Indiana Department of Natural Resources – Division of Forestry
Draft
Resource Management Guide

State Forest: Yellowwood

Tract: 6420812 (Compartment 8 Tract 12)

Tract Acreage: 74

Forest Acreage: 74

Forester: L. Burgess

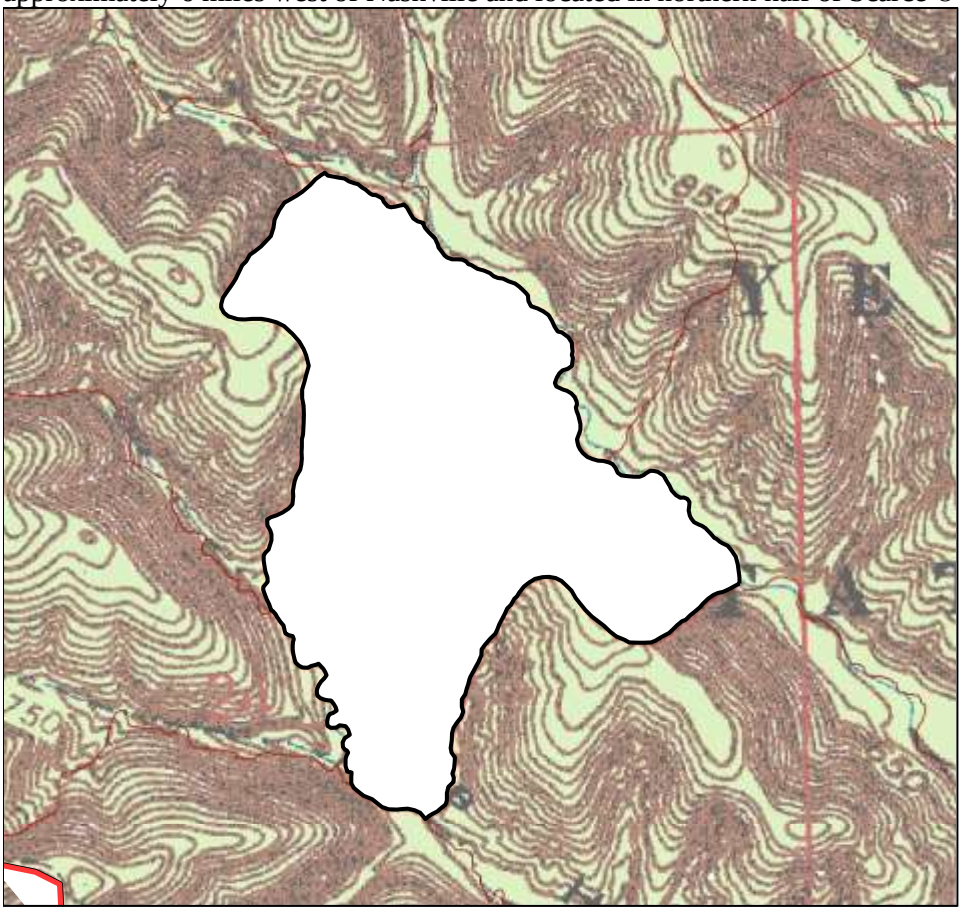
Date: March 30, 2016

Management Cycle End Year: 2036

Management Cycle Length: 20

Location:

Tract 6420812 is located in Brown County, Washington Township, Section(s) 24 – T9N – R1E. It is approximately 6 miles west of Nashville and located in northern half of Scarce O'Fat Rd.



Tract 12 Topo map

General Description:

Most of the tract's 74 acres are covered with hardwood forest, especially oak-hickory and mixed hardwoods.

The most recent harvest in this tract occurred in 2005

1. This was primarily an improvement cut and light thinning which focused on removal of fire damaged and other lower quality trees. There was also one regeneration opening created totaling

0.5 acres. Pre-harvest or follow up TSI was not performed. As a result, the current overall timber quality within the selectively marked area is good, but many low quality trees not cut during the harvest are still present. The old regeneration opening is heavy with grapevines. Few trees are free of vines, resulting in many broken tops and limbs, bent and twisted trunks, and uprooted trees. Mortality in the opening is high and stocking and vigor are low. The area does however provide some wildlife habitat benefit and diversity.

History:

- 1952 - Timber Harvest. Approx. 20 acres of the western portion of tract was harvested.
- 2/1976 - TSI – General. Noted as not effective.
- 3/12/1976 - Inventory/Cruising
- 11/1981 - Timber Harvest – Marking. Marked 189,955 bf
- 1/1982 - Timber Harvest. 273,133 bf sold (Combined with Tract 11). Sold to Weston Paper $30,330.50
- 12/10/1982 – Contract extension due to heavy rains and record high temps in Nov. ad Dec.
- 7/26/1983 - Timber Harvest - Closeout
- 9/19/1983 - TSI – General marking. Noted only one of the openings were big enough to be effective.
- 12/27/9883 - TSI – General completed.
- 4/17/1983 – Planted Autumn olive around log yard for wildlife
- 5/1/1984 - Timber Harvest – Closeout. Seeded log yard and haul road with Korean lespeddezza.
- 10/26/1984 – Downed Black Walnut (log of 16 in. and 8 ft) was skidded out to utilize.
- 10/24/1985 - Firewood Cutting – Commercial. About 20 acres marked in south tip of tracts.
- 4/16/1987 – Tract 12 divided to reduce tract 12 and 30.
- 10/2/2000 - Inventory/Cruising. 3,886 bf present. 1,842 bf harvest.
- 3/2001 - Timber Harvest – Marking. 67,119 bf 277 trees and 31 culls.
- 7/16/2003 – Adjusted timber marking to exclude a few trees marked in adjacent tract 30. Removed 60 trees, 9 culls for total of 15,284 bf.
- 9/2/2005 – Adjusted timber marking. New totals 424 trees, 3- culls, 120,427 bf. (see file for memo)
- 2/29/2016 - Inventory/Cruising. Plan to include with management operations in adjacent tracts 11 and 30.
- 3/2016 - Resource Management Guide

Landscape Context:

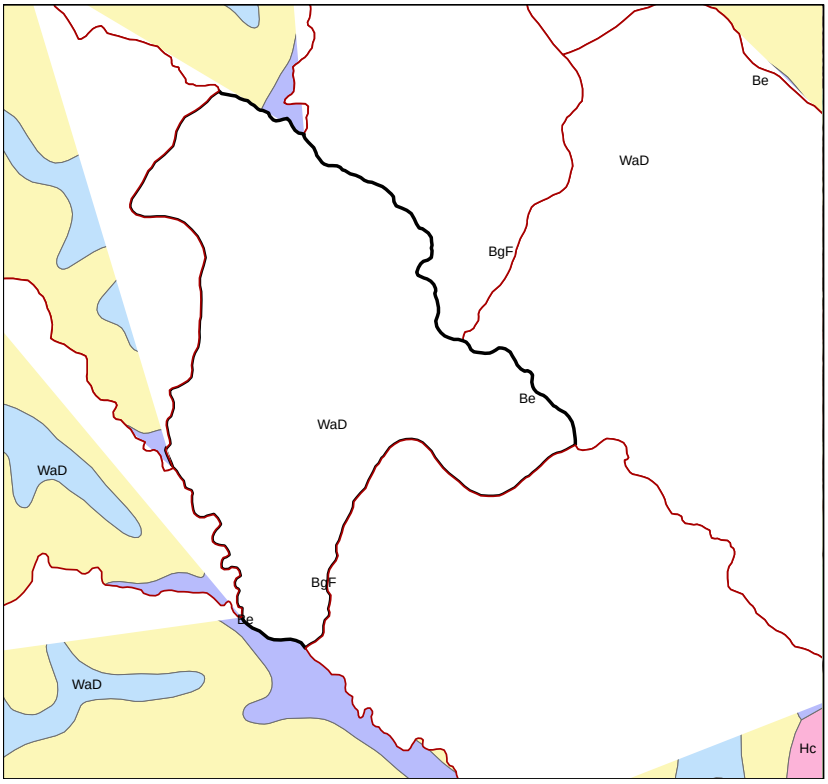
State forest completely surrounds the tract is predominantly Closed-canopy deciduous forest. 133-acre Yellowwood Lake lies to the southeast of the tract, one-half mile from tract.

Topography, Geology, Hydrology:

The general topography of this region consists of unglaciated, sharply dissected hills, narrow ridges and valleys. The underlying bedrock is Mississippian sandstone, shale, and siltstone.

This tract lies within the East Fork Salt Creek-North Fork Salt Creek subwatershed. Water resources within this hydrologic boundary are part of the North Fork Salt Creek watershed.

Soils:



Tract 12 Soils

Typical soils in this area are moderately drained to well drained soils that formed in residuum (formed in place on bedrock). A thin layer of loess covers some of these soils. The major soils in this tract are listed below.

Berks-Trevlac-Wellston complex (BgF) 20 – 70 percent slope. Moderately steep to very steep, well drained soils on hillsides in the uplands. Severe limitations noted for logging due to slope, and are to be addressed during any project layout and management implementation.

Welston-Berks-Trevlac complex (WaD) 6-20 % slopes. Moderately sloping to moderately steep on side slopes and narrow ridge tops. Slight harvest limitations due to slope.

Beanblossom channery silt loam (Be) nearly level and gently sloping, deep, moderately well drained soil is on flood plains, alluvial fans and colluvial benches. Slight to moderate limitations.

Access:

This tract is accessible via Scarce O'Fat firetrail , then through the gate.

Boundary:

This tract has no adjacent private ownerships. The tract boundary is defined by other State Forest tracts.

Wildlife:

This tract contains diverse vegetation and wildlife resources (age, type, structure) conducive to providing habitat for a variety of wildlife species. Habitat includes:

- contiguous mixed hardwood canopy
- old regeneration openings
- riparian areas
- scattered mixed hardwood stands

Hard mast trees such as oaks, hickories, and American beech provide food source to squirrels, turkey, and white-tailed deer. The openings are varied in size but all present similar, dense vegetation that favors wildlife preferring this habitat structure. Such vegetative species include sassafras, grapevine, and other early successional shrubs.

Snags (standing dead or dying trees), are an important wildlife habitat features in Indiana's forests. They are used by a wide range of species as essential habitat features for foraging activity, nest/den sites, decomposers (e.g., fungi and invertebrates), bird perching and bat roosting. Additionally, snags are an important contributor to the future pool of downed woody material. Downed woody debris provides habitat and protection for many species and contributes to healthy soils.

Forest wildlife species depend on live trees for shelter, escape cover, roosting and as a direct (e.g., mast, foliage) or indirect (e.g., foraging substrate) food resource. The retention of live trees with certain characteristics (legacy trees) is of particular concern to habitat specialists such as species of conservation need like the Indiana bat.

The DoF has developed compartment level guidelines for two important wildlife structural habitat features: **snags and preferred live roost trees**. Compartmental values are derived from and updated every 5 years through the Division's Continuous Forest Inventory (CFI) program. Current assessments indicate the abundance of these habitat features meet or exceed recommended base levels in all categories and diameter classes, except the largest size class for roost tree density. It is important to note that these are compartment level guidelines and that even though the estimated tract data shows a slight deficiency for a particular target level; it is likely that suitable levels are present for this habitat feature in the surrounding landscape. The prescribed management will maintain or enhance the relative abundance of these features long term.

Communities:

Listed below are the general community types found in this tract.

Dry-mesic upland forest

Dry-mesic upland forests are one of the most prevalent forest communities in Indiana. This community occupies an intermediate position along a soil moisture gradient. Trees grow well, but the canopy is usually more open than in mesic forests.

The dominant trees found are white oak, chestnut oak, and black oak. Other plants and animals characteristic of this community are: shagbark hickory, mockernut hickory, flowering dogwood, hop hornbeam, blackhaw, broad-headed skink, white-footed mouse, eastern chipmunk.

Mesic upland forest

Mesic upland forests are found throughout the state, but are most common in hilly regions where slopes and aspect reduce excessive evaporation and wildfire. They generally occur on north-facing slopes, in ravines, and on level soil with moderately high available moisture. Ideal soil moisture conditions tend to result in dense overstories and, in undisturbed stands, an understory of shade-tolerant species.

Sugar maple, American beech, yellow-poplar, red oak, and basswood are the typical dominant trees in a mesic upland forest. Other plants that are found in this community include pawpaw, Ohio buckeye, blue beech, bitternut hickory, red mulberry, and bladdernut. Tiger salamanders, wood frogs, and wood thrushes are some animals commonly found.

A Natural Heritage Database review was completed for this tract on July 18,2016. If Rare, Threatened or Endangered (RTE) 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 and Invasive Species:

Below is a list of invasive species identified during the inventory. If identified, priority control should be given to ailanthus and bush honeysuckle. These would be treated as soon as practical, with individuals and smaller areas being targeted if needed. A broader and/or situational approach should be taken with the species noted below. Control measures for these species could be warranted for larger scale road & trailside treatment projects, planned regeneration openings, pre or post harvest TSI projects, etc. Post-harvest control of stiltgrass is most easily accomplished through successful seeding of fescue or other highly competitive non-invasive seeding mixture.

- **Oriental Bittersweet**

The population of bittersweet is low, but should be treated where found. Other invasive species may be present due to inventory being conducted in February.

Recreation:

Hunting is permitted on State Forest property and this area also offers opportunities for certain types of gathering and wildlife viewing.
There are no established recreation trails or features in this tract.

Cultural:

This tract was reviewed for cultural sites during the forest resource inventory. Cultural resources may be present on this tract but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities.

Tract Description and Silvicultural Prescription:

The current forest resource inventory was completed on Feb. 29, 2016 by Forester L. Burgess. A summary of the estimated tract inventory results are located in the table below.

Tract Summary Data

Total Trees/Ac. = 91 **Trees/Ac.**
BA/A = 65 **Ft²/Ac.**
Present Volume = 4863 **BF/Ac.**
Overall % Stocking = 70% **Stocking**
Sawtimber Trees/Ac. = 17 **Trees/Ac.**
Estimated Harvest Volume = 100 to 175 MBF

Species	Total Volume (MBF)
American Beech	14.02
American Elm	3.36
Basswood	6.24
Bitternut Hickory	5.79
Black Oak	59.44
Black Walnut	2.36
Chestnut Oak	84.00
Northern red Oak	22.74
Pignut Hickory	3.01
Red Maple	2.53
Scarlet Oak	28.37
Shagbark Hickory	3.70
Sugar Maple	7.86
White Oak	41.24
Yellow Poplar	71.78
Tract Total*	359.85
Per Acre Total	***4.86***

This tract has 3 management units. Below is a list, general stand descriptions and silvicultural prescriptions.

Descriptions

Oak-Hickory/Mixed Hardwood

The timber type is predominantly mature oak-hickory with mixed hardwoods, such as yellow-poplar, sugar maple, white ash, red maple, and American beech, more common on north and east slopes. A mix of diameters is present, but the timber resource consists of a mostly large size class. Oak species account for the majority of the total volume in the tract, with Chestnut Oak and Black Oak being the most prevalent. The understory is dominated by Sugar Maple.

Oak-Hickory/Chestnut-Scarlet

The timber type on the north and east slopes is predominantly mature oak-hickory with mixed hardwoods, such as yellow-poplar, sugar maple, white ash, red maple, and American beech interspersed throughout. A mix of diameters is present, but the timber resource consists of a mostly medium to large sawtimber size class. The understory is dominated by beech and maple.

The south and west slopes are dominated with chestnut and scarlet oak. The understory is dense with greenbrier, sassafras, American beech, and red maple. With the exception of some larger

individuals lower on the slopes, the timber resource in these areas consists of a mostly poletimber to medium sawtimber size class. Old fire damage is common throughout this cover type.

Overall, oak species account for the majority of the total volume in the tract, with Chestnut Oak and Black Oak being the most prevalent.

Old Regeneration Openings

There are numerous old regeneration openings dominated with yellow poplar, maples, and sassafras. The majority of yellow-poplar regeneration in these openings were found to have modest decline and mortality due to the yellow poplar scale infestation and severe droughts that occurred in the last 5 years. The openings are approximately 30 years old and total roughly 8 acres.

Prescriptions

This tract was last marked for harvest in 2001 and harvested in 2005. Portions of the tract were not included in the 2005 harvest and would likely be included with timber harvest marking for adjacent Tracts 11 and 30 within the next few years. The following silvicultural prescriptions are recommended.

Selection & Improvement/Thinning Cutting

A combination of selection, improvement and thinning cuttings are prescribed. The goal is to improve growth and vigor on the highest quality and most vigorous oak, hickory and mixed hardwood stems. This to be accomplished primarily through singletree selection and release thinning. Individual trees targeted for removal include the following: competing mixed hardwoods; suppressed trees; trees damaged by past fire or grazing; wind-damaged trees; drought-stressed trees; and any other dominant or co-dominant trees that are overtopping or suppressing quality growing stock. The residual stocking in these selectively thinned areas should remain above the B-line (60 sqft/acre) according to the Gingrich stand density chart for upland hardwoods.

Small group selections may be implemented in areas dominated with poor growing stock, creating a component of mixed hardwood regeneration, young forest and important early successional habitat. Low thinning may also be utilized in denser, even-aged areas with large amounts of suppressed and intermediate trees that are likely to drop out from competition. This method can also be employed to reduce the density of shade tolerant species such as sugar maple, red maple, and American beech in an attempt to establish and promote advanced oak-hickory regeneration.

Oak Shelterwood

An Oak Shelterwood method may be utilized for portions of this stand. This is the removal of the lower canopy, shade tolerant trees present in most state forest stands under the main canopy that prevents the regeneration of the main canopy species, particularly oaks and hickories.

The shelterwood method that can be done most cost effectively and extensively is the use of prescribed fire. This would promote oak to become established under the moderate light conditions created, while more shade intolerant species will not receive sufficient light for competitive growth.

The second method involves using TSI with herbicides to deaden all lower canopy shade tolerant trees. This should only be done in areas with lesser disturbance of the main canopy from management operations and in areas where a heavy seed crop has produced numerous new seedlings to work with.

If/when the regeneration has achieved some size, the over story can be removed. The oak and hickory regeneration should be sufficiently well established to compete strongly with other species that will respond.

Old Regeneration Openings

Crop tree release and grapevine management is prescribed in the 30 year old regeneration openings to promote growth, long term health and vigor of select trees. This would include release of oak and hickory where found.

TSI

A Timber Stand Improvement (TSI) is prescribed for 6420812. Work should include the following:

- Grapevine Control– in old openings
- Tract wide Crop Tree Release
- Regeneration Opening Completion – from 2005 harvest areas
- Coppicing – of poor formed trees, many due to grapevine damage
- Exotic Control

Schedule:

Proposed Management Activity	*Proposed Period*
Pre-Harvest TSI/ Invasive Treatments	2016
Timber Marking	2016
Road/Landing Work	2016
Timber Sale	2016
Timber Sale Closeout	2016-18
BMP Review	2017-18
Post Harvest TSI/Invasive Treatments	2017-18
Regeneration Success Review	2022
Reinventory and Management Guide	2036

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