Indiana Department of Natural Resources - Division of Forestry

Resource Management Guide - Draft

State Forest: Owen-Putnam **Compartment:** 04 **Tract:** 14
Forester: R. Duncan **Date:** December 2009
Management Cycle End Year: 2029 **Management Cycle Length:** 20 Years

Location

Compartment 4, tract 14 is near the Rattlesnake Campground and lies mostly in the east half of section 9, 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 an 83-acre managed, multiple use parcel located at the northeast corner of the 1440 acres contained in compartment 4. The tract is made up of about 30% oak-hickory and about 30% Yellow Poplar with the rest of mixed hardwoods. 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. Compartment 4 tract 14 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 1990, a pre-harvest timber stand improvement in the form of grapevine control conducted in 2009 and a tract inventory conducted in 2009**.**

Landscape Context

Generally the area surrounding this tract is rural, 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 occurs in the Escarpment Section of the Shawnee Hills Natural Region. The Escarpment Section of this region consists primarily of Pennsylvanian and Mississippian

bedrock with sandstone and Wellston-Zanesville derived soils on the hills with limestone soils found at lower elevations. This region has a well integrated drainage system with a westward sloping plateau and an abundance of stream valleys (A. F. Schneider, Natural Features of Indiana 1996). This tract is generally comprised of ridges and valleys of moderate to steep north to northeast slopes with level ground along the major ridge top plateaus to the northwest and southwest.

Soil types are typical for the area and 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 south to north from the ridge tops into ephemeral drainages and then into the mapped intermittent stream (Jordan Creek) to the north.

Soils

The tract is composed primarily of the Negley and Parke soil series, with some Wellston-Zanesville and Muskingum soils. The dominant soils are moderately deep to deep, well to excessively drained soils on gentle to steep to very steep slopes formed in glacial outwash. These soils are well suited to forests and timber production with often rapid and high quality tree growth. However, these soils when bare are very susceptible to erosion and as such care must be taken during the planning and execution of management activities.

Specifically, the tract is composed of the following soils:

- NgG - Negley loam, 35-70% Slopes
- PaB - Parke Silt Loam, 2-6% Slopes
- PaC2 - Parke Silt Loam, 6-12% Slopes, Moderately Eroded
- PcC3 - Parke Soils, 6-12% Slopes, Severely Eroded
- ZnC3 - Zanesville Soils, 6-12% Slopes, Severely Eroded
- ZnD3 - Zanesville Soils, 12-18% Slopes, Severely Eroded
- ZaC2 - Zanesville Silt Loam, 6-12% Slopes, Moderately Eroded
- WoG - Wellston and Muskingum Soils, 35-70% Slopes
- WmE - Wellston Silt Loam, 18-25% Slopes
- WmE2 - Wellston Silt Loam, 18-25% Slopes, Moderately Eroded
- Sh - Shoals Loam

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

Access

To access the tract take S.R. 46 approximately 1-mile west of the town of Spencer to Rattlesnake Rd., then travel north on Rattlesnake Rd. approximately 6.0 miles to the bridge crossing to

Surber Rd., then travel west on Surber Rd. approximately 2.5 miles to the last fire trail on the right hand side of the road just before the Rattlesnake Campground. 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

Tract boundaries follow topographical features with the mapped intermittent stream delineating the northern boundary and private property bordering the tract to the east.

Boundary line Y to the section line to the north has been marked in the past and flagged recently with corner Y presumably marked with a 1 inch iron pin. However boundary records question the validity of corner Y. Therefore no timber should be marked within 100 feet of this boundary line.

Wildlife

Wildlife resources in compartment 4 tract 14 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 limited benefits such as winter cover, roosts for grouse and turkey and on occasion emergency browse for deer. Snags (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 stream provide habitat for herptiles and aquatic vertebrates.

A review of the Natural Heritage Database was conducted on July 7, 2007 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

This tract was inventoried during leaf on which could explain the lack of cavity trees.

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance
Legacy Trees *				
11"+ DBH	747		1758	1011
20"+ DBH	249		172	-77
Snags (all species)				
5"+ DBH	332	581	5232	4900
9"+ DBH	249	498	1805	1556
19"+ DBH	41.5	83	0	-42
Cavity Trees (all species)				
7"+ DBH	332	498	213	-119
11"+ DBH	249	332	149	-100
19"+ DBH	41.5	83	26	-15

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

Communities

The dominant natural community is upland forests with vegetation consisting of the oak-hickory complex and a mesic component in the ravines. Typical upper slope species include red oak, white oak and shagbark hickory. Mesic forests consist of beech, yellow-poplar, sugar maple, black walnut and white ash.

A review of the Natural Heritage Database was conducted on July 7, 2007 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 this tract with large patches of Multi-Flora Rose occurring around the previously disturbed sites. 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 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.

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 forest managers will take their existence into consideration during the planning and execution of management activities.

Tract Description and Silvicultural Prescription

This tract was not divided into subdivisions.

In 1990 this tract was inventoried with the results estimating the tract to contain 5901 Bd. Ft. of total sawtimber per acre with 2521 Bd. Ft. of harvest sawtimber per acre, 103 Sq. Ft. of total basal area per acre and a harvest proposed in the year 1990 and 2009.

The tract was harvested in 1990 with 168,771 Bd. Ft. of sawtimber removed in 569 trees. The tract was again inventoried in 2009. The data estimated the tract to contain approximately 5680 Bd. Ft. of total sawtimber per acre with an estimated 1710 Bd. Ft. of harvest sawtimber per acre with 102.5 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 85 % with an average tree diameter of 11.5 inches.

The timber type is predominantly closed canopy mixed upland hardwoods with about 30% of it being Oak-Hickory and 30% of it being Yellow Poplar with approximately 6-acres of Virginia Pine. The over-story consists mostly of medium to large sawlog sized Yellow Poplar, Northern Red Oak, Black Oak, Bitternut Hickory, American Beech and Red Maple with some White Oak and Black Cherry. The quality of merchantable timber is low in the less desirable species, such as maple and beech, yet improves reasonably well in the more desirable species such oak, hickory and cherry. The pines are of fair to poor quality and yet occupy some of the better soil types.

The pole-sized under-story consists mostly of Virginia Pine, Sassafras, Yellow-Poplar, Sugar Maple, Bitternut Hickory, American Elm and White Oak. Sub-merchantable saplings are represented mostly by poplar, maple, elm, beech, sassafras and locust. However, field observations noted that Red and White Oak are well represented in the earlier stages of regeneration.

The current stocking level of 85% indicates the tract is fully stocked with the dominant sawtimber sized poplar, oak, maple and hickory overly competing for resources. With the crowded maturing 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 a timber harvest using the selective cutting and improvement cutting methods, whereby thinning and reducing competition amongst the maturing trees, in addition to improving the timber species composition of the tract by harvesting the low quality, damaged, diseased, dying and poorly formed trees as well as harvesting the less desirable shade tolerant species. In addition, the pines being of poor quality and occupying some of the better soil types should be converted to hardwoods. They should be harvested using the selective cutting, group selection method, allowing shade intolerant early successional species establishment.

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 shade intolerant, 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 existing horse trail and any cultural sites that may exist in this tract.

Inventory Summary

Number Trees/Acre: 141
Average Site Index: 85
Average Tree Diameter: 11.5”
Stocking Level: 85%

	Acres		Sq.Ft./Acre
Hardwood Commercial Forest:	77	**Basal Area Sawtimber.**	73.8
Pine Commercial Forest:	6	**Basal Area Poles:**	28.7
Noncommercial Forest:	0	**Basal Area Culls:**	9.2
Permanent Openings:	0		
Other Use:	0		
Total:	83	**Total Basal Area:**	102.5

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

Species	Growing Stock	Harvest Stock	Total Volume
Yellow Poplar	2000	700	2700
Red Oak	410	150	560
Bitternut Hickory	250	190	440
Sassafras	130	300	430
White Oak	360	0	360
Sugar Maple	200	30	230
Black Oak	150	50	200
Black Cherry	120	20	140
Shagbark Hickory	130	0	130
Red Maple	10	110	120
American Beech	0	80	80
Virginia Pine	60	0	60
Silver Maple	50	0	50
Largetooth Aspen	0	50	50
American Elm	40	0	40
Black Locust	30	0	30
Chinkapin oak	20	0	20
Basswood	0	20	20
White Ash	10	0	10
Blackgum	0	10	10
Per Acre Total	3970	1710	5680
Tract Total	329,510	141,930	471,440

Proposed Activities Listing

Proposed Management Activity	Proposed Date (FY)
Tract Inventory	07/08
Tract Management Plan	07/08
Pre-Harvest TSI	08/09
Timber Marking and Sale Layout	08/09
Timber Sale	09/10
BMP Monitoring	11/12
Post-Harvest TSI and Exotic Control	11/12
Tract Inventory	29/30

Attachments (on file in the property office)

1. Timber Inventory Summary Reports (Tcruise, 09/08/09)
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, 07/11/07)
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, 08/27/07)
8. Archaeological Clearance Letter (A. J. Ariens, 09/13/07)

To submit a comment on this document, click on the following link:
http://www.in.gov/surveytool/public/survey.php?name=dnr_forestry

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.

Topographic Map
Compartment 4 Tract 14
83 - Acres

USGS - 7.5 Minute Series
Cataract Quadrangle

Tract Boundary -

Haul Road -

Skid Trails -

Log Yard - **Y**

Multi Flora Rose -

Pines -

Mapped Intermittent Stream –