

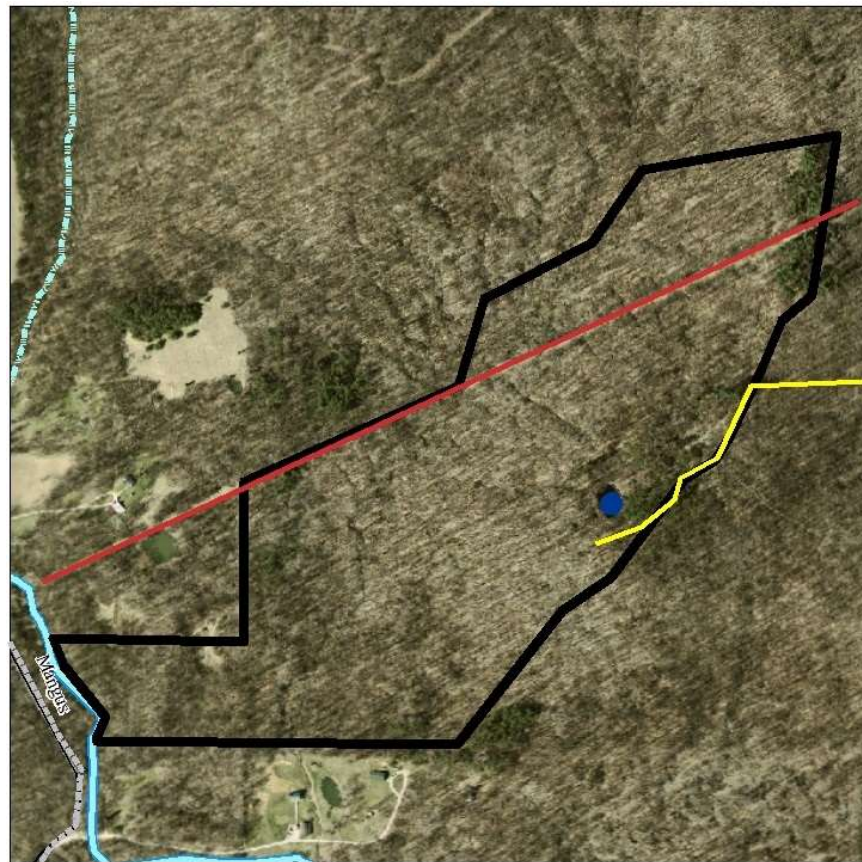
**Indiana Department of Natural Resources – Division of Forestry
Resource Management Guide**

State Forest: Owen-Putnam
Forester: R. Duncan
Management Cycle End Year: 2034

Compartment: 9 **Tract:** 7
Date: December 2019
Management Cycle Length: 15 Years

Location

Compartment 9, tract 7 is located in the northeast quarter of section 9, township 10N, range 4W, Lafayette Township, Owen County. The tract is located off of Fishcreek road to the east and Mangus road to the west.



- Legend:**
- Tract Boundary 
 - Pipeline 
 - Perennial Stream 
 - Mangus Road 
 - Access Trail 
 - Pond 

0 325 650 1,300
Feet

1 inch = 490.333333 feet

All Boundaries Are Approximated



General Description

This tract is a 78-acre, sustainably managed, multiple use parcel located within the 838 acres comprising compartment 9 of the Owen-Putnam State Forest. Timber types include closed canopy oak-hickory, beech-maple, mixed hardwoods and pine. Prior to state ownership, this tract was most likely part of a farm with nearly level terrain along the ridgetop to the east with moderate slopes moving west to southwest. The northern and eastern edges of the tract were planted to eastern white pine (*Pinus strobus*), red pine (*Pinus resinosa*) and Virginia pine (*Pinus virginiana*) approximately 60 years ago to control erosion, most likely, caused by poor farming practices. The pine areas show some decline due to windthrow and overcrowding. The over-story consists of medium to large sawlog sized mixed hardwoods. The quality of merchantable timber is good. However, there is some decline in the poplar due to drought and insect stress. There is a small wildlife pond in the east-central portion of the tract that was created for wildlife habitat, and to capture natural runoff. This tract 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. Prior to state ownership, many of the ridge tops in the area were farmed through the 1930's. Sometime in the 1960's many of the severely eroded ridge tops were planted to pine to stabilize the soil. Compartment 9 tract 7 has been managed for many years.

- Timber harvest in 1976
- Property wide timber inventory (TIMPIS) in 1988
- Timber inventory in 2004
- Resource management guide 2005
- Timber harvest in 2006
- Timber inventory in 2019

Landscape Context

Compartment 9 tract 7 is located in a rural area. Generally the area is forested hills and ravines. The private properties adjacent to this compartment and tract are primarily closed canopy, deciduous, mixed hardwood forests with no industry, very little agriculture, some scattered rural and more concentrated residential housing, small fields/pastures and small ponds located primarily along county roads beyond the state forest.

Topography, Geology and Hydrology

This part of Owen-Putnam State Forest falls in the Shawnee Hills Natural Region, Escarpment Section. This section includes the rugged hills situated along the eastern border of the region. It is a blend of the Crawford Upland Section and the Mitchel Karst Plain Section of the Highland Rim. Sandstone and sandstone derived soils (Wellston-Zanesville) cap most of the hills, and the lower elevations present limestone and limestone-derived soils. The upper slopes consist of an oak-hickory assortment, with a more mesic component in the coves resembling the mixed mesophytic forest community.

The topography of the tract varies from nearly level ground on the ridge top to the east with moderate to steep west and southwest facing slopes. Water sheds west and south through ephemeral drainages into an unmapped intermittent stream that flows south into a perennial stream along Mangus road. There is a small manmade pond in the east-central area of the tract. The Eel River Basin is located to the northwest and the West Fork of the White River Basin to the southeast.

Soils

Generally the soils in the area are composed of moderately deep to deep, moderately drained to well drained soils on moderately steep to steep slopes underlain with sandstone, siltstone and shale. In some areas the soils are underlain with till and sand. These soils occur throughout the Illinoian glaciated areas of the county. The soils are composed of a variety of types. The dominant soils are of the Zanesville and Tulip series. These soils occupy the slopes of which this tract is predominantly made. They can produce good timber with the other soils located in the tract often well suited to timber production. In the event of a harvest, the existing trail system and log yards will be utilized, eliminating the need for new trail construction and minimizing soil disturbance. Indiana Logging and Forestry Best Management Practices (B.M.P.s) will be followed to preserve soil and water quality, including riparian management zones around specific water resources within this tract.

Specifically, this tract is composed of the following soils: (USDA, NRCS – Soil Survey, Owen County, IN 2005).

TtaG—Tulip-Tipsaw complex, 25 to 60 percent slopes, *Setting*: Structural benches and scarps underlain with interbedded sandstone, shale, and siltstone, *Position*: Backslopes and footslopes, *Site Index*: Upland oak 80

ZamC2—Zanesville silt loam, soft bedrock substratum, 6 to 12 percent slopes, eroded, *Setting*: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Shoulders and Backslopes, *Site Index*: Upland oak 69-75

ZamC3—Zanesville silt loam, soft bedrock substratum, 6 to 12 percent slopes, severely eroded, *Setting*: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Shoulders and backslopes, *Site Index*: Upland oak 69-75

ZamB2—Zanesville silt loam, soft bedrock substratum, 2 to 6 percent slopes, eroded, *Setting*: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Shoulders and summits, *Site Index*: Upland oak 69-75

ZamD2—Zanesville silt loam, soft bedrock substratum, 12 to 18 percent slopes, eroded *Setting*: Hills underlain with interbedded sandstone, shale, and siltstone, *Position*: Backslopes, *Site Index*: Upland oak 69-75

SneC2—Solsberry silt loam, 6 to 12 percent slopes, eroded, *Setting*: Dissected till plains, *Position*: Shoulders and Backslopes, *Site Index*: Upland oak 80

SneC3—Solsberry silt loam, 6 to 12 percent slopes, severely eroded, *Setting*: Dissected till plains, *Position*: Shoulders and Backslopes, *Site Index*: Upland oak 80

HeuE—Hickory-Wellston silt loams, 18 to 25 percent slopes, *Setting*: Dissected till plains over interbedded shale, siltstone, and sandstone, *Position*: Backslopes, *Site Index*: Upland oak 85

CkkB2—Cincinnati silt loam, 2 to 6 percent slopes, eroded, *Setting*: Dissected till plains, *Position*: Summits and shoulders, *Site Index*: Upland oak 80

AloB2—Ava silt loam, 2 to 6 percent slopes, eroded, *Setting*: Dissected till plains, *Position*: Shoulders and summits, *Site Index*: Upland oak 75-80

BdxAV—Belknap silt loam, 0 to 2 percent slopes, frequently flooded, very brief Duration *Setting*: Flood plains, *Position*: Flood-plain steps, *Site Index*: Upland oak 69-75

Access

To access the tract from Spencer Indiana, travel west on State Road 46 approximately 5-miles to Fishcreek road, travel north on Fishcreek road approximately 0.75-mile to the forest office driveway, follow the driveway up the hill into Fishcreek campground, at the back of the campground is a metal farm gate. From the metal gate, there is a locked fire trail leading out of the campground into the tract. Management access as well as public recreational access to this tract is good.

Boundary

Private property borders this tract along the south and west sides with approximate boundary lines having been located and marked with orange paint and flagging. The boundary line has been documented and maintained in the past. The remainder of the tract borders state forest.

Wildlife

With the presence of the upland and lowland forest areas, which includes oak-hickory, beech-maple, mixed hardwoods, pine, pockets of herbaceous plants, ephemeral drainages, wildlife pond and perennial stream this tract contains habitat for a variety of wildlife species. Common species

or sign observed include eastern gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), white-tailed deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), Virginia opossum (*Didelphis virginiana*), North American raccoon (*Procyon lotor*), Eastern box turtle (*Terrapene carolina carolina*), raptors, songbirds, woodpeckers, toads, frogs and various small stream aquatic life.

Live trees in this tract provide for shelter, escape cover, roosting and as a direct (e.g. mast, foliage) or indirect (e.g. foraging substrate, bugging) food resource, with the oaks, hickories, walnuts and beech providing hard mast for deer, turkey and squirrel and the cherries providing soft mast for birds. The pine stands provide benefits such as cover, roosts and browse.

Live trees containing cavities provide nesting and denning opportunities for woodpeckers, songbirds and small mammals and potentially contribute to future snags (standing dead trees).

Snags provide essential habitat characteristics for foraging activity, nest/den sites, decomposers (e.g., fungi and invertebrates), bird perching and bat roosting, and are important contributors to the future pool of downed woody material.

Rotten logs, crater knolls, streams and drainages provide habitat for herptiles and aquatic vertebrates.

A Natural Heritage Database Review is part of the management planning process. If Rare, Threatened or Endangered species were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

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 Practices (B.M.P.s) will be followed to conserve soil and water resources and related forest wildlife habitats, such as springs/seeps, ponds/wetlands, streams and karst features.

Wildlife Habitat Features

According to the data collected during the tract inventory (E. Hoyt 2019) and represented in the following table, this tract is well represented with habitat in regards to the density, size and species of live and dead trees essential for consideration of various wildlife habitat needs including habitat specialists such as cavity nesters and species of conservation need like the Indiana bat (*Myotis sodalis*) and their suggested habitat requirements.

Legacy trees, as defined by the Management Guidelines for Compartment-Level Wildlife Habitat Features are well represented above the suggested maintenance levels. White oak and shagbark hickory are two species having preferred characteristics for tree roosting bats. Both are relatively abundant in this tract and will be given consideration as habitat. Also, as the tract continues to mature, the number of legacy trees $\geq 20''$ D.B.H. is expected to rise.

Standing dead or dying trees (snags) are well represented in this tract. Snags $\geq 5''$ D.B.H. and $\geq 9''$ D.B.H. in this tract are above the maintenance levels for both classes. However, snags in the $\geq 19''$ D.B.H. class are below the maintenance level. The lack of large diameter snags is often attributable to the overall good health of the forest and the short retention of large standing dead trees. Snags can have short standing times and often become wind thrown.

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 can be performed through post-harvest timber stand improvement (T.S.I.) to address large diameter snag limitations. It should be noted these are compartment level guidelines and the target snag levels may well be present on the landscape.

Wildlife Habitat Feature Tract Summary

	Maintenance Level	Inventory	Available Above Maintenance
Legacy Trees *			
11"+ DBH	702	1598	434
20"+ DBH	234	463	37
Snags (all species)			
5"+ DBH	312	747	435
9"+ DBH	234	414	180
19"+ DBH	39	14	-25

* **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 some isolated more mesic sites located along lower slopes, and some floodplain along drainages. The dry-mesic upland forest community has moderate soil moisture with trees growing well, however the canopy is usually more open than in mesic forests. It is one of the most prevalent forest communities in Indiana. It occurs on slopes throughout the state. The dominant plants in this community are the white oak (*Quercus alba*), northern red oak (*Quercus rubra*) and black oak (*Quercus velutina*). Characteristic plants in this community are the shagbark hickory (*Carya ovata*), mockernut hickory (*Carya tomentosa*), flowering dogwood (*Cornus florida*), hop hornbeam (*Ostrya virginiana*) and black haw (*Viburnum prunifolium*). Characteristic animals in this community are the broad-headed

skink (*Eumeces laticeps*), white-footed mouse (*Peromyscus leucopus*) and eastern chipmunk (*Tamias striatus*).

Exotic/invasive species multi-flora rose (*Rosa multiflora*) and autumn olive (*Elaeagnus umbellata*) are present in and around this tract in patches of light to moderate densities. These species are commonly occurring throughout the county. Control measures can be undertaken during post-harvest timber stand improvement, to treat problem occurrences before their populations expand.

Recreation

The tract is within walking distance of the Fishcreek Campground via the Poplar Top Trail making it accessible to the public for recreation including hunting, hiking, gathering, viewing, and terrestrial and aquatic interpretation. A section of the Poplar Top Trail is the access road for compartment 9 tract 7.

Cultural

This tract was reviewed for cultural sites during the forest resource inventory and planning process. Cultural resources may be present but their location(s) are protected. Adverse impacts to significant cultural resources noted will be avoided during management or construction activities.

Tract Description and Silvicultural Prescription

In 1976 a portion of compartment 9 tract 7, formerly compartment 11 tract 3, was marked for sale (J. Akard) and harvested (Crone Lumber Co.) of ~43,920 Bd. Ft. in 461 trees on 33 acres (1331 Bd. Ft. /acre) as part of an intermediate harvest in the form of a selective thinning and improvement cut.

In 1988 and 1989 a property wide timber inventory (TIMPIS) was conducted, including Compartment 9 tract 7. The data estimated the tract to be 80% stocked with 93 Sq. Ft. of total basal area per acre in 168 trees per acre containing approximately 3856 Bd. Ft. of total sawtimber per acre.

In 2004 a routine timber inventory was conducted (R. Duncan, Resource Specialist, OPSF). The data estimated the tract to be 80% stocked with 97 Sq. Ft. of total basal area per acre in 125 trees per acre containing approximately 6057 Bd. Ft. of total sawtimber per acre.

In 2006 a larger version of the tract was marked for sale (R. Duncan) and harvested (R. Booe & Son Hardwoods) of ~175,200 Bd. Ft. in 997 trees on 124 acres (1412 Bd. Ft. /acre) as part of an intermediate harvest in the form of a selective thinning and improvement cut.

In 2019 a routine timber inventory was conducted (E. Hoyt, Forestry Intern). The data estimated the tract to be 90% stocked with 110 Sq. Ft. of total basal area per acre in 147 trees per acre containing approximately 10,416 Bd. Ft. of total sawtimber per acre.

Timber in compartment 9 tract 7 is predominantly closed canopy mixed hardwoods, with some pockets of oak-hickory, beech-maple and small pine stands. The over-story consists mostly of

medium to large sawlog sized poplar, oak, hickory, maple and beech; with eastern white pine, red pine, and Virginia pine in the northern and eastern portion of the tract. The quality of merchantable timber is good with the ridge tops and upper slopes containing more of the mixed hardwoods, and the mid to lower slopes containing more of the oak-hickory. The pole-sized under-story consists mostly of maple, poplar, beech, hickory, oak, and pine. Advanced regeneration is represented mostly by beech, maple, ash, sassafras, and poplar.

The current inventory and stocking level indicates the tract is fully stocked. Some 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 selective removal of less desirable species and low quality individuals in an effort to improve the overall tract quality and composition.

The recommendation is to perform an intermediate harvest in the form of a thinning and improvement cut, utilizing the single tree and group selection methods within the un-even aged management system.

A thinning should be done to reduce competition and mortality amongst the overcrowded timber. An improvement cut should be incorporated to improve the overall species composition and quality of the tract by select harvesting the low quality, damaged, diseased, dying and poorly formed trees as well as thinning of less desirable species, especially the declining yellow-poplar that are competing with the oak and other quality trees such as the hickory and cherry. In addition, ash trees susceptible to Emerald Ash Borer (EAB) will be selected for harvest to utilize their product before they become populated with the insect and decline. However, live, healthy Ash which survive or escape the intense killing wave of EAB will be retained and their growth encouraged through applied management. The two-fold objective is to recruit ash regeneration before EAB induce mortality and then promote the development of EAB survivors.

In some areas, a shelterwood-type situation may be created as trees are removed from the intermediate and understory layers while larger dominant and co-dominant trees (especially where oak is a strong component) are left standing. This will allow more diffuse sunlight to reach the ground and improve the establishment and survival of seedlings.

Hardwood group selection openings, on less than 10% of the tract may also be created to remove groups of undesirable species or poor quality individuals and to promote regeneration and early successional habitat.

In combination, these silvicultural methods will reduce stand density; improve overall growing conditions and timber quality, while encouraging tree species diversity and regeneration of native mixed hardwood species.

The long term objective with the pine stands is a transitioning over the next 2 cycles away from these non-native species and towards a native hardwood mix. This would utilize a combination of group and single tree selection systems as described above.

Pignut Hickory	846
Sugar Maple	751
Red Maple	701
Shagbark Hickory	410
American Beech	381
E. White Pine	345
White Ash	313
American Sycamore	265
Black Cherry	208
Sassafras	198
Bitternut Hickory	174
Virginia Pine	96
Chinkapin Oak	86
Black Walnut	76
Large-toothed Aspen	55
Black Oak	46
Shortleaf Pine	38
Total/Acre	10,417
Tract Total	812,432

Proposed Management Activities

- 2019 ----- Timber Inventory
- 2019 ----- DHPA Archaeological Clearance Application
- 2019 ----- Resource Management Guide
- 2021-22 ----- Timber Marking and Sale Layout
- 2021-23 ----- Timber Sale/Harvest
- 2022-24 ----- Post-Harvest TSI and Exotic/Invasive Control

Indiana Department of Natural Resources
Division of Forestry
RESOURCE MANAGEMENT GUIDE

Owen-Putnam State Forest	Compartment: 09	Tract: 09
Forester: Bob Lindemuth	Date: 08/04/2022	Acres: 120
Management Cycle End Year: 2042	Management Cycle Length: 20 years	

Location:

This tract, also known as 6380909, is located in Owen County, Indiana. More specifically, the tract is in sections 9 and 10, Township 10 North, Range 4 West of the Lafayette township. This tract is primarily to the west of Fish Creek Road with a small portion lying east of Fish Creek Road, approximately 4 miles northwest of Spencer, Indiana.

General Description:

This 120-acre tract is a mixed hardwoods forest with multiple-uses, largely dominated by yellow poplar. A wide variety of species occurs in this tract including shagbark and pignut hickory, red maple, Virginia pine, sugar maple, northern red oak, white oak and others. Four acres of the tract are part of the office complex, which includes Fish Creek Campground. A small portion of the tract is more mesic, containing species such as American sycamore and black walnut. This occurs between Fish Creek Road and on both sides of Fish Creek.

History

- On May 8, 1950, 200 acres were purchased for \$3,000 from Thelma & Orville Haltom. A portion of this purchase became compartment 11 tract 2. At some point, compartment 11 tract 2 became compartment 9 tract 9.
- On June 30, 1986 a log sale was conducted by John Goodburn. Six trees and 3 culls with an estimated volume of 1,180 bd. ft. were sold to Dennis Fiddler for \$78.50. These trees were sold to construct the campground and service building.
- On May 4, 2005 a salvage timber sale was conducted following a series of windstorms. This sale was conducted in compartment 6 tract 3, compartment 8 tract 9, and compartment 9 tract 9. The sale brought \$10,333.00 in revenue. An estimated 15,597 bd. ft. in 71 sawtimber trees and 6 culls were sold from compartment 9 tract 9. The top three species cut were red oak, bitternut hickory, and yellow poplar.

- On July 14, 2022 an inventory was conducted and an RMG was developed. Data estimated the tract to contain 10,725 bd. ft. per acre, totaling 1,287,000 bd. ft. The top 3 species according to volume estimates are yellow poplar, white oak, and pignut hickory.

Landscape Context

This tract lies in a rural area of primarily hardwood forestland. The area has a small amount of agriculture and a few residences, mainly concentrated along State Road 46 and Fish Creek Road. To the north of tract 9 lies forested private land and compartment 9 tract 8 of Owen-Putnam State Forest. To the west lies compartment 9 tract 7 of Owen-Putnam State Forest. To the south lies private forestland and an agricultural field. To the east lies private forestland. There are no anticipated future land use changes to the surrounding area.

Topography, Geology, and Hydrology

The topography of the area consists of a ridgetop that forms the northern portion of the western boundary of the tract and then runs to the southwest. From this ridgetop, another finger ridge runs to the southeast. The sideslopes of the ridges are almost equally divided between northeastern, eastern, and southern aspects. Approximately 16 acres of the tract to the east of Fish Creek Road are more mesic and flatter.

The tract consists of 13 different soil series. Parent materials of these soils include fine-silty loess over loamy pedisegment over paleosol till, loess over loamy till, loamy residuum over sandstone and shale, loamy colluvium and/or clayey residuum, loamy alluvium, and fine-silty loess over clayey residuum weathered from shale over loamy residuum weathered from sandstone and shale.

The tract drains through several ephemeral drainages into Fish Creek, a perennial stream that flows south to the White River. There is a pond located inside the tract and is located at Fish Creek Campground. During any management activities best management practices (BMPs) will be followed to protect water bodies and stream courses.

Soils

AloB2- Ava silt loam, 2 to 6 percent slopes, eroded

This gently sloping, deep, moderately well drained is on knolls and narrow ridgetops and on sideslopes along drainage ways in the uplands. It is well suited to trees and has a site index of 75 for white oak and 90 for yellow poplar.

CkkB2- Cincinnati silt loam, 2 to 6 percent slopes, eroded

This gently sloping, deep, well-drained soil is on side slopes in the uplands. It is well suited for trees. This soil has a site index of 80 for northern red oak.

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

This moderately steep, deep, well-drained soil is on dissected till plains over interbedded shale, siltstone, and sandstone. It is well suited to trees. Erosion hazards and equipment limitations are main management concerns due to slopes. Consideration should be given during sale planning

and implementation of Best Management Practices for Water Quality This soil has a site index of 85 for white oak and 95 for yellow poplar.

HeuF- Hickory-Wellston silt loams, 25 to 35 percent slopes

This moderately steep to steep, deep, well-drained soil is on dissected till plains over interbedded shale, siltstone, and sandstone. It well suited to trees. This soil has a site index of 85 for white oak and 95 for yellow poplar.

SfoA- Shakamak silt loam, 1 to 3 percent slopes

This very gently sloping, deep, somewhat poorly drained and moderately well drained soil is on ridgetops and along drainageways. A fragipan is present and restricts root development. This soil is well suited to trees and has a site index of 75 for white oak and 90 for yellow poplar.

SneC2- Solsberry silt loam, 6 to 12 percent slopes, eroded

This moderately sloping, deep, moderately well drained soil is on the side slopes of the uplands. It is well suited to trees. Windthrow hazards are a concern that should be considered during management planning. This soil has a site index of 80 for northern red oak.

SneC3- Solsberry silt loam, 6 to 12 percent slopes, severely eroded

This moderately sloping, deep, moderately well drained soil is on the side slopes of the uplands. It is well suited to trees. Windthrow hazards are a concern that should be considered during management planning. This soil has a site index of 80 for northern red oak.

TcgG- Tipsaw-Rock outcrop complex, 35 to 70 percent slopes

This steep to very steep, moderately deep, well drained soil is found on the sideslopes in the uplands. It is suited to trees. This soil has a site index of 70 for northern red and black oak.

TtaG- Tulip-Tipsaw complex, 25 to 60 percent slopes

This moderately and very steep, moderately deep to deep, well drained complex is found on sideslopes in the uplands. It is suited to trees. Tulip has a site index of 80 for northern red oak and 95 for yellow poplar and Tipsaw has a site index of 70 for northern red and black oak.

WpuAV- Wirt silt loam, 0 to 2 percent slopes, frequently flooded, very brief duration

This nearly level, deep, well-drained soil is found on natural levees and floodplain steps on flood plains. It is well suited to trees. Equipment limitation and seedling mortality are management concerns that should be considered when planning management activities. This soil has a site index of 105 for yellow poplar.

ZamB2- Zanesville silt loam, soft bedrock substratum, 2 to 6 percent slopes, eroded

This gently sloping, deep, moderately well drained or well-drained soil is on uplands. It is well suited to trees. This soil has a site index of 69 for white oak and 90 for yellow poplar.

ZamC2- Zanesville silt loam, soft bedrock substratum, 6 to 12 percent slopes, eroded

This moderately sloping, deep, moderately well drained or well-drained soil is on side slopes adjacent to drainage ways in the uplands. It is well suited to trees. This soil has a site index of 69 for white oak and 90 for yellow poplar.

ZamC3- Zanesville silt loam, soft bedrock substratum, 6 to 12 percent slopes, severely eroded
This moderately sloping, deep, moderately well drained or well-drained soil is on side slopes adjacent to drainage ways in the uplands. It is well suited to trees and has a site index of 69 for white oak and 90 for yellow poplar.

Access

This tract has very good access for management and recreational purposes. For management purposes, the tract is accessed by the fire lane that is gated at the end of the Fish Creek

Campground Road. The fire lane also provides recreational access by serving as part of the Poplar Top Trail. The fire lane is also accessible by a second entrance 200 feet north of the office off Fish Creek Road.

Boundary

This tract is bordered by compartment 9 tract 8 of Owen Putnam State Forest for 0.4 miles and private land for 0.2 miles on the northern side. The boundary between compartment 9 tract 9 and compartment 9 tract 8 is an ephemeral drainage. Private land borders compartment 9 tract 9 for approximately 0.25 miles on the east side and 0.8 miles on the south side. Compartment 9 tract 7 of Owen Putnam State Forest forms the border on the west side for 0.4 miles. The southwestern 0.2 mile portion of the boundary is the approximate center line of the ridge running from the end of the fire lane to the southwest. The fire lane forms the northwestern portion of the western boundary for approximately 0.2 miles. The state forest boundary line was identified using field evidence such as corner stones, rebar, or historic fences and GPS handheld units when no field evidence was identified. Boundary lines are typically painted when evidence is identified or flagged when evidence is lacking.

Ecological Considerations

A diverse assortment of wildlife resources are found on this tract. This provides habitat for a variety of wildlife species. Habitat includes:

- Scattered oak-hickory canopy
- Contiguous mixed hardwood canopy
- Small drainages and Fish Creek
- Wildlife pond located within the Fish Creek Campground

Hard mast trees such as oaks, hickories, and American beech provide a food source to both game and non-game wildlife species.

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 within various diameter classes is of particular concern to habitat specialists.

The Division of Forestry has developed compartment level guidelines for important wildlife structural habitat features known as snags. Snags are standing dead or dying trees. Snags provide value to a stand in the form of habitat features for foraging activity, den sites, decomposers, bird perching, and bat roosting. Snags eventually contribute to the future pool of

downed woody material. Downed woody debris provides habitat for many species and contributes to healthy soils.

Snags (All Species)	Maintenance Level	Inventory	Available Above Maintenance
Snag 5"+ DBH	480	1255	775
Snag 9"+ DBH	360	1045	685
Snag 19"+ DBH	60	206	146

Current assessments indicate the abundance of these habitat features meet or exceed recommended maintenance levels in all diameter classes.

The prescribed management will maintain or enhance the relative abundance of these features.

A Natural Heritage Database Review is part of the management planning process. If Rare, Threatened, or Endangered communities were identified for this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the viability of those species.

Most of this tract is of the dry-mesic forest community type, with some isolated, more mesic sites located along lower slopes, and floodplain along the stream. The dominant plants in this community are the yellow poplar, shagbark hickory, pignut hickory, red maple, northern red oak, and white oak. Understory plants included spicebush, greenbriar, bluebeech, flowering dogwood, and ironwood.

Common animals in this community are the eastern chipmunk, white-tailed deer, wild turkey, and eastern grey squirrel.

Invasive species include: multiflora rose, autumn olive, Japanese stiltgrass, and Japanese barberry, which are present in and around this tract in patches of light to moderate densities. These species commonly occur throughout the county. Treatment efforts should be taken on a situational approach during preharvest or post-harvest timber stand improvement (TSI).

Recreation

Recreational use of this tract is above average due to Fish Creek Campground occurring within the tract. The campground has 14 sites and is used throughout the recreational season, typically March-October. There is a playground and shelter house available for public use.

Two hiking trails are present in this tract, the Poplar Top Trail and the Fish Creek Trail. The Poplar Top Trailhead begins from the parking lot of the office. From there, the trail continues uphill on the fire lane to the northwest. It departs the fire lane for 1/3rd of a mile and loops to the west where it eventually becomes part of the fire lane again until the trail ends at a wildlife pond. The trail backtracks for 1/10th of a mile back to the fire lane that heads southeast to the Fish Creek Campground. The Fish Creek Trail begins near the wildlife pond in the campground and heads downhill to the east where it dead ends at Fish Creek.

Recreational activities including camping, hunting, hiking, fishing, gathering, viewing and interpretation.

Fish Creek Campground will not be closed during management activities. The campground will receive a 100' visual enhancement area (VEA). VEA's are areas where management criteria will be to maintain or enhance the aesthetic values of a forested landscape. The goal is not to conceal forest management activities, but rather moderate its impact. It can also be an opportunity for educational and interpretive use to build a better understanding of the properties forest management activities.

During any management activity, specifically a timber harvest, access to this tract will be restricted due to safety concerns. Following the management activity, the tract will be reopened to public use. The hiking trails will be closed Monday through the end of the day Friday and open on the weekends. The trails will be kept clear of tops and brush. Skid trails will be chosen to minimize the number of trail crossings. Signs will be posted at the trailheads, on the kiosks at Fish Creek Campground, and advertised on the advisories page of the DNR which can be found at <http://www.in.gov/dnr/forestry/properties/advisories/>.

Cultural

Cultural resources may be present, but their location(s) are protected. Adverse impacts to significant cultural resources will be avoided during any activities.

Tract Subdivision Description and Silvicultural Prescription

Forest Condition

A current forest resource inventory was completed on 8/4/2022 by Forester Bob Lindemuth. A summary of the estimated tract inventory results are located in the table below.

Tract Summary Data (trees >11"DBH):

Species	# Sawtimber Trees	Total Bd. Ft
Yellow Poplar	1,855	540,870
Shagbark Hickory	545	98,590
Pignut Hickory	533	108,680
Red Maple	517	64,700
Virginia Pine	442	53,950
Sugar Maple	349	28,520
Northern Red Oak	318	68,570
White Oak	316	113,270
Black Cherry	295	41,900
Sassafras	281	28,540
American Sycamore	204	43,570
Blackgum	156	21,590
American Beech	137	13,760

Other Pine	65	20,020
Chinkapin Oak	35	9,280
Red Elm	28	7,580
Black Walnut	21	8,850
Bigtooth Aspen	15	6,810
Eastern White Pine	10	7,820
TRACT TOTALS	6,122	1,286,870

Mixed Hardwoods (120 acres)

This tract is 112% stocked with a basal area of 108.5ft²/acre. This tract is largely dominated by yellow poplar, comprising 42% of the total board foot volume of the tract, 540,870 board feet. Although yellow poplar is so prevalent, the tract is still quite diverse with 18 other tree species present. Some dominant and codominant species observed in the overstory consists of white oak with 113,270 board feet, pignut hickory with 108,680 board feet, shagbark hickory with 98,590 board feet, northern red oak with 68,570 board feet, and red maple with 64,700 board feet. The midstory is comprised of mainly yellow poplar, red maple, and sugar maple with lesser amounts of shagbark hickory, black cherry, American beech, black gum, and hackberry. The understory is primarily comprised of American beech, with lesser amounts of sugar maple, bluebeech/American hornbeam, and flowering dogwood.

Much of the tract is closed canopy, leaving little light to reach the forest floor. This does little to promote regeneration and causes competition among the dominant trees in the overstory. An excessive amount of competition leads to mortality, as can be seen by the large number of snags in this tract.

The recommended management activity is to conduct an improvement harvest, utilizing single tree and group selection or patch cut openings. This activity will target poorly formed individuals, defective trees, trees declining in health, and trees with a small live crown. This will give the healthier trees with good form and larger live crowns more available resources above and below ground. Where conditions warrant, group selection may be utilized to regenerate shade intolerant species and create young forest habitat. When possible, selection should favor releasing desired future trees.

The harvest volume for this tract will be 2,000 – 3,000 board feet per acre of the total 10,725 board feet per acre. The top species for removal in this tract include yellow poplar, red maple, and Virginia pine. Following the timber harvest, timber stand improvement (TSI) should be conducted to complete the silvicultural prescription. TSI will concentrate on completion of regeneration openings, desirable tree release, and reduction of problematic vines.

Desired Future Condition

The objective for this cover type is to provide for multiple economic and ecological services, specifically a quality hardwood timber stand dominated by mid- and late-seral species, while providing diverse habitat structure, hard mast, and mid to late-seral habitat for wildlife.

Summary Tract Silvicultural Prescription and Proposed Activities

The proposed management activity is to conduct an improvement harvest to promote the overall health, vigor, resiliency, and quality of the stand. This improvement harvest will utilize single tree and group selection or patch-cut silviculture. The purpose of single tree selection is to remove trees with poor form and health, drought stressed or wind damaged trees to promote a healthier growing forest. It will also target mature and over mature trees where present and other intermediate trees needed to release residual desirable trees. Group selection will be used to target groups of trees that fit the above description growing together.

Within two years of the timber harvest, a TSI operation should follow to release desirable trees that were not adequately released during the harvest and complete regeneration openings. Additionally, TSI should be utilized to control targeted invasive species in the stand, deaden a small percentage of low value trees to create snags for wildlife and reduction of the shade tolerant understory.

During and after completion of the proposed management activity best management practices (BMP's) will be implemented to minimize soil erosion. This tract should receive another inventory and management guide 20 years following the completion of the timber harvest.

Effect of Prescription on Tract Properties:

Landscape: Landscape forest patterns will remain similar to the current situation due to this tract being kept in a forested condition.

Soils: The management activities prescribed in this plan should have minimal impact on soils in this tract. Some soil disturbance is likely during harvesting, but this should be confined to landings and main skid trails. These areas will be properly closed out according to Indiana's BMPs to minimize the impact of management activities on soils.

Hydrology: Hydrology should not be permanently affected by management on this tract. Water quality and yield should not be altered if BMPs are followed during harvest. BMP use will be contractually required of management operators and monitored by property foresters.

Wildlife: Snags and coarse woody debris should remain at viable levels in the stratum and should continue to provide habitat. Managing to recruit newly established or released oaks and hickories will help to ensure that this important food source is available into the foreseeable future. Regeneration openings, such as prescribed have been shown to be of less of an issue from nest predators and generalist species as compared to hard edges such as public roadways, utility corridors and crop field edges. Placement of regeneration openings away from hard edges can minimize these potential impacts. The prescribed activity will promote wildlife diversity and enhance habitat structural components.

Additionally, management activities involving a timber harvest should not affect this habitat long-term from the perspective of any wildlife utilizing it due to the maintenance of a forested

habitat on the tract. Creation of regeneration openings will create early successional habitat that will be beneficial to certain groups of wildlife dependent upon this habitat. Likely, early successional habitat created with such management will also benefit a wider segment of wildlife species that preferentially utilize such habitat for feeding and cover more so than later successional stage habitat.

Recreation: Hunting would benefit from forest management by improving the health of the residual trees thus promoting an increase in hard mast, understory plant diversity, and young forest habitat. For user safety, hunting within this tract will be temporarily suspended during management activities.

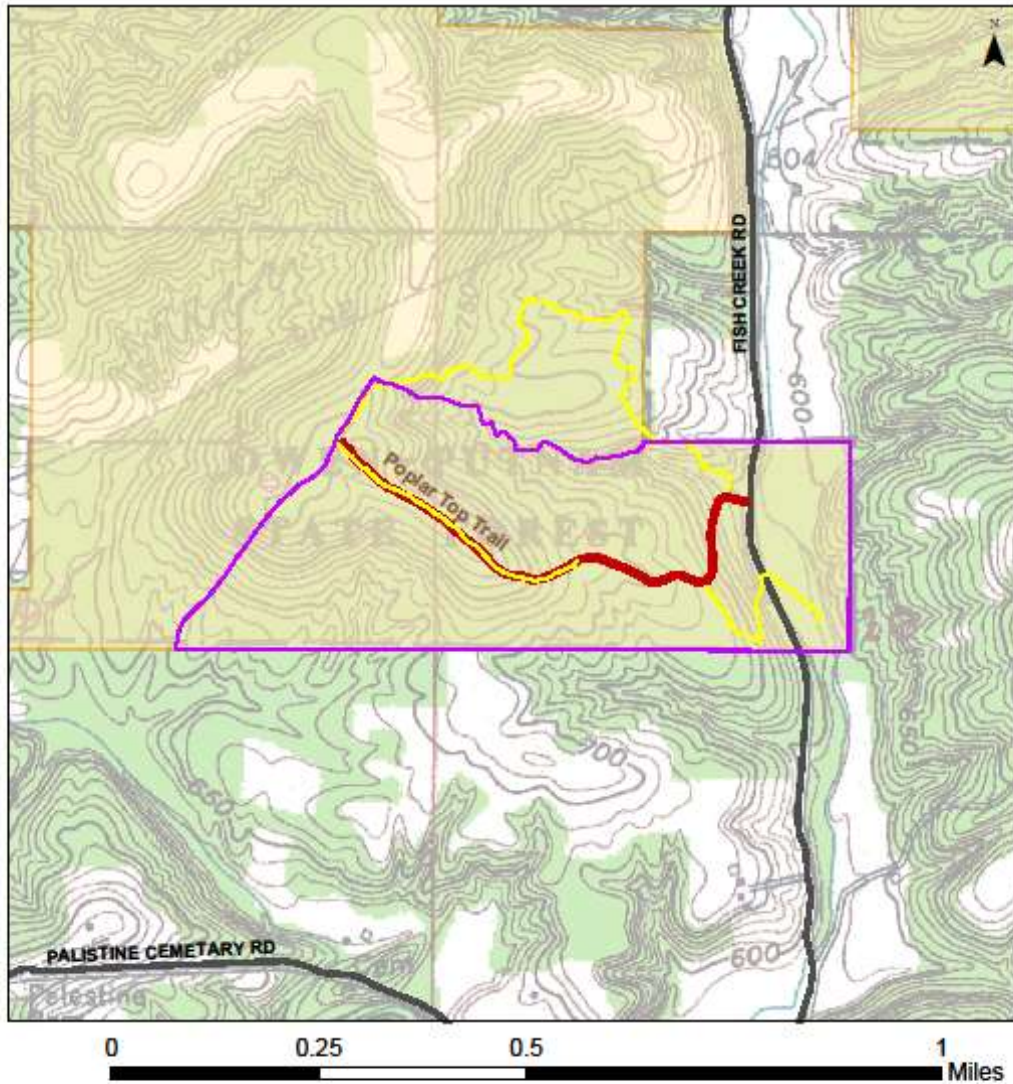
Proposed Activities Listing

Proposed Management Activity

Proposed Date

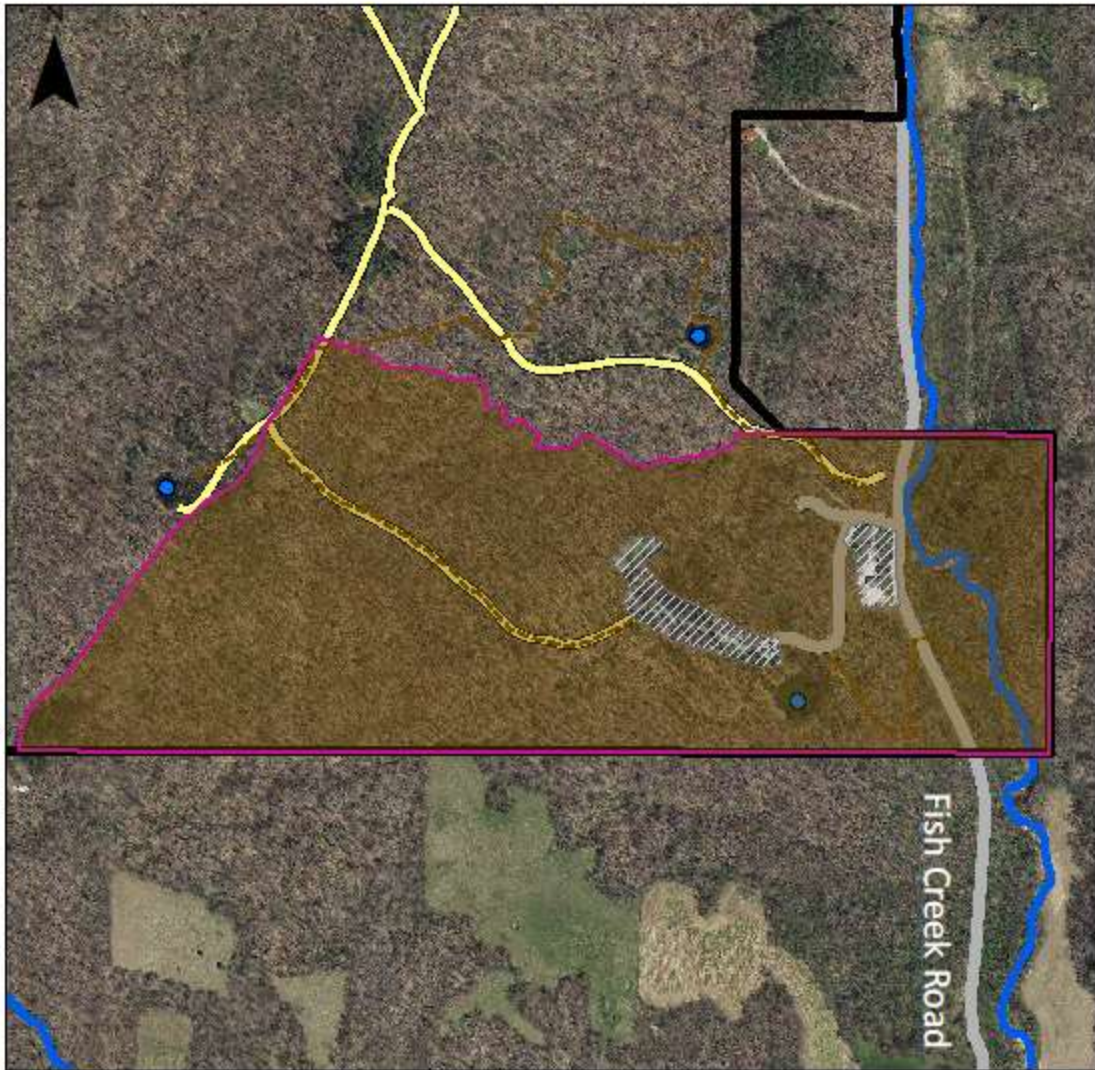
Management Guide	2022 - 2023
Trail & Recreational Improvements	As needed
Road Improvements	As needed
Treat problematic vines and invasive plants	2022 - 2024
Mark and Sell Timber Sale	2023 - 2027
Post-harvest Timber Stand Improvement	1-2 years after harvest
Periodic Monitoring	3 years post-harvest, periodic after
Inventory and Revise Management Guide	20 years post-harvest

Owen-Putnam State Forest Compartment 9 Tract 9 Tract Map



- Recreation Trail
- Fire Lane
- Tract boundary
- State Forest

Owen-Putnam State Forest Compartment 9 Tract 9 Cover Types Map



Legend

- Fire Lanes
- Tract Boundary
- State Forest Boundary
- Mapped Streams
- County Roads
- Mixed Hardwoods
- Wildlife Ponds
- Fish Creek Campground and Office

0 0.13 0.25 0.5 Miles

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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. Note: Some graphics may distort due to compression.