

## Resource Management Guide

**State Forest:** Owen-Putnam

**Forester:** R. Duncan

**Management Cycle End Year:** 2029

**Compartment:** 04    **Tract:** 16

**Date:** November 2009

**Management Cycle Length:** 20 Years

### Location

Compartment 4, tract 16 is adjacent to the Rattlesnake Campground and lies mostly in the northeast quarter of section 16, with some acreage in the northwest quarter of section 15, township 11N, range 4W, Morgan Township, of Owen County Indiana. It is approximately 10 miles northwest of the town of Spencer with Surber Road being the primary means of ingress.

### General Description

This tract is a 145-acre managed, multiple use parcel located along the southeast side of the 1440 acres contained in compartment 4. Due to the large size of the tract it contains a variety of timber types. The main ridge along the county road has been planted to pine. Sugar Maple is the dominant species in the north-south draw near the middle of the tract. The remainder of the tract is composed of oak-hickory along the ridges with mixed hardwoods in the ravines. 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, 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 4 tract 16 has been managed for several years being part of a property wide TIMPIS inventory conducted in 1988 through 1989, a tract inventory conducted in 1990, a timber sale conducted in 1991, pre-harvest timber stand improvement in the form of grapevine control conducted in 2007, regeneration opening (1991) maintenance conducted in 2007 and a tract inventory conducted in 2008.

### Landscape Context

Generally the area surrounding this tract is predominantly closed canopy deciduous forest with some small isolated pine stands, some small early successional areas, some pasture, some hayfields and some small open water wetlands with scattered single family dwellings and very little agriculture.

### Topography, Geology and Hydrology

This tract is generally comprised of ridges and valleys of moderate to steep south, southeast and southwest slopes with some level ground along the major ridge top plateaus.

Generally the soils are composed of shallow to moderately deep, well to excessively drained soils on moderate to steep slopes underlain with sandstone, siltstone and shale. These soils occur throughout the Illinoian glaciated areas of the county. In the event a harvest operation is performed, the existing haul road and log yard can be utilized. However, care must be taken during the planning and execution of skid trails due to the erosive nature of these soils. Best Management Practice (BMP) guidelines should be followed to preserve soil and water quality (Forest Practices Working Group, Indiana Woodland Steward Institute).

Generally water sheds from the northeast to the southwest into a mapped intermittent stream.

## **Soils**

The tract is composed primarily of the Muskingum, Zanesville, Wellston and Tilsit soils. They are typically shallow to moderately deep, well to excessively drained soils on moderate to steep slopes underlain with sandstone, siltstone and shale with slight to moderate erosion and windthrow potential. Most of the soils in this tract are found in large areas of forest and are often well suited to timber production.

Specifically, the tract is composed of the following soils:

- TsB2 - Tilsit Silt loam, 2-6% Slopes, Moderately Eroded
- MmG - Muskingum Stony Silt Loam, 35-70% Slopes
- MmF - Muskingum Stony Silt Loam, 25-35% Slopes
- WmE - Wellston Silt Loam, 18-25% Slopes
- WnD3 - Wellston Soils, 12-18% Slopes, Severely Eroded
- ZnC3 - Zanesville Soils, 6-12% Slopes, Severely Eroded
- ZnD3 - Zanesville Soils, 12-18% Slopes, Severely Eroded
- ZaC - Zanesville Silt Loam, 6-12% Slopes
- ZnB3 - Zanesville Soils, 2-6% Slopes, Severely Eroded

(Soil Survey, Owen County USDA, SCS - Series 1959 No. 38)

## **Access**

To access the tract take S.R. 46 approximately 5-miles west of the town of Spencer to Fish Creek Rd., then travel north on Fish Creek Rd. approximately 4.0 miles to Atkinsonville Rd. / Hale Hill Rd., then travel east on Hale Hill Rd. approximately 2.0 miles to Surber Rd., then travel west on Surber Rd. to the first road on the left or south side of the road, then travel 0.5 miles to the tract parking lot on the right or west side of the road. Management and logging access as well as public recreational access to this tract is very good. The tract is adjacent to 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 this area.

## **Boundary**

Tract boundaries follow predominant topographical features with the mapped intermittent stream delineating the western tract boundary, Surber Road delineating the northern boundary and private property bordering the tract to the south and east.

Line N to O has been painted in the past and flagged recently and follows an old fence line with corners N and O each marked with a metal pipe. Line O to P has been painted in the past and flagged recently and follows an old fence line with corner P marked with a metal pipe. Line P to Q follows an old fence line and has been painted in the past and flagged recently. Corner Q has not been documented, however, the adjacent landowner (Horner) set a metal pipe at the intersection of the road and fence as a practical representation of corner Q. Line Q to R has not been marked but it is assumed to follow the road. Corner R has not been found. However, it is assumed to be the intersection of the road and an old east-west fence line. Line R to S follows an old fence line and has been painted in the past and flagged recently with corner S marked with a steel fence post of uncertain origin. Line S to T follows an old fence line and has been painted in the past and flagged recently with corner T marked with a steel fence post of uncertain origin. Line T to U has been painted in the past and flagged recently with corner U marked with a steel pin buried in the middle of the road fence with three witness trees around it.

## **Wildlife**

Wildlife resources in compartment 4 tract 16 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, Eastern Box Turtle, raptors, woodpeckers, songbirds, toads, frogs and various small stream aquatic life.

This tract contains habitat for a variety of wildlife species. Habitat includes the oak-hickory cover type with some mixed hardwoods containing beech, all of which provide mast for deer, turkey and squirrel. The pine stands provide some benefits such as winter cover, roosts for grouse and turkey and browse for deer. Snags and cavity trees provide nesting, bugging and roosting opportunities for woodpeckers, songbirds, and small mammals. Rotten logs, crater knolls and the mapped intermittent stream provide habitat for herptiles and aquatic vertebrates.

A review of the Natural Heritage Database was conducted on October 8, 2008 to locate and identify any known endangered, threatened or rare (E.T.R.) animal species. The review did not identify any E.T.R. species within or near the project area.

## Wildlife Habitat Feature Tract Summary

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
<b>Legacy Trees *</b>					
<i>11"+ DBH</i>	1305		4385	3080	
<i>20"+ DBH</i>	435		616	181	
<b>Snags (all species)</b>					
<i>5"+ DBH</i>	580	1015	3039	2459	2024
<i>9"+ DBH</i>	435	870	1180	745	310
<i>19"+ DBH</i>	72.5	145	0	-73	-145
<b>Cavity Trees (all species)</b>					
<i>7"+ DBH</i>	580	870	571	-9	-299
<i>11"+ DBH</i>	435	580	274	-161	-306
<i>19"+ DBH</i>	72.5	145	62	-11	-83

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

## Communities

Most of this tract is of the mesic forest community type with some isolated more wet sites located along the lower slopes and drainages.

A review of the Natural Heritage Database was conducted on October 8, 2008 to locate and identify any known endangered, threatened or rare (E.T.R.) plant species or communities. The review did not identify any E.T.R. species or communities within or near the project area.

Exotic species are present in and around the tract with large patches of Multi-Flora Rose occurring in the pine stand. Control measures should be proposed, possibly during post-harvest timber stand improvement activities, whereby herbicides could be applied to treat these occurrences before their populations expand.

## Recreation

The tract is adjacent to the Rattlesnake Campground and is easily accessed on foot and 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 what property personnel refer to as the "Block Building Road" (a.k.a. the section of Keene Rd. that the county highway department has abandoned).

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, horseback riding, gathering, viewing and interpretation.

## **Cultural**

Cultural resources such as old foundations, homes, barns, building sites, wells etc. and their location on state forests are protected. Any cultural resources located within this tract have had a buffer zone established around them and any management activities will take them into consideration during their planning and execution. There is some old fence line adjacent to private property along the south and eastern portions of the tract boundary.

## **Tract Description and Silvicultural Prescription**

This tract was not divided into subdivisions.

Between 1988 and 1989 a property wide inventory (TIMPIS) was conducted, including Compartment 4 tract 16. The results estimated the tract to contain 6576 Bd. Ft. of total sawtimber per acre with 2676 Bd. Ft. of harvest sawtimber per acre and a harvest proposed in the year 1991. The tract was again inventoried in 1990. That inventory showed 6435 Bd. Ft. of total sawtimber per acre with 2854 Bd. Ft. of harvest sawtimber per acre with a total basal area of 95 Sq. Ft. per acre and a harvest proposed in 1991 and 2010.

The tract was harvested in 1991 with 146,492 Bd. Ft. of sawtimber removed in 588 trees. The tract was again inventoried in 2008. The data estimated the tract to contain approximately 6960 Bd. Ft. of total sawtimber per acre with an estimated 2460 Bd. Ft. of harvest sawtimber per acre with 129.7 Sq. Ft of basal area per acre, in trees  $\geq 6$  inches in diameter at breast height (d.b.h.), and a stocking level of 110 % with an average tree diameter of 11 inches.

The Timber type is predominantly closed canopy oak-hickory with some mixed upland hardwoods and approximately 30-acres of Virginia and White Pine. The over-story consists mostly of medium to large sawlog sized Yellow Poplar, White Oak, Northern Red Oak, Sugar Maple and Bitternut Hickory. The quality of merchantable timber is good to very good. The pole-sized under-story consists mostly of Sassafras, Virginia Pine, Sugar Maple, American Beech and Bitternut Hickory. Advanced regeneration is represented mostly by maple, beech, hickory, ash, cherry and Sassafras. However, Red and White Oak are well represented in the earlier stages of regeneration.

The current stocking level of 110% indicates the tract is over stocked with the dominant sawtimber sized poplar, oak, maple and hickory overly competing for resources. With the overcrowded mature sawtimber species, a good oak-hickory residual stocking and the presence of less desirable shade tolerant species, this tract would benefit from an intermediate harvest in the form of a thinning and improvement cut.

The recommendation is to perform an intermediate harvest using the single tree selection method whereby thinning and reducing competition amongst the maturing trees, in addition to improving

the species composition of the tract by harvesting the low quality, damaged, diseased, dying and poorly formed trees as well as harvesting less desirable shade tolerant species. The pines will be managed similarly, with some of the quality pines that are nearing or having reached maturity being selectively thinned to reduce competition, with the remainder of the quality pines being kept as part of the residual growing stock. Individual as well as large groups of poor quality pines should be harvested if possible or eliminated through post harvest Timber Stand Improvement (TSI) to encourage hardwood regeneration

In addition, management in the form of TSI should be performed to control grapevines, release preferred crop trees through the culling of low volume, poorly formed trees and less desirable species and to encourage early successional (Oak) regeneration through the creation of canopy gaps and a reduction in understory shade tolerant species (maple, beech, pine). 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  $\geq 19$  inches in diameter 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 overall goal of this prescription is to thin the tract and reduce competition among the larger trees, improve timber species composition and to create favorable growing conditions for early successional timber species, while providing 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). Also, during the planning and execution of the proposed timber sale, caution and consideration will be given to the horse trail and any cultural sites that exist in this tract.

### Inventory Summary

**Number Trees/Acre:** 195  
**Average Site Index:** 85

**Average Tree Diameter:** 11”  
**Stocking Level:** 110%

	Acres		Sq.Ft./Acre
<b>Hardwood Commercial Forest:</b>	115	<b>Basal Area <math>\geq 12</math>”D.B.H.:</b>	74.5
<b>Pine Commercial Forest:</b>	30	<b>Basal Area <math>\leq 12</math>” D.B.H.:</b>	50.7
<b>Noncommercial Forest:</b>	0	<b>Basal Area Culls:</b>	4.5
<b>Permanent Openings:</b>	0		
<b>Other Use:</b>	0		
<b>Total:</b>	145	<b>Total Basal Area:</b>	129.7

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

Species	Growing Stock	Harvest Stock	Total Volume
<b>Yellow Poplar</b>	1040	1010	2050
<b>White Oak</b>	1170	290	1460
<b>Red Oak</b>	520	290	810
<b>Sugar Maple</b>	390	220	610
<b>Bitternut Hickory</b>	380	40	420
<b>Sassafras</b>	170	210	380
<b>White Pine</b>	240	0	240
<b>American Beech</b>	30	170	200
<b>White Ash</b>	20	170	190
<b>Shagbark Hickory</b>	140	0	140
<b>Black Cherry</b>	100	0	100
<b>Pignut Hickory</b>	70	0	70
<b>Basswood</b>	70	0	70
<b>Virginia Pine</b>	70	0	70
<b>Black Walnut</b>	50	0	50
<b>Largetooth Aspen</b>	0	50	50
<b>Blackgum</b>	40	0	40
<b>Per Acre Total</b>	4500	2450	6950
<b>Tract Total</b>	652,500	355,250	1,007,750

### Proposed Activities Listing

2008 - Pre-Harvest TSI  
 2008 - Tract Inventory  
 2008 - Tract Management Plan  
 2009 - Harvest Marking and Sale Layout  
 2010 - Timber Sale  
 2012 - Post-Harvest TSI and Exotic Control  
 2012 - BMP Monitoring

### Attachments (on file in the property office)

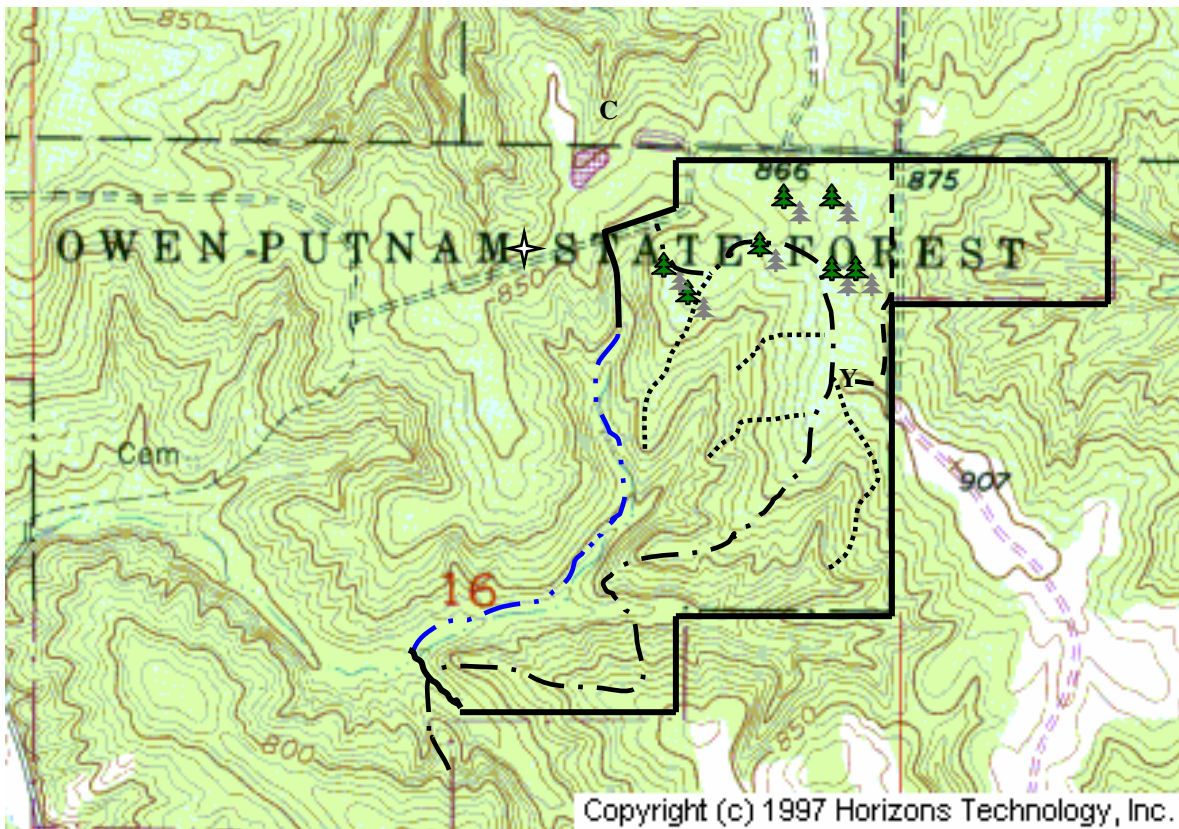
1. Timber Inventory Summary Reports (Tcruise, 02/03/09)
2. Topographical Map (USGS - 7.5 Minute Series, Cataract Quadrangle)
3. Soil Type Map (USDA, SCS - Series 1959 No. 38 Soil Survey, Owen County)
4. Natural Heritage Database Review Map (C. E. Hauser, 10/08/08)
5. Aerial Photograph (2003)
6. Upland Central Hardwoods Timber Stocking Guide (USDA-Forest Service, Northeastern Area NA-MR-7)
7. Archaeological Clearance Application (R. Duncan, 02/04/09)
8. Archaeological Clearance Letter (A. J. Ariens, 01/08/09)

**Topographic / Sale Layout Map**  
**Compartment 4 Tract 16**  
145 - Acres

USGS - 7.5 Minute Series  
Cataract Quadrangle



Tract Boundary - Haul Road - Skid Trails - Intermittent Stream -   
Log Yard - Y Campground - C Pines - Horse / Skid Trail -



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