Resource Management Guide

Clark State Forest	Compartment 13 Tract 10
Forester Greg Roeder	Date June 22, 2009
Management Cycle End Year 2029	Management Cycle Length 20 years

Location
Compartment 13 tract 10 is located in section 265 of Clark Military Grant in Clark County. The tract is approximately four miles away from the town of Henryville.

General Description
C13T10 is 58 acres of predominately oak-hickory with small pockets of Virginia pine disbursed along the western edge of the tract.

History
The majority of C13T10 was purchased on 03/30/1953 from Eva E. Morgan, which contained a total of 51.02 acres. The other seven acres were purchased on 12/10/1941 from Mack and Iva Mae Meadors. In this sale 121.54 acres were included, but only seven of those acres are part of this tract.
The last management completed on this tract was on 11/06/1985, at which time Housewoods Inc. completed a single tree selection harvest where they removed 83,203 bd ft of timber. The majority of timber removed was white oak, Virginia pine, scarlet oak, and black oak respectively.

Landscape Context
C13T10 borders state property on its southwest side, which is also forested with a similar cover type. Along the southern border there are a few residential properties, some of which have forest cover. There is also a small section that is bordered by a pasture.

Topography, Geology, and Hydrology
The area is at a low elevation. It starts at approximately 550 ft above sea level and climbs to a little above 600 feet. The tract has one main high point in the tract with the surrounding landscape rising up to that point. It is mainly a configuration of gently sloping hills.
Geologically this tract is part of the Knobstone escarpment that is transitioning into the Scottsburg lowlands. Most of the rainfall is directed toward the mountain grove run, then to the left branch and blue lick creek, before moving into Silver Creek approximately three miles above Memphis Indiana.

Access
The property has excellent access since is paralleled on the east by cemetery road. A horse trail connects to Cemetery Road, which travels through the middle of the tract. This allows for easy access to any portion of the tract without a long drive. There was also several old roads/skid trails noticed within the property.

Boundary

C13T10 is border by tract 9 to its southwest. The rest of the property is either bordered by residential property or cemetery road. Areas where private property was encountered we used a GPS to locate the property line.

Wildlife

This tract has a perennial stream running through it, so many visuals were made of American toads jumping into the water. Other wildlife that was observed was a turkey, a box turtle, a few birds, and squirrels.

Wildlife Habitat Feature Tract Summary

Inventory Filename: C:\Documents and Settings\Greg\My
State Forest: Clark
Compartment Number: 13 **Tract:** 10
Reference Number: 6301310 **Tract Acres:** 58.3

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal	Marked For Harvest	Residual Above Maintenance	Residual Above Optimal
Legacy Trees *								
11"+ DBH	524.7		1497	973				
20"+ DBH	174.9		398	223				
Snags (all species)								
5"+ DBH	233.2	408.1	718	485	310			
9"+ DBH	174.9	349.8	547	372	197			
19"+ DBH	29.15	58.3	58	29	0			
Cavity Trees (all species)								
7"+ DBH	233.2	349.8	26	-207	-323			
11"+ DBH	174.9	233.2	26	-148	-207			
19"+ DBH	29.15	58.3	13	-16	-46			

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

This tract is considered acceptable habitat for the Indiana bat. Based on the wildlife tract summary, snags in this stand are at an acceptable level for roosting bats. The numbers exceed the maintenance levels for all size classes and meet the optimal level for the 19-in snag. The optimal level for the 5 and 9-inch class has been exceeded. Cavity trees do exceed the maintenance level, but fall slightly short from optimal levels. This could be from missed cavities during inventory or not enough cavities since it is a younger forest. A harvest was

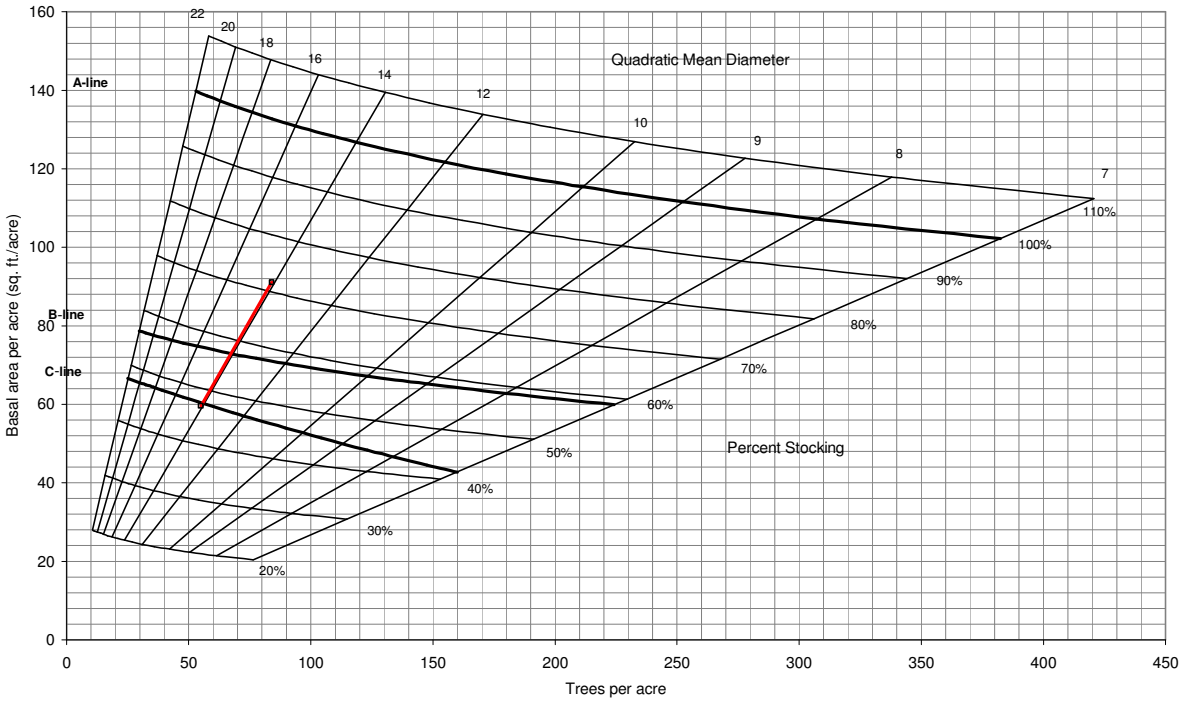
completed in 1985, which reduced its stocking levels. Still the numbers are at an acceptable level to provide the Indiana bat its required habitat.

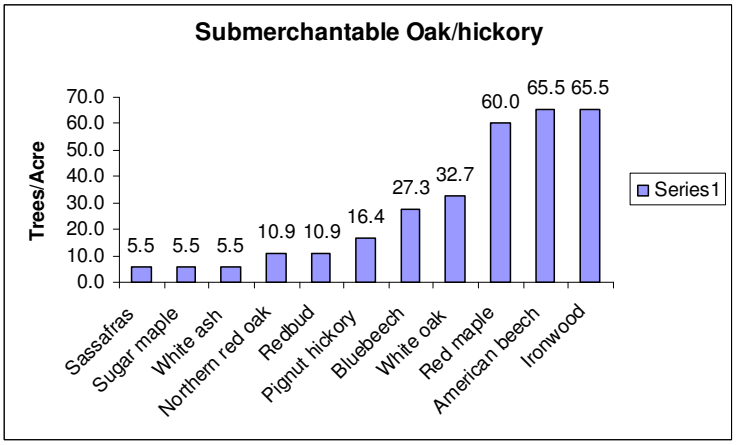
Communities
The major plant community present in this tract is the *dry upland mesic forest*. It is typically identified by white oak, black oak, and shagbark hickory, all of which are present. The area is typically a transition between to different moisture gradients caused by its sloping gradient.
The Appalachian quilwort was listed on the National Heritage Database to have been located in this tract. It is an obligate wetland species that requires slow moving water to survive. C13T10 does have a perennial stream flowing through it that would be the required habitat for it. If forest management activities were to occur Indiana's Best Management Practices require a buffer around all perennial streams. This would help protect and preserve the future of the Appalachian quilwort.

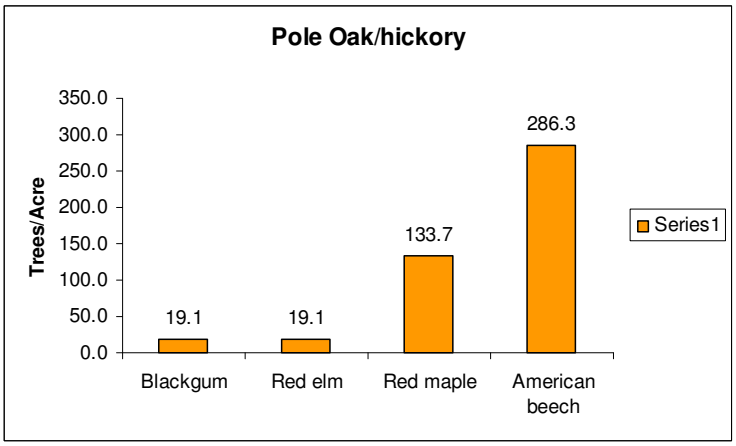
Recreation
There are two main recreational opportunities in this part of Clark State Forest. First there is a horse trail that lies within the tract and second this area of forest can be used for various hunting purposes.

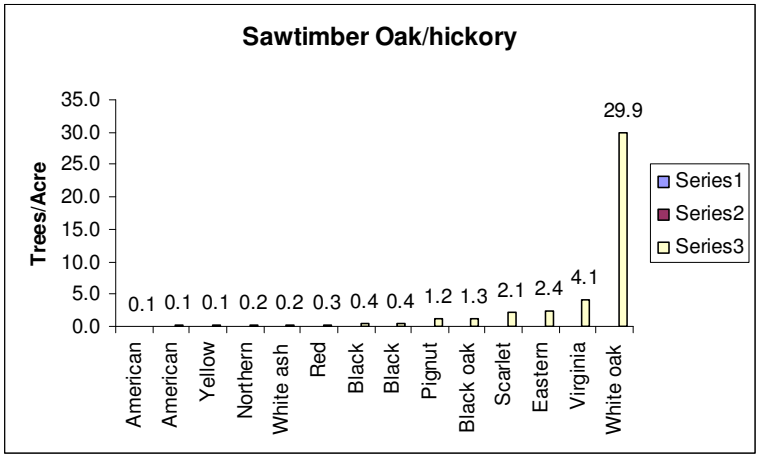
Cultural
There is no known cultural features within this tract.

Tract Subdivision Description and Silvicultural Prescription
C13T10 was mainly a composition of oak-hickory forest type, however, there were a few pockets of Virginia pine that had been planted within the tract. The oak-hickory stand was largely made up of white oak. There were other species within the tract, but none had as large of numbers as the white oak. The other species were not that well represented. In the understory a more shade tolerant group of trees had grown, which include ironwood, red maple, and American beech. After those three species there was a group of white oak saplings that were present. The current stocking level from the Gingrich chart shows 70% stocking with a basal area of 90 sq ft and a mean diameter of 14.
The oak-hickory stand is in a mature state with some larger trees, however, overall the stand is stocked too low to be able to complete a harvest. Another ten years should be given to this stand before an additional inventory is completed. If a harvest was completed now it would drop below the C-line on the stocking chart or the harvest would be too small to be feasible. Considering the ecological effects of a harvest, it would be beneficial to wait another ten or twenty years.


Quadratic Mean Diameter
A-line
B-line
C-line
Percent Stocking
Basal area per acre (sq. ft./acre)
Trees per acre
22
20
18
16
14
12
10
9
8
7
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
0
20
40
60
80
100
120
140
160
0
50
100
150
200
250
300
350
400
450

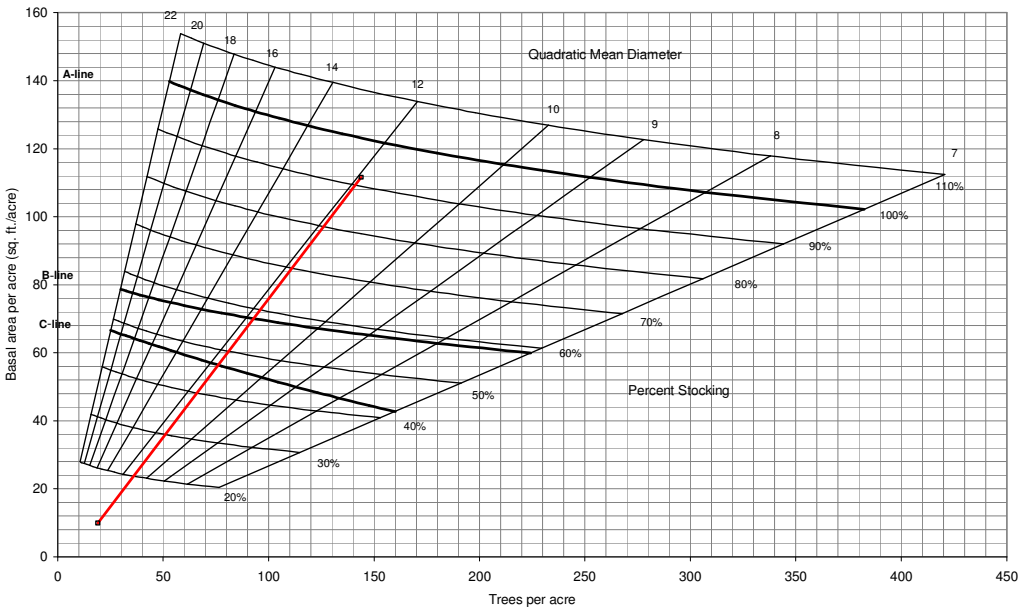

Submerchantable Oak/hickory
Trees/Acre
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
5.5
5.5
5.5
10.9
10.9
16.4
27.3
32.7
60.0
65.5
65.5
Sassafras
Sugar maple
White ash
Northern red oak
Redbud
Pignut hickory
Bluebeech
White oak
Red maple
American beech
Ironwood
Series1

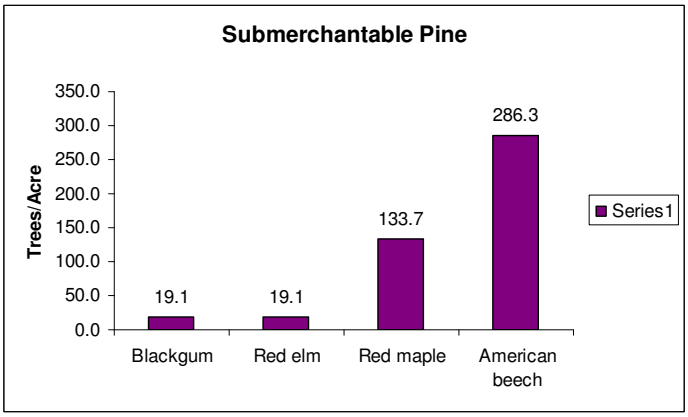

Pole Oak/hickory
Trees/Acre
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
19.1
19.1
133.7
286.3
Blackgum
Red elm
Red maple
American beech
Series1

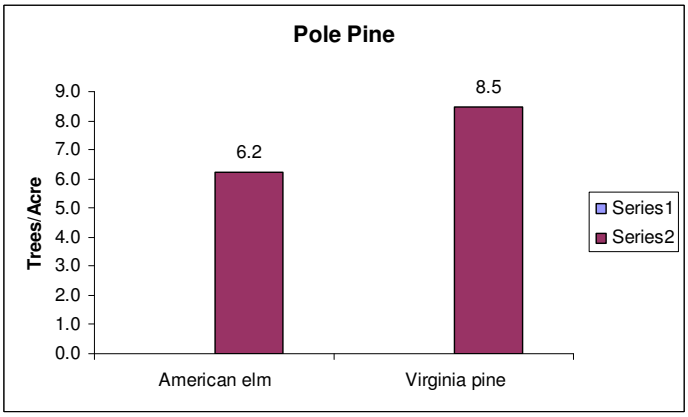


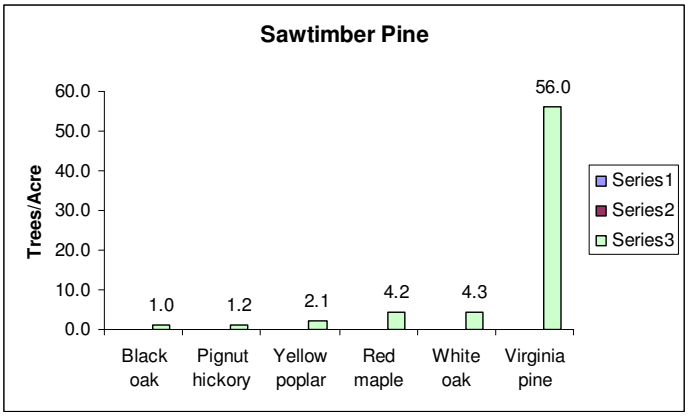
The other stand within C13T10 is a pine stand that encompasses around 16 acres. Throughout this cover type there are many Virginia pines that have blown over and created a dense understory thicket. The main species present is the Virginia pine with a few others underrepresented species. In the understory a shade tolerant forest is ready to emerge that is dominated by red maple and American beech. If a harvest was completed it would transition to this more late successional forest. The current stocking level is slightly above 90% with a mean diameter of 12 and a basal area of 110 sq ft.

A harvest would be advisable in this area since there is a high amount of blow down, with the likely possibility of more. The stocking level is at a good number for a harvest and the forest is nearing a mature state. Aside from the stocking levels I would recommend a seed tree method of harvesting to eradicate the monoculture design of the current stand. The remnant seed trees would be the white oaks currently present. This would help transition the forest toward a more natural forest, before the plantation of Virginia pine. Timber stand improvement would need to be completed after a seed tree harvest to eradicate the current understory of shade tolerant species. Since this stand is so small, coordination between another harvest would need to be completed.


Basal area per acre (sq. ft./acre)
Trees per acre
Quadratic Mean Diameter
Percent Stocking
A-line
B-line
C-line
22
20
18
16
14
12
10
9
8
7
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
0
20
40
60
80
100
120
140
160
0
50
100
150
200
250
300
350
400
450


Submerchantable Pine
Trees/Acre
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
19.1
19.1
133.7
286.3
Blackgum
Red elm
Red maple
American beech
Series1


Pole Pine
Trees/Acre
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
6.2
8.5
American elm
Virginia pine
Series1
Series2



Proposed Management Activity	*Proposed Date*
Single tree selection/regeneration harvest	2010
Timber stand improvement favoring natural regeneration	2012
Stand Inventory	2029

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

You **must** indicate "Clark C13 T10" 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.

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

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

Drainage class: Moderately well drained
Water table depth: 1.5 to 2.0 feet (perched)
Available water capacity to a depth of 60 inches: About 8.2 inches

StaAQ—Steff 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: Moderately well drained

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: Moderately well drained
Water table depth: 1.5 to 2.5 feet (apparent)
Available water capacity to a depth of 60 inches: About 10.3 inches

Composition
Steff and similar soils: 86 percent
Dissimilar inclusions: 14 percent
* Stendal soils in drainageways
* Cuba soils on natural levees
* Steff soils, occasionally flooded intermixed throughout the unit

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