Indiana Department of Natural Resources - Division of Forestry

Resource Management Guide

State Forest: Owen-Putnam **Compartment:** 10 **Tract:** 02
Forester: R. Duncan, J. Dye **Date:** September 2010
Management Cycle End Year: 2030 **Management Cycle Length:** 20 Years

Location

Compartment 10, tract 2 lies just west of the center of section 21, township 10N, range 4W, Lafayette Township, of Owen County, Indiana. It is approximately 5 miles west of the town of Spencer.

General Description

This tract is a 71-acre managed, multiple use parcel located within the 260 acres contained in compartment 10. The timber type is predominantly closed canopy mixed hardwoods. 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, particularly hunting, but also hiking, gathering, viewing and interpretation. Because of its more remote and isolated location, it is an ideal spot for anyone looking for a quieter outdoor setting.

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 10 tract 2 has been managed for several years. The vast majority of the tract was part of a June 1948 purchase with the far eastern portion being part of an acquisition that was made in October 1958.

- A tract inventory was conducted in 1977
- A state surveyor re-established the state forest boundary line in 1984
- Another tract inventory was conducted in 1986
- A timber sale was also conducted in 1986
- TSI in the form of vine control was completed in 2005/06
- TSI in the form of opening maintenance was performed in 2007/08
- A tract inventory was conducted in 2008

Landscape Context

Adjacent to the southern edge of this tract is tract 1 which is closed canopy deciduous forest. Approximately three fifths of the eastern edge is adjacent to tract 3 while the remaining area is

adjacent to private property. All of the land adjacent to the northern edge is privately owned. Nearly all of the land surrounding this tract is closed canopy deciduous forest.

Topography, Geology and Hydrology

This tract is comprised of gentle to steep slopes with the northwest portion containing lowland area and a mapped intermittent stream.

There are a few types of soils in this tract. Tipsaw-Rock outcrop complex soils are by far the dominant soil type followed by the Tulip-Welston-Adyeville sections as the next most common. Best Management Practice (BMP) guidelines should be followed to preserve soil and water quality (Forest Practices Working Group, Indiana Woodland Steward Institute). In the event of logging, the existing trail system and log yard can be utilized, eliminating the need for new trail construction and minimizing soil disturbance.

Water sheds generally to the west. The northwest ravine contains a mapped intermittent stream which flows to the southwest and eventually connects to the west fork of Fish creek. The northwestern-most area of the tract drains to the southeast briefly before reaching the mapped intermittent. The southern ravine flows west and connects with the mapped intermittent.

Soils

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

- TcgG – Tipsaw-Rock outcrop complex, 35 to 70 percent slopes
  Site Indexes: 70 (Northern red oak, black oak, Virginia pine)
  Severe erosion hazard and equipment limitations

- TtcE – Tulip-Welston-Adyeville silt loams, 18 to 25 percent slopes
  Site Indexes: Vary considerably, Tulip and Welston soils: 80-81(Northern red oak), 90+ (yellow poplar); Adyeville: 64 (Northern red oak)
  Moderate erosion hazard and equipment limitations

- ZamC3 – Zanesville silt loam, soft bedrock substratum, 6 to 12 percent slopes, severely eroded. Site Indexes: 69 (white oak), 90 (tulip poplar), 75 (black oak)
  Slight erosion hazard and slight 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 equipment limitations

- ZapD3 – Zanesville soft bedrock substratum – Tulip silt loams, 12 to 18 percent slopes, severely eroded, Site Indexes: 69 (white oak), 90 (yellow poplar), 75 (black oak)
  Moderate erosion hazard and equipment limitations

- ZamC2 – Zanesville silt loam, soft bedrock substratum, 6 to 12 percent slopes, eroded
  Site Indexes: 69 (white oak), 90 (yellow poplar), 75 (black oak)

Slight erosion hazard and equipment limitations

- WhfD2 – Wellston silt loam, 12 to 18 percent slopes, eroded
  Site Indexes: 81 (Northern red oak), 90 (yellow poplar), 70 (Virginia pine)
  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 Patricksburg road, then travel southwest on Patricksburg road approximately 4.0 miles to Romine road, then travel north on Romine road approximately 0.8 miles to the parking lot at the end of the road. A series of fire trails originates from this lot which branch into tract 2. Management and logging access as well as public recreational access to this tract is very good.

Boundary

The west and north tract boundaries follow state forest boundaries and are adjacent to private land. Approximately three fifths of the eastern edge is adjacent to tract 3 while the remaining area is adjacent to private property and follows the state forest boundary. The south boundary follows topographic features, a ravine, which is shared with tract 1.

Line E to F was repainted in 1998 and flagged in 2008, but it may also still contain some old fence that is not always true to the boundary. Line F to G was also repainted in 1998 and flagged in 2008. Corner F contains a steel post where two fences intersect and may contain a stone. Corner G does not have a stone marker but lies along an old road which runs west to an old north/south road which is still shown on the topographic map. Line C to D was repainted in 1998 but not flagged, and corner C is marked by a steel post.

Wildlife

Wildlife resources in compartment 10 tract 2 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 oak-hickory in the far north portion with beech-maple and mixed hardwoods and pockets of oak-hickory in other areas. The oaks, hickories and beech provide hard mast for deer, turkey and squirrel. Snags (dead trees) and cavity trees provide nesting, bugging and roosting opportunities for woodpeckers, songbirds, and small mammals. Rotten logs, crater knolls and seasonal small streams 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 animal species. The review did identify one endangered, threatened or rare (E.T.R.) species within the project area, a bobcat, which was recorded in 1984 (Carl Hauser, Division of Forestry – Property Program Specialist). Bobcats do not have federal status and are widespread and abundant globally. However, bobcats are

critically imperiled in Indiana and have a "special state concern" status and, while they were removed from the state endangered list in 2002, they are protected (Indiana Natural Heritage Data Center).

Bobcats tend to prefer rocky outcrops and heavily wooded areas as habitat though they are sometimes found along urban edges. "The rugged terrain, deep forests and limestone caves of south central Indiana make perfect dens and hunting grounds for our small bobcat population" (Nature Conservancy in Indiana – American bobcat).

Additionally, the review identified both an American badger and a Loggerhead Shrike approximately two and three miles from the tract respectively (Carl Hauser, Division of Forestry – Property Program Specialist). 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 Loggerhead Shrike does not have federal status and is widespread and abundant globally (though with some long term concern) but is on the state endangered list and is considered rare or uncommon in Indiana but still having breeding status (Indiana Natural Heritage Data Center). Both of the recorded observations for these two species occurred in 1989.

The American badger typically lives in open areas such as plains and prairies, farmland, and forest edges.

Loggerhead shrikes are predatory songbirds that are often seen perched along roads on fences or utility lines, scanning for prey. "Shrikes require open land with lookout perches for hunting, preferring areas with short vegetation such as pastures, lawns and freshly-plowed fields. They seem to prefer sites with a variety of different types of land uses. They nest in dense, brushy vegetation, either in hedgerows or isolated trees, adjacent to feeding areas and usually on roadsides. Nearly half or all shrike nests found recently in Indiana have been in red cedar, but multi-flora rose, sassafras and many other plant species are also used. The amount of cover provided is more important than the type of plant." (DNR, Division of Fish and Wildlife)

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. Removal of multi-flora rose and sassafras may be the most significant concern with respect to the Loggerhead Shrike, however, both of these species are abundant throughout the region and the overall conditions will still be quite favorable for their use. Despite the recorded sightings from the Natural Heritage Database being over twenty years old, there is still excellent habitat and opportunity for this bird in and around the tract.

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 tract inventory and represented in the following table, this tract is reasonably well represented with habitat in regards to the number, size and species of live and dead trees suitable for consideration of the Indiana bat (Mytolis sodalis) and its suggested habitat requirements.

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 well represented in all size categories. Cavity trees are very well represented above maintenance and optimal levels in all categories except they fall short of optimal levels at 7"+ diameter (diameter measured at breast height, DBH). It should be noted that this data was collected during leaf on, which impedes vision and actual levels may be higher, including 7"+ diameter trees.

Snags, standing dead or dying trees, may be one of the most important wildlife habitat features in our forests as they are used by a wide range of species creating essential habitat features for foraging activity, nest/den sites, decomposers (e.g., fungi and invertebrates), bird perching and bat roosting in addition to being an important contributor to the future pool of downed woody material. In terms of snags, 5"+ diameter trees are well above maintenance and optimal levels, 9"+ diameter trees are also well above maintenance levels but fall slightly below optimum levels, and 19"+ diameter trees meet maintenance levels yet fall well short of optimum levels. Therefore snags are well represented at or above the maintenance level in all size categories however tend to fall short of the optimal levels as the diameter categories increase. In part, this is likely due to the overall good health of the forest as well as a possible lack of over mature dying trees and relatively short retention of larger snags.

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 address the lack of snag trees, particularly in the larger diameter categories.

Wildlife Habitat Feature Tract Summary

	Maintenance Level	Optimal Level	Inventory	Available Above Maintenance	Available Above Optimal
Legacy Trees *					
11"+ DBH	639		1626	987	
20"+ DBH	213		325	112	
Snags (all species)					
5"+ DBH	284	497	1193	909	696
9"+ DBH	213	426	359	146	-67
19"+ DBH	35.5	71	37	1	-34
Cavity Trees (all species)					
7"+ DBH	284	426	399	115	-27
11"+ DBH	213	284	399	186	115
19"+ DBH	35.5	71	116	81	45

*** 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, wetter sites located along the lower slopes and drainages.

A review of the Natural Heritage Database was conducted on July 11, 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 the project area (Carl Hauser, Division of Forestry – Property Program Specialist).

Exotic species are present in and around the tract with small scattered occurrences of multi-flora rose and denser populations in the southeast corner. Control measures can be considered, possibly during post-harvest timber stand improvement activities, whereby herbicides could be applied to treat these occurrences before their populations expand.

Recreation

The area is accessible to the public via the parking lot on the gravel lane just beyond the end of Romine road.

This tract is a 71-acre managed, multiple use parcel located near the center of the 260 acres contained in compartment 10. The Timber type is predominantly closed canopy mixed

hardwoods. It is ideal for many public recreational activities, particularly hunting, but also hiking, gathering, viewing and interpretation. It is an excellent spot for persons interested in a quiet, remote outdoor experience as it is more isolated and away from busy roads.

Cultural

Cultural resources such as old building sites, homes, barns etc. and their location on state forests are protected. To the best of our knowledge this tract does not contain any cultural resources. However, if an area is discovered which contains cultural resources, an identifiable buffer will be established to protect those resources. No management or construction projects will be allowed to interfere with or cause harm to those resources.

Tract Description and Silvicultural Prescription

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

In 1977 a forest inventory was conducted which estimated the tract to contain 5370 bd. ft. of total sawtimber per acre with 1467 bd. ft. of harvest sawtimber per acre and a total basal area of 96 sq. ft. per acre. In 1986 a forest inventory was conducted which estimated the tract to contain 5275 bd. ft. of total sawtimber per acre with 2345 bd. ft. of harvest sawtimber per acre and a total basal area of 111 sq. ft. per acre. In 1986 a harvest took place, removing 417 trees and 88 cull trees with an estimated volume of 72,877 bd. ft (Doyle). Between 1988 and 1989 a property wide timber inventory (Timber Inventory and Management Planning Information System, TIMPIS) was conducted, including Compartment 10 tract 2. The results estimated the tract to contain 4354 bd. ft. of total sawtimber per acre with 158 bd. ft. of harvest sawtimber per acre. A harvest was proposed for 2007.

In 2008 an inventory was conducted which estimated the tract to contain 6240 bd. ft. of total sawtimber per acre with 2770 bd. ft. of harvest sawtimber per acre and a total basal area of 101 sq. ft. per acre in trees $\geq$ 6 inches in diameter at breast height (D.B.H.), and a stocking level of 83 % with an average tree diameter of 11.3 inches.

It should be noted that the recorded tract size has undergone some adjustments throughout the years due to tract boundary relocation to conform to topographical features and possible inaccurate measurement. During the 1977 inventory, the tract was listed as 82 acres, of which 6 acres were pine. During the 1986 inventory, the tract was listed as 78 acres, of which 4 acres were pine. In the TIMPIS inventory, the tract is listed at 71 acres, of which 1 acre was pine. That total of 71 acres is consistent with the figure used for the 2008 inventory. However, the current digitized tract boundary computes a slightly smaller area at 67.8 acres.

The Timber type is predominantly closed canopy oak-hickory and mixed hardwoods. The over-story consists mostly of medium to large sawlog sized yellow poplar, white oak, Northern red oak, American beech and pole sized hickories. The quality of merchantable sawtimber is good. The pole-sized under-story consists mostly of sugar maple, American beech, hickories, white oak, and sassafras. While sugar maple and American beech dominate in this regard, it should be noted that there is a scattered, but significant presence of oak poles. Advanced regeneration is

represented mostly by maple, beech, ash, and Sassafras. However, Northern red and white oak are often well represented in the earlier stages of regeneration throughout the tract, with red oak being especially present and more advanced along existing fire and skid trails.

The current stocking level of 87% indicates the tract is essentially fully stocked. Some of the northern areas of the tract are sufficiently mature and crowded that resource competition is taking place and thinning may be beneficial. Often, there is little groundcover or early successional regeneration in these areas due to low light levels and browse. In the remaining areas, the tract is still maturing but could benefit from the removal of less desirable species such as maple, beech, sassafras, and aspen in an effort to improve the overall tract quality and composition. Thinning should be from above or below depending on specific site composition.

The recommendation is to perform an intermediate harvest and improvement cut using the single tree selection method. This will result in thinning and reducing competition amongst the maturing quality trees and preferred species. The composition of the tract will be improved by harvesting the low quality, damaged, diseased, dying and poorly formed trees as well as harvesting less desirable species. White, Northern red, and chinkapin oak poles and large saplings should be released where present.

Management in the form of Timber Stand Improvement (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 (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 overall goal of this prescription is to 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).

Proposed Activities Listing

2010 ---------- Harvest marking and sale layout
2010/11 ---------- Timber Sale
2012/13 ---------- Post-Harvest TSI and Exotic Control
2012/13 ---------- BMP Monitoring
2020 ---------- Resource Management Guide

Attachments (on file in the property office)

1. Topographical Map (USGS - 7.5 Minute Series, Spencer Quadrangle)
2. Soil Type Map (Soil Survey of Owen County, Indiana – NRCS in Cooperation with Purdue University Agricultural Experiment Station and IDNR – 1995, 1997)
3. Aerial Photograph (2003)
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 Forestry10/08/2008)
7. Owen County Indiana ETR Species List and Rankings (Indiana Natural Heritage Data Center, IDNR- Division of Nature Preserves, 06/01/2010)
8. Archaeological Clearance Application (R. Duncan, Forest Resource Specialist, IDNR-Forestry, Owen-Putnam State Forest, September 2007)
9. Archaeological Clearance Approval Letter (A. J. Ariens, Forest Archaeologist, IDNR, Division of Forestry, 09/24/2007)
10. cop14_IUCN_Analysis_Prop_02_Lynx _rufus
11. http://www.nature.org/wherewework/northamerica/states/indiana/misc/art24800.html
12. http://www.in.gov/dnr/fishwild/3370.htm
13. http://www.nhptv.org/natureworks/americanbadger.htm

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.

Owen-Putnam State Forest

Topographic Map
Compartment 10 Tract 2
71 - Acres

USGS - 7.5 Minute Series
Spencer Quadrangle

N
W E
S

Tract Bound Haul Road - Log Yard -

Pines -