

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

State Forest: Owen-Putnam

Forester: R. Duncan

Management Cycle End Year: 2029

Compartment: 5 **Tract:** 6

Date: September 2014

Management Cycle Length: 15 Years

Location

Compartment 5, tract 6 is located in the west half of section 15 and the east half of section 14, township 11N, range 4W, Morgan and Montgomery Township, Owen County. It is approximately 2 miles northwest of the unincorporated town of Cuba.

General Description

This tract is a 114-acre multiple use parcel located in the central portion of the 610 acres comprising compartment 5 of the Owen-Putnam State Forest. Timber types include closed canopy oak-hickory, beech-maple, mixed hardwoods and pine. White and red pine were planted in the 1950's along the access road and ridge top to control erosion from past disturbance. The over-story consists of medium to large sawlog sized yellow-poplar, hickory, maple, oak with Eastern white pine and red pine comprising the pine stands. The quality of merchantable timber is good. However, there is some decline in the Yellow Poplar due to drought and insect stress. The pole-sized under-story consists mostly of hickory, maple, sassafras and beech with E. white pine and Red pine representing some of the pole sized understory in the pine stand. Advanced regeneration is represented mostly by American beech, maple, elm and Sassafras. This area exhibits good opportunities for multiple use management, including timber management, wildlife management, soil and water conservation and public recreational activities, such as, hunting, hiking, gathering, viewing and interpretation.

History

Owen-Putnam State Forest was established in 1948 with most of its landholdings purchased as smaller non-contiguous tracts in the 50's and 60's. The ridge tops in the area of this tract were farmed up until approximately 1930 and then planted to White and Red Pine in the 1950s when the state purchased the land. Compartment 5 tract 6 has been managed for many years.

- Property wide timber inventory (TIMPIS) in 1988
- Timber inventory in 2000
- Timber harvest in 2000
- Timber inventory in 2014

Landscape Context

Compartment 5 tract 6 is located in a very rural area. Generally the area is forested hills and ravines. The private property adjacent to this compartment and tract are primarily closed canopy, deciduous, mixed hardwood forests with no agriculture or industry, limited residential housing, small fields/pastures and small ponds located primarily along county roads beyond the state forest.

Topography, Geology and Hydrology

This part of Owen-Putnam State Forest falls in the Shawnee Hills Natural Region, Crawford Upland Section. The region represents presettlement conditions better than any other region in Indiana. This section is most distinct by its rugged hills with sandstone cliffs and rockhouses. Characteristic soils are the well-drained acidic silt loams of the Wellston-Zanesville-Berks Association. The upper slopes consist of an oak-hickory assortment, with a more mesic component in the coves resembling the mixed mesophytic forest community.

The topography of the area varies from nearly level ground on the ridge top from east to west through the center of the tract to moderately steep north and south facing slopes. Water sheds into mapped intermittent streams to the north and to the south. The area is generally comprised of shallow to moderately deep, well-drained soils often containing fragipans on nearly level to steep slopes. These soils occur throughout the Illinoian glaciated areas of the county. In the event of a harvest, the existing haul road and log yards can be utilized. However, care must be taken during the planning and execution of skid trails due to the erosive nature of some soils. Best Management Practice (BMP) guidelines will be followed to preserve soil and water quality.

Soils

Specifically, the tract is composed of the following soils:

HepG—Hickory-Adyeville complex, 35 to 60 percent slopes, *Setting*: Dissected till plains over interbedded shale, siltstone, and sandstone, *Position*: Backslopes, *Site Index*: Upland oak 85

ZamC2—Zanesville silt loam, soft bedrock substratum, 6 to 12 percent slopes, eroded, *Setting*: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Shoulders and Backslopes, *Site Index*: Upland oak 69-75

ZapD3—Zanesville, soft bedrock substratum-Tulip silt loams, 12 to 18 percent slopes, severely eroded, *Setting*: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Backslopes, *Site Index*: 69-75

SneC2—Solsberry silt loam, 6 to 12 percent slopes, eroded, *Setting*: Dissected till plains, *Position*: Shoulders and Backslopes, *Site Index*: Upland oak 80

TtcE—Tulip-Wellston-Adyeville silt loams, 18 to 25 percent slopes, *Setting*: Structural benches and scarps underlain with interbedded sandstone, shale, and siltstone, *Position*: Backslopes and footslopes, *Site Index*: Upland oak 80

AloB2—Ava silt loam, 2 to 6 percent slopes, eroded, *Setting*: Dissected till plains, *Position*: Shoulders and summits, *Site Index*: Upland oak 75-80

PbbC2—Parke silt loam, 6 to 12 percent slopes, eroded, *Setting*: Dissected outwash plains, *Position*: Shoulders and backslopes

Access

To access the tract from Spencer Indiana, travel west on State Road 46 approximately 2-miles to Rattlesnake road, then travel north on Rattlesnake road approximately 6-miles to Surber road, then travel west on Surber road approximately 2 miles. Access is the first fire trail on the left passed the second creek crossing. The tract is accessible to the public via nearby parking lots on Surber road. Management access as well as public recreational access to this tract is relatively good.

Boundary

This tract is located in the central portion of the 610 acres contained in compartment 5.

Tract boundaries follow the county road to the north, a ravine to the northwest, a mapped intermittent stream to the southwest, a ravine to the south and an abandoned county road to the northeast. Private property borders this tract to the east, of which it has been located and marked with the boundary lines being reasonably well documented and witnessed in the past.

Wildlife

This tract contains habitat for a variety of wildlife species. Common species or sign observed include Eastern grey squirrel, Eastern fox squirrel, Eastern chipmunks, white-footed mouse, white-tailed deer, Wild Turkey, Virginia opossum, North American raccoon, Eastern box turtle, raptors, songbirds, woodpeckers, toads, frogs and various small stream aquatic life.

Live trees in this tract provide for shelter, escape cover, roosting and as a direct (e.g. mast, foliage) or indirect (e.g. foraging substrate, bugging) food resource, with the oaks, hickories, walnuts and beech providing hard mast for deer, turkey and squirrel and the cherries providing soft mast for birds. The pine stands provide benefits such as cover, roosts and browse.

Live trees containing cavities in this tract provide nesting and denning opportunities for woodpeckers, songbirds and small mammals and potentially contribute to future snags (standing dead trees).

Snags in this tract provide essential habitat characteristics for foraging activity, nest/den sites, decomposers (e.g., fungi and invertebrates), bird perching and bat roosting, and are important contributors to the future pool of downed woody material.

Rotten logs, crater knolls, ephemeral streams and the mapped intermittent stream provide habitat for herptiles and aquatic vertebrates.

The proposed management activities for this tract should not significantly alter the relative proportion and availability of habitat/cover types or significantly disrupt travel/dispersal corridors or create isolated habitat units separated from larger units of similar habitat. Nor should the proposed management activities increase the likelihood that specialist interior forest species would be affected by generalist species using forest edge habitats. Indiana Logging and Forestry Best Management Practices (B.M.P.s) will be followed to conserve soil and water resources and related forest wildlife habitats, such as springs/seeps, ponds/wetlands and karst features.

Wildlife Habitat Features

According to the data collected during the tract inventory (R. Duncan 2014) and represented in the following table, this tract is well represented with habitat in regards to the density, size and species of live and dead trees essential for consideration of various wildlife habitat needs including habitat specialists such as cavity nesters and species of conservation need like the Indiana bat (*Myotis sodalis*) and their suggested habitat requirements.

Legacy trees, as defined by the Management Guidelines for Compartment-Level Wildlife Habitat Features are well represented above the suggested maintenance levels. White oak and shagbark hickory are two species having preferred characteristics for tree roosting bats. Both are relatively abundant in this tract and will be given consideration as habitat. Also, as the tract continues to mature, the number of legacy trees $\geq 20''$ D.B.H. is expected to rise.

Standing dead or dying trees (snags) are somewhat well represented in this tract. Snags $\geq 5''$ D.B.H. and $\geq 9''$

D.B.H. in this tract are above the maintenance levels for both classes. However, snags in the $\geq 19''$ D.B.H. class are below the maintenance level. The lack of large diameter snags is often attributable to the overall good health of the forest and the short retention of large standing dead trees. Snags have short standing times and often become wind thrown.

Legacy trees, snags and cavity trees will be given consideration for retention as habitat for the Indiana bat and other wildlife as defined by the Resource Management Strategy for the Indiana Bat on State Forest Property and the Management Guidelines for Compartment-Level Wildlife Habitat Features. In addition, the girdling of select cull trees could be performed through post harvest timber stand improvement (T.S.I.) to address the lack of large diameter snags.

Wildlife Habitat Feature Tract Summary

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance
Legacy Trees *				
11"+ DBH	1026		2968	1942
20"+ DBH	342		640	298
Snags (all species)				
5"+ DBH	456	798	470	14
9"+ DBH	342	684	470	128
19"+ DBH	57	114	10	-47

* **Species Include:** AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO

Communities

Most of this tract is of the dry-mesic upland forest community type, with some isolated more mesic sites located along lower north slopes, and some floodplain along the streams. The dry-mesic upland forest community has moderate soil moisture with trees growing well, however the canopy is usually more open than in mesic forests. It is one of the most prevalent forest communities in Indiana. It occurs on slopes throughout the state. The dominant plants in this community are the white oak (*Quercus alba*), Northern red oak (*Quercus rubra*) and black oak (*Quercus velutina*). Characteristic plants in this community are the shagbark hickory (*Carya ovata*), mockernut hickory (*Carya tomentosa*), flowering dogwood (*Cornus florida*), hop hornbeam (*Ostrya virginiana*) and black haw (*Viburnum prunifolium*). Characteristic animals in this community are the broad-headed skink (*Eumeces laticeps*), white-footed mouse (*Peromyscus leucopus*) and Eastern chipmunk (*Tamias striatus*) (Jacquart et al. 2002).

A Natural Heritage Database Review is part of the management planning process. 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.

An exotic/invasive species, multi-flora rose (*Rosa multiflora*), is present in and around this tract in patches of light to moderate densities. It is also common throughout the county. Control measures could be undertaken, possibly during post-harvest T.S.I., to treat problem occurrences before their populations expand.

Recreation

This multiple use tract has good public access via the cable gate and fire trail for compartment 5, located on Surber road. It is a good tract for public recreational activities including hunting, hiking, gathering, viewing and interpretation. Because of its nearby parking and walkable fire trail, it is an ideal spot for anyone looking for an accessible outdoor experience.

Cultural

Cultural resources may be present but their location(s) are protected. Adverse impacts to significant cultural resources noted will be avoided during management or construction activities.

Tract Description and Silvicultural Prescription

This tract was not subdivided (non-stratified).

In 1988 a property wide inventory (TIMPIS) was conducted, including Compartment 5 tract 6 (M. Calvert 1988). The results estimated the tract to contain 4459 Bd. Ft. of total sawtimber per acre and 1388 Bd. Ft. of harvest sawtimber per acre, with a stocking level of 74% and a harvest proposed in the year 1997.

In 2000 a routine timber inventory was conducted (B. Gallogly). The data estimated the tract to contain 108 Sq. Ft. of total basal area per acre with approximately 7006 Bd. Ft. of total sawtimber per acre and an estimated 3217 Bd. Ft. of harvest sawtimber per acre. A harvest was conducted following this inventory.

In 2014 a routine inventory was conducted (R. Duncan). The data estimated the tract to be 94% stocked with 115 Sq. Ft. of total basal area per acre and approximately 7690 Bd. Ft. of total sawtimber per acre with an estimated 2851 Bd. Ft. of harvest sawtimber per acre and an average tree diameter of 12 inches.

Various timber types can be found on this tract. They are mixed hardwood, oak-hickory, beech-maple and pine. The over-story consists mostly of medium to large sawlog sized yellow-poplar, hickory, maple, oak with Eastern white pine and red pine comprising the pine stands. The quality of merchantable timber is good with the ridge tops and upper slopes containing more of the mixed hardwoods, and the mid to lower slopes containing more of the oak-hickory. The pole-sized under-story consists mostly of hickory, maple, Sassafras, beech with E. white pine and red pine representing some of the pole sized understory in the pine stand. Advanced regeneration is represented mostly by American beech, maple, elm and Sassafras.

The current stocking level indicates the tract is fully stocked although not overstocked in response to the harvest in 2000. The recommendation is to thin the mature yellow-poplar and harvest the low quality, damaged, diseased, dying and poorly formed trees, especially the declining yellow-poplar that are competing with the oaks and other quality trees. As with any forest management activities, Best Management Practice (BMP) guidelines will be followed to protect soil and water resources.

Management in the form of Timber Stand Improvement (T.S.I.) was performed in 2006 to control grapevines and release crop trees. In 2007 maintenance was performed on a 1.5-acre opening that was created in 2000. Additional post harvest T.S.I. could be performed to release preferred, high quality crop trees through the culling of low volume, poorly formed trees and less desirable species, and to possibly encourage early to mid successional species regeneration through the creation of canopy gaps and a reduction in understory shade tolerant species (i.e. sugar maple and American beech). T.S.I. should also look at problem occurrences of multi-flora rose. Standing dead trees (snags) and cavity trees will be given consideration for retention as habitat for wildlife. Legacy trees, as defined by the Resource Management Strategy for the Indiana Bat on State Forest Property, will be given consideration for retention as habitat for the Indiana Bat. In addition, the girdling of select, larger diameter cull trees could be performed through T.S.I. to address the Management Guidelines for Compartment-Level Wildlife Habitat Features.

The overall goal of this silvicultural prescription is to encourage timber growth and quality, and improve species composition, and create favorable growing conditions for early to mid successional timber species, while providing diverse forest wildlife habitats.

Inventory Summary – C5T6

Total Number Trees/Acre: 114.8
Average Site Index: 82

Average Tree Diameter: 12.3”
Stocking Level: 94%

	<u>Acres</u>		<u>Sq.Ft./Acre</u>
Hardwood Commercial Forest:	105	Basal Area Sawtimber.	86.2
Pine Commercial Forest:	9	Basal Area Poles:	26.3
Noncommercial Forest:	0	Basal Area Culls:	1.2
Permanent Openings:	0	Sub Merch.	1.1
Other Use:			
Total:	114	Total Basal Area:	114.8

Estimated Tract Volumes for Commercial Forest Area – Bd.Ft. Doyle Rule

Species	Harvest Stock	Growing Stock	Total Volume
YEP	1218	826	2044
REO	109	961	1070
WHO	95	848	943

AMB	455	234	689
SHH	0	464	464
SUM	289	143	432
REM	101	246	348
WHA	328	0	328
WHP	0	302	302
PIH	18	274	292
BIH	0	223	223
SAS	73	86	159
BLG	92	0	92
LAA	73	0	73
REP	0	72	72
BLC	0	65	65
SIM	0	24	24
AME	0	24	24
BAS	0	24	24
BLL	0	22	22
Per Acre Total	2851	4838	7690
Tract Total	325,014	551,532	876,660

Proposed Management Activities

- 2014 ----- Timber Inventory
- 2014 ----- DHPA Archaeological Clearance Application
- 2014 ----- Resource Management Guide
- 2014/15 ----- Timber Marking and Sale Layout
- 2015 ----- Timber Sale
- 2015-17 ----- Timber Harvest
- 2015-18 ----- Post-Harvest TSI and Exotic/Invasive Control
- 2015-18 ----- BMP Monitoring
- 2029 ----- Timber Inventory
- 2029 ----- Resource Management Guide




Use the link below to submit a comment on this document:

www.in.gov/dnr/forestry/8122.htm

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. Note: Some graphics may distort due to compression.

Topographic Map Compartment 5 Tract 6 Section 14 & 15, T11N, R4W



Tract Boundary -  Haul Road -  Log Yard - 
Intermittent Stream - 