

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: 4 **Tract:** 4

Date: October 2014

Management Cycle Length: 15 Years

Location

Compartment 4, tract 4 is located in the southeast quarter of section 8 and the southwest quarter of section 9, township 11N, range 4W, Morgan and Jackson Townships, Owen County. It is approximately 3 miles east of the unincorporated town of Jordan village.

General Description

This tract is a 91-acre multiple use parcel located in the northwest portion of the 1440 acres contained in compartment 4 of the Owen-Putnam State Forest. Timber types include primarily closed canopy mixed hardwoods with some oak-hickory, beech-maple and pine. White pine was 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, oak, hickory, maple and beech with white 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 maple, sassafras, oak, hickory and beech with white pine representing some of the pole sized understory in the pine stand. 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 Pine in the 1950s when the state purchased the land. Compartment 4 tract 4 has been managed for many years.

- Timber harvest 1967
- Timber inventory 1985
- Management guide 1985
- Timber inventory 1987
- Property wide timber inventory (TIMPIS) in 1988
- Day lighting and opening 1994
- Boundary marking 1997
- Timber inventory 1997
- Management guide 1997
- Timber harvest 1998
- Timber stand improvement 2007 – 1992 opening maintenance

- Timber inventory 2014

Landscape Context

Compartment 4 tract 4 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 northwest to southeast through the center of the tract to moderately steep north and south facing slopes. Water sheds into ravines that drain into Jordan Creek to the north and a mapped intermittent stream 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 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

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

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

PryB—Potawatomi silt loam, 1 to 3 percent slopes, Setting: Hills underlain with interbedded, sandstone, shale, and siltstone, Position: Summits, Site Index: Upland oak 80

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

Access

To access the tract from Spencer Indiana, travel west on S.R. 46 approximately 3 miles to Rattlesnake road, continue north on Rattlesnake road approximately 6 miles to Surber road, continue west on Surber road to Rattlesnake campground and the cable gate and fire trail at the back of the campground. Management access as well as public recreational access to this tract is very good via the campground and fire trail.

Boundary

This tract is located in the northwest portion of the 1440 acres contained in compartment 4. It is primarily an internal tract with its boundaries almost entirely surrounded by state forest. Private property borders this tract to the north, of which it has been located and marked with the boundary lines being reasonably well documented and witnessed in the past. The remaining tract boundaries follow major ravines and ridge tops within the state forest.

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 tree species 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 ≥ 20 " D.B.H. is expected to rise.

Standing dead or dying trees (snags) are well represented in this tract, being above the maintenance levels for all classes.

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	819		2149	1330
20"+ DBH	273		544	271
Snags (all species)				
5"+ DBH	364	637	876	512
9"+ DBH	273	546	401	128
19"+ DBH	45.5	91	72	26

* **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).

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.

Recreation

This multiple use tract has good public access via the cable gate and fire trail for compartment 4, located in Rattlesnake campground. 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 1985 a routine timber inventory was conducted (B. Hahn). The data estimated the tract to contain 110 Sq. Ft. of total basal area per acre.

In 1987 a routine timber inventory was conducted (J. Goodburn). However, the data is presumed lost in the fire that consumed the Morgan-Monroe State Forest office in the late '80s were the records were stored.

In 1988 a property wide inventory (TIMPIS) was conducted, including Compartment 4 tract 4 (R. Winks & D. Cole). The results estimated the tract to contain 3975 Bd. Ft. of total sawtimber per acre and 721 Bd. Ft. of harvest sawtimber per acre, with a stocking level of 78% and a harvest proposed in the year 1996.

In 1997 a routine timber inventory was conducted (R. Duncan). The data estimated the tract to be 98% stocked with 120 Sq. Ft. of total basal area per acre and approximately 7660 Bd. Ft. of total sawtimber per acre and an estimated 2682 Bd. Ft. of harvest sawtimber per acre.

In 1999 the tract was harvested (Crites Logging) of 160,100 Bd. Ft. in 1007 trees on 80 acres (2001 Bd. Ft. /Acre) as part of a selective thinning and improvement cut.

In 2007 maintenance was performed (D. Reynolds) on a 1-acre and 2-acre openings that were created in 1992.

In 2014 a routine inventory was conducted (R. Duncan). The data estimated the tract to be 87% (fully) stocked with 108 Sq. Ft. of total basal area per acre and approximately 8052 Bd. Ft. of total sawtimber per acre with an estimated 2527 Bd. Ft. of harvest sawtimber per acre and an average tree diameter of 14 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 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**% (fully)???

The current stocking level indicates the tract is fully stocked although not overstocked in response to the harvest in 1999. However, 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 (Forest Practices Working Group, Indiana Woodland Steward Institute).

Post harvest timber stand improvement is prescribed 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. would 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 biodiverse forest wildlife habitats.

Inventory Summary – C4T4

Total Number Trees/Acre: 124
Average Site Index: 80 Oak

Average Tree Diameter: 14”
Stocking Level: 87%

	Acres		Sq.Ft./Acre
Hardwood Commercial Forest:	80	Basal Area Sawtimber.	80.8
Pine Commercial Forest:	11	Basal Area Poles:	20.4
Noncommercial Forest:	0	Basal Area Culls:	4.8
Permanent Openings:	0	Sub Merch.	2.4
Other Use:			
Total:	91	Total Basal Area:	108.4

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

Species	Harvest Stock	Growing Stock	Total Volume
YEP	1601	568	2169
REO	134	1479	1614
BLO	56	622	678
WHO	20	653	674
AMB	417	236	654
PIH	46	517	563
SHH	0	176	176
BIH	0	156	156
WHP	55	101	156
SUM	54	647	702
BLG	0	111	111
BLW	0	102	102
SAS	0	84	84
LAA	37	31	68
WHA	53	0	53
REM	29	12	41
BLC	0	26	26
BAS	25	0	25
Per Acre Total	2527	5521	8052
Tract Total	229,957	502,411	732,732

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:

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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.

Owen-Putnam State Forest

Topographic Map
Compartment 4 Tract 4
91 - Acres

USGS - 7.5 Minute Series
Poland & Cataract Quadrangles
Owen Co. Section 8 & 9, T11N, R4W



Tract Boundary - Haul Road - Skid Trails - Perennial Stream -
Log Yard - Y Pond -

