**Indiana Department of Natural Resources**
**Division of Forestry**
**RESOURCE MANAGEMENT GUIDE**

Pike State Forest — Compartment: 12 Tract: 05
Forester: Jamie Winner — Date: 10/10/2023 Acres: 166
Management Cycle End Year 2043 — Management Cycle Length 20 years

## Location

This tract, also known as 6311205, lies within Marion Township in Pike County approximately 4 miles southeast of Winslow, Indiana. More specifically, the tract is located within Sections 14, Township 3 South, and Range 3 West.

## General Description

The tract contains ridges and moderate slopes generally running north and south. There are several small ephemeral streams that have been created due to past land practices. Most of the tract consists of a mixed-hardwood cover type. The southern most portion of the tract is a mine reclamation area with a generally open condition. Scattered pockets of pine plantings can still be found although most have extensive past windthrow damage.

## History

- Several land acquisitions over a 60-year period account for the acreage of this tract. The first acquisition was from the Board of Commissioners of Pike County in 1935.
- In 1951 the second parcel was purchased from Herbert Cook.
- In 2003 the additional parcels to complete the now 166-acre tract were purchased from the Ellis Estate.

## Landscape Context

The landscape north, east, and west of the tract is all forested with varying degrees of topography. The only non-forested landscape is to the south which is a previously reclaimed coal mine area.

## Topography, Geology and Hydrology

Compartment 12 Tract 5 has varied topography with ridgetops, bottomland areas and slopes that can range from zero degrees up to 30 degrees. The tract consists of a primary ridge trending southeast to an easterly direction with finger ridges running north to south. Most of Pike State Forest does not have exposed bedrock except in areas that were previously mined.

## Soils

There seven soil types across the tract, including Belknap silt loan (Bg), Fairpoint-Bethesda complex (FbC), Gilpin silt loam (GnE), Wellston silt loam (WeE), Zanesville silt loam (ZaB), Zanesville silt loam (ZaC3), Zanesville silt loam (ZaD3)

Belknap silt loam, frequently flooded **(Bg)**
This is a deep, somewhat poorly drained soil located on broad flood plains. It is flooded for long periods during winter and spring. Available water capacity is very high. Permeability is moderate, and surface runoff is slow. Most areas of this soil type are used for cultivated crops but are also well suited to trees. Capability class is IIw and woodland ordination symbol is 6A. All woodland management concerns for this class are "slight" and the site index is 75.

Fairpoint-Bethesda complex, 8-15% slopes **(FbC)**
These are moderately to strongly sloping, deep, well drained soils. They occur as mine spoil in surface mined areas on uplands that have been shaped and smoothed. Available water capacity is low, permeability is moderately slow, and surface runoff is medium or rapid. These soils are suitable for grasses and legumes. The soils are also suited to trees as long as suitable tree species are selected for the growing conditions. The soils have a capability class of VIs but do not have a woodland ordination symbol. No site index is available.

Gilpin silt loam, 15-30% slopes **(GnE)**
This is a strongly sloping, moderately deep, well drained soil located on side slopes on uplands. Available water capacity is high, permeability is moderate, and surface runoff is rapid. The soil is fairly well suited to trees with primary management concerns being hazard of erosion, equipment limitation, and plant competition. The soil has a capability class of VIe and the woodland ordination symbol is 4R. Management concerns are moderate for erosion and equipment limitation, and slight for seedling mortality and windthrow hazard. Site index is 80.

Wellston silt loam, 15-30% slopes **(WeE)**
This is a strongly sloping to steep, deep, well drained soil located on side slopes in uplands. Available water capacity is high, permeability is moderate, and surface runoff is rapid. The soil is fairly well suited to trees with primary management concerns being hazard of erosion, equipment limitation, and plant competition. The soil has a capability class of Vie and the woodland ordination symbol is 4R. Management concerns are moderate for erosion and equipment limitation, and slight for seedling mortality and windthrow hazard. Site index is 71.

Zanesville silt loam, 2-6% slopes **(ZaB)**
This is a gently sloping, deep, moderately well drained soil located on ridgetops in uplands. Available water capacity is moderate, permeability is moderate above the fragipan and slow in the fragipan, and surface runoff is medium. A fragipan is locate at a depth of about 24 to 36 inches. This restricts the downward movement of water and creates a perched water table above the fragipan in winter and early spring. The soil is fairly well suited to trees. It has a capability class of IIe and a woodland ordination symbol of 4A. all woodland management concerns for this class are slight. Site Index is 68.

Zanesville silt loam, 6-12% slopes **(ZaC3)**
This is a moderately sloping, deep, moderately well drained soil located on side slopes in uplands. Available water capacity is moderate, permeability is moderate above the fragipan and slow in the fragipan, and surface runoff is rapid. A fragipan is locate at a depth of about 24 inches. This restricts the downward movement of water and creates a perched water table above the fragipan in winter and early spring. The soil is fairly well suited to trees. It has a capability

class of IVe and a woodland ordination symbol of 3D. Management concerns are moderate for seedling mortality and slight for erosion hazard, equipment limitation, and windthrow hazard. Site Index is 60.

Zanesville silt loam, 12-18% slopes **(ZaD3)**
This is a moderately sloping, deep, moderately well drained soil located on narrow side slopes in uplands. Available water capacity is moderate, permeability is moderate above the fragipan and slow in the fragipan, and surface runoff is rapid. A fragipan is locate at a depth of about 24 inches. This restricts the downward movement of water and creates a perched water table above the fragipan in winter and early spring. The soil is fairly well suited to trees. It has a capability class of IVe and a woodland ordination symbol of 3D. Management concerns are moderate for seedling mortality and slight for erosion hazard, equipment limitation, and windthrow hazard. Site Index is 60.

## Access

C12T5 has generally good access. The public can access the tract via County Road 650 East. The tract can also be accessed for management purposes using Fire Lane 6 or Fire Lane 10. These fire lanes have a locked gate at the entrance.

## Boundary

The tract boundary is almost entirely internal boundaries based upon geographic features such as ridges and valleys, as well as human created divisions such as fire lanes. The northern boundary of the tract follows a county road and a fire lane. The southeast portion of the tract boundary follows an old reclamation access road and a portion of an old railroad grade. The southwest portion of the boundary follows a significant drainage. There is also approximately 3/8-mile boundary shared with private property in the northwest portion of the tract. There are wooden posts and signs on the two corners shared with our boundary. The signs are old and in very poor condition and need replaced.

## Ecological Considerations

Wildlife noted included deer, turkey, box turtles, mice, and songbirds. The habitat within the tract should be suited for a wide variety of species. Habitat includes mature closed canopy forest, some planted pine stands, open reclaimed mine ground, and early successional forest created by previous storm salvage of pine within this tract.

The Division of Forestry has developed compartment level guidelines for important wildlife structural habitat features such as snags and legacy trees. Snags are standing dead or nearly dead 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, which provides habitat for many ground-dwelling species and contributes to healthy soils. Legacy trees are live trees of a certain species and diameter class, that have potential future value to various wildlife species, if retained in the stand. Current assessments indicate the abundance of these habitat features meet or exceed recommended maintenance levels.

Invasive species are present in a lower quality area of timber in the northwestern portion of the tract and in the reclaimed mine area in the southeastern portion. Species include multiflora rose, serecia lespedeza, phragmites, and callery pear. Japanese stiltgrass is also present along the fire lanes in this tract and roadsides adjacent. Some control work has been completed on the callery pear previously.

A formal Ecological Review process, which includes a search of Indiana's Natural Heritage Database, is part of the management planning process. If Rare, Threatened, or Endangered species were found to be associated with this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the population viability of those species or communities.

## Recreation

There are no designated recreational trails within this tract. However, the fire lanes are likely used for hiking, bird watching, and hunting. The public can access the tract boundary from County Road 650 East. Fire Lane 10 has been previously used as an access lane for disabled hunters. Fire Lane 6 also allows for easy access into the tract.

## 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

Mixed Hardwood Stratum/cover type

This stratum is the largest stratum found in the tract and covers 71 acres. Inventory data is showing 83 trees per acre, 72.1 basal area per acre, and 5,864 board feet per acre in these areas. This corresponds to a stocking level of about 60%. Forest conditions vary greatly in these areas. Toward the northwest portion of the tract near CR 650 E, the forest is generally of low quality with little sawtimber, and more invasive species. Much of this area included ash timber which is dead from emerald ash borer, and the extra sunlight has allowed for additional herbaceous growth. These areas need invasive species control work. Any prescribed timber harvest would likely exclude these areas. The more interior portions of the tract contain some areas of quality sawtimber with good stocking. Some areas even include scattered advanced oak regeneration that could benefit from release. Poplar is the primary sawtimber species in these areas, but can include some oak, hickory, pine, maple, and beech. During the inventory, most plots in the stratum were prescribed a light to moderate thinning. The understory is composed of the typical beech and maple mix in many areas. Inventory data indicated residual stocking reduction to approximately 40% on the Gingrich Stocking Chart, which is considered understocked and low for a residual stocking level. However, the total and residual stocking levels are being affected by the currently non-merchantable timber areas previously mentioned and likely also from ash mortality. Some areas in the inventory were identified as no harvest due to this, with other areas having a higher stocking level and in need of management.

Mesic Oak-Hickory Stratum/cover type

This stratum covers 43 acres of the tract. This area included the typical mature sawtimber oak-hickory species mix seen elsewhere on the forest. Inventory data indicates 121 trees per acre, 103.9 basal area per acre, and 8,258 board feet per acre in these areas. This corresponds to a stocking level of about 84%. White oak was the primary sawtimber species in this area, but other common species included black oak, red oak, pignut hickory, bitternut hickory, and shagbark hickory. There were many opportunities for moderate thinning and release observed in these areas. A few areas contain advanced oak regeneration as with the mixed hardwood areas, so these areas should be targeted to release the regeneration. Due to the mature age of the sawtimber, some salvage will need to take place where dieback and decline was noted in the inventory. Due to the lack of widespread advanced oak regeneration, these areas will need treatment to encourage regeneration if oak and hickory are to be retained for the future. Disturbance such as removal of mid-story combined with prescribed fire would be needed to encourage oak and hickory regeneration. The understory is composed of the typical beech and maple mix in many areas. Inventory data indicated residual stocking reduction to about 64% in these areas.

Non-Forested Stratum/cover type

This stratum covers approximately 38 acres of the tract. This area includes all the reclaimed mine ground in the southeastern portion of the tract. The actual ground cover varies but includes herbaceous grasses and plants, seedling to pole sized natural tree regeneration, and open water. The inventory points collected in this stratum showed tree regeneration that is currently too scattered to be reclassified into forestland at this time. Some tree plantings are planned for nearby tracts, and this may be an option in the future for some of the areas currently unforested.

Pine/Conifer Stratum/cover type

This stratum covers about 14 acres of the tract. Inventory data is showing 188 trees per acre, 106.1 basal area per acre, and 7,075 board feet per acre in these areas. Virginia and eastern white pine were the two species noted during the inventory. Some of the pine was previously salvaged in 2012 due to storm damage. The remaining pine has varying amounts of windthrow damage and hardwood succession. Regeneration or patch cut openings could be created in areas of primarily pine to accelerate the conversion from pine to native hardwoods.

The current forest resource inventory was completed on 10/10/23 by Jamie Winner. 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 | 687 | 230,730 |
| White oak | 1,260 | 229,300 |
| Black oak | 539 | 89,990 |
| Sugar maple | 545 | 46,580 |
| American beech | 370 | 44,770 |
| Northern red oak | 93 | 31,140 |
| American sycamore | 111 | 26,410 |
| Bitternut hickory | 288 | 25,270 |
| Pignut hickory | 217 | 25,180 |
| Eastern white pine | 122 | 24,940 |
| Shagbark hickory | 200 | 18,340 |
| Blackgum | 159 | 17,310 |
| Pin oak | 65 | 16,560 |
| Virginia pine | 199 | 13,420 |
| Black cherry | 134 | 9,670 |
| Red maple | 73 | 6,480 |
| Scarlet oak | 78 | 6,290 |
| Chinkapin oak | 39 | 4,060 |
| White ash | 30 | 3,910 |
| **Total:** | 5,209 | 870,350 |

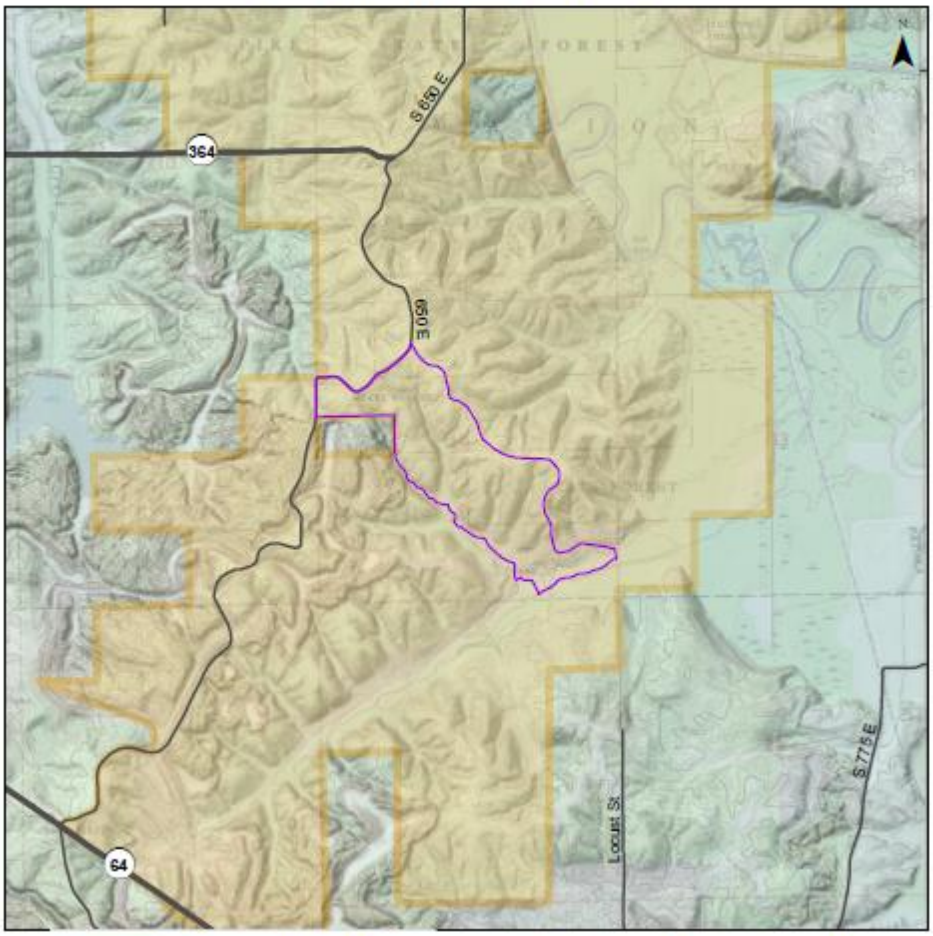
## Summary Tract Silvicultural Prescription and Proposed Activities

A timber harvest is prescribed for this tract, to include portions of the mixed hardwood, oak-hickory, and pine stratums/cover types. Estimated harvest volume would be approximately 400MBF according to inventory data. Details of management are described in the tract subdivision descriptions above. This harvest should be combined with C12T6 (6311206) and C12T7 (6311207) if practicable due to the adjacent location and common fire lane for access. The fire lane is in good shape but could use some vegetation clearing and additional gravel to improve sections for all-weather access.

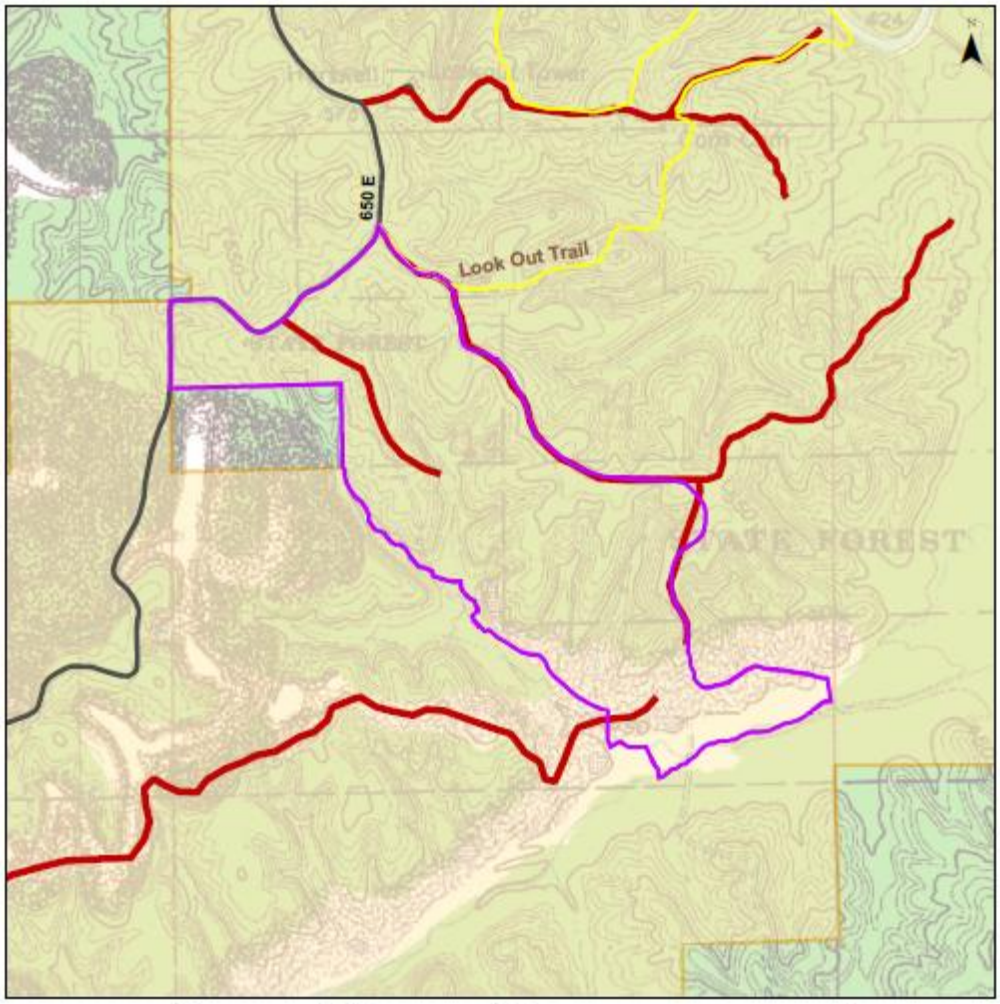
## Proposed Activities Listing

| *Proposed Management Activity* | *Proposed Date* |
|---|---|
| Road improvement work to FL10 | 2024 |
| Timber sale C12T5 with C12T6 & C12T7 | 2024-2028 |
| Invasive species control | 2024+ |
| Timber Stand Improvement | Post-harvest |
| Prescribed fire | Post-harvest |
| Re-inventory | 2043 |

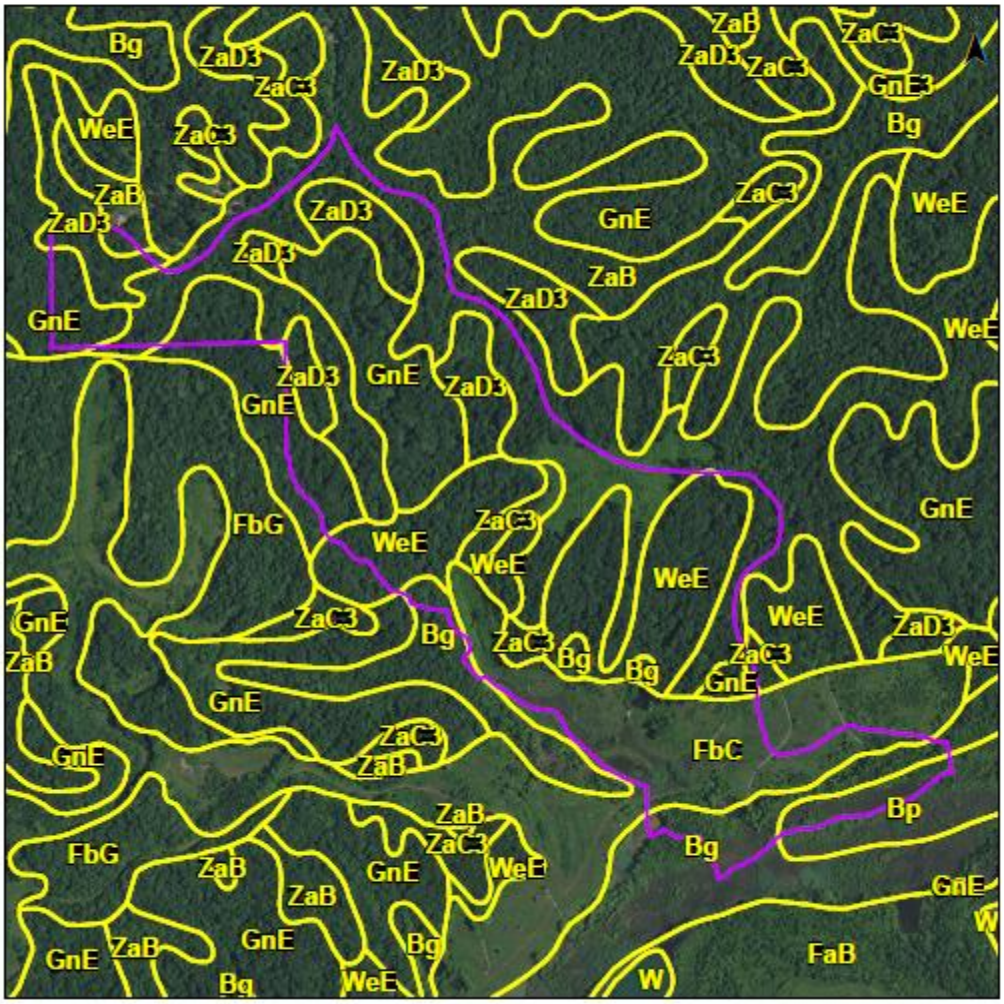
# Pike State Forest
## Location Map
## Compartment 12  Tract 5



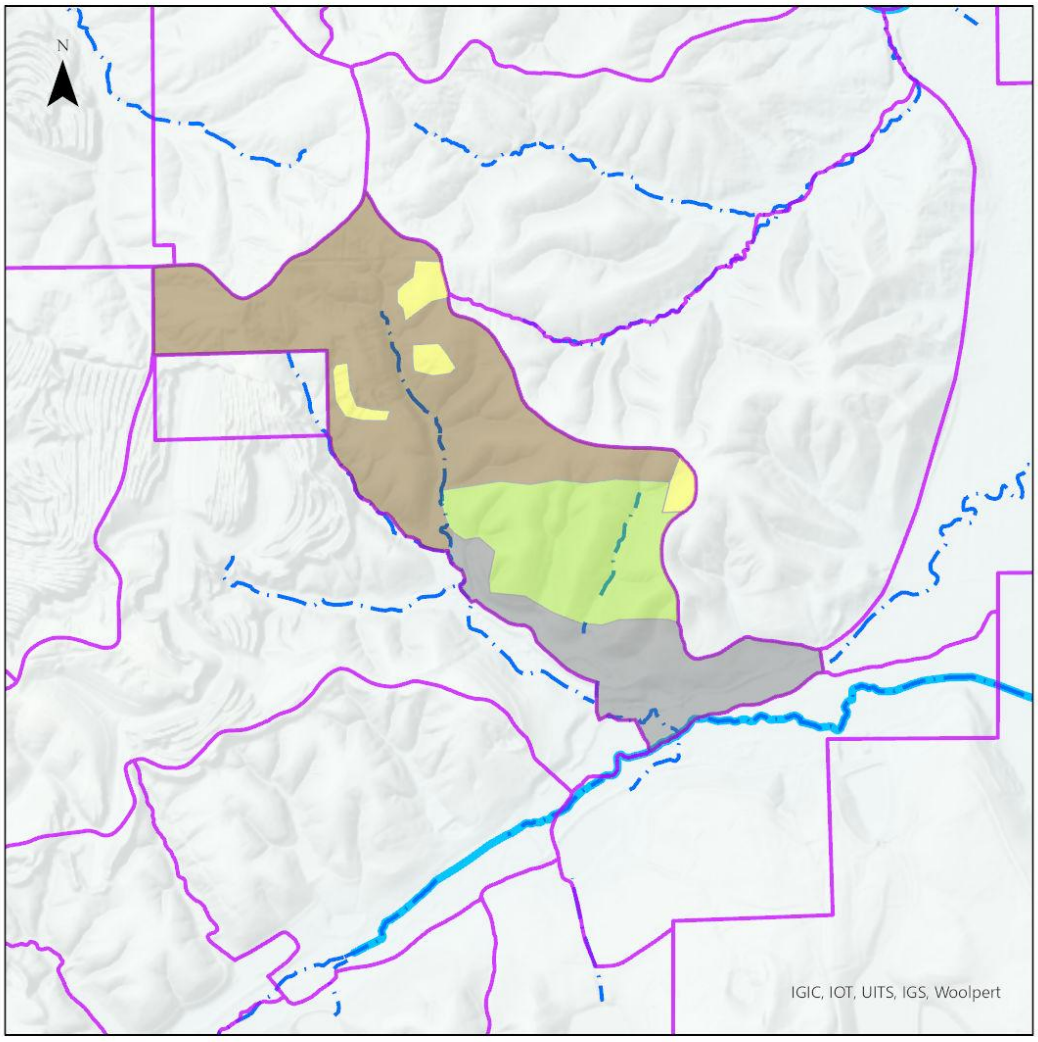
# Pike State Forest
# Compartment 12 Tract 5
# Tract Map



# Pike State Forest
# Compartment 12 Tract 5
# Soils Map



# Pike State Forest
# Compartment 12 Tract 5
# Cover Types Map



**Indiana Department of Natural Resources**

**Division of Forestry**

RESOURCE MANAGEMENT GUIDE

Pike State Forest Compartment: 12 Tract: 06

Forester: Jamie Winner Date: 12/4/2023 Acres: 197

Management Cycle End Year 2043 Management Cycle Length 20 years

## Location

Compartment 12 Tract 6, otherwise known as 6311206, is in Pike County, Sections 13 and 14, Township 2 South, Range 7 West. It is approximately 4 miles southeast of Winslow, Indiana.

## General Description

Compartment 12 Tract 6 consists of 197 acres in various hardwood cover types/stratums. Stratums identified included mixed hardwood and oak-hickory. There is a small amount of pine in the tract, but not sufficient to assign as a separate stratum in any inventory plot. The same is true for a small amount of reclaimed mine area along the southern boundary of the tract. There is a small amount of open area, but species classified as oak-hickory fell within the closest plots.

## History

Tract purchase history includes portions of the following:

- 409-acre parcel from Pike County Commissioners in 1935
- 60-acre parcel from William and Hettie Risley in 1935
- 248-acre parcel in 2002 from James C Ellis Estate Trust
- 250-acre parcel in 2004 from James C Ellis and Bruce Yombry

Management history includes:

- Documents reference wildfires covering portions of the tract between 1956-1961.

- Forest inventory and management guide completed in April 1971.
- Timber sale in April 1971 harvesting 29,000 board feet (bdft) in 210 trees on 33 acres.
- Timber stand improvement (TSI) completed over timber sale area in 1972.
- Forest inventory and management guide completed in February 1976.
- Prior to state ownership, extensive harvesting of Ellis Estate properties in 1978.
- Forest inventory and management guide completed by Doug Brown in October 1987.
- Forest inventory and management guide completed by Jamie Winner in July of 2008.
- Storm damage to portions of the tract in February 2011.
- Salvage timber sale in June 2011 harvesting 136,680 bdft and 748 cords over 23.5 acres.
- TSI followed the salvage harvest in 2011.

**Landscape Context**

Surrounding landscape is in a rural setting. Cover types consist of forested, open water, wetlands, farmland, or open and early successional reclaimed mined areas. The town of Winslow, IN, is approximately 4 miles to the northwest.

**Topography, Geology and Hydrology**

The tract has varied topography with ridgetops, bottomland areas, and slopes up to 30%. The tract consists of a primary ridge trending east and northeast, with finger ridges coming off this primary ridge. The bottomland areas tend to be near the tract edges, particularly the east tract boundary. A mapped intermittent stream flows along the northern boundary of the tract, and a wetland area is nearby in adjoining C12T7 (6311207). Pike State Forest tends to not have exposed bedrock except in mined areas, and there were only a few instances of minor exposed rock which appeared to be sandstone.

**Soils**

Soils within the tract include the following (also refer to attached soils map):

Belknap Silt Loam (Bg), frequently flooded- This soil is a nearly level, deep and somewhat poorly drained soil on flood plains. The soil is flooded for brief or long periods of time during the winter and spring. The soil has a very high available water capacity. Surface runoff is

slow and a seasonal high water table at 1 to 3 feet in the winter and spring. Organic matter content is moderately low. This soil is well suited for trees. The land capability subclass is IIw, the woodland ordination symbol is 6A and the site index 90.

Fairpoint-Bethesda complex (FbC) - These moderately sloping and strongly sloping, deep, well drained soils occur as mine spoil in surface-mined areas on uplands that have been shaped and smoothed. Also included are some abandoned haul roads. The subsoil is 60" thick. Available water capacity is low and permeability is moderately slow. Surface runoff is medium or rapid. The abandoned haul roads and mine dumps cannot support vegetation unless major reclamation measures are applied but they are fairly well suited to a wide variety of grasses and legumes for hay or pasture. The organic matter content is very low in the surface layer. The land capability class is VIs. No woodland ordination symbol is assigned. No sight index is given.

Gilpin Silt Loam (GnE), 15-30% slopes- This is a strongly sloping to steep, moderately deep and well drained soil on side slopes in uplands. The subsoil is 29" thick and fractured sandstone bedrock occurs at 35 inches. The soil's available water capacity is low, permeability is moderate and surface runoff is rapid. Organic matter content in the surface layer is moderate. Erosion is a major hazard. The soil's land capability is VIe, the woodland ordination symbol is 4R and the site index is 80.

Wellston Silt Loam (WeE), 15-30% slopes- This soil is found on strongly sloping to steep hills. It is a deep, well drained soil on side slopes in uplands. There is sandstone bedrock at 60 inches. The available water capacity is high, permeability is moderate and surface runoff is rapid. Organic matter is moderately low. The major hazard for this soil is erosion. The soil has a land capability classification of VIe, has a woodland ordination symbol of 4R and a site index of 71.

Zanesville Silt Loam (ZaB), 2-6% slopes- This soil is found on gently sloping, deep, and moderately well drained soil on ridgetops in uplands. Sandstone bedrock is found at 78 inches. The soil has moderate available water capacity and permeability is moderate above the fragipan and slow in the fragipan. Surface runoff is medium. There is a firm and brittle fragipan at 24-32 inches and a perched seasonal high-water table is in or above this fragipan during winter and early spring. Organic matter content is moderately low. Erosion is the major hazard for this soil. The soil has a land capability classification of IIe, a woodland ordination symbol of 4A and a site index of 68.

Zanesville Silt Loam (ZaC3) 6-12% slopes, severely eroded- This soil is found on moderately sloping, deep and moderately well drained soils. The Available water capacity is moderate. Permeability is moderate above the fragipan and slow in the fragipan. Surface runoff is moderate in cultivated areas. There is a slowly permeable fragipan at a depth of about 2 feet. The perched seasonal high-water table is above the fragipan during winter and early spring. Organic matter content is low. The land capability class is IVe, it has a woodland ordination symbol of 3D and a site index of 60.

Zanesville Silt Loam (ZaD3), 12-18% slopes, severely eroded.-This is a strongly sloping, deep and moderately well drained soil on narrow side slopes. The available water capacity is moderate. There is a slowly permeable, brittle fragipan at 2 feet restricts roots and downward movement of water. Surface runoff is very rapid. There is a perched seasonal high-water table in or above the fragipan in winter and early spring. Organic matter content is low. Erosion is a hazard. The land capability classification is VIe, it has a woodland ordination symbol is 3D and a site index of 60.

**Access**

There is excellent access to and within this tract. Fire Lane 10, which previously served as a county road, provides access through the primary ridge of the tract. The fire lane has some gravel with previous improvement work, but still has some potholes and soft areas that could benefit from additional gravel. Also, some of the roadside vegetation needs to be trimmed back as part of any future improvements.

**Boundary**

The tract is generally shaped like a triangle, and the boundaries of this tract are internal. The northern boundary consists of a mapped intermittent stream. The eastern boundary follows an old rail grade, and the southern boundary follows a combination of a rail grade and fire lanes. The southern and northern boundaries meet at a point on the west edge of the tract.

**Ecological Considerations**

Wildlife noted included deer, turkey, box turtles, mice, and songbirds. Habitat includes mature closed canopy forest, a minor amount of pine, and open reclaimed mined ground.

The Division of Forestry has developed compartment level guidelines for important wildlife structural habitat features such as snags and legacy trees. Snags are standing dead or nearly dead 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, which provides habitat for many ground-dwelling species and contributes to healthy soils. Legacy trees are live trees of a certain species and diameter class, that have potential future value to various wildlife species, if retained in the stand.

Inventory data for Compartment 12 Tract 6 indicates 9" + DBH snags exceed maintenance levels, while 5"+ and 19"+ DBH snags are below target maintenance levels. It is important to note that these are compartment guidelines and that even though the estimated tract data does not quite meet all target levels, it is likely that suitable levels are present for these habitat features in the surrounding landscape. The prescribed management will maintain or enhance the relative abundance of these features.

Invasive species are present in a northern portion of the tract and in the reclaimed mine area in the southern portion. Species include autumn-olive and multiflora rose in the northern section, and callery pear in the southern reclaimed area. Japanese stiltgrass is present on the fire lanes within this and adjacent tracts. Serecea lespedeza is present within the reclaimed mined area. The forest interior species are not extensive infestations, so they should be reasonably easy to control. The stiltgrass will require use of a higher capacity vehicle mounted spray unit.

A formal Ecological Review process, which includes a search of Indiana's Natural Heritage Database, is part of the management planning process. If Rare, Threatened, or Endangered species were found to be associated with this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the population viability of those species or communities.

**Recreation**

There are no designated recreational trails in this tract. A couple hunting stands (i.e., tree stands) were observed within the tract during the inventory. Hunting is likely the primary active that occurs in the tract. Fire Lane 10 provides easy access for foot traffic, and a portion of the fire lane is shared with a horse trail beyond the tract boundary. Although the horse trail does not extend into tract 6, horse riders have been encountered on the fire lanes. Previous management guides mention illegal ATV use on the old rail grade, which seems to have ceased.

**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**

Mixed Hardwood Stratum

Forestland classified into this stratum covers approximately 128 acres. Much of the stratum is in the northern half of the tract, which corresponds to some of the more recent state land acquisitions. These areas were harvested heavily prior to state ownership. There remains good stocking in many of these areas, although it is variable across the stratum. Inventory data indicates 141 trees per acre, 111 Basal Area per acre, and 7,700 bdft per acre. This corresponds to a stocking level of 90%.

Several inventory plots make note of chest-high to pole size oak regeneration, which presents an excellent opportunity to release some of this oak from the competing hardwoods. The oak in this condition is likely due to the heavy harvesting (i.e., disturbance) prior to state ownership.

In addition to the limited number of invasive species observed, there are some areas that could benefit from vine control. Species breakdown for the tract is listed below, but major species in this stratum included yellow poplar, white oak, black oak, sweetgum, sugar

maple, and American beech. The larger sweetgum and maples tend to have visible defects, and some of the black oak and yellow poplar had noticeable crown decline.

Prescribed fire would likely be of benefit in several areas of this stratum as well as the oak-hickory stratum. Overstory white oak seed source is present in many areas, so fire combined with a good acorn crop would help create condition favorable for promoting and sustaining the diversity of species in the tract. Inventory data shows the typical story of almost entirely beech and maple in the smaller size classes across the tract. Disturbance will be needed to disrupt the transition to shade-tolerant species.

Most of the area in this stratum was recommended for a single tree selection harvest with light to moderate thinning. Inventory data indicated reduction of stocking to approximately 64% after a harvest. There are several reasons for the recommendations. In some areas, stocking is relatively high and should be reduced. There are numerous instances of trees needing some release from competition, as well as a few instances of opportunity to salvage declining timber. Some poor formed trees could be removed to benefit other trees nearby. Other areas include opportunity to release already present oak in the mid-story or understory, as mentioned above. A few areas will need no treatment and were recommended to simply let grow until the next cutting cycle.

Mesic Oak-Hickory Stratum

Forestland classified into this stratum covers approximately 69 acres. Much of the stratum is in the southern half of the tract, which corresponds to original state ownership in this area. Inventory data indicates 156 trees per acre, 110 Basal Area per acre, and 7,500 Board Feet per acre in these areas. This corresponds to a stocking level of 90%.

A couple common themes in this stratum included larger sawtimber oaks and hickories transitioning to mixed hardwoods, especially beech and maple in the understory. Oak mortality was limited, but also noted in some inventory plots. Prescribed fire is recommended. Fire would benefit areas where white oak is present in the overstory, reducing the presence of beech and maple in the understory. A few inventory plots included already present pole size oak to release, and one area in the southeastern portion of the tract noted a recommendation to create a small group selection opening to release chest-high oak regeneration.

Invasive species and vines are similar in this stratum as described in the mixed hardwood stratum. There is some opportunity for treatment of some vines and invasives, but nothing major.

Most areas within this stratum were prescribed a single tree selection harvest as noted during the inventory, although one area recommended a group or patch cut opening and others included no harvesting. Inventory data indicated reduction of stocking to approximately 64% after a harvest. Throughout the inventory plots, a light thinning was recommended, removing non oak and hickory species to release and perpetuate the oak and hickory. Nevertheless, long term planning will need to include some type of more significant disturbance to initiate the kind of regeneration in the understory needed to create a new stand in the future. Fire and targeted mid-story removal treatments are good silvicultural tools to accomplish this objective.

The current forest resource inventory was completed on 11/16/23 by Jamie Winner.
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 | 2,147 | 413,940 |
| White oak | 1,787 | 316,380 |
| Black oak | 701 | 141,200 |
| Northern red oak | 725 | 103,100 |
| Sweetgum | 802 | 84,200 |
| Sugar Maple | 892 | 71,130 |
| Pignut hickory | 511 | 69,810 |
| Shagbark hickory | 670 | 68,840 |

| | | |
|---|---|---|
| Scarlet oak | 493 | 65,280 |
| American sycamore | 218 | 50,860 |
| American beech | 338 | 44,740 |
| Blackgum | 342 | 22,110 |
| Northern pin oak | 60 | 19,100 |
| Red maple | 51 | 10,930 |
| Red elm | 17 | 7,690 |
| Black cherry | 112 | 7,070 |
| Chinkapin oak | 106 | 5,750 |
| White Ash | 30 | 4,520 |
| **Total:** | 10,002 | 1,506,650 |

**Summary Tract Silvicultural Prescription and Proposed Activities**

As outlined in the tract subdivision descriptions, a harvest is prescribed across most of this tract. A timber harvest can be expected to remove 700-800MBF. There will be variability in the marking to include single tree selection, group and patch cut selection openings, and no harvesting in areas depending on current conditions and stocking. Objectives will include removal of poor form and declining timber, reduction of high stocking where needed, release of higher value trees from competition, release of oak regeneration already present, and maintenance and release of oak and hickory species where present. This will include planning for a prescribed fire to promote the long-term species diversity of the tract and continued presence of oak and hickory. Pre-harvest activities will include limited vine control and invasive species control.

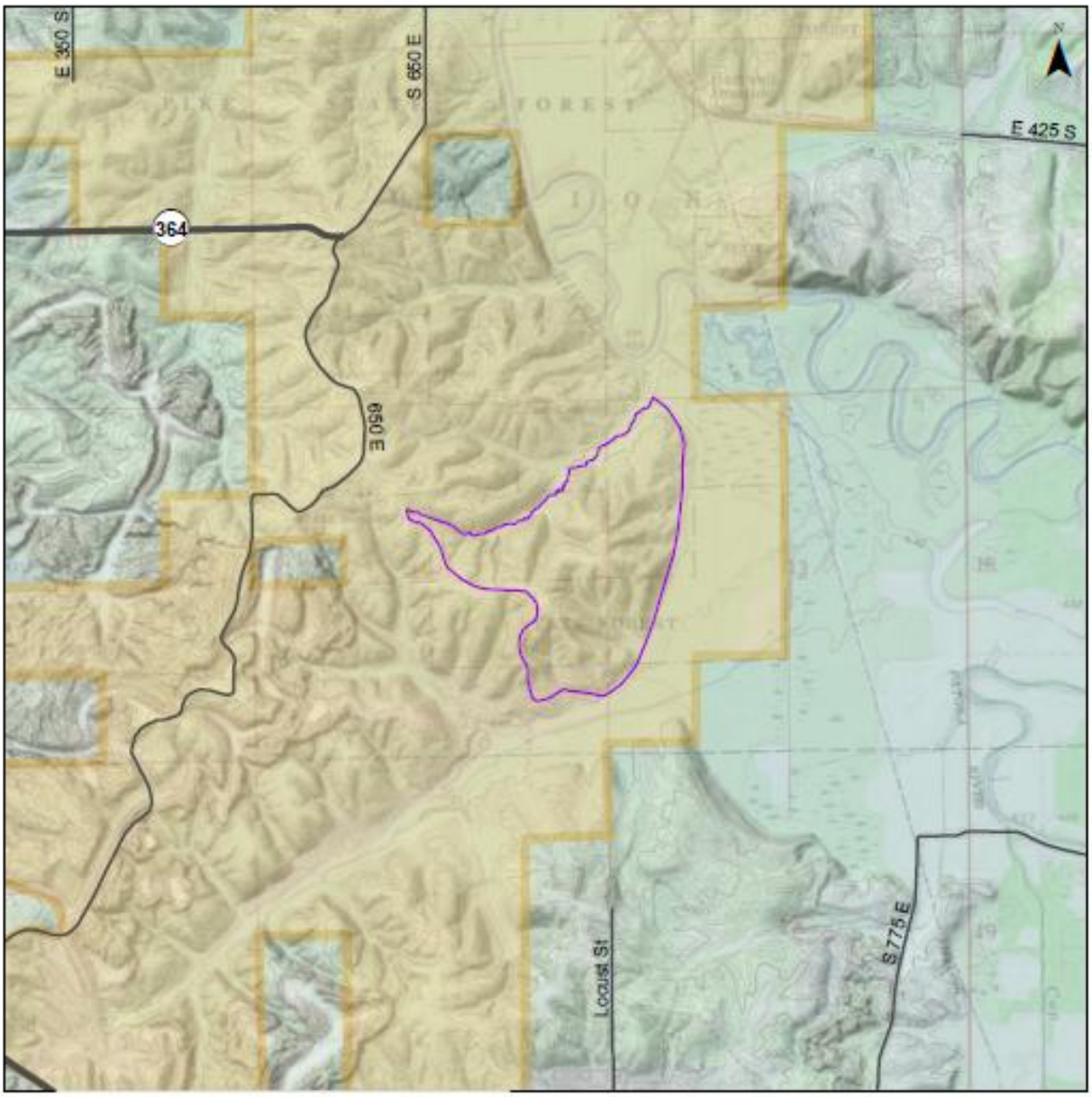
**Proposed Activities Listing**

| *Proposed Management Activity* | *Proposed Date* |
|---|---|
| Limited Vine TSI | 2023-2024 (winter) |

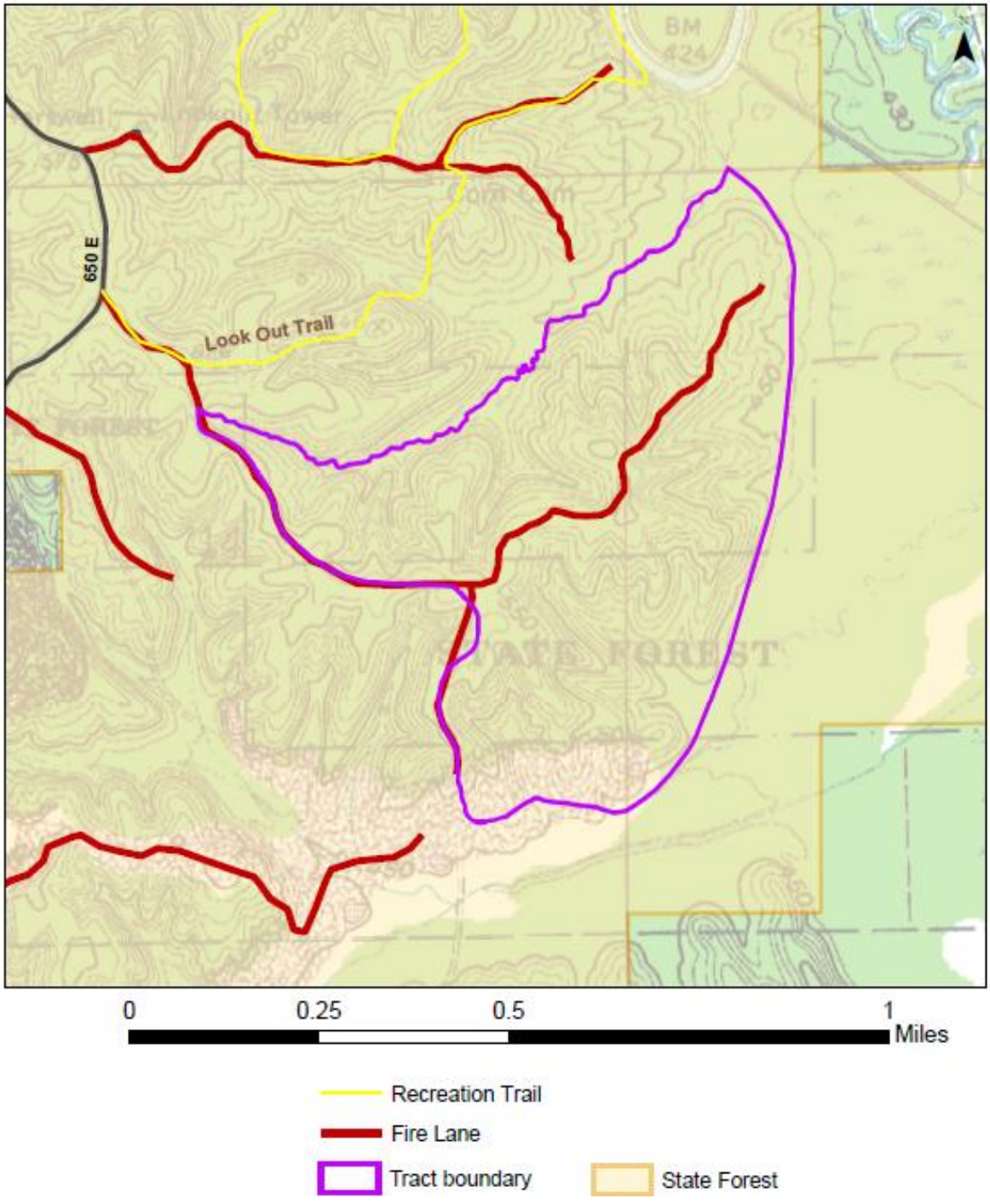
| | |
|---|---|
| Treat invasive species | 2023-2024 (ongoing) |
| Timber harvest | 2024-2025 |
| Regeneration opening review | 3 years post-harvest |
| RX burn | 2025-2030 |
| Re-inventory | 2043 |

**Maps**

# Pike State Forest
## Location Map
## Compartment 12  Tract 6

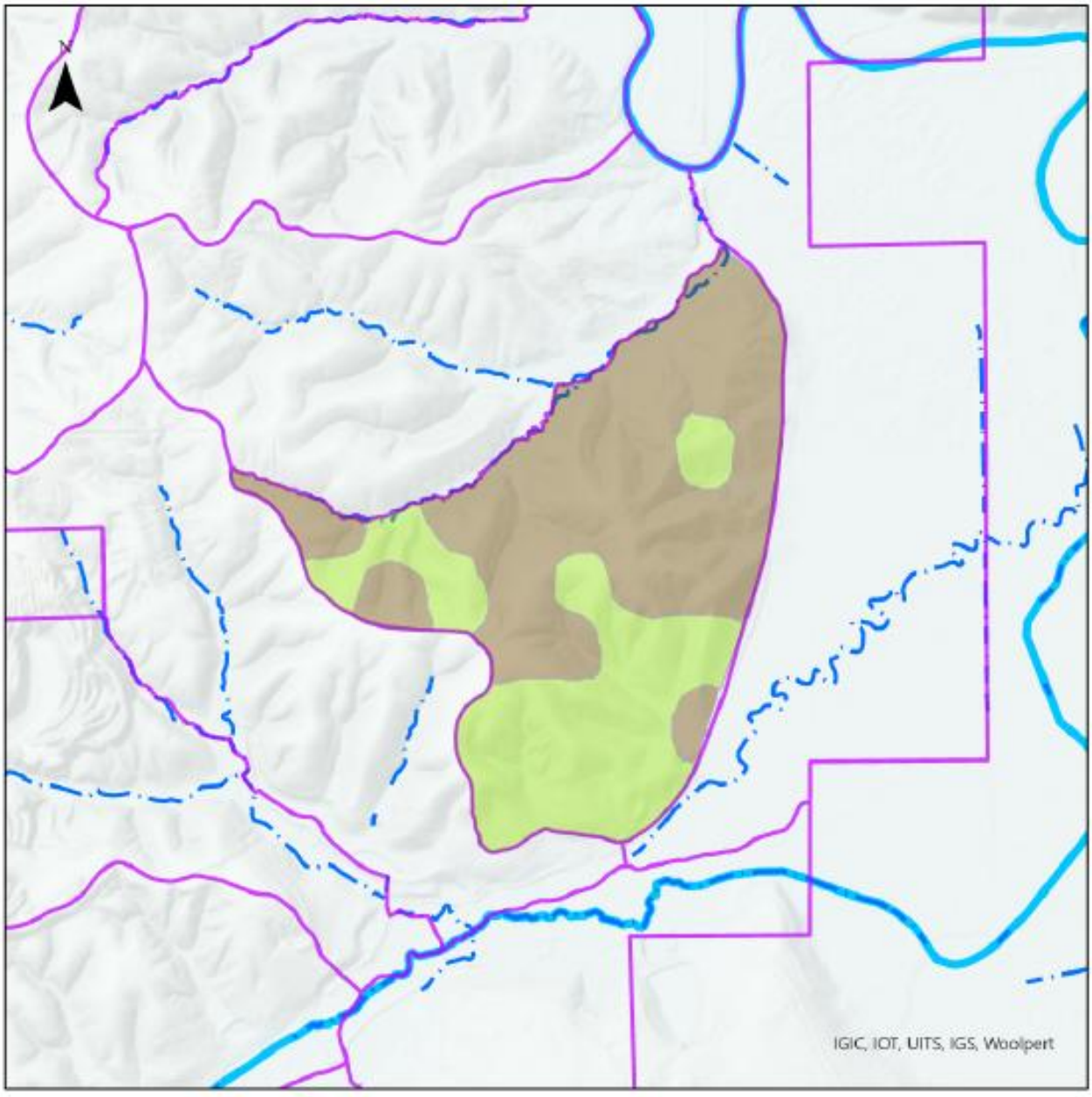


# Pike State Forest
# Compartment 12 Tract 6
# Tract Map



# Pike State Forest
# Compartment 12 Tract 6
# Soils Map

# Pike State Forest
# Compartment 12 Tract 6
# Cover Types Map




0 0.13 0.25
Miles

Mesic Oak-Hickory
Mixed Hardwoods
Mapped Streams
1-Mile Streams

**Indiana Department of Natural Resources**
**Division of Forestry**
**RESOURCE MANAGEMENT GUIDE**

**Pike State Forest** Compartment: **12** Tract: **07**
Tract Acreage: **192** Forest Acreage: **65**
Forester: **Evan McDivitt** Date: **10/9/2021**
Management Cycle End Year: 2041 Management Cycle Length: 20 Years

## Location

Compartment 12 Tract 7 (C12T7), also identified as 6311207, is in Pike County, Indiana, Sections 12,13, & 14, T2S, R7W, Marion Township.

## General Description

C12T7 contains 130 acres of floodplain forest composed of a combination of bottomland oak-hickory and bottomland mixed hardwoods. Almost 63 acres of the tract is in unforested buttonbush and other open, unstocked wetland. Ecotone areas immediately surrounding the wetland are sparse to densely covered with trees but still contain herbaceous and shrubby wetland features underneath the tree canopy. Numerous standing dead trees, or snags, exist in this ecotone suggesting the area has become wetter over the past 30 years or so. This has most likely occurred due in part to beaver activity in the area, alteration in hydrology from past drainage and subsequent abandonment of drainage structures, as well as landscape alterations from coal mining and reclamation activities in the recent past.

## History

- 1935 – Land acquisition from Board of Commissioners of Pike County (north and east section of tract).
- 2006 – Land acquisition from Jame C. Ellis (southwestern section of tract, part of a larger acquisition).
- 2009 – Land acquisition from James C. Ellis (40 acres northern section of tract)

## Resource Management History

A survey of this tract on Indiana Geological and Water Survey's Indiana Historical Aerial Photo Index (IHAPI) shows land cover development in this tract from 1937 to 1978. A 1937 aerial photo shows much of the northern and central part of the present-day tract contained forest canopy. The railroad bed is visible to delineate the western boundary of the tract in this photo. The southern portion of the tract appears to have been in open field at that time. A narrow strip of forest also appears in the southeastern portion of this tract. A 1949 aerial photo documents the presence of extensive mining and spoils areas upstream from this tract. Vegetation and land use appear to remain the same. It appears from 1954 through 1966 aerial photos, the field was beginning to grow in with shrubs and trees.

In 1966 property forester L. A. Crayden noted approximately 30 acres of land damaged in this tract. His note states, "nine acres of this area was timbered and it is now all dead. Another three

acres of timbered land is damaged. Most of the larger trees in this damaged area are dead. The remaining acreage is a semi-open brush area."

The office tract file documents a salvage sale conducted in 1967 on approximately 40 acres of the southern portion. This was a salvage clearcut to harvest acid mine flooded timber which was apparently causing the dominant trees to decline and die. Sale volume totaled 219,560 bd.ft. Doyle and was sold for $3,160.00 to Newton Planing Mill in Taswell.

Forester Rick Burgeson conducted an inventory in 1971 which encompassed approximately 97.2 acres of what is now C12T7. In the 40-acre portion, he found that most of the area had been clearcut with only a few stems remaining scattered through the area. He noted forest type had been pin oak-sweetgum. He noted stumps measuring 18-28 inches in diameter that had been part of the salvage harvest. In the clearcut area, he recommended planting red maple, sweetgum, and cottonwood. He also recommended testing for mine contamination before any planting occurred. To the south of this, he found a sapling size river birch stand across approximately 57.2 acres. He noted this area supported little more than river birch and brush thickets and that potential for this area was, "severely limited by the high-water table and frequent flooding from the Patoka River."

In 1976 property manager Steve Brandsasse conducted a follow up soil sample from the salvage sale harvest area of 1967. Test results showed soils had an average pH of 4.7 indicating soils and water on the surface were acid. It was concluded this was a condition created by flooding with acid water from area mines. Regular monitoring was prescribed in this area to check for tree mortality due to acidity.

A 1978 IHAPI aerial photo shows what appears to be young tree growth in the southern portion of the tract with the northern portion remaining visibly unchanged. Lack of detail in aerial photographs makes it challenging to document increasingly wet conditions in the eastern and central portion of this tract. At some point the increased presence of permanent standing water possibly coupled with increasing soil acidity from the acid mine drainage seems to have caused a shift from floodplain forest to open and semi open buttonbush wetland in specific areas in the tract.

A forest inventory was completed by forest technician Amy Zillmer in 2007. An estimated 5,909 bd.ft. per acre total volume and 3,609 bd.ft. per acre harvest volume across 136 acres.

A forest inventory was completed by forester Evan McDivitt in 2021. An estimated 6,969 bd.ft. per acre total volume across 192 acres.

**Landscape Context**

This tract lies within the Southern Bottomlands Section of the Southern Bottomlands Natural Region. The entire tract lies within the Boonville Hills portion of the Southern Hills and Lowlands physiographic province. Additionally, the entire tract lies within the Green River-Southern Wabash Lowlands part of the Interior River Valleys and Hills ecoregion. Pre-settlement land cover for this tract has been classified as *Quercus-Carya* vegetation type. Water from this tract drains into the Patoka River watershed. Hardwoods dominate the tract with non-forested wetlands noted in a few locations. Areas within a one-mile radius of this tract contain

additional portions of Pike State Forest as well as areas with deciduous forest, abandoned and reclaimed mine land, and the floodplain and channel of the Patoka River, as well as a portion of the Patoka River National Wildlife Refuge.

**Topography, Geology, and Hydrology**

A majority of this tract is flat bottomland with elevation differing by only a couple feet (approximately 428-432 ft.) from one location to another. Elevation ranges from a high of 450 feet along the western boundary, where bottomland begins transitioning to upland, to a low of 424 feet in the Patoka River which makes up a part of the north-northwest boundary. There is an intermittent stream which meanders through the tract from southwest to northeast. There are various swampy wetlands in which there is standing water all year long. There is an abandoned drainage ditch from a time when this area was in agricultural production which has likely influenced hydrology significantly in this tract. Water from this tract drains into the Patoka River watershed. The Patoka River is a meandering and underfit river; that is, a relatively small river compared to the large valley in which it flows. This meandering nature of the river, over long periods, has created a diversity of sites where slight differences in elevation, drainage and seasonal inundation correspond to different plant communities being situated on each site. The Patoka River experiences times with highly turbid water flow and other times with relatively clear flowing water. This is most likely due to upstream agricultural land use and erosion taking place. During saturating rain events, surface water runoff feeds sediment-laden water into the Patoka River. However, during other times when primarily ground water is feeding into the river, the water is much clearer. This tract undergoes seasonal flooding. Upland soils in this tract are derived from underlying shale and sandstone bedrock with scattered loess over residuum in parts whereas bottomland soils are formed from silty alluvium. Bottomland soils and hydrology here have apparently been affected by upstream mine land and its effect on acidification of water and soils.

**Soils**

***Belknap silt loam, frequently flooded (Bg);*** *(96.3 acres);* Consists of very deep, somewhat poorly drained soils formed in acid, silty alluvium in swells on flood plains. It is frequently flooded. Duration of flood can be brief to long. Depth to top of a seasonally high water table ranges 12-36 inches. This soil typically is composed of 5% sand, 79% silt, and 16% clay, moist bulk density ranges 1.4-1.55 g/cc, saturated hydraulic conductivity ranges1.41-14.11 micro m/sec, available water capacity ranges 0.2-0.24 in/in, linear extensibility ranges 0.4-2.2%, and organic matter ranges 0-3% throughout available rooting depth. Soil pH ranges 4.5-7.3. It is somewhat suited for growing black walnut. Site index is 90 for yellow poplar, 100 for eastern cottonwood, and 90 for pin oak. Other species to manage here include: sweetgum, red maple, and American sycamore. Belknap is poorly suited for log yard/haul road construction, well suited for mechanical and hand planting, moderately suited for harvest equipment operability, and is well suited for mechanical site preparation. Potential erosion hazard is slight and soil rutting hazard is severe for this soil type.

***Bonnie silt loam, ponded (Bp);*** *(58.5 acres);* Consists of deep, poorly drained, moderately slowly permeable soils on bottom land. These soils formed in silty alluvial sediments. Slopes range from 0-2%. Frequently has standing water in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration. Water

table can be 2 feet above the surface to a depth of 6 inches below the surface. This soil typically is composed of 9-10% sand, 66-73% silt, and 18-24% clay, moist bulk density ranges 1.30-1.55 g/cc, saturated hydraulic conductivity ranges 1.41-14.11 micro m/sec, available water capacity ranges 0.14-0.25 in/in, linear extensibility ranges 0-2.9%, and organic matter ranges 0-3% throughout available rooting depth. Soil pH ranges 4.5-7.3. It is unsuitable for growing black walnut. Site index is 90 for pin oak and 100 for eastern cottonwood where not too wet. Other species to manage here include: sweet gum, red maple, and river birch. Bonnie is poorly suited for log yard/haul road construction, moderately suited for mechanical and hand planting, and is poorly suited for harvest equipment operability. Potential erosion hazard is slight and soil rutting hazard is severe for this soil type.

***Bonnie silt loam, frequently flooded (Bo);*** *(25.2 acres);* Consists of deep, poorly drained, moderately slowly permeable soils on bottom land. These soils formed in silty alluvial sediments. Slopes range from 0-2%. It is frequently flooded. Duration of flood can be brief to long. Depth to top of a seasonally high water table ranges 6-12 inches. This soil typically is composed of 8% sand, 69-72% silt, and 20-23% clay, moist bulk density ranges 1.32-1.45 g/cc, saturated hydraulic conductivity ranges 1.41-14.11 micro m/sec, available water capacity ranges 0.21-0.25 in/in, linear extensibility ranges 1-2.7%, and organic matter ranges 0-3% throughout available rooting depth. Soil pH ranges 4.5-7.3. It is unsuitable for growing black walnut. Site index is 90 for pin oak and 100 for eastern cottonwood. Other species to manage here include: sweet gum, cherrybark oak, and American sycamore. Bonnie is poorly suited for log yard/haul road construction, well suited for mechanical and hand planting, moderately suited for harvest equipment operability, and is well suited for mechanical site preparation. Potential erosion hazard is slight and soil rutting hazard is severe for this soil type.

***Steff silt loam, frequently flooded (Sf);*** *(12.0 acres)*; Consists of deep, moderately well drained, moderately permeable soils on flood plains. These soils formed in acid, silty alluvium. Slopes range 0-2%. These soils exist on swells adjacent to stream channels and are flooded for brief periods in winter and spring. Steff soils have a seasonal high water table at 18-36 inches during winter and spring. This soil typically is composed of 13-16% sand, 65-72% silt, and 15-19% clay, moist bulk density ranges 1.35-1.49 g/cc, saturated hydraulic conductivity ranges 4.23-14.11 micro m/sec, available water capacity ranges 0.21-0.25 in/in, linear extensibility ranges 0.4-2.5%, and organic matter ranges 0.1-3% throughout available rooting depth. Soil pH ranges 4.5-7.3. This soil is moderately suited for growing black walnut. Site index is 80 for northern red oak, 82 for American sycamore, 100 for sweetgum, 120 for eastern cottonwood, and 102 for yellow poplar. Other species to manage here include: bitternut hickory, shagbark hickory, bur oak, and red maple. Steff is poorly suited for log yard/haul road construction, well suited for mechanical and hand planting, moderately suited for harvest equipment operability, and is well suited for mechanical site preparation. Potential erosion hazard is slight and soil rutting hazard is severe for this soil type.

**Access**

Access is gained through Fire Lane 10, approximately 1.25 miles from the starting point at the county road. There are no fire lanes inside the tract.

**Boundary**

The entire western boundary of this tract follows an abandoned railroad bed (the Augusta – Hartwell Junction line) which is currently owned by Norfolk Southern. At the point of intersection with the Patoka River, old railroad bridge pilings can still be seen emerging from the river. At this point, the Patoka River becomes the tract boundary extending north and then east. As the river turns southeast the boundary becomes a straight line travelling due south. The boundary turns east at this corner and meets with the drainage ditch. At this corner, the boundary turns south. The abandoned drainage ditch comprises a large portion of the eastern tract boundary. The southeast corner is submerged in open wetland. New areas added to this tract after State acquisition have not been surveyed and there is little boundary evidence in office files. Due to ponding and wetness of the site, complete traversing and marking of boundaries is impractical. A professional survey is recommended when feasible.

**Ecological Considerations**

The Division of Forestry has developed compartment level guidelines for important wildlife structural habitat features such as snags and legacy trees. Snags are standing dead or nearly dead 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, which provides habitat for many ground-dwelling species and contributes to healthy soils. Legacy trees are live trees of a certain species and diameter class, that have potential future value to various wildlife species, if retained in the stand.

Current assessments indicate the abundance of these habitat features meet or exceed recommended maintenance levels. Due to the large area subject to flooding and poor tree growth, tract level legacy trees are lower than maintenance level. However, these levels are based on compartment and likely meeting or exceeding within the compartment.

Invasive and exotic species are widespread throughout southern Indiana on private and public land. Each species has a history of introduction, successful colonization of sites and dispersal. Aside from being very successful in out-competing native plants on a variety of forest sites, an additional reason for their success may be because the current forest sites are using resources inefficiently. There are niches open and available and invasive species aggressively take advantage. The land making up C12T7 had historical land uses involving clearing land for agriculture and/or pasture, probably as early as the mid-1800s to the 1940s. Many adjacent lands on the landscape also experienced similar disturbances, whether from agriculture or coal mining. Erosion and degradation in the early 1900s would have further affected patterns of native shrub and herb abundance, distribution, and dispersal. The culmination of site degradation, invasive species introduction, and presence of a vacuum in the resource niche, combined with increasing deer densities during the time this forest was initiating and reorganizing, have all contributed to the presence of invasive, exotic species in C12T7. Japanese stiltgrass, Phragmites, winter creeper, and multi-flora rose were observed throughout the tract at various densities. These and other invasives, such as Autumn olive, bush honeysuckle, Japanese honeysuckle, tree of heaven, and *Paulownia* should be treated as part of a regular invasive species control program. Control options include foliar spraying with herbicide, cut-stump with herbicide, and basal spraying with herbicide. All pesticides used on state forest will follow certification standards. In addition, emerald ash borer (*Agrilus planipennis)* exists in the region, producing complete mortality in

overstory ash. For this reason, it is recommended ash trees be included in regularly prescribed timber harvesting, so value is not lost to mortality. Conversely, young healthy ash showing no sign of decline should remain for potential resistant features.

A formal Ecological Review process, which includes a search of Indiana's Natural Heritage Database, is part of the management planning process. If Rare, Threatened, or Endangered species were found to be associated with this area, the activities prescribed in this guide will be conducted in a manner that will not threaten the population viability of those species or communities.

**Recreation**

Likely recreational activities on this tract include hunting. Currently, there are no developed recreation trails within this tract. Impacts to recreation by management prescribed in this guide may include increased accessibility due to skid trails and changes in wildlife movements. For example, one year after a timber harvest whitetail deer will change their movement to follow skid trails to facilitate movement through the forest. Within five years however, skid trails will be thick with herbaceous and woody vegetation and this change will likely shift ease of movement towards other areas outside skid trails.

**Cultural**

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

**Tract Subdivision Description and Silvicultural Prescription**

***Bottomland Hardwoods (105.8 estimated acres)****:* Bottomland mixed hardwoods are found in the northern part of the tract along the Patoka River, on the periphery of the unstocked wetland areas, in the central portion of the tract and in the southwest portion. Species composition varies some with moisture level of immediate site. On the more elevated bottomland sites overstory species include red maple, pin oak, sweetgum, American sycamore, and various bottomland oaks and hickories. Little tulip poplar is found on bottomland hardwood sites as it can tolerate only the most elevated portions of this tract. The wettest mixed hardwood sites contain red maple-sweetgum canopy and almost pure stands of red maple on other sites. Adding to the diversity of mixed hardwood sites in this tract, there is some early successional forest here containing young developing trees where canopy is dominated by river birch, red maple, sweetgum, black willow, and the occasional pin oak. Understory shrub and herbaceous composition varies as well. In more elevated areas pawpaw, spicebush, and hazelnut are more abundant. In wetter and lower areas possumhaw, blackhaw and other shrubs can be found and in some wetter areas lizard tail, greys sedge, and various ferns dominate an open herbaceous understory layer which indicate a wetter site than places where these species are absent or minor components.

***Bottomland Oak-Hickory (23.5 estimated acres):*** Bottomland oak-hickory is found in a small pocket in the north along the Patoka River, a little on the east central portion of the tract, and some along the flat portion in the west-central portion along the intermittent stream that travels from southwest to northeast through the tract. There are two main types of bottomland oak-hickory canopy found here. On the slightly more elevated sites is found a mixture of shagbark

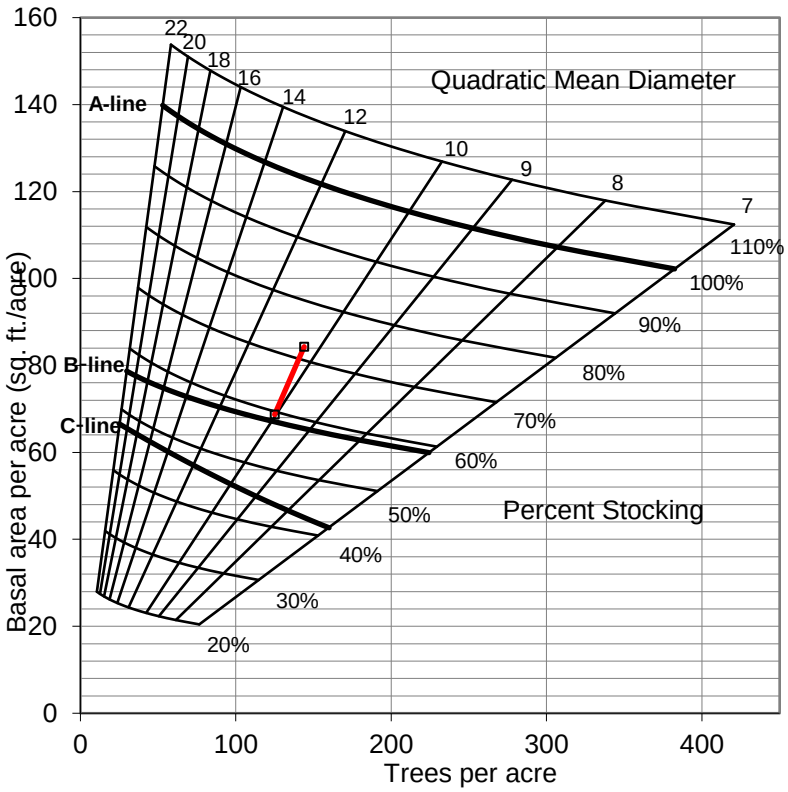
hickory, pin oak, red maple, swamp chestnut oak, swamp white oak, Shumard oak, bur oak, and other species. On the wetter and flatter depressions is found almost a pure association of pin oak with a few other species. Poletimber in these bottomland oak hickory associations generally consists of shagbark hickory, red maple, American elm, swamp chestnut oak, and swamp white oak. Understory saplings found growing here include sweetgum, ironwood, pawpaw, shagbark hickory, blackgum, and various other tree species.

***Unstocked Wetland (62.7 estimated acres):*** Unstocked, open wetland areas are found in the northern portion and throughout parts of the southwestern and southeastern parts of the tract. There is an abandoned drainage ditch that travels from the Patoka River southeast for a stretch and then it turns due south, forming the eastern boundary of this tract. The ditch has been dammed at several locations by beaver. In the southern portion the ditch has filled in with sediment and other debris and contains standing water. A majority of this unstocked wetland is currently composed of buttonbush swamp containing standing water year-round. Most likely due to beaver activity, the periphery contains many standing snags which indicate the water table has risen and encroached on neighboring forestland. Transition areas were classified as mixed hardwoods where there was still a canopy of live trees even though stocking is declining in these areas and in the future they may become part of the unstocked wetland area.

## Tract Summary Data

Total Trees/Ac. = **144 Trees/Ac.** Overall % Stocking Hardwoods = **72%**
Basal Area = **84.3 Sq. Ft./Ac.** Harvestable Trees = **19 Trees/Ac.**
Present Volume = **5,792 Bd. Ft./Ac.**

**Figure 3. Gingrich Stocking Level Chart for C12T7.**




The stocking level is indicated by the chart provided above in Figure 3. The tract's forest resource is composed of 2 different stratums.

**Bottomland Hardwoods Stratum**

There are large areas of mixed bottomland hardwoods throughout this tract. Most of the areas are impractical for timber harvest due to soil conditions and difficult access for harvesting equipment. However, approximately in the middle of the tract, beginning along the western boundary and extending eastward along the north side of the intermittent stream, there is an area suitable for timber harvest. Much of this area is overstocked. A majority of overstory trees are red and silver maple, sycamore, sweetgum, and green ash. Oftentimes these trees have poor form and are in poor health being at risk of mortality. A thinning and improvement harvest is recommended here. Areas of poor stocking, extensive mortality, or where there is presence of adequate desirable advanced regeneration should be considered for a group selection opening. Given the ability of bottomland sites in C12T7, particularly on Belknap soils, to support a high stocking of excellent quality bottomland species such as pin, swamp chestnut, Shumard, swamp white, cherrybark, and bur oak as well as hickories, any large opening could be replanted with these species and tended for the first 8-10 years performing post-harvest TSI to nurture establishment and dominance of planted trees.

Additionally, after improvement harvest removing basal area and allowing sunlight to penetrate to the forest floor, enrichment planting could be performed in areas to promote desirable oak and hickory advanced regeneration and to make way for eventual creation of a new cohort of bottomland oak-hickory forest.

**Bottomland Oak-Hickory Stratum**
The bottomland oak-hickory timber type tends to provide a very significant contribution to wildlife, timber resource, and value. The retention of species in this stratum is important to the Division's long-term timber management objectives.

Single tree selection cuttings are prescribed in bottomland areas containing many pin, Shumard, swamp chestnut, swamp white, and hickories to release these trees when appropriate and to remove mature to over-mature trees and any trees in poor health or having poor form. These improvement cuttings may enable release of bottomland oaks and encourage desirable bottomland species regeneration occurring in the understory. The result may yield an increase in timber and wildlife diversity. Group openings should be considered in areas with poor stocking and those having a high concentration of trees with poor form, low quality, or of undesirable species.

Given the ability of bottomland sites in C12T7, particularly on Belknap soils, to support a high stocking of excellent quality bottomland species such as pin, swamp chestnut, Shumard, swamp white, cherrybark, and bur oak as well as hickories, any openings could be replanted with these species and tended for the first 8-10 years performing post-harvest timber stand improvement (TSI) to nurture establishment and dominance of planted trees. Additionally, after improvement harvest removing basal area and allowing sunlight to penetrate to the forest floor, enrichment planting could be performed in areas to promote desirable oak and hickory advanced regeneration and to make way for eventual creation of a new cohort of bottomland oak-hickory forest.

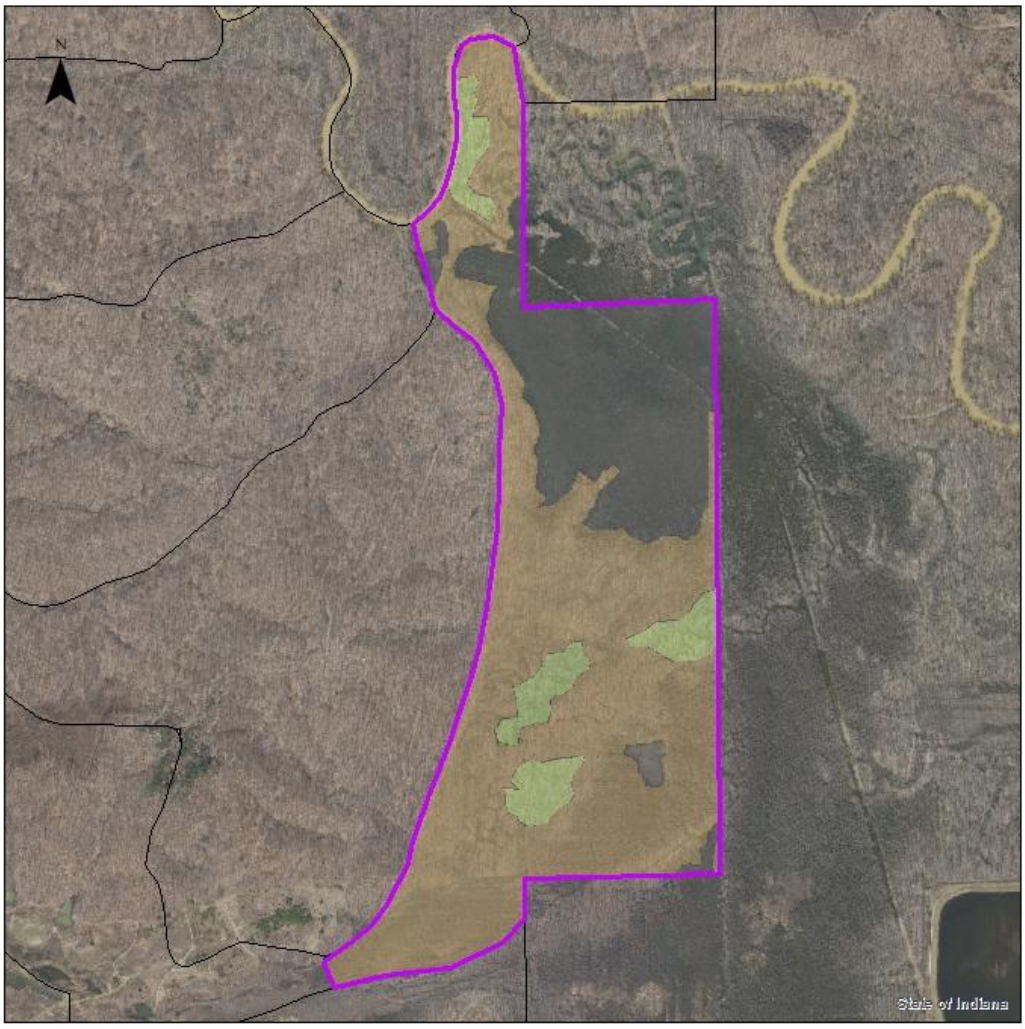
Post harvest TSI could be performed to release crop trees and complete any openings with a focus mainly on the portion of the tract practical for harvesting.

**Summary Tract Silvicultural Prescription and Proposed Activities**
Based on this information, a managed timber harvest containing approximately 150,000-200,000 board feet on approximately 65 acres in the central portion of the tract is prescribed within the next 5 years. This timber harvest could be combined with neighboring C12T6, if practicable. Yarding would be in the neighboring tract (C12T6) on top of the hill along Fire Lane 10. Postharvest TSI should be performed along with invasives follow-up in any openings created. A regeneration review should be conducted three years after harvest. The tract should be re-inventoried in 15-20 years. During timber harvest appropriate forestry best management practices will be used for watershed protection.

## Proposed Activities Listing

| ***Proposed Management Activity*** | ***Proposed Period*** |
|---|---|
| Pre-harvest invasive species work | 2022-2024 |
| Timber harvest | 2024-2027 |
| Post-harvest timber stand improvement | within 2 years of harvest |
| 3-year regeneration opening review | 3 years following harvest |
| Next forest inventory | 2041 |

# Ferdinand-Pike State Forest
# Compartment 12 Tract 7
# Cover Types Map



# Pike State Forest
# Compartment 12 Tract 7
# Soils Map