Indiana Department of Natural Resources - Division of Forestry

Resource Management Guide

State Forest: Owen-Putnam **Compartment:** 10 **Tract:** 03
Forester: R. Duncan, J. Dye **Date:** September 2010
Management Cycle End Year: 2030 **Management Cycle Length:** 20 Years

Location

Compartment 10, tract 3 lies near the near 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 133-acre managed, multiple use parcel located at the east end of 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 fishing, hiking, gathering, viewing and interpretation. Because of its accessibility and more remote 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 3 has been managed for several years. The northern half of the tract was purchased in February 1953, and the southern half was purchased in October 1958.

- A tract inventory was conducted in 1983
- A timber sale was conducted in 1983
- A state surveyor re-established the state forest boundary line in 1984
- A tract inventory was conducted in 1985
- Timber stand improvement, 6 regeneration openings, selective girdling and vine control took place in 1986
- A property wide TIMPIS inventory was conducted in 1988
- A tract inventory was conducted in 2005
- Timber stand improvement vine control took place in 2006
- Timber stand improvement, maintenance of 6 regeneration openings in 2007
- A tract inventory was conducted in 2010

Landscape Context

Adjacent to the southern portion of the west edge of this tract lies tract 2 which is mostly closed canopy deciduous forest. The area adjacent to the remainder of the west edge is privately owned and contains deciduous forest and grassland. The remaining lands surrounding tract 3 are privately owned. The area to the east is comprised almost exclusively of grassland or pasture. To the south is mostly deciduous forest. To the north is mostly deciduous forest with a residence and grassland area adjacent along the northwestern area.

Topography, Geology and Hydrology

This tract is comprised of several ridges and slopes with a mapped intermittent in the southeast quadrant that flows south/southwest into the east fork of Fish creek. There is also a pond in the south-central portion of the tract. Water sheds generally from the northwest to the southeast into the east fork of Fish creek.

The soils are comprised of a large variety of types. Particular care must be taken in the Tulip-Tipsaw complex, Hickory-Adyeville complex, and Tipsaw-Rock outcrop complex soils found in the steepest sections of the tract. Of these, the most frequent is the Tulip-Tipsaw complex type which generally surrounds the mapped intermittent stream. All of these areas may pose severe erosion hazards and equipment limitations. The Tulip-Welston-Adyeville sections which typically surround those areas and are most abundant in this tract are of moderate concern. 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.

Soils

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

- 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 moderate 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

- HepG – Hickory-Adyeville complex, 35 to 60 percent slopes
  Site Indexes: Vary considerably, Hickory: 85 (Northern red oak, white oak), 95 (yellow poplar); Adyeville: 64 (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

- 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

- CkkB2 – Cincinnati silt loam, 2 to 6 percent slopes, eroded
  Site Indexes: 80 (Northern red oak)
  Moderate erosion hazard and moderate equipment limitations

- SneC3 – Solsberry silt loam, 6 to 12 percent slopes, severely eroded
  Site Indexes: 80 (Northern red oak)
  Slight erosion hazard and slight 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

- PcnA – Patricksburg silt loam, 0 to 2 percent slopes
  Site Indexes: 82 (white oak)
  Slight erosion hazard and moderate equipment limitations

- AloB2 – Ava silt loam, 2 to 6 percent slopes, eroded
  Site Indexes: 75 (white oak), 90 (yellow poplar), 80 (Northern red oak)
  Slight erosion hazard and slight equipment limitations

- ZamD5 – Zanesville silt loam, soft bedrock substratum, 12 to 18 percent slopes, gullied
  Site Indexes: 69 (white oak), 90 (tulip poplar), 75 (black oak)
  Moderate erosion hazard and moderate equipment limitations

- ZamC2 – Zanesville silt loam, soft bedrock substratum, 6 to 12 percent slopes, eroded
  Site Indexes: 69 (white oak), 90 (tulip poplar), 75 (black oak)
  Slight erosion hazard and equipment limitations

- BdxAV – Belknap silt loam, 0 to 2 percent slopes, frequently flooded, very brief duration
  Site Indexes: 90 (yellow poplar), 100 (Eastern cottonwood), 90 (pin oak)
  Slight erosion hazard and moderate equipment limitations

- TtcE – Tulip-Wellston-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 moderate equipment limitations

- HeuE – Hickory-Wellston silt loams, 18 to 25 percent slopes

Site Indexes: Vary slightly, Hickory: 85 (Northern red oak), 95 (yellow poplar), 85 (white oak); Wellston: 81 (Northern red oak), 90 (yellow poplar), 70 (Virginia pine), Moderate erosion hazard and moderate equipment limitations

- ZamD2 – Zanesville silt loam, soft bedrock substratum, 12 to 18 percent slopes, eroded
  Site Indexes: 69 (white oak), 90 (yellow poplar), 75 (black oak)
  Moderate erosion hazard and moderate equipment limitations

- SfoA – Shakamak silt loam, 1 to 3 percent slopes
  Site Indexes: 75 (white oak), 70 (sugar maple), 90 (yellow poplar)
  Slight erosion hazard and slight equipment limitations

- 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

- 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

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 a parking lot at the end of the road. This lot is located within tract 3, and a series of fire trails extends into other portions of the tract and into the neighboring tracts of compartment 10. Management and logging access as well as public recreational access to this tract is very good.

Boundary

The south, east, and north boundaries follow state forest boundaries adjacent to private land. The west boundary is adjacent to private land (northern two-thirds) and tract 2 (southern third).

The lower portion of the west boundary bisects a north-south ridgeline and this boundary is shared with tract 2. Line G to H has some old fencing which runs along a field except near corner H, with this line having been repainted in 1998. Neither corner is precisely marked. Line A to H was repainted in 1998. Line A to B generally follows an old fence line along a field, and was repainted in 1998. Corner A appears to be at a pile of rocks and an old fence intersection. Corner B is next to a mapped intermittent stream and may be a 6’x6’wooden post. Line B to C has some newer fence, near B and extending to the pond where it passes quite close to a house and driveway. Steel posts should be visible for the remaining distance to C. This line was also flagged in 1998, and Corner C should be marked by a steel post.

Wildlife

Wildlife resources in compartment 10 tract 3 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, fish, and various small stream aquatic life.

This tract contains habitat for a variety of wildlife species. Habitat includes mostly mixed hardwoods, but there are some pockets of oak hickory and lowland 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, the mapped intermittent stream and the wildlife pond 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 identify one E.T.R species very near the project area, a bobcat, which was recorded in 1984 (Carl Hauser, Division of Forestry – Property Program Specialist). This recorded bobcat was less than one mile away and in adjacent tracts.

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 and the pond.

Wildlife Habitat Features

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

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, all size classes are above maintenance levels with the $\geq$ 19" diameter category just slightly exceeding maintenance levels. The 9"+ diameter and $\geq$19"+ diameter categories do fall short of optimal levels which in part, 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.

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 fall short of maintenance levels in all but the $\geq$ 19" diameter category. Figures for all size classes are below optimal level. It should be noted that this data was collected during leaf on, which impedes vision and could explain or exaggerate the lack of cavity trees, especially for 7"+ and 11"+ diameter expectations.

Legacy trees, standing dead 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
Legacy Trees *					
11"+ DBH	1197		3010	1813	
20"+ DBH	399		630	231	
Snags (all species)					
5"+ DBH	532	931	1872	1340	941
9"+ DBH	399	798	471	72	-327
19"+ DBH	66.5	133	68	2	-65
Cavity Trees (all species)					
7"+ DBH	532	798	206	-326	-592
11"+ DBH	399	532	206	-193	-326
19"+ DBH	66.5	133	112	45	-21

*** 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, drainages, the mapped intermittent stream, and the wildlife pond.

A review of the Natural Heritage Database was conducted on October 8, 2008 to locate and identify any known endangered, threatened or rare 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 large amounts of multi-flora rose. Also of concern is a small area of autumn-olive at the edge of the parking lot. 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 area is accessible to the public via the parking lot on the gravel lane just beyond the end of Romine Road and then following a fire trail southwest into the tract.

This tract is a 133-acre managed, multiple use parcel located at the east end 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 fishing, 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 significant cultural resources, a surrounding buffer will be created so that any management or construction projects will not interfere with or cause harm to those resources.

Tract Description and Silvicultural Prescription

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

In 1983 a forest inventory was conducted which estimated the tract to contain 4836 bd. ft. of total sawtimber per acre with 2715 bd. ft. of harvest sawtimber per acre. A timber sale was conducted later that same year which removed 498 trees and 285 culls for a total of 124,376 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 3. The results estimated the tract to contain 3404 bd. ft. of total sawtimber per acre with 190 bd. ft. of harvest sawtimber per acre and 58 percent stocking.

A timber inventory was conducted in 2005 which estimated the tract to contain 7512 bd. ft. of total sawtimber per acre and 5075 bd. ft. of harvest sawtimber per acre. It was again inventoried in 2010, estimating the tract to contain 7582 bd. ft. of total sawtimber per acre and 1880 bd. ft. of harvest sawtimber per acre with a basal area of 108 sq. ft. per acre and 100 percent stocking.

The Timber type is predominantly closed canopy mixed hardwoods with some lowland hardwoods and oak-hickory. The over-story consists mostly of small to medium sawlog sized yellow poplar, white oak, red maple, sugar maple, and hickory trees. The overall quality of merchantable timber ranges widely, from poor to good. The large sapling and pole-sized under-story consists mostly of yellow poplar, sugar maple, red maple, American beech, sassafras, dogwood, and Eastern redbud trees. Regeneration is typically dominated by white ash, American beech, pawpaw and yellow poplar, but sassafras, sugar maple, and oaks are also present.

The current stocking level of 77% indicates the tract is moderately fully stocked. There are many dense but immature areas in the tract, particularly in the far northern and northwestern parts and also in the southeastern area near the mapped intermittent stream. Several live, failed girdled trees from the 1986 TSI were observed particularly in the northwestern areas of the tract.

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 with and amongst the maturing quality sawtimber trees and preferred species. However, primarily 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 such as maple, beech, sassafras, aspen and black locust in an effort to improve the overall tract quality and composition. Thinning should be from above or below depending on specific site composition.

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). It is likely that some areas of the tract will not be harvested but may be selected for TSI treatment, particularly in the far northern and northwestern portions.

Multi-flora rose is frequent and sometimes extremely thick, choking out seedling regeneration. Mechanical and/or chemical treatments should be used before and after harvest. The autumn-olive near the parking lot should also be treated. 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 ----------	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
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. Archaeological Clearance Application (R. Duncan, Forest Resource Specialist, IDNR-Forestry, Owen-Putnam State Forest, September 2007)
8. Archaeological Clearance Approval Letter (A. J. Ariens, Forest Archaeologist, IDNR, Division of Forestry, 09/24/2007)
9. cop14_IUCN_Analysis_Prop_02_Lynx _rufus
10. http://www.nature.org/wherewework/northamerica/states/indiana/misc/art24800.html
11. http://www.in.gov/dnr/fishwild/3370.htm
12. 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 3
133 - Acres

USGS - 7.5 Minute Series
Spencer Quadrangle

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Tract Boundary - Haul Road - Log Yard - Pond -