Indiana Department of Natural Resources – Division of Forestry

RESOURCE MANAGEMENT GUIDE

State Forest: Greene-Sullivan Compartment: 6 Tract: 4
Forester: Tom Tompkins Date: 3/07/13
Management Cycle End Year: 2033 Management Cycle Length: 20 Years

Location

Compartment 6, Tract 4 is located in the east ½ of Section 1 – T6N – R8W of Sullivan County and in the northwest ¼ of Section 6 – T6N R7W Greene County. It is approximately 5 miles south of the town of Dugger.

General Description

This tract is approximately 109 acres. The various land use components can be delineated as follows:

Closed Canopy Forest – 105ac
Cemetery/open land – 1ac
Water/Riparian Areas – 3ac

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Moody Cemetery makes up about one acre of open land at the south end of the tract. Stevens Lake, located in on the north end of the tract, is about two acres in size and scattered water holes throughout the tract make up about one more acre of water. The rest of the tract is comprised of large strip mine spoil hills. Reforestation in this area has been highly successful. The mixed overburden consisting of mineral rich coarse fragments from lower in the overburden and fine textured soil from the top-dress material has resulted in a suitable growing medium with good soil drainage, nutrient retention, and productive biotic interactions.

History

This tract was deeded to the state forest in January of 1936 from Central Indiana Coal Company. Prior to that the entire area was strip mined.

Boundary and Landscape Context

The tract is bordered by State Forest property on all sides, the southern boundary is Graveyard Lake and all other boundaries are interior forest access roads or horse trails. The tract is surrounded by forested area with agricultural lands being farther to the east and reclaimed/active mine land farther to the west.

Topography, Geology and Hydrology

Spoil banks run northwest to southeast in most of the tract, and northeast to southwest along the western edge of the tract. Stevens Lake is located in the northwest corner of the tract and Graveyard Lake makes up the western boundary of the tract.

Soils

All of the soils within this tract are composed of mine spoils.

St - Strip mines
109 Acres
Component: Strip mines (90%)
This component is on spoil piles. Slopes are 18 to 35 percent. The parent material consists of Loamy materials overlying graded shaly regolith. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 6e. This soil does not meet hydric criteria.

Access

The tract can be accessed from the south off of Hwy 159 by taking the access road to Moody Cemetery. From the north there is a forest access road off of county road 600 S just east of Reservoir 29A. Horse trails run along the north boundary of the tract and the east side along Graveyard Lake. Some old dozer trails were created within the tract along the western and northern boundaries and in places along the east side of the tract. These old trails do not provide access into the central portion of the tract. The central portion consists of large mine spoil banks with water holes in many of the valleys which will make skid trail construction very difficult.

Wildlife Habitat Features & Ecological Resource Review

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 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	☒	☐	☐	☐	☐	☐	☐

Table 1 shows the estimated proportion of each cover/habitat type within 1 mile of tract center. The majority of the area is closed canopy deciduous/mixed forest and agricultural fields. Virtually every habitat type is represented to some extent in the sample area. This diverse landscape has resulted in a large amount of maintained forest edge. The proposed management activities will not significantly alter the relative proportion and availability of habitat/cover types in the assessment area.

Structural Habitat Features

TABLE 2

	Target Snag Density	
Diameter (DBH) Distribution	**Goal**	**C6T4**
Including at least this many snags per acre ≥ **5”**:	4	16.8
Including at least this many snags per acre ≥ **9”**:	3	7.1
Including at least this many snags per acre ≥ **19”**:	1.5	0.3

Table 2 shows how this tract compares with the DoF guidelines for forest stand snag density. The data suggests that the tract meets target goals in the maintenance level for snags 0-18” but does not meet the goals for snags over 19”. Obviously this is still a young stand, with a small average diameter, and as it ages and grows, natural mortality will occur. If these dead trees remain as standing snags, then this should result in an increase in the upper level diameter distribution in this category. In the near future, a post harvest TSI treatment could increase the number of standing, large diameter snags. The tract greatly exceeds snag density goals for small – medium diameter trees because the white pine in the stand appears to be suffering from unusually high mortality.

TABLE 3

	Preferred Roost Trees per Acre	
Diameter (DBH) Distribution	**Goal**	**C6T4**
TOTAL minimum roost trees per acre ≥**11”**:	9	16.1
Including at least this many roost trees ≥ **20”**:	3	1.1

Table 3 shows how this tract compares to the Indiana Bat guidelines for live roost trees. The inventory data suggests that the stand is deficient in the large size class. This is mostly due to the fact that the stand has a smaller average size; therefore most trees in the stand are below 20” diameter. Based on the inventory data, it is likely that this particular tract may remain deficient for some time as trees mature.

IDNR Natural Heritage Database Review

A Heritage Database Review was completed for this tract. If rare threatened or endangered species were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Exotic/Invasive Species

Species	Management Actions (check all that apply)		
	Immediate Management Required	Monitoring/ Re-evaluation Recommended	Mapped?
Multiflora Rose	☐	☒	☐
Japanese Honeysuckle	☐	☒	☐
Autumn Olive	☐	☒	☐
Bush Honeysuckle	☒	☒	☒
Ailanthus	☒	☒	☒

Multiflora rose and Autumn Olive were present throughout the tract in scattered patches. Japanese and Bush Honeysuckle were present in small amounts throughout the tract except for one heavily infested area surrounding Moody Cemetery. Ailanthus was present throughout the tract as well; fourteen locations were mapped during the inventory. Some of these areas were treated for ailanthus in the past but follow up treatment was never conducted. Control of the ailanthus and bush honeysuckle near the cemetery should be done as soon as possible. All of the other species should be controlled prior to harvest activities.

Recreation

Opportunities for recreation in this area include hunting, horseback riding, hiking, fishing and bird watching.

Cultural

The location of cultural features is protected. If present, adverse impacts to significant cultural resources noted will be avoided during any management or construction activities.

Stand Descriptions and Silvicultural Prescriptions

C6T4 Mixed Hardwood/Pine – 109 ac (Harvest Ac – 105ac)

Current Condition

This stand was inventoried in March of 2013. The topography, soil map, GIS data, and old aerial photography for this area indicates that the entire stand was strip mined during the early 1930's. The dominant trees in this area are approximately 70 years old. Listed below is a table showing size classes and the percentage by volume and basal area (BA) of the major sawtimber species present in the harvest area.

SPECIES	% VOL.	% BA	Size Class
White Pine	18%	7%	S - M
Cottonwood	17%	7%	M - L
Sweetgum	17%	13%	S
Yellow Poplar	15%	7%	S - M
Black Walnut	9%	7%	S
Sycamore	9%	5%	S - M
Red Oak	5%	3%	M
Pin Oak	2%	1%	S
Black Cherry	2%	2%	S

S = Small Sawtimber

M = Medium Sawtimber, L = Large Sawtimber

The canopy is dominated by white pine, cottonwood, sweetgum sycamore and black walnut. Mid story trees consist of sweetgum, sycamore, black walnut, and oaks. Regeneration is mostly sweetgum, yellow poplar, and sycamore. The species composition is very good, except for the white pine. Most species have good form and height but appear to be growing slowly due to closed canopy conditions. The white pine appears to be dying off in many areas possibly due to drought. Most of the pines within the stand still have many dead limbs hanging on all the way to the base of the trees.

Figure 1

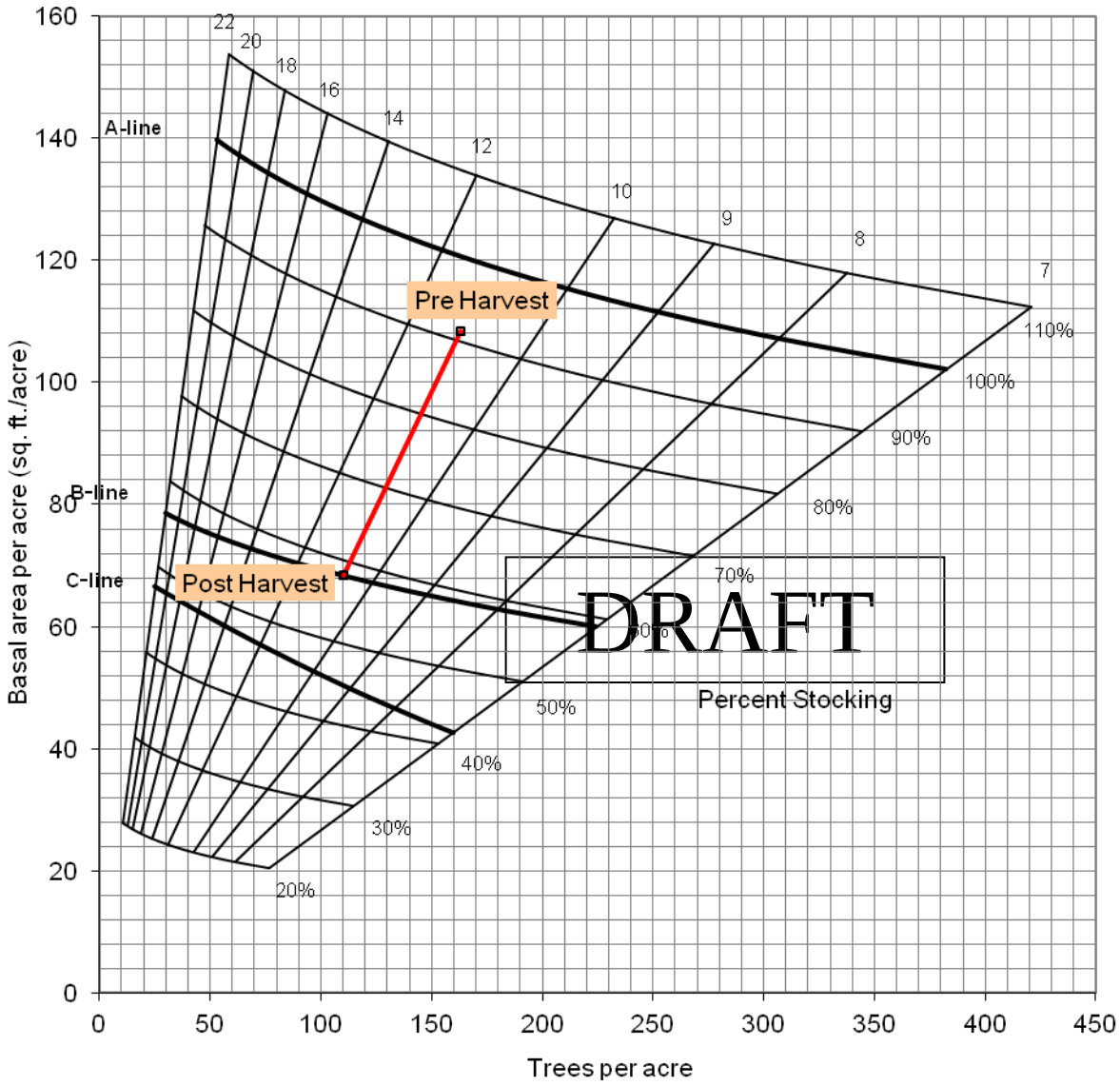

Figure 1 shows the stocking level of this stand both before and after the proposed timber harvest. The stand has a current stocking of 92%, with a BA of 108.4 sq.ft. and 163 trees/acre. The volume of this stand is 4,035 bdft/acre. After the harvest the stand will have a stocking of 60% with a BA of 68.4 sq.ft. and 110 trees/acre.

Prescription

The main objective in this stand should be to remove poor form and undesirable species to release crop trees expected to maintain good growth for the next 25 years. This can be accomplished by selectively marking throughout the 105 acres. In areas with large amounts of poor quality or undesirable trees group selection openings can be created to regenerate the areas.

The inventory suggests that at least 166,090bd.ft. could be harvested from this stand. Overall, the majority of the sawtimber volume would be comprised of cottonwood (43%)

white pine (28%), yellow poplar (12%), sweetgum (6%), sycamore (4%) and black walnut (4%). The remainder of the volume would be comprised of cherry, black locust and red maple. Primary crop trees include sweetgum, walnut, yellow poplar, sycamore, and red oak. The harvest at inventory levels would result in a residual stocking of 60%, 68.4 ft² BA, 110TPA, and 2,511 bd.ft./ac. Because of the difficult access within this tract some areas may not be able to be harvested which would lower the harvest volume. Also due to the construction of skid trails the harvest volume may increase due to the amount of trees that would need to be removed during trail construction.

Pre harvest TSI should consist of invasive species control throughout all portions of the tract. Post harvest TSI may consist of crop tree release, cull removal, vine control, and follow up invasive control.

Tract Summary

Control of ailanthus and an area of bush honeysuckle prescribed at this time.

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 long lasting negative impacts to the soil. Wildlife habitat, timber quality, and biodiversity should be enhanced as a result of the proposed harvesting and TSI operations.

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.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Ailanthus/Bush Honeysuckle TSI	2013 - 2014
Skid Trail / Log Yard Construction	2019 - 2020
Pre-Sale TSI	2019 - 2020
Timber Marking	2019 - 2020
Harvest	2020 - 2022
Close Out	2021 - 2022
TSI (Post-Harvest)	2021 - 2023
Re-Inventory	2033

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