RESOURCE MANAGEMENT GUIDE

Clark State Forest	Compartment 15 Tract 7
Forester: Greg Roeder	Date October 22, 2008
Management Cycle End Year 2028	Management Cycle Length 20 Years

Location

Compartment 15, tract seven is a 184 acre tract of predominate hardwood timber located within sections 3 and 4, T1S, R6E, Clark County, Indiana. C15T7 makes up roughly half of the eastern shore of Deam Lake.

General Description

C15T7 is a predominately upland oak timber type with a small 6.7 acre pine stand in the southeast corner. The tract is bounded by state forest to the north, Deam Lake to the west, private land and state forest to the south, and public land to the east. The tract contains an estimated 1,514 MBF of merchantable timber of which 708.5 MBF is harvest stock, and 805.9 MBF is growing stock.

History

This tract was acquired in 1940 from the Durham family in a 300 acre purchase. Little management has occurred in the tract since acquisition:

1974 – Management Guide – Phil Wagner
1974 – Timber harvest marked, but not sold
1978 – Timber Sale 60,520 bf in "383 logs"
1986 – Inventory 90 BA/Ac; 2858 bf/ac growing stock; 2242 bf/ac harvest stock
2008 – Inventory; management guide

Landscape Context

Deam Lake and contiguous forest dominate west of the tract, contiguous forest borders the north, agriculture fields and a landfill are found to the south, and light density residential exists east of the tract. This tract represents the southern terminus of the mostly north-south contiguously oriented forest.

Topography, Geology and Hydrology

The topography of C15T7 predominately consists of south facing slopes with a ridge running approximately 20 degrees from the south west corner. Relief varies between approximately 490' to 620' above see level. There are two large hollows running north south, one of which is an intermittent tributary to the Muddy Fork of Silver Creek. The west side of the aforementioned ridge drains directly into Deam Lake. Management activities in the Deam Lake watershed will be very light as to not adversely affect the lake's water quality.

Soils

ComC—Coolville silt loam, 6 to 12 percent slopes

Map Unit Setting

- *Elevation:* 340 to 1,000 feet
- *Mean annual precipitation:* 40 to 46 inches
- *Mean annual air temperature:* 52 to 57 degrees F
- *Frost-free period:* 170 to 200 days

Map Unit Composition

- *Coolville and similar soils:* 71 percent

Description of Coolville

Setting

- *Landform:* Hills
- *Landform position (two-dimensional):* Backslope, shoulder
- *Landform position (three-dimensional):* Side slope
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Parent material:* Loess over clayey residuum over mississippian shale and siltstone

Properties and qualities

- *Slope:* 6 to 12 percent
- *Depth to restrictive feature:* 40 to 60 inches to paralithic bedrock
- *Drainage class:* Moderately well drained
- *Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
- *Depth to water table:* About 12 to 24 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None

- *Available water capacity:* Moderate (about 6.9 inches)

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

Map Unit Setting

- *Elevation:* 340 to 1,000 feet
- *Mean annual precipitation:* 40 to 46 inches
- *Mean annual air temperature:* 52 to 57 degrees F
- *Frost-free period:* 170 to 200 days

Map Unit Composition

- *Coolville and similar soils:* 51 percent
- *Rarden and similar soils:* 30 percent

Description of Coolville

Setting

- *Landform:* Hills
- *Landform position (two-dimensional):* Shoulder, backslope
- *Landform position (three-dimensional):* Side slope
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Parent material:* Loess over clayey residuum over mississippian shale and siltstone

Properties and qualities

- *Slope:* 12 to 18 percent
- *Depth to restrictive feature:* 40 to 60 inches to paralithic bedrock
- *Drainage class:* Moderately well drained
- *Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
- *Depth to water table:* About 12 to 24 inches
- *Frequency of flooding:* None

- *Frequency of ponding:* None
- *Available water capacity:* Moderate (about 6.8 inches)

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

Map Unit Setting

- *Elevation:* 340 to 1,000 feet
- *Mean annual precipitation:* 40 to 46 inches
- *Mean annual air temperature:* 52 to 57 degrees F
- *Frost-free period:* 170 to 200 days

Map Unit Composition

- *Deam and similar soils:* 94 percent

Description of Deam

Setting

- *Landform:* Hills
- *Landform position (two-dimensional):* Backslope
- *Landform position (three-dimensional):* Side slope
- *Down-slope shape:* Linear
- *Across-slope shape:* Linear
- *Parent material:* Clayey residuum over mississippian shale

Properties and qualities

- *Slope:* 20 to 55 percent
- *Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
- *Drainage class:* Well drained
- *Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
- *Depth to water table:* More than 80 inches
- *Frequency of flooding:* None

- *Frequency of ponding:* None
- *Available water capacity:* Low (about 4.4 inches)

Properties and qualities

- *Slope:* 20 to 60 percent
- *Depth to restrictive feature:* 20 to 40 inches to paralithic bedrock
- *Drainage class:* Well drained
- *Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
- *Depth to water table:* More than 80 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Available water capacity:* Moderate (about 6.0 inches)

Interpretive groups

- *Land capability (nonirrigated):* 7e

Typical profile

- *0 to 7 inches:* Silt loam
- *7 to 27 inches:* Parachannery silty clay loam
- *27 to 39 inches:* Extremely parachannery silt loam
- *39 to 60 inches:* Bedrock

WedB2—Weddel silt loam, 2 to 6 percent slopes, eroded

Map Unit Setting

- *Elevation:* 340 to 1,000 feet
- *Mean annual precipitation:* 40 to 46 inches
- *Mean annual air temperature:* 52 to 57 degrees F
- *Frost-free period:* 150 to 210 days

Map Unit Composition

- *Weddel and similar soils:* 95 percent

Description of Weddel

Setting

- *Landform:* Till plains
- *Landform position (two-dimensional):* Shoulder, summit
- *Landform position (three-dimensional):* Side slope
- *Down-slope shape:* Convex
- *Across-slope shape:* Linear
- *Parent material:* Loess over loamy till over clayey residuum over mississippian shale

Properties and qualities

- *Slope:* 2 to 6 percent
- *Depth to restrictive feature:* 60 to 90 inches to paralithic bedrock
- *Drainage class:* Moderately well drained
- *Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)
- *Depth to water table:* About 18 to 30 inches
- *Frequency of flooding:* None
- *Frequency of ponding:* None
- *Available water capacity:* Moderate (about 8.0 inches)

Access
This tract has excellent access along the south boundary shared by Wilson Switch Rd. The tract is also bisected north-south by a graveled horse trail.

Boundary
The tract is bounded on two sides by state property; Deam lake to the west and tracts five and six to the north. Private property comprises the east boundary. Wilson Switch Road and some private property border the south boundary.

Wildlife
White-tail deer, wild turkey, box turtle, fence lizard, song birds, raptors, and other reptiles were observed in this tract.

Indiana Bat Habitat Guidelines

Inventory Filename: C:\Documents and Settings\Greg\My
State Forest: 630 **Compartment Number:** 15 **Tract:** 7
Reference Number: 5 **Tract Acres:** 184

Live Trees - Entire Tract - Desired Species Only*

	Required	Inventory	Available For Removal	Harvested	Remaining
11" DBH+	1656	6295	4639	0	0
20" DBH+	552	1335	783	0	0

Snags - Entire Tract - All Species

9" DBH+	1104	822	-282	0	0
19" DBH+	184	103	-81	0	0

***Desired Species Include:** AME, BIH, BLA, BLL, COT, GRA, REO, POO, REE, SAS, SHH, ZSH, SHO, SIM, WHA, WHO

C15T7 meets both Indiana bat guideline size classes for live desired tree species. There are 4,639 live 11" DBH+ trees available for removal including 783 20" DBH+ trees available for removal. The snag count is deficient in both categories. Snags are not likely to be harvested under this plan and will be retained where no safety risk is present. Additional snags will likely be created during the post harvest T.S.I. process following any timber management activities.

Communities
C15T7 is a mixture of dry-mesic upland forest and dry upland forest natural communities. Areas of low to mid slope elevations exhibit characteristics of a dry-mesic forest type with abundant white oak, black oak, scarlet oak and assorted hickories. The steeper and higher areas of the tract exhibit characteristics of a dry upland forest community with abundant chestnut oak, scarlet oak and black oak species dominating the stand. (Natural Communities of Indiana) No threatened or endangered species or ecological classifications were found in the Natural Heritage Database Review, although Deam beardtongue *(Penstemon deami)* was found in C18T5 to the southwest in 1990 (Natural Heritage Database Review).

Recreation
Several recreational opportunities may be found in this tract. Fishing on Deam Lake is quite popular as well as horse riding and hiking on the Knobstone trail. Equestrian and hiking experiences are likely to be diminished temporarily during forest management activities; careful planning and oversight should be used to mitigate negative user experience.

Cultural
No cultural sites were observed while preparing this guide.

Tract Subdivision Description
Submerchantable stems in the tract are dominated by sugar maple (40%), followed by pignut hickory (34%), beech (6%), red oak (6%), white oak (6%), and yellow poplar (6%). The regeneration layer is shifting to a shade tolerant composition even though much of the tract has southern aspects.

Pole timber is dominated by white oak (50%), sugar maple (25%), pignut hickory (10%), beech (5%), red maple (5%), and Virginia pine (5%). The high number of white oak poles suggests the intermediate cohort will predominately be white oak. The high number of sugar maple poles and saplings suggests the stand will shift to a sugar maple dominated timber stand in subsequent rotations unless measures are taken to regenerate oak-hickory timber.

Sawtimber volume was estimated to be 8,230 board feet per acre. The majority species by volume is white oak (66%), followed by black oak (9%), scarlet oak (9%), and Virginia pine (7%).

Summary Tract Silvicultural Prescription and Proposed Activities
Most timber under 600' is very high quality white oak with a small black and scarlet oak component. This tract needs a thinning harvest of shorter lived and low quality black and scarlet oaks, and Virginia pine where they are directly competing with high quality white oak stems. Dense stands of white oak also need thinned, removing poorly performing stems that are near the bottom of the co-dominant layer. This stand is currently stocked at approximately 91 square feet per acre. An improvement cut would remove up to 35 square feet per acre leaving 66 square feet of residual stocking. This reduction in density will greatly affect the growth of future high value white oak stems.

Where elevation rises above 600' on south slopes and ridge tops, chestnut and scarlet oak prevail with a small white oak component. In these areas some improvement cutting of poorly formed and out-competed stems can increase overall stand quality.

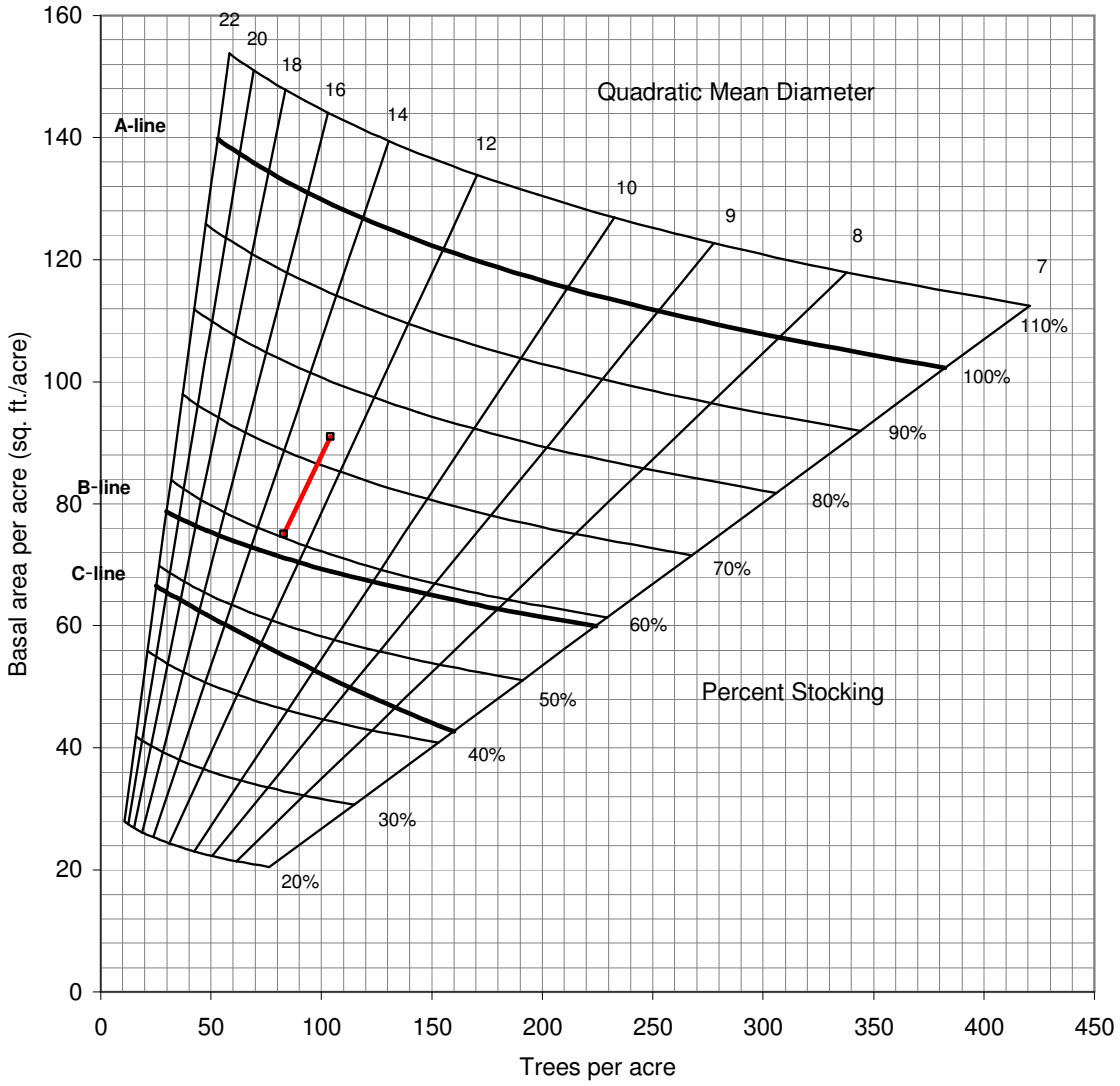
Timber marking should be limited to the east side of the horse trail. This trail runs atop a long ridge that separates the Deam Lake watershed from the Muddy Fork watershed. Harvesting or ground disturbance on the west of the ridge could contribute to sedimentation of Deam Lake.

Pre harvest TSI should be performed before harvesting begins. Grapevines and creepers should be targeted as well as any exotic species so that they do not proliferate under increased light conditions. Post harvest TSI should follow the sale. This prescription should kill any unharvested cull trees, complete openings, and remove stems not desired to be carried through the next rotation.

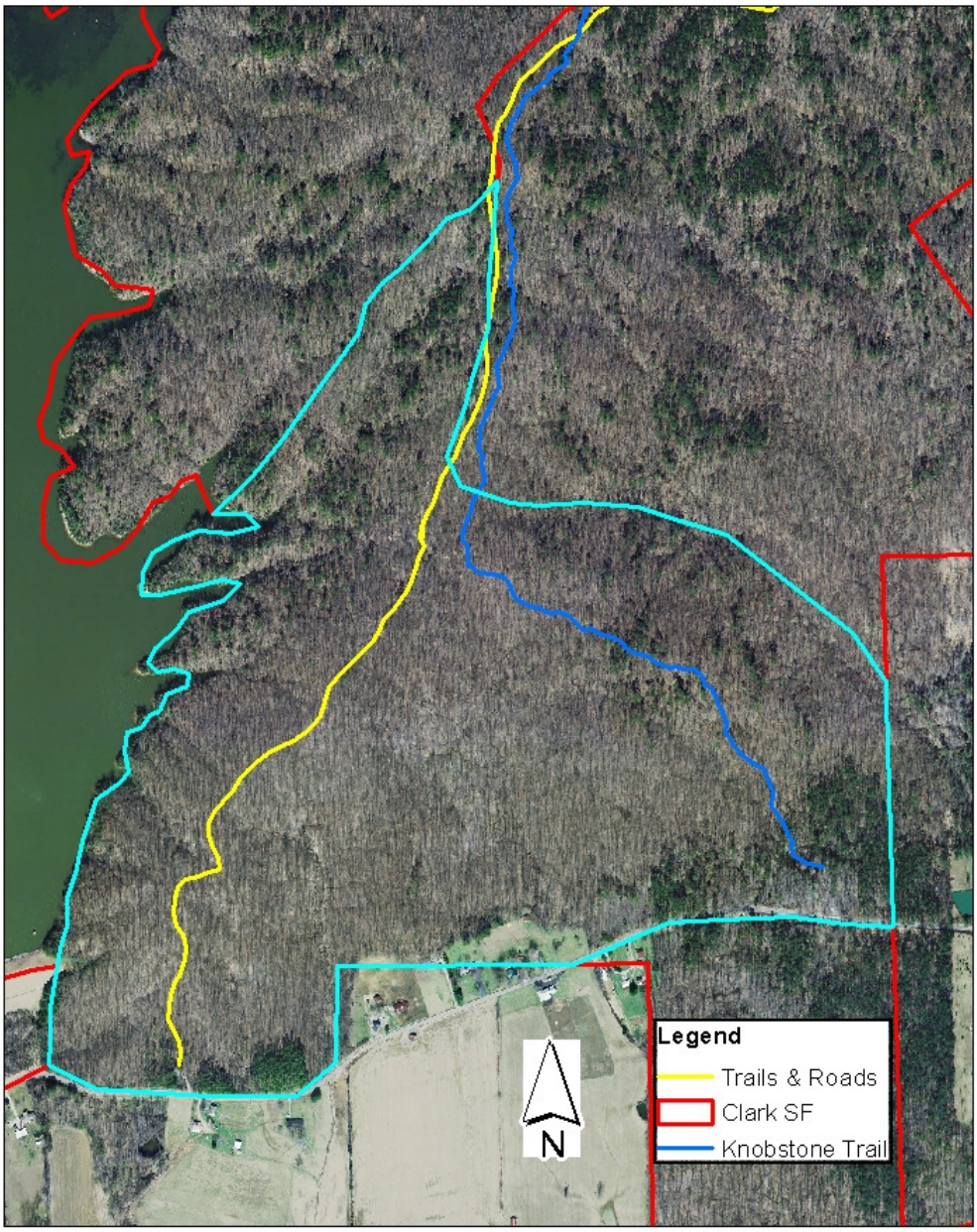
Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Resource Inventory & Management Guide	2008
Preharvest T.S.I.	2008-09
Selective Timber Harvest	2009-10
Post Harvest T.S.I.	2012
Reinventory & Management Guide Update	2028

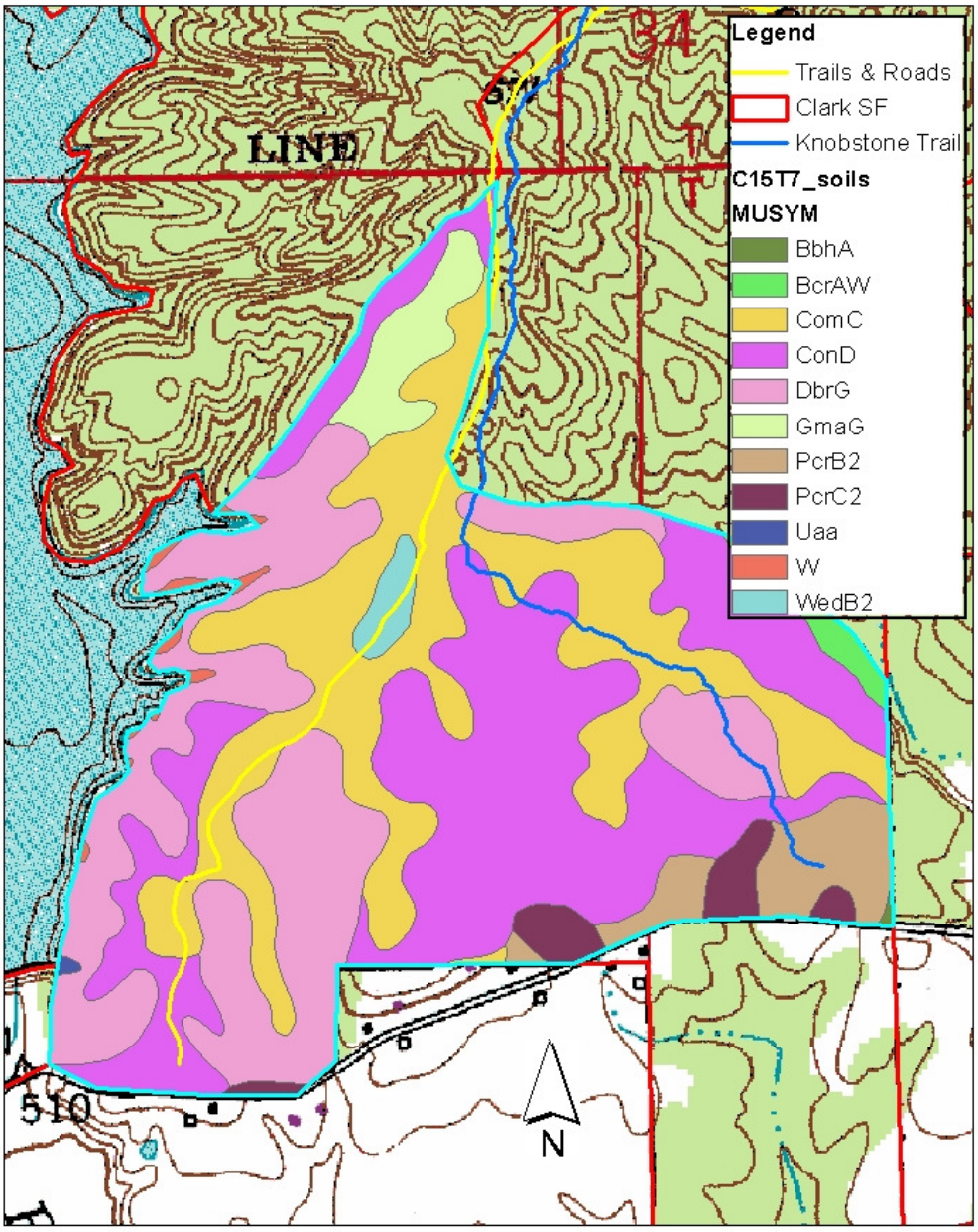
Attachments



Clark State Forest
Compartment 15, Tract Seven



Clark State Forest
Compartment 15, Tract Seven



Works Cited

Clark County Soil Survey, 1974

Natural Communities of Indiana, 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), July 1, 2002 Working Draft

Natural Heritage Database Review, Carl Hauser, May 20, 2008

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