Indiana Department of Natural Resources
Division of Forestry

Resource Management Guide Addendum

State Forest: Greene-Sullivan Compartment: 1 Tract: 1
Forester: Tom Moore Date: 10/21/2010 & 4/16/2013
Management Cycle End Year: 2030 Management Cycle Length: 20 Years

Location

Compartment 1, Tract 1 is located primarily in the NW 1/4 of Section 18 – T7N – R7W of Greene County. It is approximately .3 miles east and 1/8 of a mile north from the Greene-Sullivan State Forest Office.

General Description

This tract is approximately 52 acres. The various land use components can be delineated as follows:

- Closed Canopy Forest – 46.5
- Lakes/Wetland– 4.5 ac
- Open areas/Encroachment – 1 ac

Approximately 25% of the tract has been surface mined. Spoil banks are located primarily in the southwestern part of the tract. The remainder of the tract has gone un-mined and is generally consists of flat terrain. The majority of the tract is comprised of mature, closed canopy red maple stands with a scattering of shingle oak, black oak, hackberry, white pine and American elm. The remainder of the tract is predominantly a mature, average quality mixed hardwood cover type. There are two lakes within the stand. Within the western half of the tract lies Clear Lake. Clear Lake follows along the western side of the access road to the boat ramp. The other lake is County Line, which is located centrally in the eastern half of the tract. Directly north of County Line Lake is an open grass field about an acre in size.

History

The deed to this tract was acquired from Central Indiana Coal Company on July 14, 1949. No known records of the planting operation exist, but based upon old aerial photography and tree size, most of the current forest appears to have established roughly a decade before State acquisition. The inventory was conducted in the fall of 2010.

Boundary and Landscape Context

The western boundary of this tract is County Line Road. The southern boundary is a private field and the eastern boundary consists of an agricultural field and forested land. The northern boundary is privately owned forest and grassland.

In general, the landscape of the area consists of closed canopy forest interspersed with a few open areas, two strip mine pits, and an access road. The landscape is fairly flat

within the un-mined area of the tract. The southwestern section of the tract is the mined area.

Topography, Geology and Hydrology

Approximately 22 acres of the tract has been surfaced mined and consists of a series long narrow, moderately steep mounds of mine spoil (a mixture of soil, shale, sandstone, and some coal). These run primarily east to west. The rest of the tract has gone un-mined. These areas are flat and low compared to the rest of the land in the tract and as a result can stay a little wet well into late spring.

Soils

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber	
			Cu ft/ac	
AvB2:				
Ava	Northern red oak Tuliptree White oak	80 90 75	57 86 57	Baldcypress, Black oak, Blackgum, Bur oak, Chestnut oak, Common persimmon, Eastern white pine, Scarlet oak, Shingle oak, Southern red oak, Virginia pine, White oak
CfD2:				
Cincinnati	Northern red oak	80	57	Baldcypress, Black oak, Blackgum, Bur oak, Chestnut oak, Common persimmon, Eastern white pine, Scarlet oak, Shingle oak, Southern red oak, Virginia pine, White oak
CfD2:				
Cincinnati	Northern red oak	80	57	Baldcypress, Black oak, Blackgum, Bur oak, Chestnut oak, Common persimmon, Eastern white pine, Scarlet oak, Shingle oak, Southern red oak, Virginia pine, White oak
FcG:				
Fairpoint	---	---	---	---
HeD2:				
Hickory	Northern red oak Tuliptree White oak	85 95 85	72 100 72	American beech, Black cherry, Black oak, Black walnut, Bur oak, Chinkapin oak, Eastern white pine, Kentucky coffeetree, Northern red oak, Norway spruce, Pecan, Pignut hickory, Shagbark hickory, Shumard's oak, Sugar maple, Tuliptree, White oak
HeE:				
Hickory	Northern red oak Tuliptree White oak	85 95 85	72 100 72	American beech, Black cherry, Black oak, Black walnut, Bur oak, Chinkapin oak, Eastern white pine, Kentucky coffeetree, Northern red oak, Norway spruce, Pecan, Pignut hickory, Shagbark hickory, Shumard's oak, Sugar maple, Tuliptree, White oak
St:				
Stendal, drained	Pin oak Sweetgum	90 85	72 86	American sycamore, Baldcypress, Blackgum, Bur oak, Overcup oak, Pecan, Pin oak, Red maple, River birch, Shellbark hickory, Shingle oak, Shumard's oak, Silver maple, Swamp chestnut oak, Swamp white oak, Sweetgum

Access

This tract can be accessed from County Line Rd (1600 W), which is the border along the entire western side of the tract. There is also an access road that enters the tract in the

northwest corner and runs down to the southeastern quarter where it stops at a boat ramp for Clear Lake.

Wildlife Habitat Features

Wildlife habitat suitable for a wide variety of native species should be optimized throughout the tract in order to promote and maintain a high level of faunal diversity.

Cover/Habitat Overview

TABLE 1

Habitat/cover type	0%	0 < 1%	1-10%	11-50%	51-90%	>90%	Unknown
Closed-canopy deciduous/mixed forest	☐	☐	☐	☐	☒	☐	☐
Pine/conifer plantations or natural stands	☐	☐	☒	☐	☐	☐	☐
Early successional forest (≤ 20 years old)	☒	☐	☐	☐	☐	☐	☐
Shrub-scrub or old field	☐	☐	☒	☐	☐	☐	☐
Grasslands/hayfield	☐	☒	☐	☐	☐	☐	☐
Cropland, pastures, feedlots	☒	☐	☐	☐	☐	☐	☐
Open water (lakes, ponds, rivers, streams, etc.)	☐	☐	☒	☐	☐	☐	☐
Riparian areas	☐	☐	☒	☐	☐	☐	☐
Developed areas	☐	☒	☐	☐	☐	☐	☐
Other: Reclaimed Mine Land	☐	☐	☐	☒	☐	☐	☐

Table 1 shows the estimated proportion of each cover/habitat type within 1 mile of tract center. The area is primarily a mix of closed canopy deciduous forest with sparse and fragmented pine stands ranging from 1 to 2 acres in size. The remaining cover is made up of lakes, wetlands, riparian areas, and a access road. There is no cropland or early successional forest in this area. There is a fair amount of forest edge due to the fact that this tract is surrounded by private agricultural land, grasslands, and a road on the western border, as well as an access road within the tract. Another contribution to the total amount of forest edge is a wetland/grassland area located centrally within the eastern half of the tract. If a regeneration opening(s) is established as a result of harvest operations, then some early successional forest habitat may eventually be represented in the habitat overview. Other than this, none of the proposed management activities will significantly alter the relative proportion and availability of the other habitat/cover types in the assessment area.

Structural Habitat Features

TABLE 2

	Target Snag Density	
Diameter (DBH) Distribution	**Goal**	**C1T1**
Including at least this many snags per acre ≥ **5”**:	4	8.8
Including at least this many snags per acre ≥ **9”**:	3	3.8
Including at least this many snags per acre ≥ **19”**:	0.5	0

TABLE 3

Preferred Roost Trees per Acre

Diameter (DBH) Distribution	Goal	C1T1
Total minimum roost trees per acre **≥11"**:	9	10.9
Including at least this many roost trees **≥ 20"**:	3	2.7

Table 2 shows how this tract compares with the DoF guidelines for forest stand snag density. The data suggests that maintenance level snag densities for the small and medium size classes are currently being met. But according to the data the target snags per acre are not being met for the large size diameter class. The surplus of snags in the small diameter size class are most likely due to the lack of sunlight caused by the mature, slightly overstocked stand. The snags are made up by a variety of species, including: red maple, black locust, American elm, black cherry, and white pine. The red maple and white pine make up the larger size diameter snags. Even though the data suggests that the requirements for the 19"+ snags are not being met, observations out in the field may suggest otherwise. This is due to the fact that much of this stand is mature to over-mature and there was a presence of large snags within the tract that did not fall within any of the inventory plot.

Table 3 shows how this tract compares to the Indiana Bat guidelines for preferred live roost trees. The inventory data suggests that maintenance level conditions exist for this habitat feature for trees ≥20" but are slightly below the guideline levels for trees >11". The primary species present that represent roost trees are black locust and American elm.

The structural habitat features listed above will be considered during management operations. Efforts will be made to manage towards the maintenance level guidelines for each habitat feature.

IDNR Natural Heritage Database Review

A NHDB review was conducted for this tract. There are no species or communities of significance known from within or near the tract.

Exotic/Invasive Species

Species	Immediate Management Required	Monitoring/ Re-evaluation Recommended	Mapped?
Ailanthus	☐	☒	☐
Autumn Olive	☐	☒	☐
Multiflora Rose	☒	☒	☐

Privet	☐	☒	☐

The only exotic invasive that was prominent within the tract was multiflora rose. The multiflora rose was particularly heavy within the south-eastern portion of the tract. Some autumn olive and privet was observed during the inventory but they were fairly sparse and not a big concern at the moment. The multiflora rose should be treated before harvesting or thinning occurs within this stand in order to further it from spreading. The rose should be monitored after treatment. The best option for treatment would be a foliar spray, the areas covered in rose would prove to be too thick for a basal treatment.

Recreation

Common activities in this tract are fishing, mushroom gathering, as well as deer and turkey hunting.

Cultural

There were no cultural features found in the tract. An archeological clearance application has been submitted to the DNR Division of Historic Preservation and Archaeology.

Stand Descriptions and Silvicultural Prescriptions

Mixed Hardwood – 46.5 ac

Current Condition

There are a wide variety a species present in this stand. Only the black locust appears to have been planted, although no records of any planting operation exist to our knowledge. The rest of the trees would seem to be the result of natural regeneration. Red maple comprises approximately 32% of the total sawtimber volume and approximately 31% of the total basal area in the stand. The majority of the red maple is mature to over mature, with DBH's observed as large as 41 inches. Much of the sawtimber volume is made up primarily of eastern white pine (18%), and black oak (10%). The high volume of white pine may misrepresent the presence of white pine in the stand. The white pine is not prevalent throughout the stand, but where they are present they are of large size and makes up a large amount of volume. The remainder of the stand is made up of a wide variety of species and size classes. The pole to small size class is largely made up of American elm, red maple, sassafras, boxelder, and hackberry. Advance regeneration present consists primarily of hackberry, American elm, and red maple. During the inventory a patch of poplar, of all sizes, was observed but not recorded because it did not fall within any of the inventory points. This poplar was located between inventory points 2 & 3 (see map for reference).

The tree quality within the tract is fairly decent. The stand is estimated to be around 70 years old. Many of the trees within the tract are mature to over mature, but there is a sufficient amount of advance regeneration and trees in the understory.

The stand is currently 106% stocked with 124.3 ft^2 of basal area (BA), 238 trees per acre (TPA), and 6,189 board feet (bd.ft.) per acre.

Prescription

An improvement cut, utilizing single/group selection is recommended for this stand. The marking should focus on removing over mature red maple & black cherry, as well as diseased and defective elm and black locust, and other defective, poorly formed and damaged trees. Since this tract is mostly closed-canopy and consists largely of red maple, some openings in the canopy may need to be created in order to let enough light in for future regeneration. But as mentioned earlier, in the invasive section, a pre-harvest invasive removal/TSI should be conducted in order to control the multiflora rose. Much of this site is bottomland and should be continued to manage for red maple. However, the oak components of this stand will not be ignored and will be considered before making any management decisions. The inventory suggests that approximately 156,690 bd.ft. could be harvested from this stand. Overall, the majority of the sawtimber volume to be harvested would be comprised of red maple (26%), white pine (20%), black cherry (16.5%), and black oak (12%). The harvest should result in a residual stocking of 86%, 89.6 ft^2 BA, 219 TPA, and 3,013 bd.ft./ac.

Grapevines and invasives should be controlled through pre-harvest TSI operations. Also, undesirable seedlings/saplings and non merchantable trees should be killed in potential regeneration opening areas during pre-harvest TSI operations. Post harvest TSI may consist of coppicing, cull removal, and invasive control.

Tract Summary

Overall the current tract has an average stocking of 106%, with a BA of 124.3 ft^2, 238 TPA, and 6,189 bdft/ac. The proposed harvesting operation could produce an estimated total of 156,690 bdft or approximately 3,013 bd.ft./ac. Overall, the majority of the sawtimber volume would be comprised of red maple (26%), white pine (20%), black cherry (16.5%) and black oak (12%).

The proposed management activities would result in an average stocking of 86%, with a BA of 89.6 ft^2, 219 trees/ac, and 3,013 bdft/ac.

As long as harvesting operations are not conducted during wet periods and skidding and hauling equipment remain in designated areas, there should not be any negative long term impacts to the soil.

The tract would need to be closed to the public during harvesting operations. Therefore, hunting activities would be adversely affected during this period. However, there are numerous locations in the surrounding property that offer the same opportunities. Wildlife habitat, timber quality and biodiversity should be enhanced as a result of the proposed harvesting and TSI operations.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Skid Trail / Log Yard Construction	2011 - 2012
Timber Marking	2012 - 2013
Harvest	2013 - 2015
Close Out	2014 - 2015
TSI (Post-Harvest)	2015 - 2017
Re-Inventory	2030

Attachments

- Maps (Tract, Inventory, Soils)
- A stocking guide chart with the tract level stocking condition plotted and identified.
- Ecological Review
- T Cruise reports

4/16/13 Modification:

TSI Plan

The Multiflora Rose control for C01 T01 will be undertaken as a post harvest TSI operation along with the completion of the opening and group selection canopy gaps. Controlling the rose at this time is also more efficient because the tract only has to be entered once for TSI purposes.