

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

State Forest: Owen-Putnam

Forester: R. Duncan

Management Cycle End Year: 2030

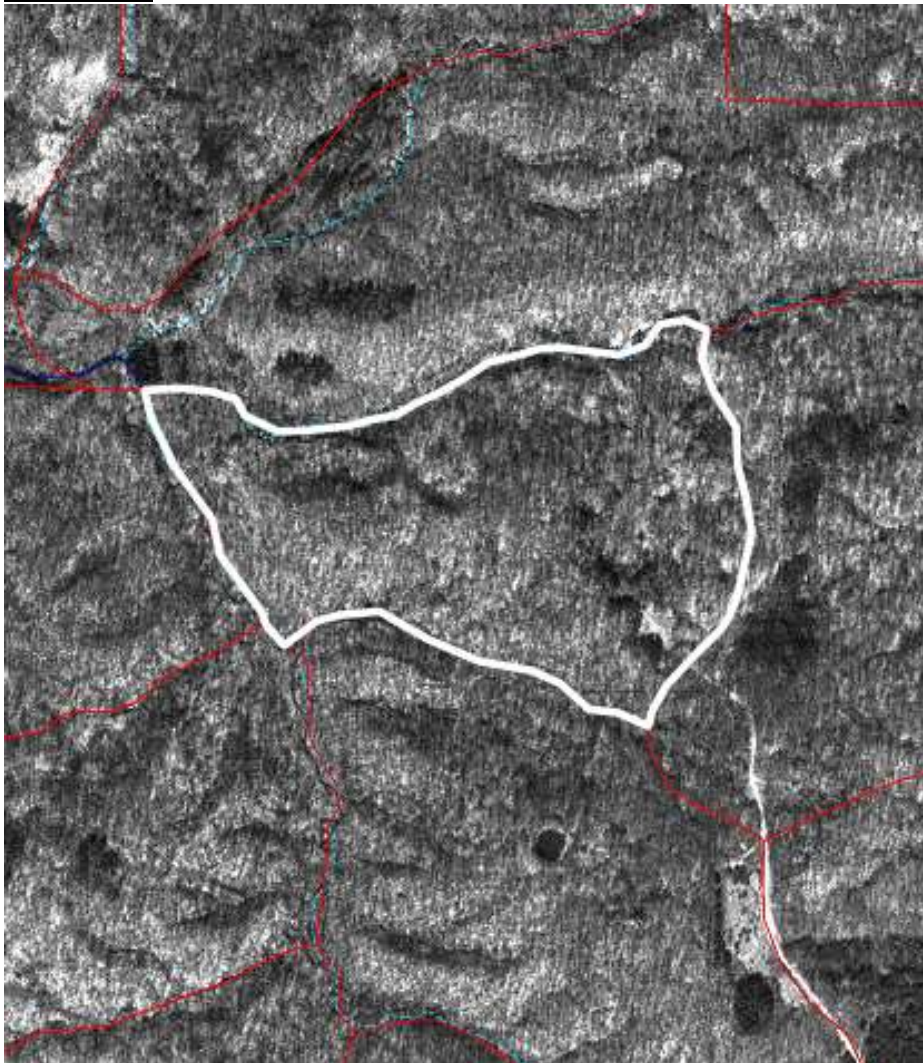
Compartment: 4 **Tract:** 10

Date: September 2015

Management Cycle Length: 15 Years

Location

Compartment 4, tract 10 lies in section 9, township 11N, range 4W, Jennings and Jackson Townships, of Owen County, Indiana. The tract is approximately 8 miles northwest of the town of Spencer.



General Description

This tract is a 66-acre sustainably managed, multiple use parcel located in the northeast area of the 1440 acres contained in compartment 4 of the Owen-Putnam State Forest. The timber type is predominantly closed canopy mixed hardwoods with approximately three acres of pine. The adjacent land is also part of the state forest. It is accessible via a fire trail and a day use parking area at the beginning of the fire trail along Surber road. This area exhibits good opportunities for multiple use management, including timber management, wildlife management, and soil and water conservation. It is also ideal for public recreational activities such as hiking, gathering, hunting, viewing, interpretation, and contains a horseback riding trail.

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 4, tract 10 has been managed for several years. The central portion of the land in this tract was part of an 80 acre purchase from Fern J. Sharp in June 1951. The southernmost area was part of a 160 acre parcel of land acquired in May 1963 from Allen S. and Anna Mae Milliner. The western and northeastern-most areas were part of a large acquisition of 460 total acres from several landowners in October 1963.

- Timber harvest in 1973
- Property wide timber inventory (TIMPIS) in 1988
- Timber inventory in 1996
- Timber harvest in 1997
- Timber stand improvement (vine control) in 2009-2010
- Timber inventory in 2010
- Timber inventory in 2015

Landscape Context

Compartment 4, tract 10 is located in a very rural, forest interior area. Generally the area is forested hills and ravines. The nearest private properties to this tract are primarily closed canopy, deciduous, mixed hardwood forests with no agriculture or industry, limited residential housing and yards, small fields/pastures and 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 level ground on the ridge top, located in the center of the tract, to moderate to steep west and north/northeast facing slopes, with lowland areas along the map intermittent streams. Water sheds generally to the north and to the west through ephemeral drains into mapped intermittent streams.

Generally the soils are composed of deep, well drained soils on dissected outwash plains. These soils are suited to timber production and occur throughout the Illinoian glaciated areas of the county. The soils are comprised of a variety of types. The dominant soils are of the Gallimore-Chetwynd complex and the Gallimore loam. The Holton silt loam is located along the mapped intermittent streams that form the north and west tract boundaries. It is a soil which is frequently but briefly flooded.

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:

- **GabG—Gallimore-Chetwynd complex**, 25 to 70 percent slopes, *Setting*: Dissected outwash plains, *Position*: Backslopes, *Site Index*: Upland oak 88-98
- **HleAV—Holton silt loam**, 0 to 2 percent slopes, frequently flooded, very brief duration, *Setting*: Flood plains, *Position*: Flood-plain steps, *Site Index*: Upland oak 80
- **GaaE2—Gallimore loam, 18 to 25 percent slopes, eroded**
- *Setting*
- *Landform*: Dissected outwash plains
- *Position on the landform*: Backslopes
- **P1fB2—Pike silt loam**, 2 to 6 percent slopes, eroded, *Setting*: Dissected outwash plains, *Position*: Shoulders and summits, *Site Index*: Upland oak 90
- **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
- **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
- **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

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 4.5 miles to Hale Hill road, then travel east on Hale Hill road approximately 100 feet to Keene road, then travel north on Keene road

approximately 1.5 miles to Surber road. Travel approximately one eighth of a mile west on Surber road to a parking lot and cable gate located on the north side of the road. Management and logging access as well as public recreational access to this tract is very good. The tract is near the Rattlesnake Campground and is easily accessible to the public on foot. Also, the tract is accessible to the public via the Blue Trail bridal loop which passes through the southeast portion of the tract.

Boundary

This tract is located in the northeast corner of the 1440 acres contained in compartment 4. This tract is surrounded by other portions of Owen-Putnam State Forest. The divisions between these tracts follow dominant topographical features. The northern and western boundaries lie along a mapped intermittent stream. The southern and eastern boundaries follow large ravines.

Wildlife

Wildlife resources in compartment 4 tract 10 seem abundant. Common species and sign observed include Eastern grey squirrel, Eastern fox squirrel, Eastern chipmunks, white-tailed deer, Wild Turkey, Virginia opossum, North American raccoon, raptors, woodpeckers, songbirds, black rat snakes, toads, frogs, and various small stream aquatic life.

This tract contains habitat for a variety of wildlife species. Habitat includes oak-hickory and mixed hardwoods. The oaks, hickories, walnut, and beech provide hard mast for deer, turkey and squirrel. Snags (standing dead trees) and cavity trees provide nesting, bugging and roosting opportunities for woodpeckers, songbirds, and small mammals. Rotten logs, crater knolls, and the mapped intermittent streams 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 and represented in the following table, this tract is reasonably 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 in this tract are above the maintenance level in the $\geq 5''$ D.B.H. class, however snags in the $\geq 9''$ D.B.H. class and $\geq 19''$ D.B.H. class are below the preferred 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 facilitate large diameter snags.

Wildlife Habitat Feature - Tract Summary

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance
Legacy Trees *				
<i>11''+ DBH</i>	594		1790	1196
<i>20''+ DBH</i>	198		285	87

Snags

(all species)

<i>5"+ DBH</i>	264	462	625	361
<i>9"+ DBH</i>	198	396	119	-79
<i>19"+ DBH</i>	33	66	0	-33

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 perennial 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).

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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 near the Rattlesnake Campground and is easily accessed on foot. It is often a high use area for hunters. In addition, a section of the Blue Trail bridal loop crosses this tract and is frequented by horseback riders. The tract is also easily accessible to the driving public via the parking lot on Surber Rd.

It is a good tract for public recreational activities including hunting, hiking, gathering, viewing, interpretation and riding. There will be short term disruption to recreation use while the trails temporarily closed during forest management activities.

Cultural

Cultural resources such as old building sites, homes, barns, etc. and their locations on state forests are protected. Any cultural resources located within this tract have had a buffer zone established around them and special consideration will be given during the planning and execution of management activities.

Tract Description and Silvicultural Prescription

This tract was not divided into subdivisions (non-stratified).

In 1973 a timber sale was conducted (Ringo Lumber Mill) which removed 113,400 board feet (bd. ft.) of sawtimber contained in 665 trees.

In 1988 all of compartment 4 was inventoried as part of the property wide Timber Inventory and Management Planning Information System (TIMPIS). This tract was estimated to contain 5288 bd. ft. of total sawtimber per acre with 1605 bd. ft. of harvest sawtimber and a stocking level of 80 percent.

A timber inventory was conducted in 1996 (D. Ramey) which estimated the tract to contain 6644 bd. ft. of total sawtimber per acre and 2219 bd. ft. of harvest sawtimber per acre. Total basal area per acre was 117 square feet and the stocking level was 110 percent.

A timber sale took place in 1997 (Crone Lumber Co.) which removed 72,394 bd. ft. of sawtimber contained in 367 trees.

Timber stand improvement in the form of mechanical grape vine control was conducted during the 2009-2010 fiscal year.

A timber inventory conducted in 2015 (R. Duncan) estimated the tract to contain 10,216 bd. ft. of total sawtimber per acre with 3928 bd. ft. of harvest sawtimber per acre. Total basal area per acre was 120 square feet with a stocking level of 104 percent.

The Timber type is predominantly closed canopy oak-hickory and mixed hardwoods. A small scattering of Virginia pine can be found in the upland, south-central region of the tract. These pines are remnants of a planting which may have taken place in the mid to late 1960's or early 1970's as part of a soil conservation effort. The over-story consists mostly of medium to large sawlog sized yellow poplar, oaks, and hickories. The overall quality of merchantable timber is good. The pole-sized under-story consists mostly of sassafras, sugar maple, yellow poplar, shagbark hickory, chinkapin oak, white oak, American beech. Large sapling sized trees consists mostly of sugar maple, sassafras, yellow poplar, ironwood, dogwood, and blackgum. Early and advanced regeneration consists mostly of American beech, sugar maple, pawpaw, white ash, sassafras, yellow poplar, and dogwood, but oak is also occasionally present.

There are some areas, particularly in the eastern third of the tract and near an existing landing, which have the characteristics of abandoned old cropfields. The quality and composition of timber species is poor in this region. There is a strong distinction between this area of the tract and the remainder of the tract which is of significantly better quality.

The current stocking level of 104% indicates the tract is overstocked. The north facing slopes tend to contain medium to large yellow poplar and other mixed hardwoods. The south, east, and west slopes contain mixed hardwoods with a strong presence of oak hickory (about 40 percent of trees inventoried in these plots were oak or hickory).

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 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 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 regeneration of native mixed hardwoods .

Management in the form of Timber Stand Improvement (TSI) has recently been performed to control grapevines. Post harvest TSI activities should be performed to release preferred crop trees through the culling of low volume, poorly formed trees and less desirable species, and encourage regeneration through the creation of canopy gaps and a reduction in understory shade tolerant species.

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 will be given consideration for retention as habitat for the Indiana Bat. In addition, the girdling of select cull trees could be performed through post harvest TSI to address the suggested guidelines of the Strategy for the Consideration of the Indiana Bat (IDNR – Division of Forestry, Resource Management Strategy for the Indiana Bat on Indiana State Forests, April 2008).

The existing haul road, log yard, and skid trail system will be utilized for management activities eliminating the need for any new construction.

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

Total Number Trees/Acre: 233
Average Site Index: 85

Average Tree Diameter: 9.7"
Stocking Level: 104%

	Acres		Sq.Ft./Acre
Hardwood Commercial Forest:	64.5	Basal Area Sawtimber.	84.7
Pine Commercial Forest:	0	Basal Area Poles:	24.7
Noncommercial Forest:	0	Basal Area Culls:	4.7
Permanent Openings:	0.5	Sub Merch.	6.1
Other Use:	1 (horse trail)		
Total:	66	Total Basal Area:	120.2

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

Species	Growing Stock	Harvest Stock	Total Volume
Yellow Poplar	1830	1959	3789
White Oak	1180	267	1447
Sugar Maple	1051	333	1385
Black Oak	440	626	1066
Pignut Hickory	361	97	458
Red Oak	438	0	438
Sassafras	195	156	351
Shagbark Hickory	242	74	316
Bitternut Hickory	196	0	196
Basswood	136	0	136
Black Cherry	23	109	132
Large-tooth Aspen	0	90	90
American Beech	80	0	80
Sycamore	0	85	85
White Ash	0	76	76
Black Walnut	70	0	70
Blackgum	0	57	57
Chinkapin Oak	45	0	45
Per Acre Total	6287	3929	10216
Tract Total	514,530	223,750	738,280

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 and Exotic/Invasive Control
2030 -----	Timber Inventory
2030/31 -----	Resource Management Guide

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