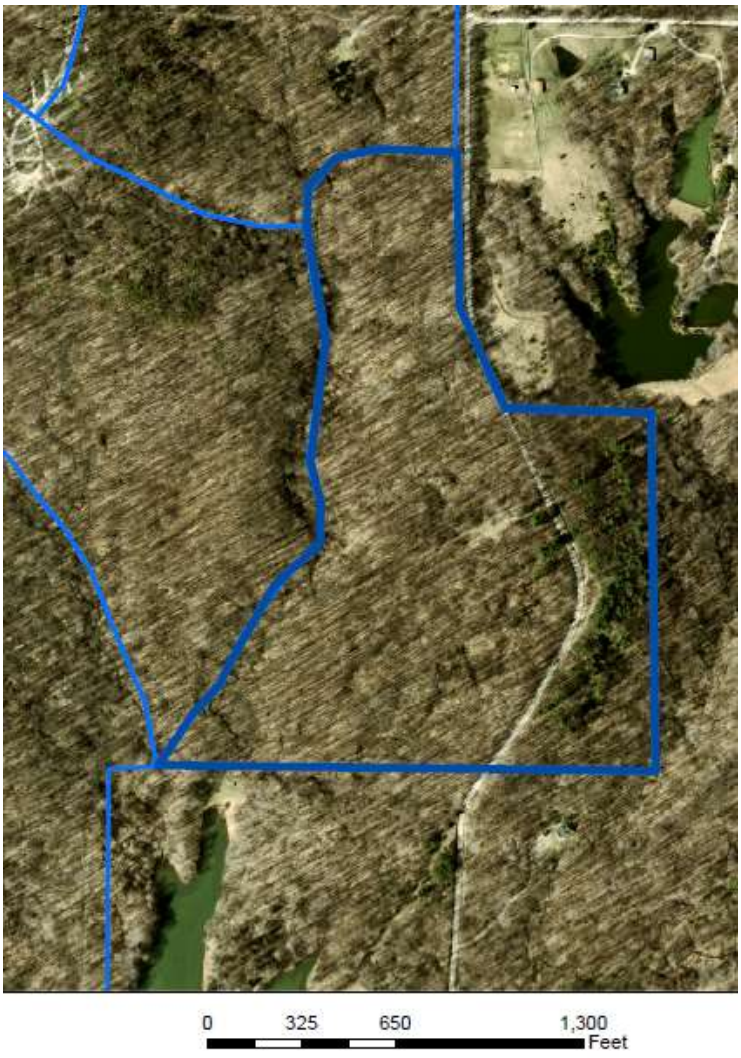
Indiana Department of Natural Resources
Division of Forestry
RESOURCE MANAGEMENT GUIDE
(DRAFT)

State Forest: Owen-Putnam **Compartment:** 6 **Tract:** 7
Forester: R. Duncan **Date:** October 2015
Management Cycle End Year: 2030 **Management Cycle Length:** 15 Years

Location

The majority of compartment 6, tract 7 lies in the east central portion of section 28 with a small portion in the west central area of section 27, township 11N, range 4W, Morgan Township, of Owen County, Indiana. It is approximately 6 miles northwest of the city of Spencer.



General Description

This tract is a 46-acre sustainably managed, multiple use parcel located in the northwest corner of the 701 acres comprising compartment 6 of the Owen-Putnam State Forest. Timber types include closed canopy mixed hardwoods and pine. 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, watershed management and public recreational activities, such as, hunting, hiking, horseback riding, 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. Compartment 6 tract 7 has been managed for many years.

- Eastern White Pine and Virginia Pine were planted in the 50s and 60s
- Timber inventory in 1984
- Property wide timber inventory (TIMPIS) in 1988
- Logs cut for Clark State Forest sawmill in 1988
- Timber harvest in 1995
- Timber salvage in 2005
- Timber Stand improvement, vine control 2009
- Timber inventory in 2013
- Timber inventory in 2015

Landscape Context

Compartment 6 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 center of the tract, to moderate to steep east and west facing slopes over most of the tract, with

the western edge containing lowland area along an unmapped intermittent stream. Water sheds generally to the east and west through ephemeral drains into intermittent streams.

Generally the soils are composed of very 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 Hickory-Adyeville complex and Pike silt loam series. 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:

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

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

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

HeuE—Hickory-Wellston silt loams, 18 to 25 percent slopes, *Setting*: Dissected till plains over interbedded shale, siltstone, and sandstone, *Position*: Backslopes, *Site Index*: Upland oak 85

SneD2—Solsberry silt loam, 12 to 18 percent slopes, eroded, *Setting:* Dissected till plains, *Position*: Backslopes, *Site Index*: Upland oak 80

CkkB2—Cincinnati silt loam, 2 to 6 percent slopes, eroded, *Setting*: Dissected till plains, *Position:* Summits and shoulders, *Site Index*: Upland oak 80

Access

To access the tract, take S.R. 46 approximately 4-miles west of the town of Spencer to Fishcreek road, then travel north on Fishcreek road approximately 4 miles to a cable gate located along the west side of Fishcreek road. Management access is via the cable at the head of a fire trail. Direct public recreational access to this tract is somewhat limited by not having a parking lot along the road. However the tract is easily accessed on horseback or on foot via the Pleasant Grove bridal trail leading out of the horse campground located nearby.

Boundary

This tract is located in the southeastern portion of the 701 acres contained in compartment 6.

The south and east tract boundaries are state forest boundaries and are therefore adjacent to private land. The north and west boundaries follow topographic features, a ravine, which it shares with compartment 6 tracts 5 & 6. Private property borders have 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. 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	594		1790	1196
20"+ DBH	198		285	87
Snags (all species)				
5"+ DBH	264	462	625	361
9"+ DBH	198	396	119	-79
19"+ DBH	33	66	0	-33

*** 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

This multiple use tract is accessed via the cable at the head of a fire trail. Direct public recreational access to this tract is somewhat limited by not having a parking lot along the road. However the tract is easily accessed on horseback or on foot via the Pleasant Grove bridal trail leading out of the horse campground located nearby. It is a good tract for public recreational activities including hunting, hiking, horseback riding, gathering, viewing and interpretation. Because of its nearby campground and walkable 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 divided into subdivisions (non-stratified).

In 1984 a timber inventory was conducted (B. Hahn) however a property wide tract realignment was done in the early ‘90s to better suit the landscape and therefore the data is not applicable to this tract anymore.

Between 1988 and 1989 a property wide timber inventory (Timber Inventory and Management Planning Information System, TIMPIS) was conducted, including Compartment 6 tract 7. The

results estimated the tract to contain 4850 bd. ft. of total sawtimber per acre with 730 bd. ft. of harvest sawtimber per acre and a stocking level of 98%. A harvest was proposed for 1995.

In 1988 14 logs were cut and sent to the Clark State Forest sawmill for use in a log residence.

In 1995 a timber harvest was conducted (Crone Lumber Co. Martinsville, IN) removing 37,739 board feet of sawtimber in 167 trees.

In 2005 a timber salvage was conducted (R. Booe & Son Hardwoods) removing 94,600 board feet of sawtimber in 561 trees.

In 2009 timber stand improvement (TSI) in the form of mechanical grape vine control was performed.

In 2013 a timber inventory was conducted (N. Fishburn, R. Duncan) the results estimated the tract to contain 7504 bd. ft. of total sawtimber per acre with 2268 bd. ft. of harvest sawtimber per acre, a total basal area of 121 square feet per acre and a stocking level of 99 percent.

In 2015 a timber inventory was conducted (R. Duncan) the results estimated the tract to contain 8421 bd. ft. of total sawtimber per acre with 2682 bd. ft. of harvest sawtimber per acre, a total basal area of 126 square feet per acre and a stocking level of 102 percent.

Timber types include closed canopy mixed hardwoods and pine. 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 102% indicates the tract is fully stocked. Some of the northern 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 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 done to improve the overall species composition and quality of the tract by harvesting the low quality, damaged, diseased, dying and poorly formed trees as well as harvesting less desirable species. Advanced regeneration of the more shade intolerant species such as white oak, Northern red oak and hickory were very 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 mixed hardwood regeneration. In combination, these silvicultural methods will reduce stand density; improve overall growing conditions and timber quality, while encouraging regeneration and tree species diversity.

Management prescription includes post harvest timber stand improvement (T.S.I.) to release preferred, high quality crop trees through the culling of low volume, poorly formed trees and less desirable species, and encourage mixed hardwoods 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.

Inventory Summary – C6T7

Total Number Trees/Acre: 154 **Average Tree Diameter:** 12”
Average Site Index: 85 **Stocking Level:** 102%

	Acres		**Sq.Ft./Acre**
Hardwood Commercial Forest:	44	**Basal Area Sawtimber.**	91.6
Pine Commercial Forest:	2	**Basal Area Poles:**	32.5
Noncommercial Forest:	0	**Basal Area Culls:**	0.8
Permanent Openings:	0	**Sub Merch.**	0.9
Other Use:			
Total:	46	**Total Basal Area:**	125.9

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

Species	Harvest Stock	Growing Stock	Total Volume
YEP	1522	1432	2954
WHO	0	1632	1632
WHP	212	851	1063
REO	0	569	569
BIH	122	456	579
SAS	161	118	279
WHA	205	54	259
LAA	201	0	201
SHH	0	220	220
PIH	0	183	183
AMB	165	0	165
SUM	0	180	180
VIP	41	0	41
REM	51	44	96
Tract Total	2680	5739	8421

Management Activities

2013 ---------- 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, Exotic/Invasive Control & Regeneration check
2030 ---------- Timber Inventory
2030/31 ------- 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.