

# Indiana Department of Natural Resources - Division of Forestry

## Resource Management Guide - Draft

**State Forest:** Owen-Putnam  
**Forester:** Rob Duncan, James Dye  
**Management Cycle End Year:** 2030

**Compartment:** 4    **Tract:** 10  
**Date:** September 2010  
**Management Cycle Length:** 20 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 managed, multiple use parcel located in the northeast region of the 1440 acres contained in compartment 4. The timber type is predominantly closed canopy mixed hardwoods with approximately three acres of pine. The adjacent land on all sides of this tract is also part of Owen-Putnam State Forest. It is easily 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.

- A timber sale was conducted in 1973
- A property wide TIMPIS inventory was conducted in 1988
- A tract inventory was conducted in 1996
- A timber sale was conducted in 1997
- Timber stand improvement (vine control) was performed in 2009-2010
- A tract inventory was conducted in 2010

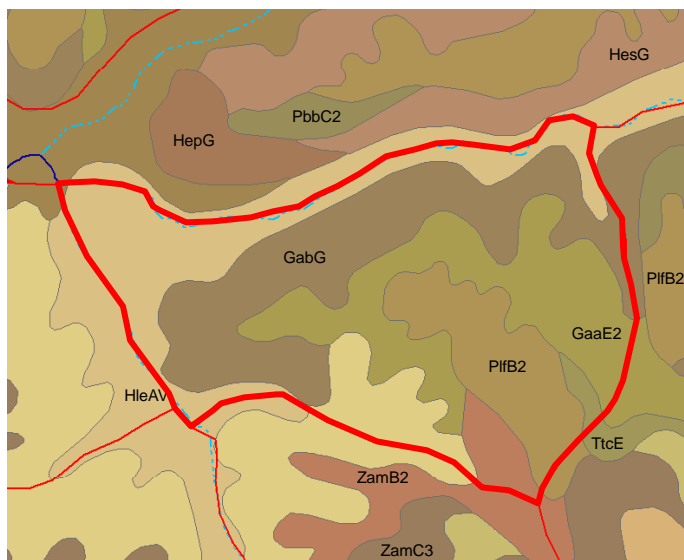
### **Landscape Context**

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**

The western half of this tract is comprised of predominantly west facing slopes while the eastern half contains mostly north-northeast facing slopes. The northern edge is located along a mapped intermittent stream that flows into Jordan creek. There is a ridge top which runs from the southeastern corner to the center of the tract.

A few different soil types make up this tract, most of which share a similar amount of land area. The soils range widely in terms of erosion hazards and equipment limitations. The Holton silt loam is along the mapped intermittent streams that form the north and west tract boundaries. It is a soil which is frequently but briefly flooded. Steep slopes may also be of some concern in the Gallimore-Chetwynd complex and the Tulip-Tipsaw complex soils due to severe erosion potential and equipment limitations. Best Management Practice (BMP) guidelines should be followed to preserve soil and water quality (Forest Practices Working Group, Indiana Woodland Steward Institute).



## Soils

Specifically, the tract is composed of the following soils from most to least abundant:

- GabG – Gallimore-Chetwynd complex, 25 to 70 percent slopes
  - Site Indexes: Varied, Gallimore: 98 (yellow poplar), 98 (Northern red oak); Chetwynd: 99 (yellow poplar), 88 (Northern red oak)
  - Severe erosion hazard and equipment limitations
- HleAV – Holton silt loam, 0 to 2 percent slopes, frequently flooded, brief duration
  - Site Indexes: 85 (pin oak), 80 (sugar maple), 90 (yellow poplar), 80 (Northern red oak)
  - Slight erosion hazard and moderate equipment limitations
- GaaE2 – Gallimore loam, 18 to 25 percent slopes, eroded
  - Site Indexes: 98 (yellow poplar), 98 (Northern red oak)
  - Moderate erosion hazard and moderate equipment limitations
- PlfB2 – Pike silt loam, 0 to 2 percent slopes, eroded
  - Site Indexes: 90 (white oak), 76 (sweetgum), 98 (yellow poplar)
  - Slight erosion hazard and slight equipment limitations
- TtaG – Tulip-Tipsaw complex, 25 to 60 percent slopes
  - Site Indexes: Varied, Tulip: 80 (Northern red oak), 95 (yellow poplar); Tipsaw: 70 (Virginia pine, black oak, Northern red oak)
  - Severe erosion hazard and severe equipment limitations
- ZamB2 – Zanesville silt loam, soft bedrock substratum, 2 to 6 percent slopes, eroded
  - Site Indexes: 69 (white oak), 90 (tulip poplar), 75 (black oak)
  - Slight erosion hazard and slight equipment limitations
- TtcE – Tulip-Welston-Adyeville silt loams, 18 to 25 percent slopes
  - Site Indexes: Vary considerably, Tulip and Welston soils: 80 (Northern red oak), 90+ (yellow poplar); Adyeville: 64 (Northern red oak)
  - Moderate erosion hazard and moderate equipment limitations

## Access

To access the tract, take S.R. 46 approximately 3.5-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 surrounded by other portions of Owen-Putnam State Forest. The divisions between these tracts follow dominant topographical features. The northern edge lies along a mapped intermittent stream that flows into Jordan creek. Part of the western edge follows an unnamed mapped intermittent stream with the remaining western boundary following a large ravine. The eastern edge follows a large ravine.

## **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.

A review of the Natural Heritage Database was conducted on December 16, 2010 to locate and identify any known endangered, threatened or rare (E.T.R.) animal species. The review did identify one E.T.R. species, an American badger, approximately 1.5 miles from this tract. However, this particular occurrence was recorded in 1955 and there have not been any recent sightings.

The American badger does not have federal status and is widespread and abundant globally but is listed as a state species of special concern and imperiled in Indiana. The American badger typically lives in open areas such as plains and prairies, farmland, and forest edges. Therefore, it should not be affected by proper harvest activity.

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 Practice (BMP) Guidelines will be followed to conserve soil and water resources and related forest wildlife habitat, such as riparian areas.

## **Wildlife Habitat Features**

According to the data collected during the 2010 tract inventory and represented in the following table, this tract is moderately well represented with habitat in regards to the number, size and species of dead (snag) trees suitable for consideration of the Indiana bat (*Myotis sodalis*) and its suggested habitat requirements.

Snags, standing dead or dying trees, may be one of the most important wildlife habitat features in Indiana's forests as they are used by a wide range of species as essential habitat features for foraging activity, nest/den sites, decomposers (e.g., fungi and invertebrates), bird perching and bat roosting. Additionally, snags are an important contributor to the future pool of downed woody material. In terms of snags, only the 5 inch and greater diameter size class meets and exceeds maintenance and optimal levels, while the 9 inch and greater and 19 inch and greater diameter size classes fall slightly and well short respectively.

Forest wildlife species depend on live trees for shelter, escape cover, roosting and as a direct (e.g., mast, foliage) or indirect (e.g., foraging substrate) food resource. The retention of live trees with certain characteristics (legacy trees and cavity trees) is of particular concern to habitat specialists such as cavity nesters or Species of Greatest Conservation Need like the Indiana bat. Legacy trees of a particular species having certain characteristics suitable as live roost trees for the Indiana bat are very well represented in all size categories. Cavity trees in this tract meet maintenance levels in the 11 inch and greater diameter and 19 inch and greater diameter size classes, however, the 7 inch and greater diameter size class falls slightly below maintenance levels.

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 (TSI) to increase snag trees to the optimal level.

## Wildlife Habitat Feature Tract Summary

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
<b>Legacy Trees *</b>					
<i>11"+ DBH</i>	594		1758	1164	
<i>20"+ DBH</i>	198		289	91	
<b>Snags (all species)</b>					
<i>5"+ DBH</i>	264	462	508	244	46
<i>9"+ DBH</i>	198	396	162	-36	-234
<i>19"+ DBH</i>	33	66	0	-33	-66
<b>Cavity Trees (all species)</b>					
<i>7"+ DBH</i>	264	396	247	-17	-149
<i>11"+ DBH</i>	198	264	247	49	-17
<i>19"+ DBH</i>	33	66	109	76	43

\* **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 a few wetter sites located along the lower slopes, drainages, and the mapped intermittent streams, all primarily along the north and west edges.

A review of the Natural Heritage Database was conducted on December 16, 2010 to locate and identify any known endangered, threatened or rare (E.T.R.) plant species or communities. The review identified three E.T.R. species or communities near the project area.

A circumneutral seep is located just to the east along the mapped intermittent stream in the northern section of the adjacent compartment 4, tract 14. A seep is a very small (typically less than one acre) wetland area. The soil in these areas is commonly a type of muck. "Circumneutral" refers to a neutral or slightly acidic pH of the water in the soil. (New Hampshire Division of Forests and Lands, Natural Communities of NH - Photo Guide) Circumneutral seeps are considered "state significant" and are critically imperiled in Indiana.

A mesic upland forest is a high quality natural community with one occurring just to the east along upper, north facing slopes adjacent to the mapped intermittent in the northern section of the neighboring compartment 4, tract 14. "Mesic upland forests grow on hilly or sloping areas that are protected from fire. They occur on moderately moist soils through which water moves slowly but does not saturate the soil for significant periods of time. Soil nutrient content is high." (Museum link Illinois, Illinois Forest Types – Upland Forests) While not critically endangered

or imperiled, mesic upland forests are considered “state significant” and are considered rare or uncommon both globally and statewide.

Tree clubmoss, *Lycopodium obscurum*, is also found near this tract just to the east along the mapped intermittent stream and the boundary between compartment 4, tract 14 and compartment 2, tract 4. It is a perennial evergreen ground plant that may grow up to 30 centimeters in height and somewhat resembles a very small pine tree. It is known by several other common names including rare clubmoss, ground fir, and princess pine. It may have an association with the mesic upland forest natural community or the circumneutral seep due to its preference for moist forest habitat. (USDA Natural Resources Conservation Service, Plants Profile) This plant has “state rare” status and is imperiled in Indiana; however, it is widespread and abundant globally.

Each of these occurrences was recorded in August of 2007. All of these communities and species lie outside of this tract and will be given special consideration during any management activities.

One exotic species, multi-flora rose, is present in and around this tract in moderate to heavy densities, mainly in the south central and southeastern areas. Control measures should be proposed, possibly during post-harvest timber stand improvement activities, whereby mechanical methods and 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 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 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 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 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.

Another timber inventory in 2010 estimated the tract to contain 11,190 bd. ft. of total sawtimber per acre with 3390 bd. ft. of harvest sawtimber per acre. Total basal area per acre was 123.7 square feet and a stocking level of 107 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 old field sites. 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 107% 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 improvement cut in approximately the eastern third of the tract using the single tree selection method. The composition of the tract will be improved by harvesting low quality, damaged, diseased, dying and poorly formed trees as well as harvesting less desirable species such as maple, beech, sassafras, aspen and Virginia pine in an effort to improve the overall tract quality and composition. White ash will also be given special harvest considerations due to the emerald ash borer. Even though the inventory report shows the entire



tract is fully stocked and approaching an overstocked condition, these management activities will only occur in the eastern third. This area is similar in composition to the adjacent compartment 4, tract 14, which has an improvement harvest planned for the near future. Due to their similar characteristics and proximity, both areas should be combined into a single harvest operation. The remainder of the tract should be allowed to complete the scheduled rotation period as management activities are not recommended at this time.

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 early successional (oak) regeneration through the creation of canopy gaps and a reduction in understory shade tolerant species (sugar maple and American beech).

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: 247  
Average Site Index: 85

Average Tree Diameter: 7.4"  
Stocking Level: 107%

	Acres		Sq.Ft./Acre
<b>Hardwood Commercial Forest:</b>	64.5	<b>Basal Area Sawtimber.</b>	89.2
<b>Pine Commercial Forest:</b>	0	<b>Basal Area Poles:</b>	24.3
<b>Noncommercial Forest:</b>	0	<b>Basal Area Culls:</b>	3.6
<b>Permanent Openings:</b>	0.5	<b>Sub Merch.</b>	6.6
<b>Other Use:</b>	1 (horse trail)		
<b>Total:</b>	66	<b>Total Basal Area:</b>	123.7

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

Species	Growing Stock	Harvest Stock	Total Volume
Yellow Poplar	3016	1021	4037
Sugar Maple	1248	376	1624
White Oak	1155	461	1616
Black Oak	550	630	1180
Pignut Hickory	373	121	494
Red Oak	448	0	448
Sassafras	75	283	358
Mockernut Hickory	182	79	261
Bitternut Hickory	228	0	228
Basswood	146	0	146
Black Cherry	25	117	142
Shagbark Hickory	0	103	103
Blackgum	0	101	101
Largetooth Aspen	0	96	96
Sycamore	91	0	91
White Ash	83	0	83
Black walnut	75	0	75
American Beech	54	0	54
Chinkapin oak	48	0	48
<b>Per Acre Total</b>	7797	3388	11,185
<b>Tract Total</b>	514,530	223,750	738,280

## Proposed Activities Listing

- 2009 ----- Pre-harvest TSI and exotic control
- 2010 ----- Harvest marking and sale layout
- 2010/11 ----- Timber sale
- 2013 ----- Post-Harvest TSI and exotic control
- 2013 ----- BMP Monitoring
- 2030 ----- Tract level inventory
- 2030 ----- Resource management guide

## Attachments (on file in the property office)

1. Topographical Map (USGS - 7.5 Minute Series, Cataract Quadrangle)
2. Soil Survey of Owen County, Indiana – NRCS in Cooperation with Purdue University Agricultural Experiment Station and IDNR – 1995, 1997
3. Aerial Photograph of Compartment 4, Tract 10
4. Upland Central Hardwoods Timber Stocking Guide (USDA-Forest Service, Northeastern Area NA-MR-7)
5. Timber Inventory Summary Reports (TCruise Brand Software)
6. Natural Heritage Database Review Map (C. E. Hauser, Property Program Specialist, IDNR-Division of Forestry 12/16/2010)
7. Archaeological Clearance Application (R. Duncan, Forest Resource Specialist, IDNR-Forestry, Owen-Putnam State Forest, November 2010)
8. Archaeological Clearance Approval Letter (A. J. Ariens, Forest Archaeologist, IDNR, Division of Forestry, 11/22/2010)
9. New Hampshire Division of Forests and Lands, Natural Communities of NH - Photo Guide
10. Museum link Illinois, Illinois Forest Types – Upland Forests, Copyright 2000, Illinois State Museum
11. USDA Natural Resources Conservation Service, Plants Profile
12. Indiana County Endangered, Threatened and Rare Species List (Owen County, IN)

**To submit a comment on this document, click on the following link:**  
[http://www.in.gov/surveytool/public/survey.php?name=dnr\\_forestry](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.