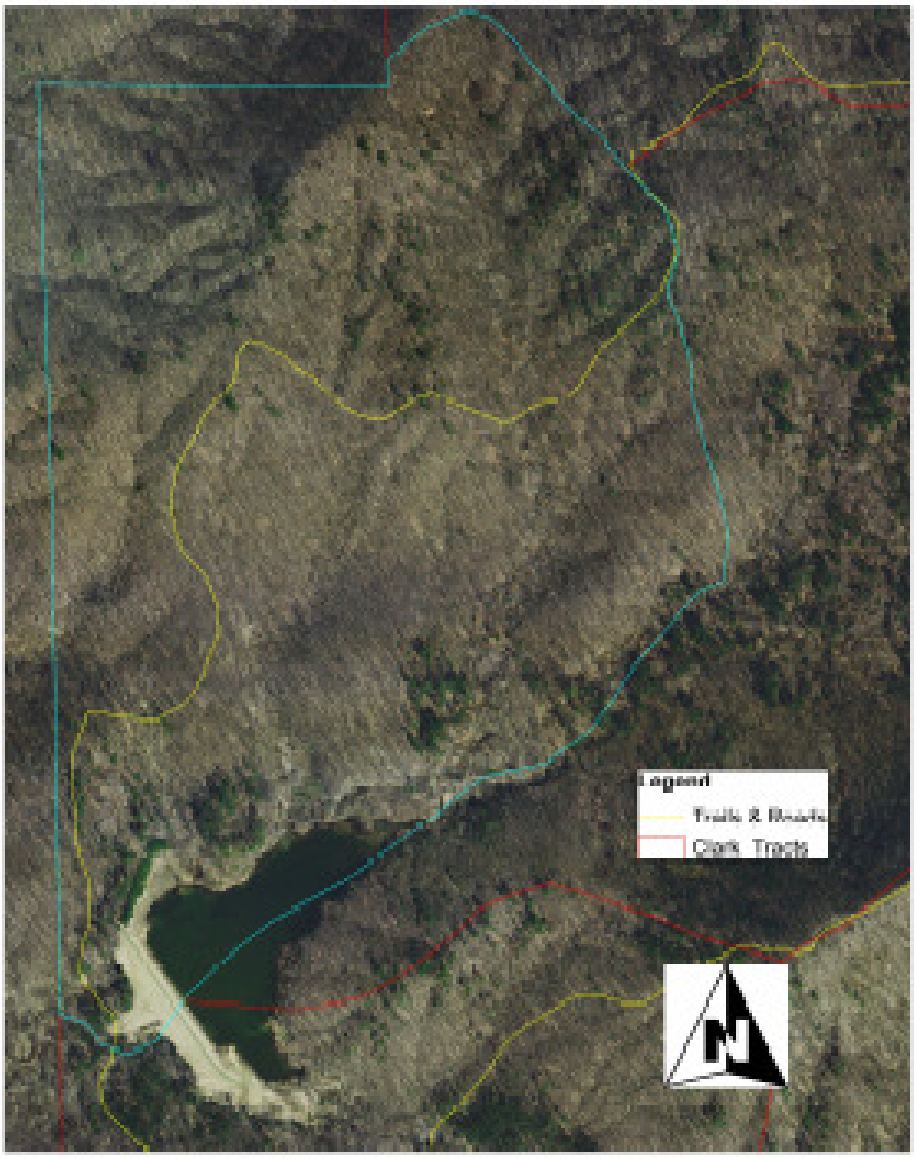
You must indicate "Clark C5 T6" in the "Subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered.

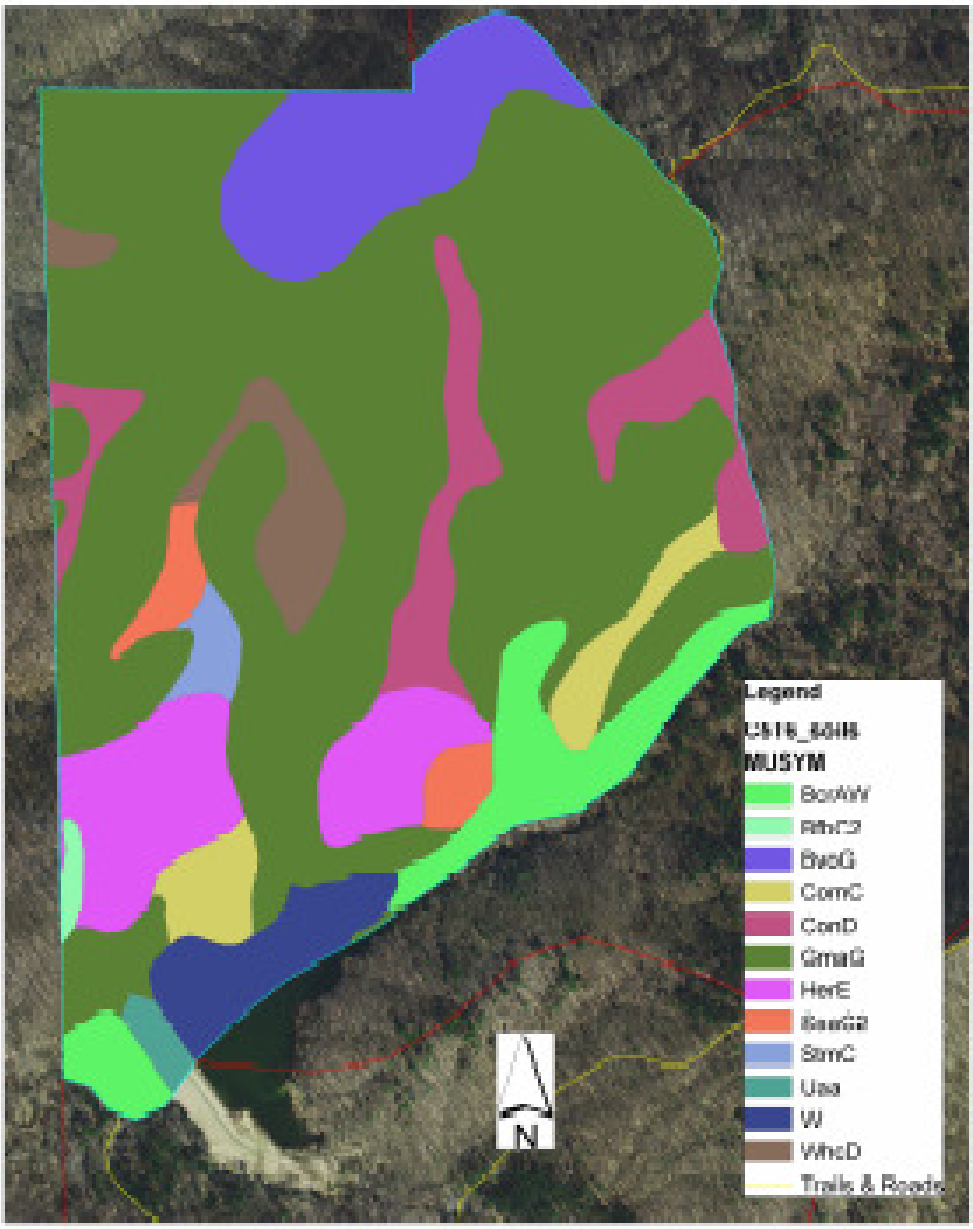
Clark State Forest
C5T6



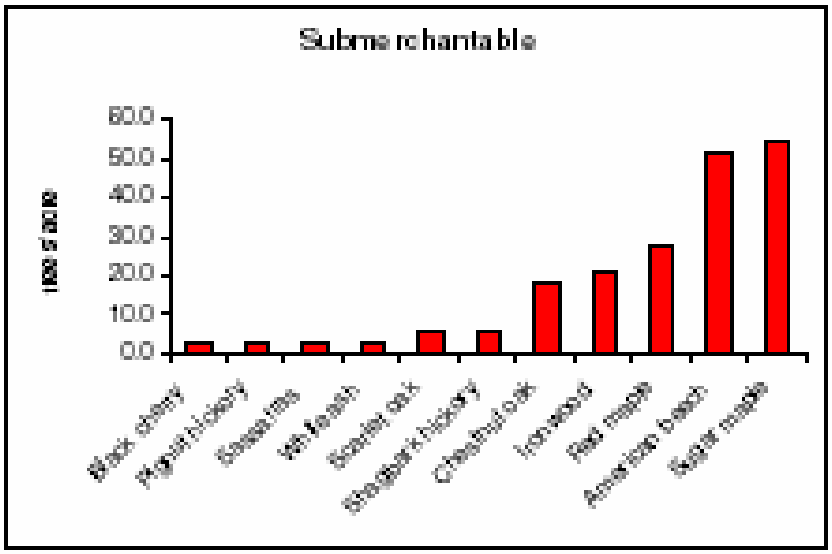
Clark State Forest
C5T6

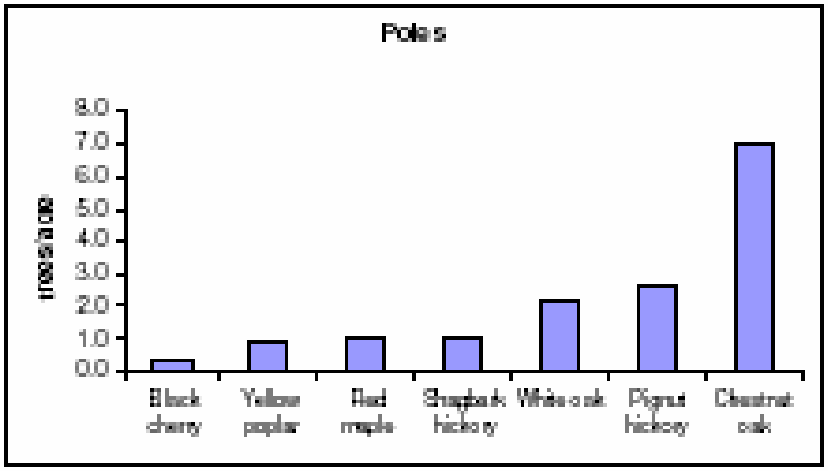


Clark State Forest
C5T6



Appendix


Submerchantable
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Black cherry
Pignut hickory
Sassafras
Yellow poplar
Scarlet oak
Shagbark hickory
Chestnut oak
Ironwood
Red maple
American beech
Sugar maple


Poles
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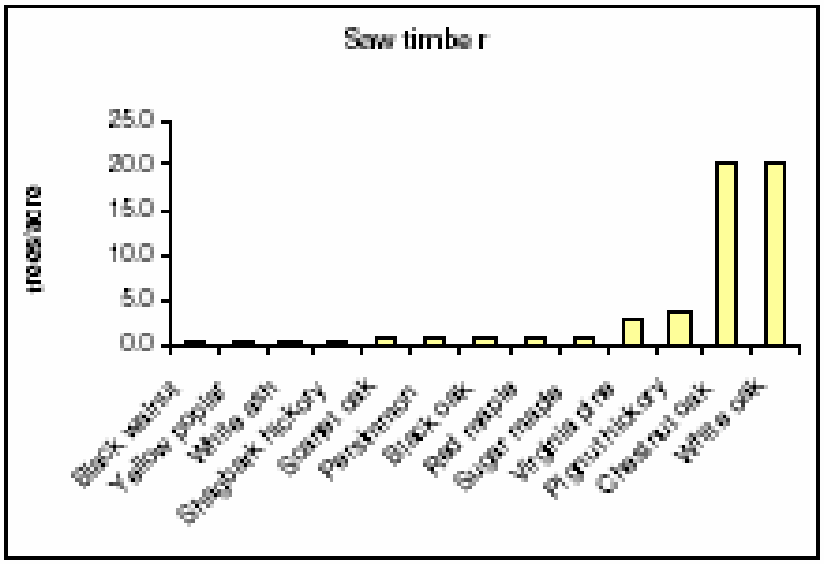
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Black cherry
Yellow poplar
Red maple
Shagbark hickory
White oak
Pignut hickory
Chestnut oak


Saw timber
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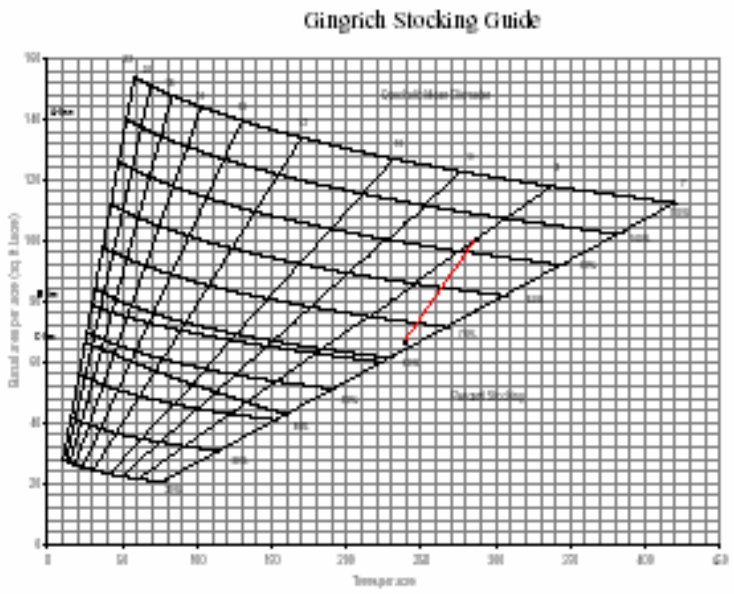
20.0
15.0
10.0
5.0
0.0
Black walnut
Yellow poplar
White ash
Shagbark hickory
Scarlet oak
Persimmon
Black oak
Red maple
Sugar maple
Virginia pine
Pignut hickory
Chestnut oak
White oak



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
BfbC2—Blocher, soft bedrock substratum-Weddel silt loams, 6 to 12 percent slopes, eroded
Setting
Landform: Dissected till plains
Landform position: Shoulders and backslopes
Soil Properties and Qualities
Blocher, soft bedrock
Parent material: Thin loess, loamy materials and a paleosol in till over shale
Depth class: Very deep (more than 60 inches)
Drainage class: Moderately well drained

Water table depth: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 9.0 inches
Weddel
Parent material: Loess and 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 8.2 inches
Composition
Blocher, soft bedrock and similar soils: 46 percent
Weddel and similar soils: 30 percent
Dissimilar inclusions: 24 percent
* Blocher, soft bedrock substratum, severely eroded soils on shoulders and the upper part of backslopes
* Weddel, severely eroded soils on shoulders and the upper part of backslopes
* Coolville soils in areas on the lower part of backslopes
* Wakeland soils on toeslopes

* Weddel soils with 2 to 6 percent slopes on summits

BvoG—Brownstown-Gilwood silt loams, 25 to 75 percent slopes

Setting

Landform: Hills underlain with siltstone
Landform position: Backslopes

Soil Properties and Qualities

Brownstown

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 3.8 inches

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

Composition

Brownstown and similar soils: 39 percent
Gilwood and similar soils: 39 percent
Dissimilar inclusions: 22 percent

* Gilwood soils with 6 to 18 percent slopes on shoulders and summits
* Wrays soils with 6 to 18 percent slopes on shoulders and summits
* A shallow, well drained soil on backslopes
* Beanblossom soils on flood plains
* Rock outcrop on backslopes

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
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
HerE—Hickory-Bonnell complex, 12 to 25 percent slopes
Setting
Landform: Dissected till plains
Landform position: backslopes
Soil Properties and Qualities
Hickory
Parent material: Till
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 9.8 inches
Bonnell
Parent material: 0 to 18 inches of loess or loamy materials and till
Depth class: Very deep (more than 80 inches)
Drainage class: Well drained
Available water capacity to a depth of 60 inches: About 8.6 inches
Composition
Hickory and similar soils: 47 percent
Bonnell and similar soils: 39 percent
Dissimilar inclusions: 14 percent
* Cincinnati soils on shoulders and summits
* Blocher soils on shoulders and summits
* Holton soils on flood plains
* Rohan soils in areas on the lower part of backslopes
* Jessietown soils in areas on the lower part of backslopes

SoaC2—Spickert silt loam, 6 to 12 percent slopes, eroded
Setting
Landform: Hills underlain with siltstone
Landform position: Shoulders and the backslopes
Soil Properties and Qualities
Parent material: Loess and silty residuum
Depth class: Deep or very deep (50 to 72 inches)
Drainage class: Moderately well drained
Water table depth: 1.5 to 2.5 feet (perched)
Available water capacity to a depth of 60 inches: About 7.4 inches
Composition
Spickert and similar soils: 77 percent
Dissimilar inclusions: 23 percent
* Spickert soils, severely eroded on shoulders and backslopes and intermixed throughout the unit

* Wrays soils on shoulders and backslopes and intermixed throughout the unit
* Spickert soils with 2 to 6 percent slopes on summits
* Gilwood soils on shoulders and backslopes and intermixed throughout the unit

StmC—Stonehead 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: Loess and clayey residuum
Depth class: Deep or very deep (44 to 75 inches)
Drainage class: Moderately well drained
Water table depth: 2 to 3 feet (perched)
Available water capacity to a depth of 60 inches: About 8.9 inches

Composition

Stonehead and similar soils: 86 percent
Dissimilar inclusions: 14 percent
* Stonehead soils with 2 to 6 percent slopes on summits
* Coolville soils, severely eroded on shoulders and backslopes and intermixed throughout the unit
* Kurtz soils on backslopes
* Blocher, soft bedrock substratum, soils on shoulders and backslopes and intermixed throughout the unit
* Weddel soils on shoulders and backslopes and intermixed throughout the unit

WhcD—Wellrock-Gnawbone silt loams, 6 to 20 percent slopes

Setting

Landform: Hills underlain with siltstone
Landform position: Shoulders and backslopes

Soil Properties and Qualities

Wellrock

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 8.4 inches

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 6.2 inches

Composition

Wellrock and similar soils: 50 percent
Gnawbone and similar soils: 41 percent
Dissimilar inclusions: 9 percent
* A deep or very deep, moderately well drained, very slowly permeable soil on summits and intermixed throughout the unit
* Coolville soils with 2 to 12 percent slopes on shoulders and summits