Indiana Department of Natural Resources – Division of Forestry
RESOURCE MANAGEMENT GUIDE
DRAFT

State Forest: Yellowwood State Forest **Compartment:** 13 **Tract:** 03
Forester: A Spalding **Date :** November 25, 2013
Management Cycle End Year: 2037 **Management Cycle Length:** 24 yrs

Location
This tract is located in Section 13, Township 10 North, Range 1 East, Brown County, Indiana . It is about 5.5 miles northeast of Unionville and about 5 miles northwest of Helmsburg near the north end of Possum Trot Road.

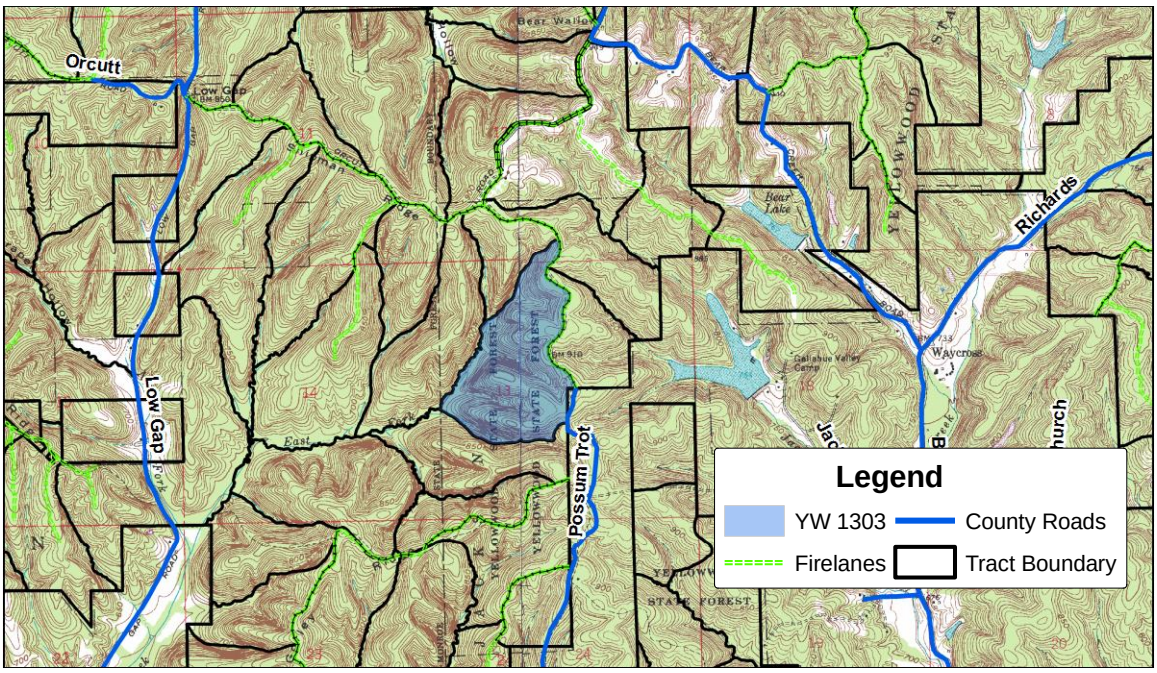

Figure 1. Map of YW 1303

General Description
This tract is 146 acres of closed canopy forest. In general this management area is mixed hardwoods with some planted pine along the bottomlands.

Table 1. Overview of timber resources by relative abundance 6421303 in April 2013

Overstory Layer	Midstory Layer	Understory Layer
chestnut oak	red maple	American beech
white oak	sugar maple	sugar maple
black oak	chestnut oak	red maple
northern red oak	sassafras	sassafras
scarlet oak	shagbark hickory	shagbark hickory
bitternut hickory	white oak	white oak
pignut hickory	blackgum	blackgum
red maple	pignut hickory	scarlet oak
shagbark hickory	basswood	white ash
sugar maple	scarlet oak	chestnut oak
white ash	white ash	yellow-poplar
yellow-poplar	yellow-poplar	
American beech	American beech	
American sycamore		
basswood		
red elm		
sassafras		

History

Prior to public ownership, Possum Trot Road used to tie into Orcutt and Bear Creek Road. This area was at one time known as the Stagecoach Wagon Route that connected Gosport to Columbus. Based upon historic aerial photos and on ground reconnaissance, portions of this management unit's flat ridgetops and bottomlands were cleared and farmed. Other areas were most likely used as pasture and grazing land for farm animals. These land uses proved to be poorly suited for this topography. In the 1930's, this and much of the surrounding land was purchased by the Federal Government before being granted to the Division of Forestry in 1954. The southwestern bottomland was planted to eastern white pine most likely to stabilize this eroding farm field. According to tract records, a timber harvest of unknown volume took place in the southern 2/3's of tract on the north and east facing slopes around 1967. An inventory was conducted in 1977 by Forester Bill Bull. His inventory concluded that this tract contained about 2,564 BF/ac of merchantable sawtimber of which 875 BF were recommended for harvest and 1689 BF were reserved for future growing stock. A timber harvest of the northern 1/3 of tract

Figure 2. Brown County 1939 Aerial Photo (IHAPI)

was recommended but did not occur. In 1981, this tract and surrounding area was given the recreational designated of Backcountry Area. In 2013 this tract was selected for a new inventory and management guide. The results of this inventory are discussed in this guide

Landscape Context
Much of the surrounding landscape is under state forest management and thus surrounding matrix is primarily closed canopy forest. There are a few maintained wildlife openings north of this tract. A 30 acre lake is located about 1 mile to east on Camp Gallahue. Bear Creek Lake (~10acres) is also a little over a mile to east. Planted pine is prevalent along the banks of the East Fork of Honey Creek. Residential development is more common to south around Lake Lemon.

Topography, Geology and Hydrology
Topography of this area is typical for the Brown County Hills Natural Region. This tract is comprised of several finger ridges that come off the western edge of the Possum Trot roadway. Ephemeral drainages dissect this tract and drain into mapped intermittents that flow west into the North Fork of Honey Creek, into Honey Creek, converge with Wolf Creek, and eventually flow into Lake Lemon. The underlying geology is most likely a combination of shale, sandstone, and siltstone.

Soils
Be- Beanblossom channery silt loam, occasionally flooded
This nearly level and gentle sloping, deep, moderately well drained soil is on flood plains, alluvial fans, and colluvial benches. It is fairly well suited to trees. Wet periods contribute to equipment limitations. Rooting depth is somewhat restricted for some trees, i.e. Black Walnut, due to coarse fragments in subsoil. This soil has a site index of 95 for yellow poplar.

BgF- Berks-Trevlac-Wellston complex, 20 to 70 percent slopes
These moderately steep to very steep well drained soils are on hillsides in the uplands. They are fairly well suited to trees. Erosion hazards and equipment limitations are main management concerns due to slope. Consideration should be given during sale planning and implementation of Best Management Practices for Water Quality. This complex has a site index of about 70 for northern red oak.

Hc- Haymond silt loam, frequently flooded
This nearly level, deep, well drained soil is on floodplains. It is well suited to trees. Management activities should consider wet times of year. This soil has a site index of 90 for white oak and 100 for yellow poplar.

WaD- Wellston-Berks-Trevlac complex, 6 to 20 percent slopes
These moderately sloping to moderately steep, well drained soils are on side slopes and narrow ridgetops in the uplands. They are well suited to trees.

Seedling mortality can be an issue on south facing Berks soils due to droughty conditions. This complex has a site index of about 70 for northern red oak.

Access
This tract has extremely good access from Possum Trot Road. Currently this public roadway dead ends at a State Forest parking area. The eastern boundary of this tract is an old county road that is maintained as gated firelane.

Boundary
The boundaries of this tract are made up of natural and man-made features. The firelane serves as the eastern boundary. The southeastern corner of tract is also a property line that spurs off of the center of section and is clearly marked with orange paint. The southern, western, and northwestern lines follow mapped intermittent streambeds.

Wildlife
A Natural Heritage Database Review was completed for this tract in 2013. If Rare, Threatened or Endangered species (RTE's) 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.

Communities
Dry upland forest
Dry upland forests occur on steep ridges at the crests of river bluffs and at the edges of escarpments throughout Indiana, but are most common on bedrock outcrops in the Shawnee Hills and Highland Region. The soils are very dry and poorly developed because of steep, exposed slopes or because of bedrock, gravel, or sand at or near the surface. In a dry upland community, trees grow slowly, but there usually is a well-developed understory and groundlayer.

Dominant trees in this community include chestnut oak, scarlet oak, and black oak. Characteristic plants include pignut hickory, broom moss, and pincushion moss. Ground skinks, five-lined skinks, fence lizards, and summer tanager are some of the animals you would find.

Dry-mesic upland forest
Dry-mesic upland forests are one of the most prevalent forest communities in Indiana. This community is in 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, red oak, and black oak. Other plants and animals characteristic of this community are: shagbark hickory, mockernut hickory, flowering dogwood, hop hornbeam, black haw, broad-headed skink, white-footed mouse, eastern chipmunk.

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.

Japanese stilt grass was observed along the firelane and also in the bottomlands along the intermittent stream. Eradication of Japanese stiltgrass is unlikely; however, treatment to accessible areas prior to harvest operations should be considered to reduce viable seed. Multiflora rose was also observed sparsely across tract. Need for control will be evaluated during marking.

Recreation

This tract does not contain any recreational facilities. Possum Trot dead ends into a parking area for the backcountry area. Although the firelane is not a designated hiking trail, it is periodically used by as a travel path to connect to the Tecumseh Trail This area is used by hikers, foragers, and hunters. Backcountry camping is allowed in this tract although no sites were detected during inventory, suggesting that this specific tract in not in high use from overnight recreationists.

Cultural

Cultural resources may be present on this tract and their location(s) protected. Adverse impacts to significant cultural resources will be avoided during any management or construction activities as prescribed by the Division of Forestry Archaeologist.

Tract Subdivision Description and Silvicultural Prescription

Forest Condition

Total Trees/ac= 106	Present Volume/ac= 8,443 BF/ac
Sawtimber & Quality Trees/ac= 40	Harvest Volume/ac= 1,200-1,800 BF/ac

In general, the silvicultural goal for this tract is to maintain a healthy forest canopy through the conservation of dominant stems and species that provide the best benefits to wildlife. The prescribed managed harvest would be aimed at removing poor formed, lower vigor trees through single tree selection to release higher quality, more vigorous stems to improve growing conditions for selected residual trees. Dominant timber types in this tract include oak-hickory and mixed hardwoods with a small eastern white pine plantation.

Oak-Hickory

This is the most dominant timber type covering about 113 acres of the tract's ridges and sideslopes. Some areas are dominated by almost pure chestnut oak and others are dominated by white and black oak. Although some oak are present in the understory, this canopy position is overwhelmingly dominated by shade tolerant species such as maple and beech.

The majority of the chestnut oak areas are densely stocked with basal areas between 100 and 140. Removing less vigorous stems through single tree

selection will increase the health and vigor of remaining stems. In other areas oaks in the red oak group, such as black oak, were experiencing decline due to maturation and other factors such as repetitive drought. Removing select stems would increase the growing space in remaining stems and improve overall health.

Mixed Hardwoods

This timber type covers about 33 acres and is commonly found along old field ridgetops and mesic bottomlands. Dominant overstory species include sugar maple, yellow-poplar, northern red oak, bitternut hickory, and white ash, and chestnut oak. The smaller class sizes and understory are dominated by red maple, sugar maple, sassafras, and basswood. Regeneration is predominantly shade tolerant maple and beech. A small area in the southwest corner of tract contained a 2.5 acre area of planted eastern white pine

The release of species providing the most wildlife benefit is recommended. This would include hard mast producers such as mixed oak and hickory. In some cases quality will override in order to promote a healthy and vigorous canopy. The area is affected by Emerald Ash Borer (EAB). Salvage harvesting to remove select merchantable ash stems is recommended. Also, poor formed low vigor stems should be removed to release higher quality more vigorous stems when possible. Selection should consider species and quality. White pine is unique among many pine species in the respect that it can regenerate under its own shade. The stocking is so tight that little to no pine regeneration was observed. Some areas would benefit from thinning to allow more growing space for dominant stems and increase light to the forest floor.

Table 3. Summary of timber resources on 6421303 in April of 2013

Species	Estimated Volume – Board Feet
chestnut oak	416,129
white oak	277,615
black oak	198,457
northern red oak	118,152
yellow-poplar	63,078
scarlet oak	40,255
pignut hickory	28,748
bitternut hickory	25,842
sugar maple	18,478
white ash	17,535
American beech	15,219
red maple	13,028
American sycamore	12,440
shagbark hickory	11,212
sassafras	6,107
basswood	3,098
red elm	2,112

Total BF	1,267,505
Average BF Per Acre	8,682

Summary Tract Silvicultural Prescription and Proposed Activities

The recommendation of this guide is a managed timber harvest in the next 5 years. A few places during the inventory were noted to contain larger concentration of oak regeneration. These areas may be reevaluated during marking for opportunities for midstory to increase diffused light. Although the recreational designation of “Backcountry Area” for this tract precludes regeneration openings, it would be valuable to promote these species if natural events contributed to a sudden overstory collapse. It should be noted, that while single tree is the selection system, canopy gaps are anticipated where there are concentrated and heavy collections of EAB affected ash and declining trees.

During and after harvest operations best management practices (BMP’s) will be implemented to minimize the impact to soil and water resources. Following the harvest, timber stand improvement may be prescribed to remove grapevines, reduce American beech and sugar maple saplings that are competing with or hindering oak regeneration, release other residual trees and to deaden cull trees not removed during the harvest. A new management guide should occur in 20 years following the harvest.

Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
DHPA Project Review	2013 -2018
Mark Timber Harvest & Exotic Evaluation	2013-2018
Sell Timber Harvest	2013-2018
Access maintenance and rehab as needed	2013-2037
Evaluate Post- Harvest TSI needs	2015-2020New
Management Guide	2035-2040

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