Indiana Department of Natural Resources
Division of Forestry

RESOURCE MANAGEMENT GUIDE

DRAFT

State Forest: Yellowwood **Compartment** 13 **Tract** 11
Forester: Amy Spalding **Date:** December 30, 2011
Management Cycle End Year: 2031 **Management Cycle Length:** 20 years

Location

This tract is located in parts of Section 24, T10N, R1E and Sections 19, T10N, R2E, Brown County, Indiana. It is approximately 2 miles northwest of Needmore.

General Description

This tract is 73 acres of which all are commercial. The majority is fairly diverse mixed hardwoods.

Table 1. Species list by relative abundance from December 2011 inventory on 6421311

Regeneration	Understory	Overstory
Sugar Maple	Sugar Maple	Black Oak
American Beech	Sassafras	Northern Red Oak
Paw-Paw	Yellow Poplar	Yellow Poplar
Black Cherry	Blackgum	White Oak
Blackgum	American Beech	White Ash
	Black Cherry	Sugar Maple
	Largetooth Aspen	Pignut Hickory
	Pignut Hickory	Shagbark Hickory
	Red Maple	Scarlet Oak
	Shagbark Hickory	American Beech
		Red Maple
		American Elm
		American Sycamore
		Basswood
		Bitternut Hickory

History

Based upon 1939 aerial photography and on ground reconnaissance, the bottomlands and gentle south facing slopes were farmed. Other areas too steep for farming were most likely grazed. This tract was acquired from a land grant in 1956 from the US Government.

In 1975, 106 acres of TSI was completed by a CETA forester. This TSI included areas of the present day tract 11. Forester Bill Bull cruised this area in 1978. This inventory estimated 3,345 BF/ac of standing volume of which 932 was harvestable. A timber sale was conducted on the north ½ of the tract by Forester Duane Sieg in 1980 in conjunction with an adjacent tract. Follow up TSI was conducted. This tract was then subdivided in 1984. In 1998, Forester Bill Hahn conducted an

inventory and wrote a management plan. His inventory estimated 8,124 BF/ac with 1,504 BF being harvestable. He recommended a harvest but historical access was hindered by residential development. In 2010, a land purchase to the south provided access to this tract from Slippery Elm Shoot Road. With the addition of this new property, several tracts had boundary line adjustment including Tract 11. This increased the tract acreage from 43 to 73.

A new inventory was conducted during December 2011 by Forester Amy Spalding. The findings of that inventory are highlighted in the report below.

Landscape Context
The tract is nestled in a large block of rugged upland forest of which much is publically owned. Small ponds on both private and public lands dot the landscape. Houses and agricultural fields can be found along narrow valleys and ridge tops.

Topography, Geology and Hydrology
Tract 11 consists of a main ridgeline running from the NW to the SE. The prominent slopes are northeasterly and southwesterly. Ephemeral drainages interlace these ridges and drain into the mapped intermittent streams. This water moves southerly into Lake Lemon. The underlying geology of this tract is most likely a combination of sandstone, shale, and siltstone.

Soils
<u>WaD-Wellston – Berks – Trevlac Complex, 6 to 20 % slopes</u>
This Complex is found along the tract's main ridge. It forms from weathered sandstone-shale-siltstone bedrock at a depth of 51" with a loess cap. The slopes range from 6 – 20%. This soil is unsuited to urban development due to slope. It is very well suited to forestry, with only moderate equipment limitations due to slope and depth to bedrock on some components of the Complex. Following natural contours for road construction and land shaping can mitigate erosion hazards. This soil has a site index (SI) of 70 for northern red oak and a woodland ordination symbol of 4A.

<u>BgF-Berks-Trevlac-Wellston complex, 20 – 70% slopes</u>
This Complex is found on side slopes along the tract's main ridge. It is formed from a combination of siltstone interbedded with sandstone and shale. It has a very low available water capacity and is moderately rapid in permeability. This soil is well suited to woodlands, and has some limitations to harvest. Employing standard BMP applications such as waterbars or contour shaping for haul roads mitigate these limitations. Other special logging methods, such as uphill yarding with cables can be beneficial when using rubber tired or crawler tractors. This Complex provides a SI of 70 in northern red oak, a land capability class of VIIe, and woodland ordination symbol of 4R.

<u>Be-Beanblossom channery silt loam, occasionally flooded</u>

This soil is found in the bottomland areas along the northeastern drainage. It is formed from channery alluvium. Slopes range from 1 to 3 %. It has a very low available water capacity and is moderately rapid in permeability. Overall this soil is well suited to woodlands. Wetness is a concern for harvesting and planting operation, but can be managed by avoiding wet periods. Beanblossom loams have a 95 SI, a land capability class of IIIw, and woodland ordination symbol of 7F.

Access

A new property purchase in 2010 provides access from Slippery Elm Shoot. A recent State Forest timber sale was completed in the southern Tract 14. Tract 11 can utilize previously used log yards on the north end of tract. The haul road may need minimal work by providing additional stone to its base.

Boundary

All but the western boundary adjoins State Forest property. This area is marked with orange paint and is up for boundary line maintenance in the near future.

Wildlife

This tract provides a wealth of wildlife habitat. Food and water sources are plentiful from hard mast and several nearby ponds on adjacent ridge. During the 2011 inventory numerous songbirds were heard. Also signs of turkey, squirrels, chipmunks, white-tailed deer, raccoons, and opossum were observed.

A Natural Heritage Database review was obtained 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.

Indiana Bat Guidelines

The Indiana Division of Forestry recognizes the potential to enhance the Indiana bat habitat on its lands by implementing comprehensive management principles. These management principles include obtaining data on size, species, and numbers of snags trees. Snag trees and some specific species are an integral part of the Indiana bat policy as they are prime roosting sites for maternal colonies.

Table 2. Live Legacy Trees* inventoried December 2011 on 6421311

Size Classes	Maintenance Level	Inventory	Available For Removal
11"+ DBH	648	1385	737
20"+ DBH	216	538	322

**** Species Include:*** *American Elm, Bitternut Hickory, Black Locust, Cottonwood,, Green Ash, Northern Red Oak, Post Oak, Red Elm, Shagbark Hickory, Shellbark Hickory, Silver Maple, Sugar Maple, White Ash, White Oak*

These species of trees, whether dead, dying, or alive have a relative high value as potential Indiana Bat roost trees and are encouraged for conservation.

Table 3. Snag Trees inventoried December 2011 on 6421311

Size Classes	Maintenance Level	Optimal Level	Inventory	Available above Maintenance	Available above Optimal
5"+ DBH	288	504	190	-98	-314
9"+ DBH	216	432	110	-106	-322
19"+ DBH	36	72	34	-2	-38

Currently this tract is meeting all guidelines for legacy trees but has deficiencies for all snags. Snags should be retained within the tract unless they present a safety hazard. Snag creation should also be incorporated into the tract's post-harvest TSI plan.

Recreation

The ridgeline of this tract is the old "Tulip Trace" Boy Scout trail. This trail is not currently maintained or officially recognized by the State of Indiana. It runs across areas of public and private property of which public use easements were never acquired. Several locals utilize this area for hiking and cross country skiing. Hunting is another popular use of this area. Several deer stands were noted within the tract and its surrounding area. Other recreational uses include mushroom hunting, bird watching, and natural meditation.

Exotics

This tract is relatively free of exotic species. There was one area that was observed to have a large amount of barberry. This likely originated from a homesite area. This area should be treated in the post harvest TSI.

Cultural

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

Tract Subdivision Description and Silvicultural Prescription

Tract Summary Data

Total Trees/Ac= **297** Sawtimber & Quality Trees/Ac= **34**
BA/A= **104.6 sq.ft./Ac**. Present Volume/Ac = **8,873 BF/Ac**
Harvest Volume/Ac= **3,535 BF/Ac** Residual Volume/Ac= **5,338 BF/Ac**
Overall % Stocking = **97% (Fully Stocked)**

Although there were some variations of stand types within the tract, for the purpose of this report the data is being looked at a tract level with special discussion centered on tract variants.

The dominant overstory species on this tract include Black Oak, Yellow Poplar, White Ash, White Oak, and Northern Red Oak. To lesser extent mixed hickory, scarlet oak, and sugar maple are present. The understory is dominated by Sugar Maple and Yellow Poplar with Sassafras emerging in old harvest openings and old field areas. Shade tolerant Beech-Maple makes up the bulk of the regeneration.

In general much of the red oak group species are reaching maturity and experiencing decline. Thinning out these lower vigor stems to release higher quality stems will improve the health of the forest. Yellow Poplar is present along much of the northeast facing slopes. Many of these stems are mature to over mature. Modest portions of this tract would benefit from regeneration to increase the amount of early successional habitat. Areas that are likely to be regenerated should produce dense poplar stands. White Ash is also common across the tract. With the presence of emerald ash borer in northeastern Brown County a sanitation cutting would not only utilize these stems but also decrease its breeding potential.

Two areas along the northeast facing slope were noted to have been prescribed regeneration from the 1970's harvest. These areas would benefit from croptree release. Other areas along the southern slopes were oldfields that have also regenerated well. Some areas have significant oak regrowth in pole to small sawtimber stages. Croptree release for these areas would be beneficial. Other areas have several unfavorable stems, such as dense Sassafras that are riddled with Nectaria cankers. These areas should be marked for TSI following the harvest to enhance regeneration and reduce Nectaria canker occurrence in future stands.

Table 4. Harvest/Leave Chart from December 2011 inventory on 6421311

Species	Harvest Stock	Growing Stock	Totals
Black Oak	73,150	101,250	174,400
Yellow Poplar	68,750	34,330	103,080
White Ash	51,640	0	51,640
Northern Red Oak	46,090	11,620	57,710
Sugar Maple	9,930	1,600	11,530
Pignut Hickory	2,030	15,620	17,650
White Oak	1,320	57,930	59,250
Red Maple	810	0	810
Sassafras	810	0	810
Shagbark Hickory	0	35,490	35,490
Scarlet Oak	0	18,140	18,140
Bitternut Hickory	0	2,690	2,690
American Beech	0	2,680	2,680
Basswood	0	2,030	2,030
American Elm	0	960	960
Total BF volume	**254,530**	**284,340**	**538,870**
Total BF Volume/Acre	**3,535**	**5,340**	**8,875**

Summary Tract Silvicultural Prescription and Proposed Activities

The overall prescription for this tract is an improvement cutting type of harvest. Due to the recent entry to the tract to the south, it is recommended to wait until FY 2013/2014 for harvest. The harvest volumes are expected to be around 200 MBF.

The harvest will apply standardized Division BMP regulations to minimize soil erosion and protect water quality. Prompt installation of water diversions in conjunction with seed and straw following harvesting will be employed to minimize any effects to neighboring water resources. The harvest will entail both singletree and group selection cutting methods. Single tree selection will remove poorly formed, mature stems, and improve spacing of the remaining croptrees to increase and concentrate their growth. Group selection will be implemented in stands of inadequate stocking, poor quality, or mature timber. As this tract is heavily stocked the goal of this marking will be to encourage forest regeneration over 10% of the tract. Following the harvest TSI is recommended to ensure opening completion and croptree release in the older regeneration openings. This tract will be up for an updated inventory and management guide in 20 years.

Proposed Management Activity	**Proposed Period**
DHPA Review	2013
Marking Timber Sale	2013
Timber Sale	2013/2014
Post Harvest TSI & Exotic Recon/Treatment	2014/2015
Reinventory & New Management Guide	2031

Attachments (in Tract File)

Gingrich Stocking Charts
Ecological Resource Review
Natural Heritage Database Review
Wildlife Habitat Review
Archeological Clearance/Roadwork Request
Soil and Stand Maps
TCruise Reports

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You must indicate the State Forest Name, Compartment Number and Tract Number 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.

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