RESOURCE MANAGEMENT GUIDE

Clark State Forest — Compartment 13 — Tract 3
Forester: Greg Roeder — Date: June 5, 2009
Management Cycle End Year 2019 — Management Cycle Length 10 Years

Location

Compartment 13, tract three (C13T3) is approximately four miles southwest of Henryville, Indiana. It is further described as part of section 15, T1N, R6E, Clark County, Indiana.

General Description

C13T3 is 152 acres of continuous closed canopy forest. The tract is unique in that is entirely in oak-hickory cover type with a strong oak regeneration layer.

History

C13T3 was acquired from the Carter family in 1927. It has probably always been in forest cover though there is a small pine stand that may have once been an old agriculture site. The first documented management activity for the tract was a timber cruise in 1973, and again in 1979. The 1986 property cruise cited 1,002 bf/ac of harvest volume.

Landscape Context

C13T3 is on the eastern edge of the Knobstone Escarpment. The landscape to the north, south, and west is predominately forested knob ground. To the east begins the Scottsburg lowland which is relatively flat and largely cultivated.

Topography, Geology and Hydrology

This tract is dominated by a ridge on the western boundary, and the perennial 'Wrong Branch' to the east. The north-west running ridge rises from 580' above sea level near the creek to 1000' as it climbs the escarpment and reaches the Norman Upland geographic region. This tract represents a geologic segway between the Norman Upland and Scottsburg Lowland. This tract contributes to the 'Wrong Branch' and 'Right Drain' perennial streams which eventually join to form Blue Lick Creek.

Access

There are two main access points; coming from the east access can be gained via Pixley Knob road. Entrance from the west can be gained via Flatwood Road. The two access points are connected by Bartle Knob Road, which is the northern border of the tract. The perennial stream Wrong Branch must be crossed at the south terminus of Bartle Knob Road.

Boundary
Bartle Knob Road is the northern boundary of the tract. The south and west boundary are bordered by state forest. The east side of the tract is bordered by private property. There is record of a surveyor's monument located on the southeast corner of the tract on the section 15/grant 265 line.

Wildlife
While performing the tract inventory heavy traces of white-tailed deer where observed. American toads were found along waterways, while box turtles were also observed. This tract provides excellent hard mast forage for wildlife. The continuous oak overstory will produce abundant wildlife food for those species which depend on acorns and hickory nuts for subsistence.

Wildlife Habitat Feature Tract Summary

Inventory Filename: C:\Documents and Settings\Greg\My
State Forest: Clark **Compartment Number:** 13 **Tract:** 03

Reference Number: 6301303 **Tract Acres:** 158

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal	Marked For Harvest	Residual Above Maintenance	Residual Above Optimal
Legacy Trees *								
11"+ DBH	1422		4784	3362				
20"+ DBH	474		477	3				
Snags (all species)								
5"+ DBH	632	1106	1192	560	86			
9"+ DBH	474	948	1079	605	131			
19"+ DBH	79	158	33	-46	-125			
Cavity Trees (all species)								
7"+ DBH	632	948	232	-400	-716			
11"+ DBH	474	632	232	-242	-400			
19"+ DBH	79	158	115	36	-43			

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

C13T3 exceeds bat management guidelines for all categories except 19"+ snags, and all cavity tree size classes. Additional large snags will be created as the stand continues to age. Additional snags will also be created during post harvest timber stand improvement which will cull undesired stems.

Communities
C13T3 contains two primary natural communities. A *dry upland forest* community dominates the northern end of the tract above approximately 750'. Dry upland forests are characterized by dry, excessively drained soils. Chestnut oak, black oak, and scarlet oak dominate the overstory. Pignut hickory, broom moss, and greenbrier are prevalent in the understory.

The dry-mesic upland forest community is the most abundant community found in the tract. The dry-mesic upland community is largely dominated by white oak in the overstory with scattered scarlet and black oaks. Common understory plants are flowering dogwood, ironwood, and serviceberry.

One rare plant was identified in the Heritage Database Search. Smooth veiny pea ,(*Lathyrus venosus*) was found on the western ridge of the tract. Smooth veiny pea is a nitrogen fixing legume, enriching the soil surrounding it making it important to low fertility soils. Forest succession is listed as a threat to smooth veiny pea in the Indiana State Forest Environmental Assessment.

Several invasive plants were seen during the inventory of the tract. Japanese stilt grass (*Microstegium vimineum)* was observed in several creek bottoms throughout the tract. Stilt grass spreads very aggressively in low light conditions on moist sites, out-competing native plants such as stinging nettles and jewel weed that would normally be found on such sites.
A single Ailanthus (*Ailanthus altissima)* tree was also found in the tract and immediately treated.

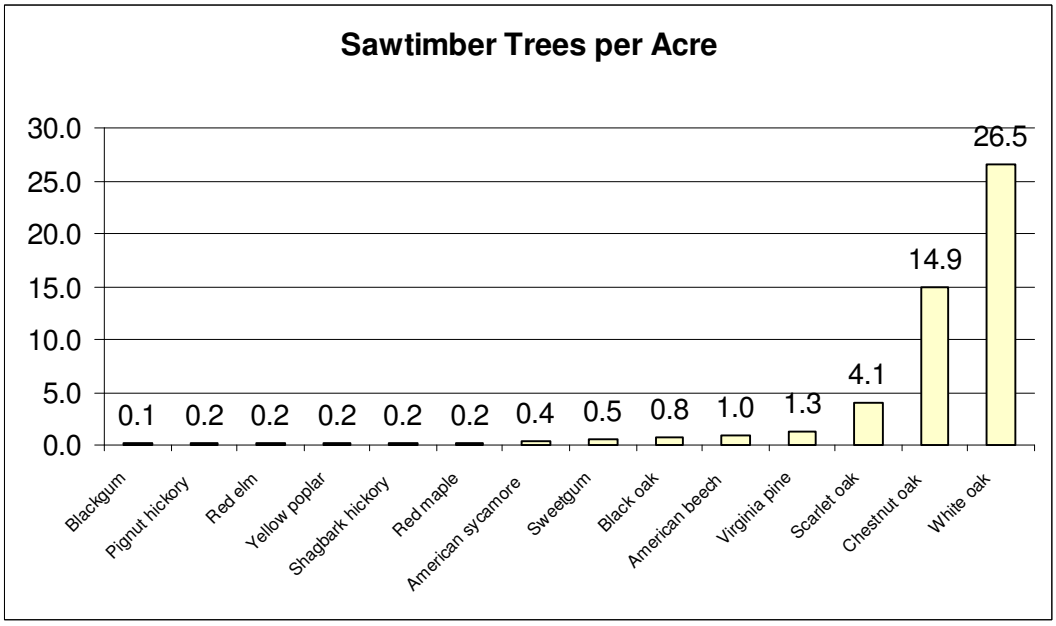
Invasive treatments should precede any resource management so that their spread is not exacerbated by increased light conditions.

Recreation
Running through the middle of the tract is the Knobstone Trail, which is used for hiking. Besides the Knobstone Trail, there are some other trails used primarily for horse riding. The tract as a whole can be used for hunting purposes.

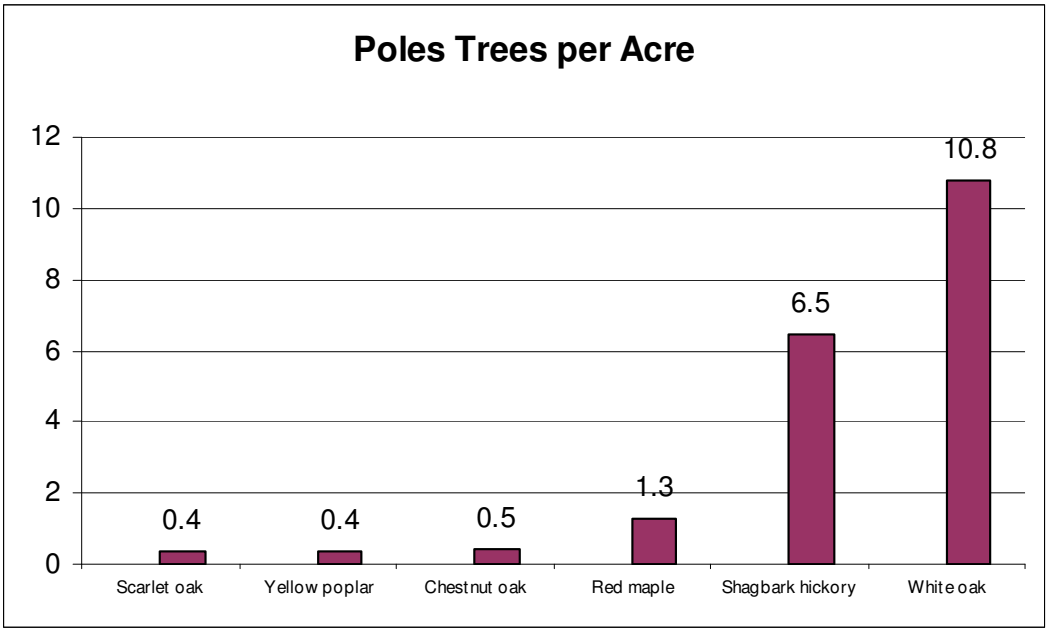
Cultural
Cultural resources may be present on the tract but their location is protected. Adverse impacts to significant cultural resources will be avoided during any management or construction projects.

Tract Subdivision Description and Silvicultural Prescription

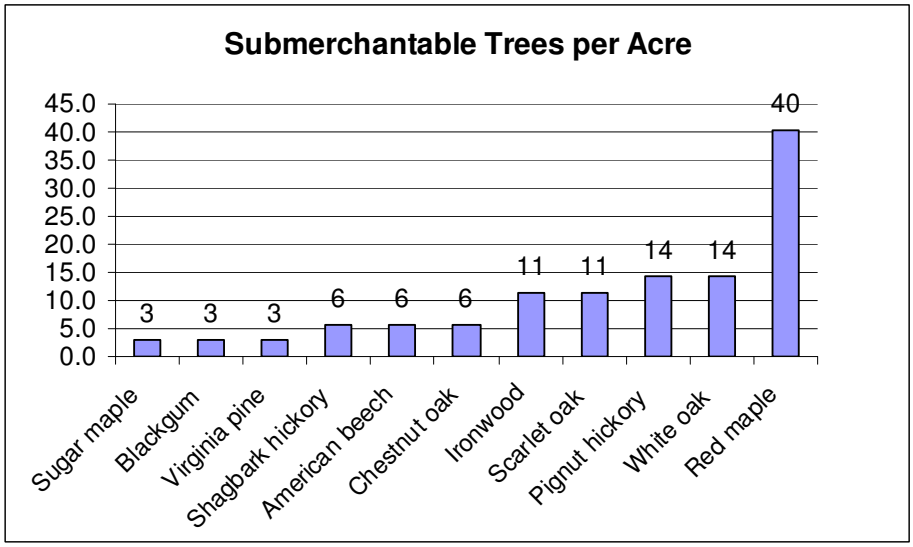
This tract is largely a homogenous dry-mesic upland forest type. The sawtimber overstory is dominated by 26 trees per acre of white oak , 14.9 tpa of chestnut oak, and 4.1 tpa of scarlet oak.



White oak is the most prevalent pole sized tree, sampling at 10.8 tpa, followed by shagbark hickory with 6.5 tpa, and red maple with 1.3 tpa.



The submerchantable size class is dominated by red maple at 40 stems per acre, white oak at 14 stems per acre, pignut hickory at 14 stems per acre, and scarlet oak at 11 stems per acre.



Summary Tract Silvicultural Prescription and Proposed Activities
C13T3 has the potential to produce large amounts of high quality white oak timber in perpetuity due to its strong oak regeneration layer and understory. This stand is only 77% percent stocked, but could use a light improvement harvest to expedite growth among future crop trees.

Single tree selection would be used through most of the tract to extract undesired trees were they directly compete with more desirable stems. Such harvesting would likely focus on defective scarlet oak, suppressed/dominated white oak and chestnut oak, and scattered Virginia pines.

Small group selections of undesirable white oak stems where favorable oak regeneration exists would benefit the tract by releasing areas of white oak saplings for further development.

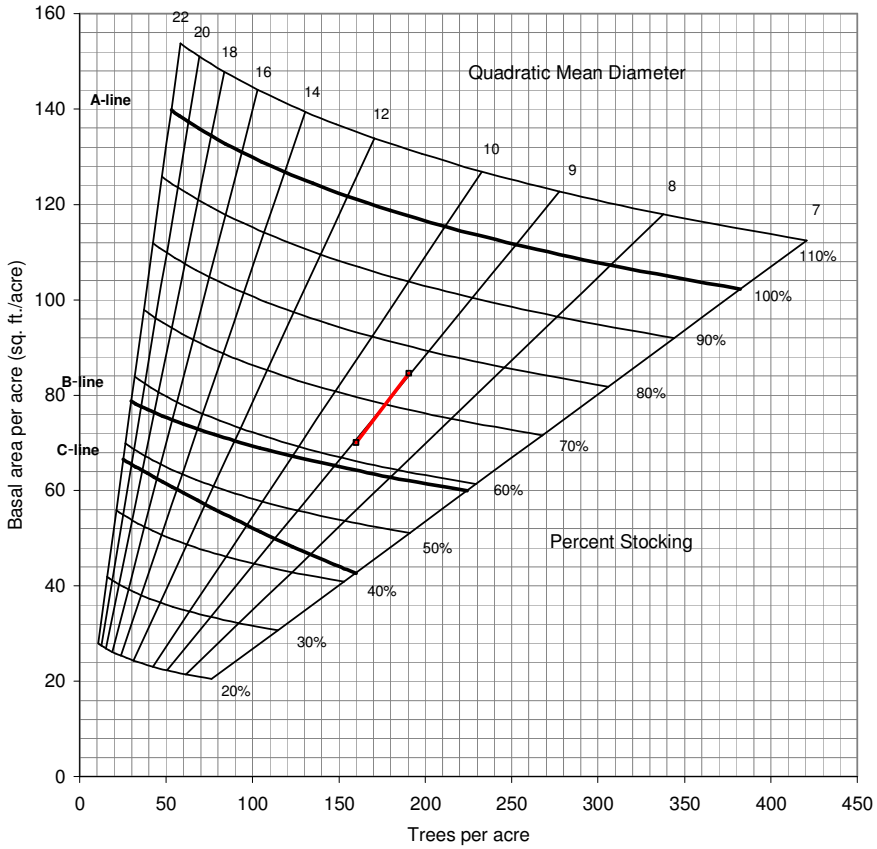
Shelter-wood treatments could be very effective for further advancing oak regeneration. Most of the tract exhibits strong white/scarlet/chestnut oak seedlings and pole sized trees. Shelter wood treatment would partially release these highly desirable stems without risk of losing them to shade tolerant species in the long run. Shelter-wood treatments would have to be re-evaluated at 5-10 years following harvest for residual stand removal which is necessary to complete the shelter-wood treatment

A combination of shelter-wood, single tree selection, and small group selection harvest could yield up to 2,260 board feet per acre, or 357 MBF across the whole tract.

Harvest / Leave Summary

Species	Harvest Stock MBF	Growing Stock MBF	Total MBF	MBF/Ac
American Sycamore		0.08	12.64	80
Blackgum	0.03		4.74	30
Black Oak	0.08	0.07	23.7	150
Chestnut Oak	0.56	1.34	300.2	1,900
Pignut Hickory		0.03	4.74	30
Red Elm		0.02	3.16	20
Red Maple	0.02		3.16	20
Scarlet Oak	0.41	0.30	112.2	710
Shagbark Hickory		0.02	3.16	20
Sweetgum	0.11	0.03	22.12	130
Virginia Pine	0.23		36.34	230
White Oak	0.8	3.09	614.62	3,890
Yellow Poplar	0.02		3.16	20
Tract Totals (MBF)	357.08	786.84	1,143.94	
Per Acre Totals (MBF)	2.26	4.98		7.23

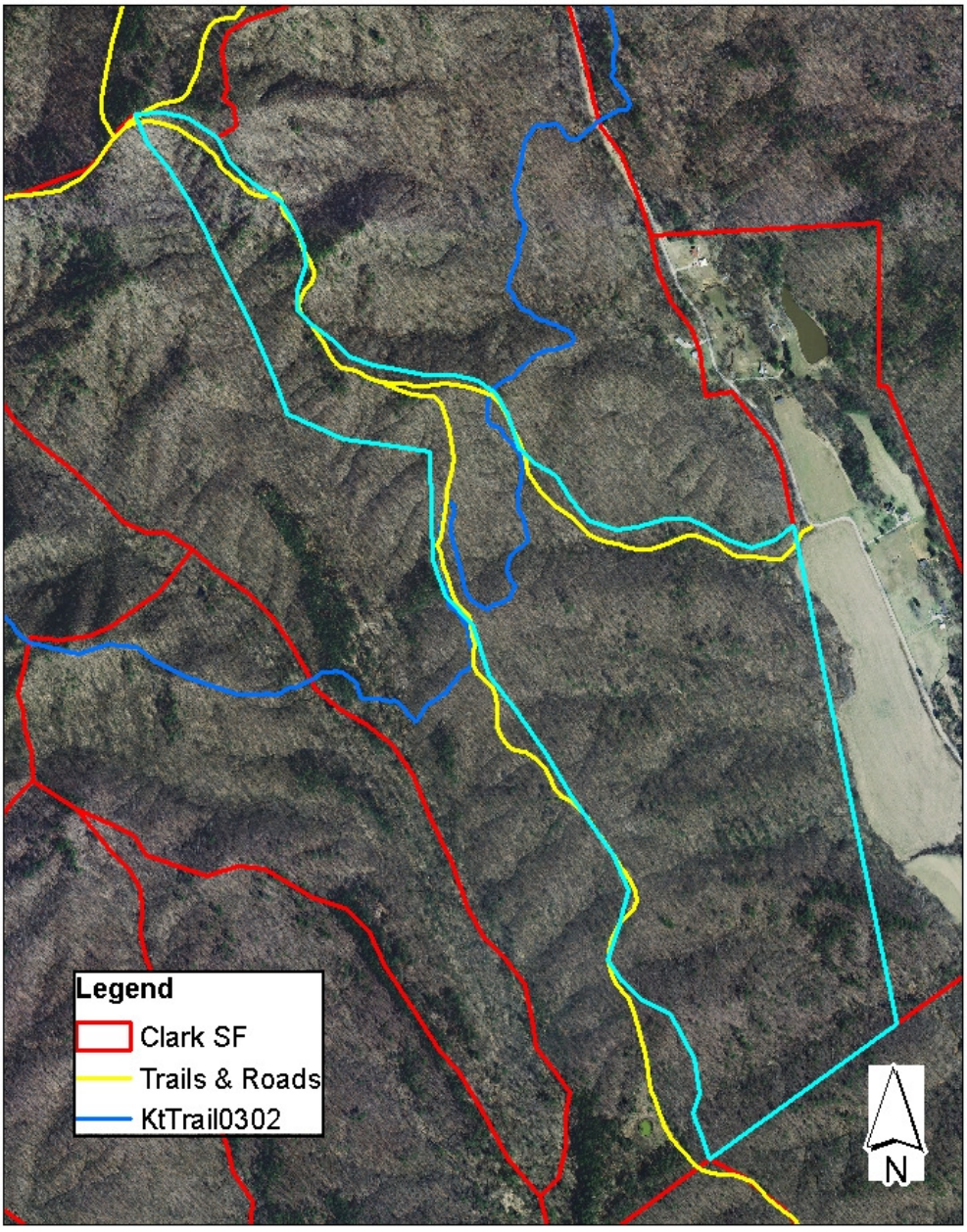
Stocking Guide



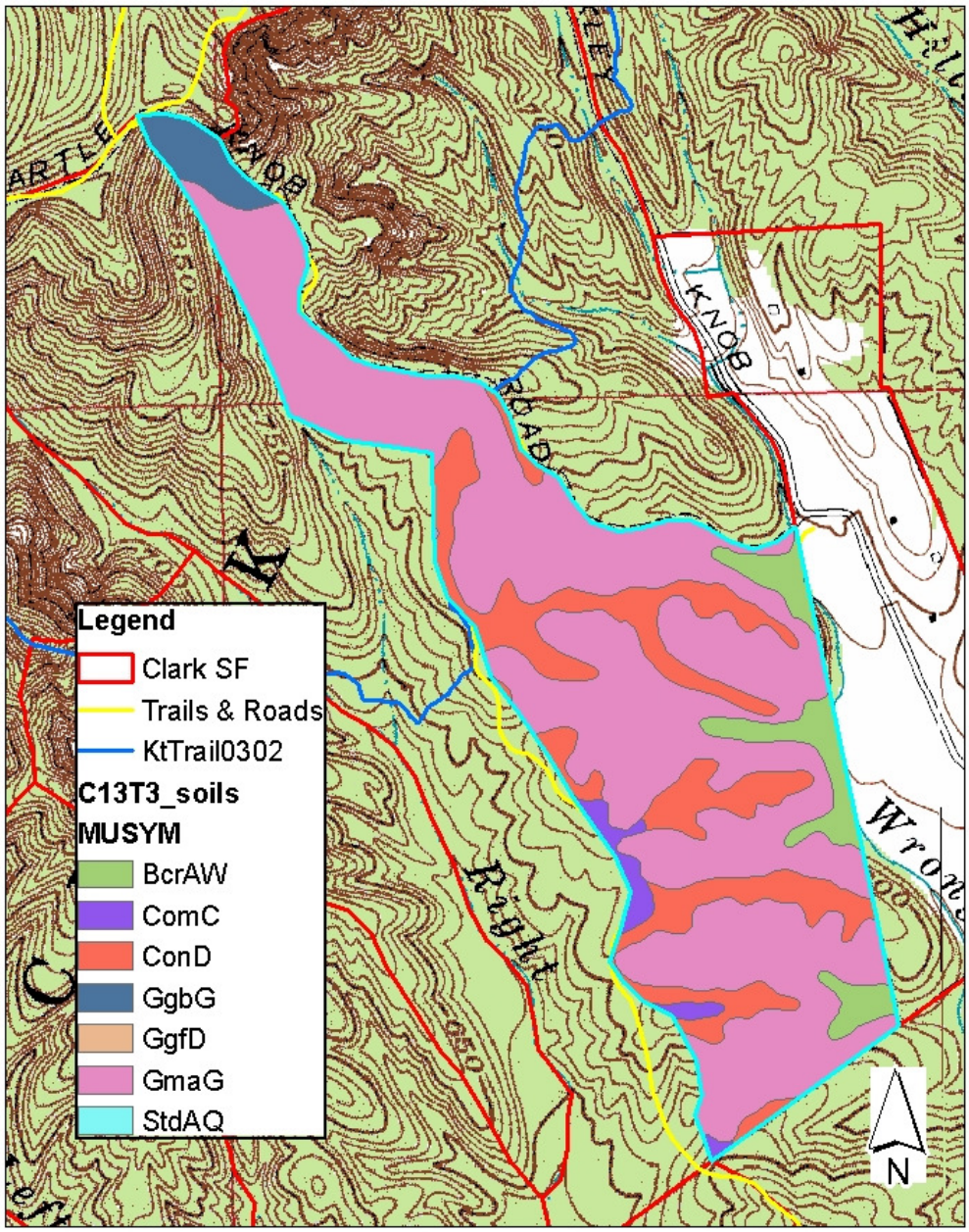
Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Management Guide/Cruise	2009
Harvest as Prescribed Above	2011
Post Harvest TSI	2014
Complete Shelter Wood	2019
Re-Inventory/Management Guide	2020

Clark State Forest
C13T3



Clark State Forest
C13T3



Clark State Forest
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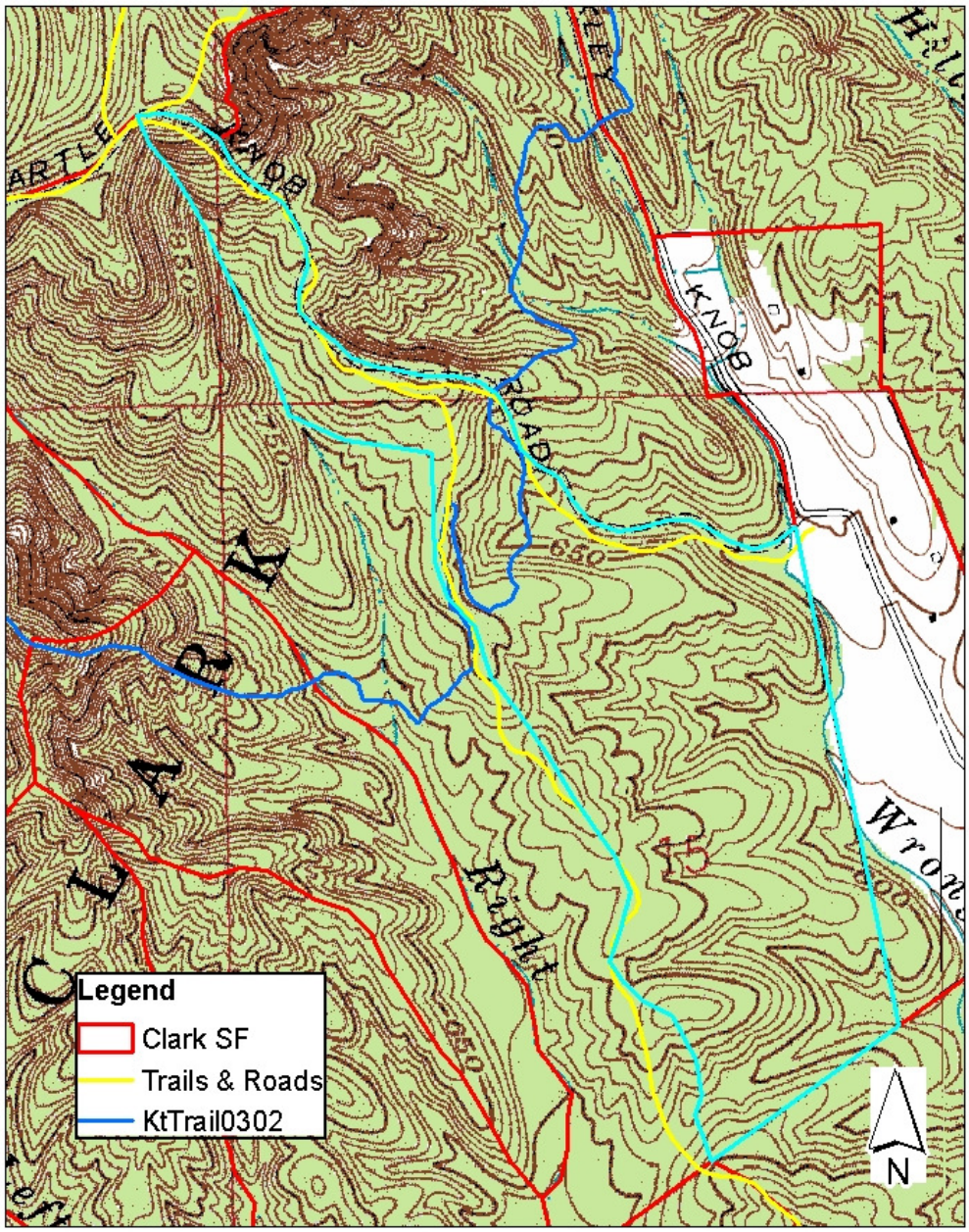

Soils

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

ComC3—Coolville silt loam, 6 to 12 percent slopes, severely eroded

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 6.2 inches

Composition
Coolville and similar soils: 72 percent
Dissimilar inclusions: 28 percent
* Coolville soils, moderately eroded in areas on the lower part of backslopes
* Rarden soils on backslopes
* Weddel 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
Available water capacity to a depth of 60 inches: About 6.2 inches

Composition
Coolville and similar soils: 53 percent
Rarden and similar soils: 28 percent
Dissimilar inclusions: 19 percent
* Kurtz soils on backslopes
* Gnawbone soils on backslopes
* Deam soils on backslopes
* Coolville soils with 4 to 12 percent slopes on summits and shoulders

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

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

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