Indiana Department of Natural Resources
Division of Forestry
RESOURCE MANAGEMENT GUIDE

Owen-Putnam State Forest | Compartment: 07 | Tract: 07
Forester: Bob Lindemuth | Date: 9/19/2022 | Acres: 41
Management Cycle End Year: 2042 | Management Cycle Length: 20 years

Location

This tract, also known as 6380707, is located in Owen County, Indiana. Most of the tract is in section 25, Township 11 North, Range 4 West of the Montgomery township. Approximately 0.3 acres of this tract is located in section 26, Township 11 North, Range 4 West of the Montgomery township. This tract is surrounded by private land and is located north of Clark Road and east of Rattlesnake Road, approximately 5.5 miles northwest of Spencer, Indiana.

General Description

This 41-acre tract is a mixed hardwood forest largely dominated by yellow poplar. A wide variety of species occurs within this tract including northern red oak, largetooth aspen, sassafras, white oak, chinkapin oak, and others.

History

- On July 27, 1953 40.5 acres was purchased from Albert McCoy for $0. This became compartment 8 tract 5.
- Early tract changes following land acquisitions converted compartment 8 tract 5 to compartment 7 tract 7.
- In 2005, an inventory was conducted. Data estimated the tract contained 8,750 bd. ft. per acre. The top 3 species by volume were yellow poplar, northern red oak, and white oak.
- In 2015, a forest inventory and resource management guide (RMG) was completed. Data estimated the tract contained 7,504 bd. ft. per acre. The top 3 species by volume were yellow poplar, white oak, and northern red oak.
- In 2022, a forest inventory and RMG was completed. Data estimated the tract contained 13,334 bd.ft. per acre, totaling 546,690 bd.ft. for the whole tract. The top 3 species by volume were yellow poplar, northern red oak, and largetooth aspen.

Landscape Context

This tract lies in a rural area of primarily hardwood forestland, with scattered agriculture and residences on the flatter ground. The density of residential development increases to the east. This tract is surrounded by private forestland and an agricultural field. There are no anticipated future land use changes.

Topography, Geology and Hydrology

This tract is located between 4 ridgetops to the northeast, southeast, northwest and southwest directions. Slopes are generally northern and southern aspects.

This tract is bisected by an intermittent stream that flows to the southwest, where it empties into Rattlesnake Creek approximately 0.5 miles southwest from where it exits the tract. Several ephemeral drainages also exist in the tract. During management activities best management practices (BMPs) for riparian areas will be followed.

The tract contains 9 different soil series. Parent materials of these soils include loess over loamy outwash over paleosol loamy outwash, loamy alluvium, loamy colluvium and/or clayey residuum, thin fine-silty noncalcareous loess over loamy residuum weathered from sandstone and shale, fine-silty loess over clayey residuum weathered from shale over loamy residuum weathered from sandstone and shale, and loess over loamy residuum.

Soils

GabG- Gallimore-Chetwynd complex, 25 to 70 percent slopes
This is steep and very steep, deep, well drained complex is on dissected outwash plains. It is well suited to trees. Equipment limitations, erosion hazard, and windthrow hazards are management concerns that should be considered during soil planning and implementation of Best Management Practices for Water Quality. Chetwynd has a site index of 88 for northern red oak and 99 for yellow poplar and Gallimore has a site index of 98 for northern red oak and yellow poplar.

PlfB2- Pike silt loam, 2 to 6 percent slopes, eroded
This is a gently sloping, deep, well-drained soil on low knolls and shoulder slopes of dissected outwash plains and moraines. It is well suited to trees and has a site index of 90 for white oak and 98 for yellow poplar.

PrwAV- Pope fine sandy loam, 0 to 2 percent slopes, frequently flooded, very brief duration
This nearly level, deep, well-drained soil is found in the flood plains. It is well suited to trees. Equipment limitations and seedling mortality are concerns that should be considered when planning management activities. This soil has a site index of 80 for white oak and 96 for yellow poplar.

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.

TtcE- Tulip-Wellston-Adyeville silt loams, 18 to 25 percent slopes
This strongly sloping to steep, 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, Wellston has a site index of 81 for northern red oak and 90 for yellow poplar, and Adyeville has a site index of 64 for northern red oak.

WhfD2- Wellston silt loam, 12 to 18 percent slopes, eroded
This strongly sloping, well-drained soil is on narrow ridgetops and on side slopes of the uplands. It is well suited to trees. This soil has a site index of 71 for northern red oak and 90 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.

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.

ZamD2- Zanesville silt loam, soft bedrock substratum, 12 to 18 percent slopes, eroded
This strongly sloping, deep, moderately well drained soil is on narrow side slopes in the uplands. It is fairly well suited to trees. A fragipan is present that can limit rooting depth. Erosion hazards and equipment limitations are main concerns that should be considered when planning management activities. It has a site index of 69 for white oak and 90 for yellow poplar.

Access

Currently this tract has no direct vehicle or public access. Access within the tract is good.

Boundary

The tract boundaries also serve as state forest boundary lines. All boundary lines were identified using field evidence such as corner stones, survey rebar, or historic fences and GPS handheld units when no field evidence was identified. Boundary lines are typically painted when sufficient 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

- An intermittent stream
- 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	164	817	653
Snag 9"+ DBH	123	448	325
Snag 19"+ DBH	21	49	28

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.

This tract consists of the mixed hardwood community type, with the main trees being yellow poplar, various oak species, and hickories. Understory diversity consists of spicebush, viburnums, greenbrier, pawpaw, and blackberry, among others.

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

Invasive plants observed during the forest inventory included multiflora rose, autumn olive, and Japanese stiltgrass. The invasive plants were primarily located around the edges of the tract. Very few invasive plants were observed in the interior of the tract. These will be dealt with on a situational approach.

Recreation

Recreation within the tract is limited due to no direct public access or parking. Hunting is likely the primary use with hunters gaining permission to access to the tract through adjacent private lands.

Cultural

Cultural resources may be present, but their location(s) is 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 in September of 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	514	198,730
Northern Red Oak	268	134,220
Largetooth Aspen	184	55,860
Sassafras	193	23,920
White Oak	76	17,930
Chinkapin Oak	91	17,800
Shagbark Hickory	51	16,120
Black Walnut	36	15,300
Bitternut Hickory	46	13,110
Black gum	39	11,260
Black Cherry	44	10,310
Red Maple	24	8,750
Sugar Maple	43	5,990
American Beech	53	5,360
Black Locust	20	5,040
American Sycamore	7	4,270
Pignut Hickory	9	2,720
TRACT TOTALS	1,698	546,690

Mixed Hardwoods (41 acres)

This cover type is characterized by the diverse species composition, with 17 different tree species identified with a 11" dbh or greater. This tract is 98% stocked, with 114 trees per acre (greater than 6" dbh) and a basal area of 123ft^2/acre. The dominant species in the overstory is yellow poplar, followed by northern red oak, largetooth aspen, and sassafras. The midstory (pole

sized timber) consists of sugar maple, yellow poplar, sassafras, and American beech. The understory (submerchantable) is dominated by American beech and sugar maple.

There is a substantial amount of mortality within this tract, especially with the largetooth aspen and sassafras. This mortality can be seen in the snag data collected and displayed in this RMG.. Further, some of the mature yellow poplar is experiencing crown dieback. Most of the other tree species in the tract are mature to overmature. The tract as a whole is predominantly closed-canopy, with little sunlight reaching the forest floor. Evidence of this can be found in the regeneration data collected in the inventory which shows that 90% of the regeneration is shade tolerant species.

For these reasons, the recommended management activity is to conduct an improvement harvest, utilizing single tree and group selection or patch cut openings. This harvest will target poorly formed trees, trees declining in health, and trees with small live crowns. 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/patch cuts may be utilized to promote the regeneration of shade intolerant species and create young forest habitat. When possible, tree selection should favor releasing desired healthy trees with good form and large live crowns.

The top tree species for removal in this tract include yellow poplar, largetooth aspen, northern red oak, and sassafras. The harvest volume for this tract is estimated at 4,000 to 5,300 bdft. per acre of the total 13,334 bdft. per acre. Following the timber harvest, timber stand improvement (TSI) should be conducted to complete the silvicultural prescription. TSI will concentrate on completion of any regeneration openings established, desirable tree release not accomplished through the harvest, and reduction of problematic vines. Additionally, TSI should be utilized to control targeted invasive species and deaden a small percentage of low value trees to create additional snags for wildlife while reducing shade tolerant understory species.

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 tract. 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. Young, vigorous ash will be retained for possible resistant features. Group selection will be used to target groups of trees that fit the above description growing together.

Preferably within two years of the timber harvest, a TSI operation should follow to release crop trees that were not adequately released during the harvest and complete regeneration openings. Additionally, TSI should be utilized to control targeted invasive species and deaden a small percentage of low value trees to create snags for wildlife. TSI may also be used to remove the shade tolerant understory around the oak-hickory overstory to promote the regeneration of oak and hickory.

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.

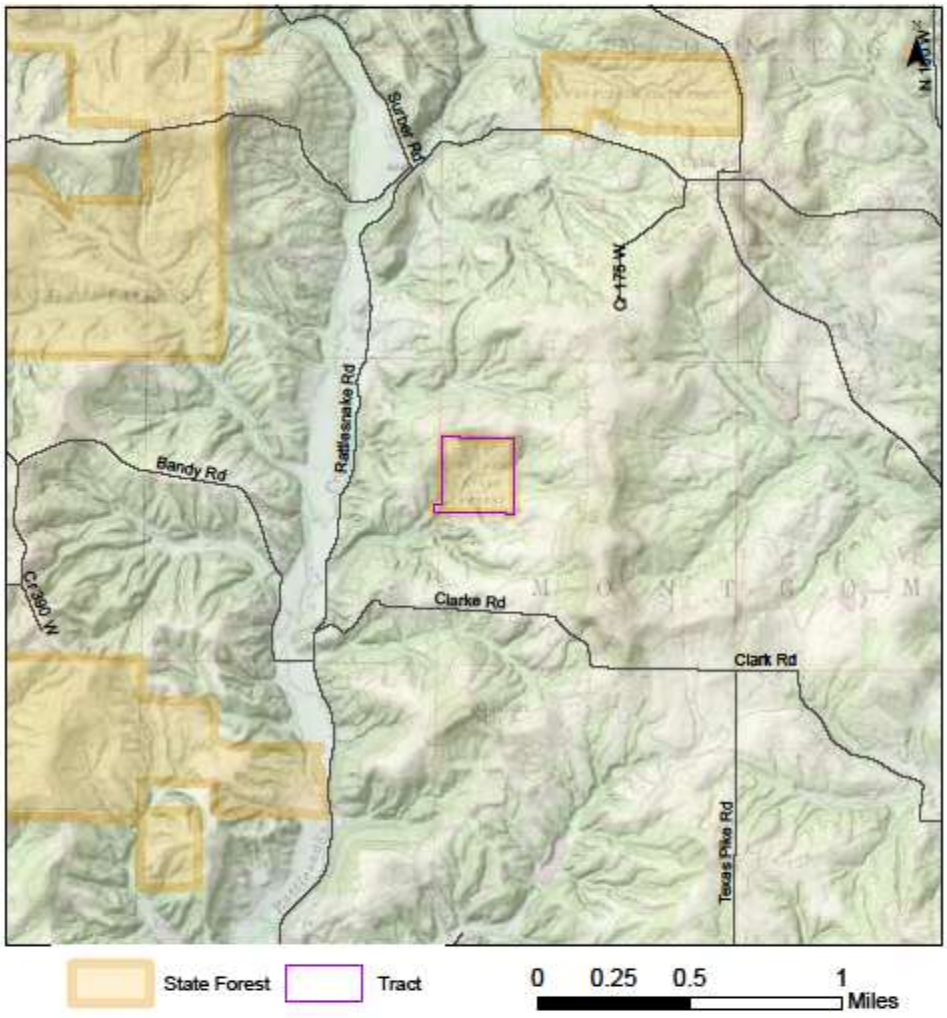
Additionally, management activities involving a timber harvest should not affect this habitat long-term from the perspective of any wildlife utilizing it due to the maintenance of a forested habitat on the tract. Creation of regeneration openings will create early successional habitat that will be beneficial 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 is possibly the only form of recreation within this tract. 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 restricted during management activities.

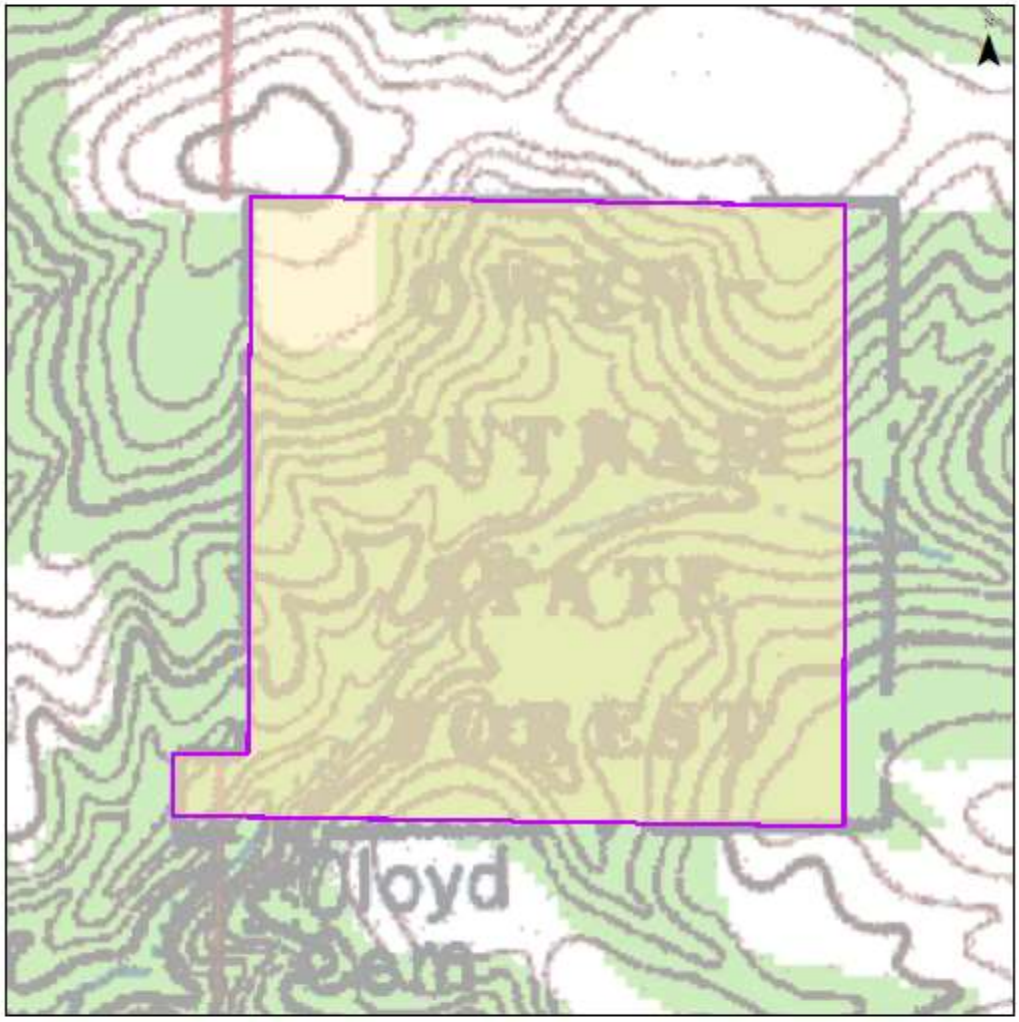
Proposed Activities Listing

Proposed Management Activity	*Proposed Date*
Management Guide	2022
Treat vines and invasive species	2023 - ongoing
Mark and Sell Timber Sale	2023 - 2027
Post-harvest Timber Stand Improvement	1-2 years following harvest
Forest Growth and Periodic Monitoring	3 years post-harvest - 2042
Inventory and Revise Management Guide	20 years following harvest

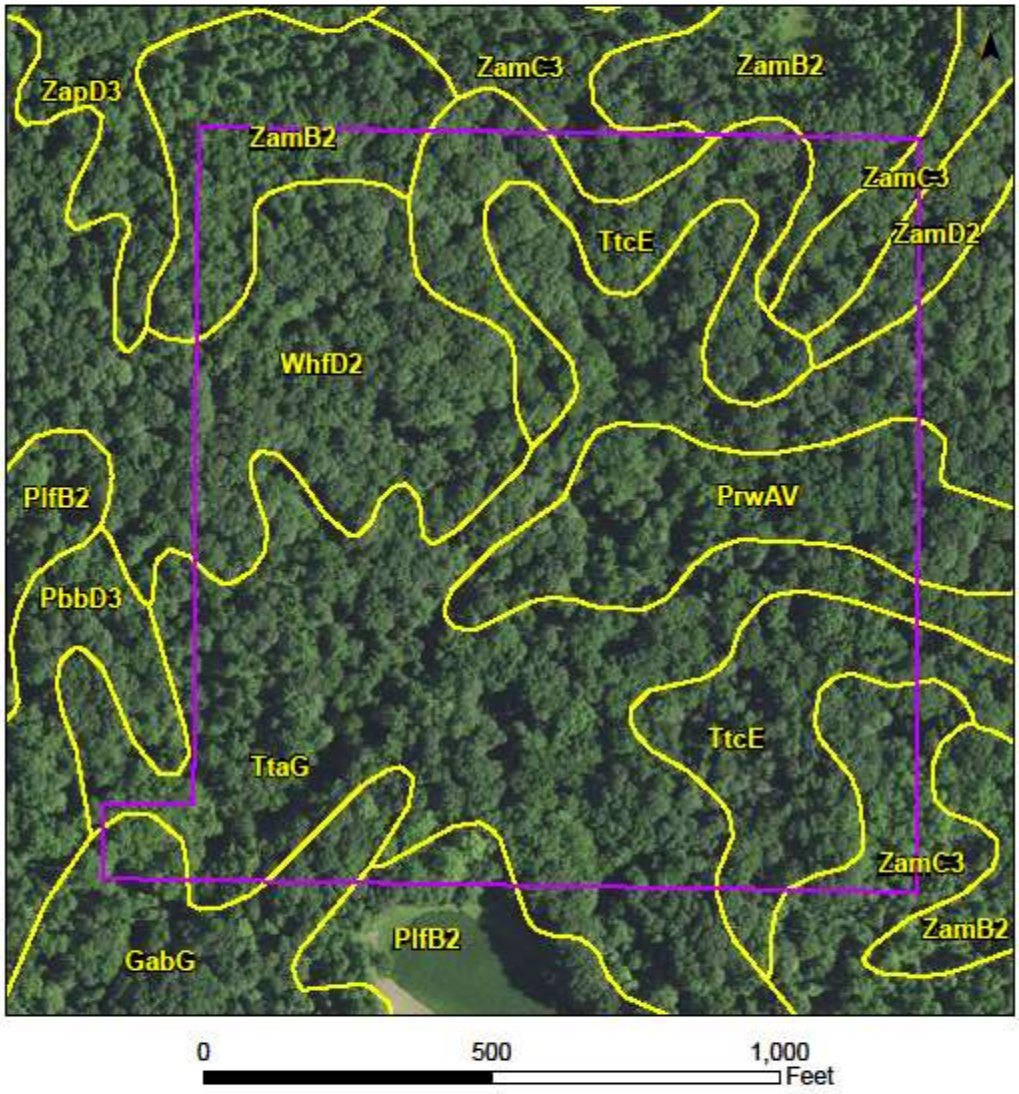
Owen-Putnam State Forest
Location Map
Compartment 7 Tract 7



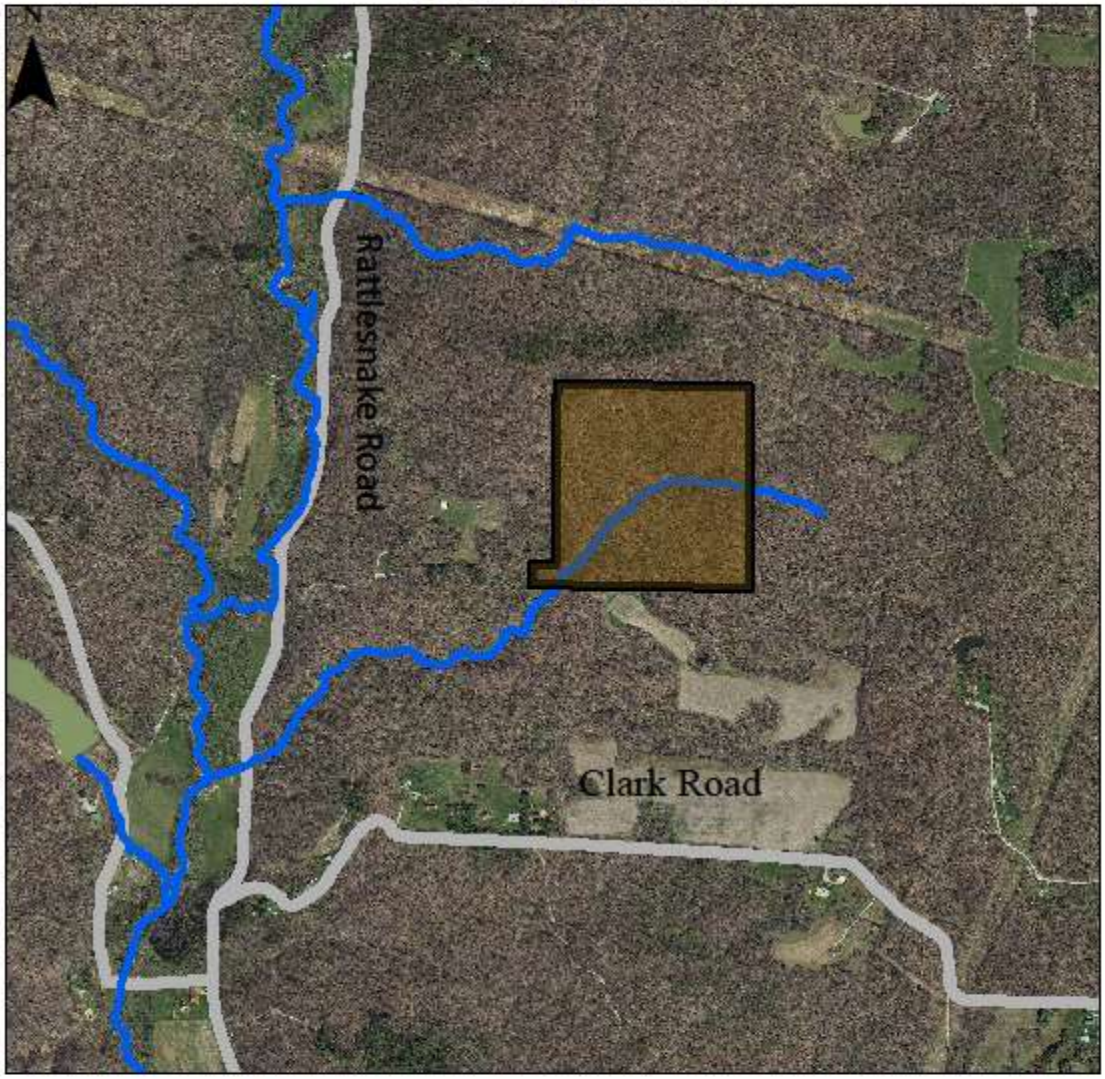
Owen-Putnam State Forest
Compartment 7 Tract 7
Tract Map



Owen-Putnam State Forest
Compartment 7 Tract 7
Soils Map



Owen-Putnam State Forest
Compartment 7 Tract 7
Cover Type Map



Legend

0 0.23 0.45 0.9 Miles

- State Forest Boundary
- Mapped Streams
- County Roads
- Mixed Hardwoods