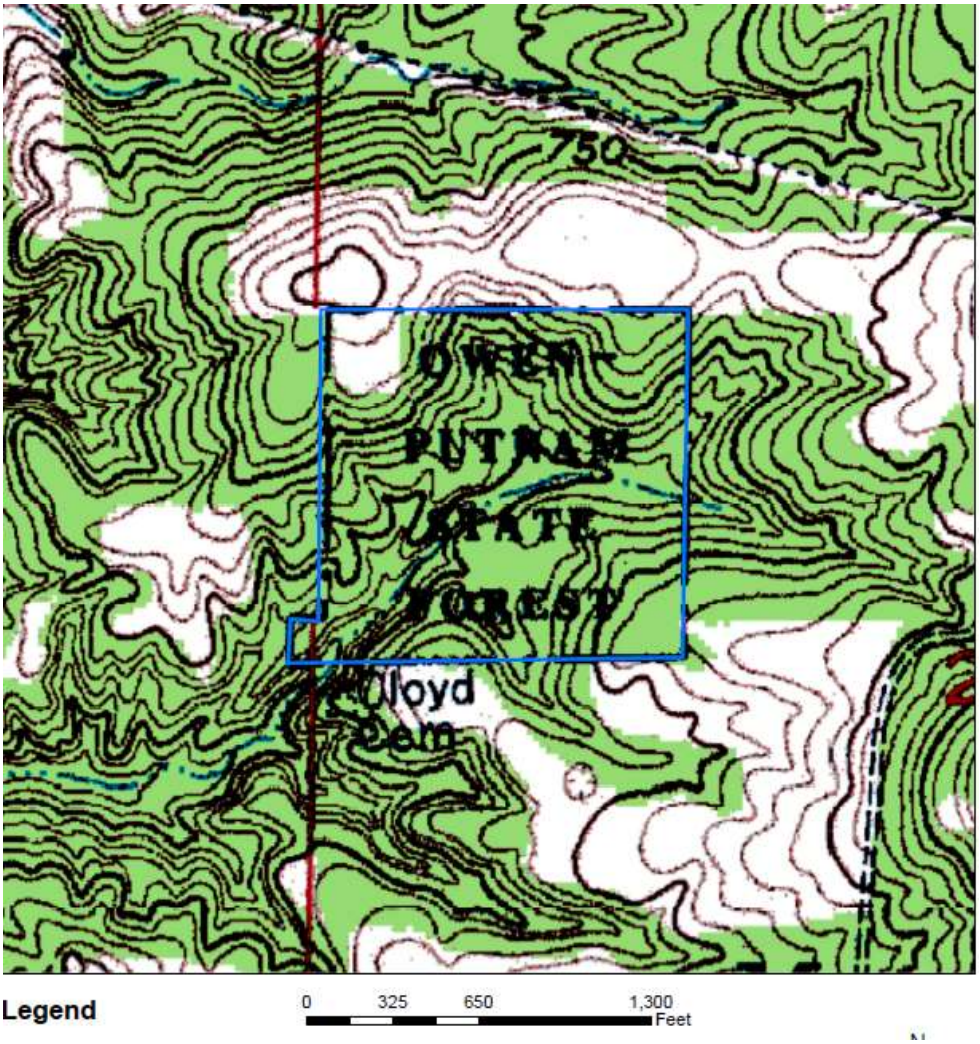
Indiana Department of Natural Resources
Division of Forestry
DRAFT RESOURCE MANAGEMENT GUIDE

State Forest: Owen-Putnam
Forester: R. Duncan
Management Cycle End Year: 2030
Compartment: 7 **Tract:** 7
Date: October 2015
Management Cycle Length: 15 Years

Location

The majority of compartment 7, tract 7 lies in the west central portion of section 28 with a small portion in the west central area of section 25, township 11N, range 4W, Montgomery Township, of Owen County, Indiana. It is approximately 6 miles northwest of the city of Spencer.



General Description

This tract is a 41-acre sustainably managed, multiple use parcel located in the northwest corner of the 551 acres comprising compartment 7 of the Owen-Putnam State Forest. Timber types include closed canopy mixed hardwoods. The over-story consists of medium to large sawlog sized poplar, oak, hickory and sassafras with an area of pine. The quality of merchantable timber is good. However, there is some decline in the poplar due to drought and insect stress. The pole-sized under-story consists mostly of beech, maple and poplar. Advanced regeneration is represented mostly by beech. This area exhibits good opportunities for multiple use management, including timber management, wildlife management and watershed management.

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. Compartment 7 tract 7 was purchased in 1953 from Albert McCoy. This tract is landlocked by private property and therefore has been somewhat unmanaged in prior years.

- Timber inventory in 2005
- Timber inventory in 2015

Landscape Context

Compartment 7 tract 7 is located in a 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. This section is most distinct by its rugged hills with sandstone cliffs and rockhouses. 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 this tract varies from nearly level ground on the ridge top, located in the south central portion of the tract, to moderate to steep north and south facing slopes over most of the tract, with the central portion containing lowland area along an mapped intermittent stream. Water sheds generally to the north and south through ephemeral drains into the intermittent stream.

Generally the soils are composed of deep, well drained soils underlain with interbedded sandstone, shale, and siltstone found on side slopes in the uplands. These soils are suited to timber production. These soils occur throughout the Illinoian glaciated areas of the county. The soils are comprised of a variety of types. The dominant soils are of the Tulip-Tipsaw complex and Wellston silt loam. ***In the event of a harvest, the existing trail system and log yards will be***

utilized, eliminating the need for new trail construction and minimizing soil disturbance. Indiana Logging and Forestry Best Management Practices (B.M.P.s) will be followed to preserve soil and water quality.

Soils

Specifically, the tract is composed of the following soils from most to least abundant:

TtaG—Tulip-Tipsaw complex, 25 to 60 percent slopes, *Setting:* Structural benches and scarps underlain with interbedded sandstone, shale, and siltstone, *Position on the landform:* Backslopes and footslopes, *Site Index*: Upland oak 80

WhfD2—Wellston silt loam, 12 to 18 percent slopes, eroded, *Setting*: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Backslopes, *Site Index*: Upland oak 81

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

PrwAV—Pope fine sandy loam, 0 to 2 percent slopes, frequently flooded,
very brief duration *Setting:* Flood plains, *Position on the landform:* Natural levees and floodplain steps, *Site Index:* Upland oak 80

ZamB2—Zanesville silt loam, soft bedrock substratum, 2 to 6 percent slopes, eroded, *Setting*: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Shoulders and summits, *Site Index*: Upland oak 69-75

ZamC3—Zanesville silt loam, soft bedrock substratum, 6 to 12 percent slopes, severely eroded, *Setting*: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Shoulders and backslopes, *Site Index*: Upland oak 69-75

ZamD2—Zanesville silt loam, soft bedrock substratum, 12 to 18 percent slopes, eroded
Setting: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Backslopes, *Site Index*: Upland oak 69-75

PlfB2—Pike silt loam, 2 to 6 percent slopes, eroded, *Setting:* Dissected outwash plains, *Position:* Shoulders and summits, *Site Index*: Upland oak 90

GabG—Gallimore-Chetwynd complex, 25 to 70 percent slopes, *Setting*: Dissected outwash plains, *Position*: Backslopes, *Site Index*: Upland oak 88-98

Access

To access the tract, take S.R. 46 approximately 2-miles west of the town of Spencer to Rattlesnake road, then travel north on Rattlesnake road approximately 5 miles to Clark road, travel east on Clark road approximately 0.5 mile to a cable gate located along the north side of

the road. Management access is via the cable gate at the end of an abandoned county road. Direct public access to this tract is very limited by not having a parking lot along the road and a means of ingress.

Boundary

This tract is an isolated, standalone tract located to the south east of the 551 acres contained in compartment 7. All sides of this tract are adjacent to private land. Boundary lines have been located and marked with the lines being reasonably well documented and witnessed in the past.

Wildlife

This tract contains habitat for a variety of wildlife species. Habitat includes oak-hickory, beech-maple, mixed hardwoods, pockets of seasonal grasses and sedges, and an intermittent stream. The oaks, hickories and beech provide hard mast for deer, turkey and squirrel. Snags (dead trees) and cavity trees provide nesting, bugging and roosting opportunities for woodpeckers, songbirds, and small mammals. Rotten logs, crater knolls, ephemeral streams and an intermittent stream provide habitat for herptiles and aquatic vertebrates.

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.

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.

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.

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.

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 2015) 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 (Mytolis 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 well represented in this tract. Snags are above the maintenance level in all but the larger size class. 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 facilitate large diameter snags.

Wildlife Habitat Feature - Tract Summary

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance
Legacy Trees *				
11"+ DBH	369		1394	1025
20"+ DBH	123		262	139
Snags (all species)				
5"+ DBH	164	287	742	578
9"+ DBH	123	246	446	323
19"+ DBH	20.5	41	0	-21

*** 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 riparian management zones along the intermittent stream. 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 through the county. Control measures could be undertaken, possibly during post-harvest T.S.I., to treat problem occurrences before their populations expand.

Recreation

Management access to this tract is via the cable gate at the head of an abandoned county road. Direct public recreational access to this tract is very limited by not having a parking lot along the road and a means of ingress.

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 divided into subdivisions (non-stratified).

In 2015 a timber inventory was conducted (R. Duncan) the results estimated the tract to contain 7504 bd. ft. of total sawtimber per acre with 2469 bd. ft. of harvest sawtimber per acre, a total basal area of 121 square feet per acre and a stocking level of 98 percent.

Timber types include closed canopy mixed hardwoods. The over-story consists of medium to large sawlog sized poplar, oak, hickory and sassafras. 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 beech, maple and poplar. Advanced regeneration is represented mostly by beech.

The current stocking level of 98% indicates the tract is fully stocked to overstocked. Some areas of the tract are sufficiently mature and crowded that resource competition is taking place and thinning may be beneficial. Often, there is little groundcover or early successional regeneration in these areas due to low light levels and browse. In the remaining areas, the tract is still maturing but could benefit from the select removal of less desirable species such as maple, beech, sassafras, and aspen in an effort to improve the overall tract quality and composition. Thinning should be from above or below depending on specific site composition.

The recommendation is to perform an intermediate cutting in the form of a thinning and improvement cut, utilizing the single tree and group selection methods within the un-even aged management system. A thinning should be done to reduce competition and mortality amongst the overcrowded timber. An improvement cut should be incorporated to improve the overall species composition and quality of the tract by select harvesting the low quality, damaged, diseased, dying and poorly formed trees as well as thinning of less desirable species. Advanced regeneration of the more shade intolerant species such as white oak, Northern red oak and hickory where prevalent in this tract and should be released. In some areas, a shelterwood-type situation may be created as trees are removed from the intermediate and understory layers while larger dominant and co-dominant trees (especially where oak is a strong component) are left standing. This will allow more diffuse sunlight to reach the ground and improve the establishment and survival of oak seedlings. Group selection openings may also be created to remove groups of undesirable species or poor quality individuals and to promote regeneration. In combination, these silvicultural methods will reduce stand density; improve overall growing conditions and timber quality, while encouraging tree species diversity and regeneration of native mixed hardwood species..

Management in the form of timber stand improvement (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 species regeneration through the creation of canopy gaps and a reduction in understory shade tolerant species. T.S.I. could 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 prescription is to improve timber species composition, provide resources for future crop trees through the removal of over-mature and declining trees, and provide forest wildlife habitat. As with all forest management activities, Best Management Practice (BMP)

guidelines will be followed to protect soil and water resources (Forest Practices Working Group, Indiana Woodland Steward Institute).

Inventory Summary – C7T7

Total Number Trees/Acre: 41 **Average Tree Diameter:** 12”
Average Site Index: 80 **Stocking Level:** 98%

	Acres		Sq.Ft./Acre
Hardwood Commercial Forest:	41	**Basal Area Sawtimber.**	86.4
Pine Commercial Forest:	0	**Basal Area Poles:**	32.7
Noncommercial Forest:	0	**Basal Area Culls:**	0.9
Permanent Openings:	0	**Sub Merch.**	0.9
Other Use:			
Total:	41	**Total Basal Area:**	120.9

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

Species	Harvest Stock	Growing Stock	Total Volume
YEP	1701	1260	2961
WHO	0	1591	1591
REO	77	554	631
BIH	0	544	544
AMB	142	122	265
SHH	0	408	408
SAS	88	149	237
SUM	0	232	232
LAA	220	0	220
WHA	201	0	201
PIH	0	174	174
REM	40	0	40
Tract Total	2469	5034	7504

Management Activities

2015 ----------	Timber Inventory
2015 ----------	DHPA Archaeological Clearance Application
2015 ----------	Resource Management Guide
2015/16 -------	Timber Marking and Sale Layout
2016 ----------	Timber Sale
2016/17 -------	Timber Harvest
2016/17 -------	BMP Monitoring
2017/18 -------	Post-Harvest TSI, wildlife snag creation and Exotic/Invasive Control
2030 ----------	Timber Inventory
2030/31 -------	Resource Management Guide

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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. Note: Some graphics may distort due to compression.