

**Indiana Department of Natural Resources  
Division of Forestry**

**RESOURCE MANAGEMENT GUIDE**

State Forest: **Pike State Forest**  
Tract Acreage: **40**  
Forester: **Evan McDivitt and Sabrina Schuler**

Compartment: **11**      Tract: **06**  
Commercial Forest Acreage: **40**  
Date: **07/01/2016**

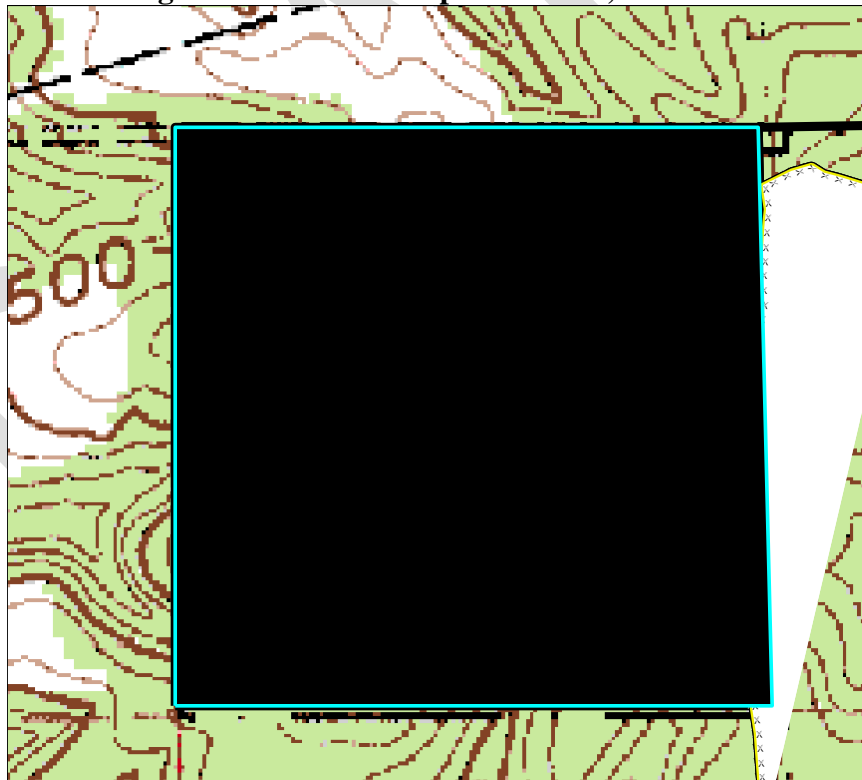
**Location**

Tract 1106 is located in Pike County, Section 4, T2S, R7W in Pike State Forest, Marion Township. It is located roughly 2 miles northeast of Augusta and 2.5 miles southeast of Winslow. The tract is accessible by taking highway 364 to CR 450E to CR 350S that leads onto CR 550S. Firelane 3 is also an option for access to the tract.

**General Description**

Tract 1106 contains 40 acres. Most of the tract is composed of a combination of mixed hardwoods and older white pine plantation. There are a few oak-hickory patches throughout the tract as well. Below is a table summarizing tree species identified during the inventory.

**Figure 1. Pike SF Compartment 11, Tract 06.**



**Legend**

 Horse Trail

**Table 1. Overview of Tree Species in Tract 1106.**

<b>Overstory Sawtimber Layer</b>	<b>Understory Poletimber Layer</b>	<b>Regeneration Layer</b>
American Beech	American Beech	American Beech
American Sycamore	American Elm	American Elm
Black Cherry	American Sycamore	Basswood
Blackgum	Basswood	Black Cherry
Black Oak	Blackgum	Black Oak
Eastern White Pine	Black Oak	Eastern White Pine
Northern Red Oak	Dogwood	Northern Red Oak
Pignut Hickory	Hackberry	Paw-Paw
Red Maple	Eastern White Pine	Pignut Hickory
Sugar Maple	Northern Red Oak	Red Maple
Sweetgum	Pignut Hickory	Sassafras
White Ash	Red Maple	Shagbark Hickory
White Oak	Shagbark Hickory	Sugar Maple
Yellow Poplar	Sugar Maple	Sweetgum
	Sweetgum	White Ash
	White Ash	White Oak
	White Oak	Yellow Poplar
	Yellow Poplar	

**Mixed Hardwoods:** This tract features about 34 acres of hardwoods. They are found in drainages and on the ridgetop on the east end of the tract. They are classified by type as mixed hardwoods (25.6 acres) and consist primarily of yellow-poplar. Most of the yellow-poplar is intermingled with white pine throughout the northern and southern parts of the tract. The understory contains a variety of species in the northeast part of the tract, but most of the overstory and regeneration consists of beech-maple. Other species in the understory are blackgum, red maple, paw-paw, hackberry, white ash, sweetgum, dogwood, and basswood.

**Oak-Hickory:** This stand type is found primarily along the west end of the tract along the edge. Oak-hickory (11.2 acres) is found along ridgetops and frequently in drainages. The primary species that dominate the overstory are white oak, northern red oak, and pignut hickory. In these areas, most of the understory consists of beech-maple or has little vegetation besides leaf litter or paw-paw.

**White Pine:** About 3.2 acres of this tract consists of an overstory of white pine. White pine is found along the southern ridge and western ridge fingers. Some of the pine reaches up to 28" DBH. Most of the understory contains a composition of vigorous beech-maple growth with other competing mixed hardwoods.

### **History**

This tract was purchased in a tax sale from the Pike County commissioners in 1935. There does not appear to be any record describing the condition of the property at that time. The pine

plantings indicate open ground at the time of acquisition. The present 3.2 acres of pine was probably closer to 15 acres in the past (identified as such in the 1983 inventory). Some of the current hardwood areas were probably cut over, grazed, or partially cleared as well, based on past erosion and current vegetation.

### **Resource Management History**

There are three inventories in the file for this tract. The first one was performed by Rick Burgeson in 1971. He found 18 acres of hardwoods averaging 634 bd. Ft./acre. He noted part of the tract was recently cut and needed TSI but there is little indication of where this may have been completed and no records were found. In 1983, Janet Eger inventoried this tract. She noted 15 acres of pine but combined volumes for the pine and hardwood points. However, hardwoods averaged about 3,690 bd. Ft./acre across the tract. In 1984, 117 white pine trees on 4 acres were sold for \$0.06/ft. This was to remove the larger trees on the northwest ridge top. The plan was to return in 10 years to remove smaller trees but this was never completed. In 1989, another white pine sale in the west center ridge removed 167 trees in a regeneration opening. This sale brought \$0.12/ft. There is not any record of TSI following these sales. Another inventory was conducted in 1998 by Doug Brown who found 34 acres of hardwoods and an estimated total harvest volume of 2,352 bd.ft./acre. 63,346 bd.ft. was sold to Campbell & Sons Sawmill for \$8000.00 (12.6 cents per board foot) in 1999. This sale utilized horse-logging with very good results. Post-harvest TSI was conducted by Doug Brown in 2004 and involved releasing yellow poplar, white ash, black cherry, and oak from competing black locust, white pine, blackgum, and sweetgum via double girdle / treatment with herbicide. (highlighted section of the resource management history added based on public comment 10/6/2017)

### **Landscape Context**

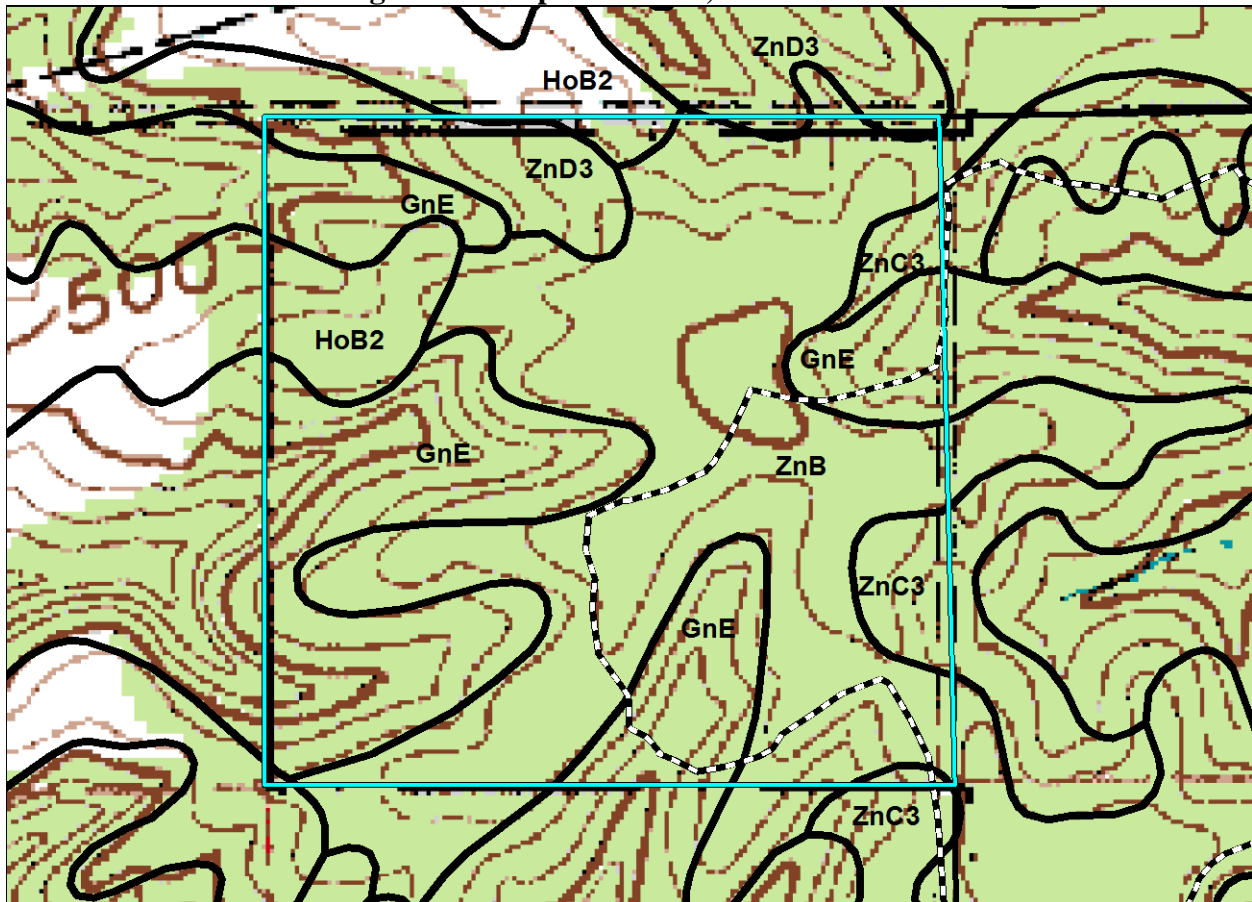
Water from this tract drains into a nearby private lake to the south of the tract. Mill Creek runs just west of the tract, but does not intersect it. White pine dominates ridges throughout the tract, while mixed hardwoods remain on slopes and in the bottomlands. Clusters of oak-hickory canopy cover have been noted in the bottomlands near the drainages, typically around the finger ridges and edges. To the east, the majority of land within one mile of this tract is closed-canopy deciduous forest part of Pike State Forest. Other prominent land uses to the west of this tract include private agricultural, residential, and forestland.

### **Topography, Geology, and Hydrology**

This tract contains significant shallow and steep ravines for drainage leading up to one large ridgetop, making the tract hilly and having no intermittent stream running through. Hills reach up to 500 ft. above sea level, providing challenging conditions for accessibility within the tract. Slopes, predominantly north and south-facing with occasional west- and east-facing finger ridges, can be fairly steep. The majority of the tract has soils derived from loess deposits overtop siltstone, shale, and sandstone residuum. Some portions of the tract also have soils derived from underlying bedrock composed of nearly horizontal, interbedded gray/brown acid siltstone and shale.

## Soils

Figure 2. Compartment 11, Tract 06 Soils.



***Gilpin silt loam (GnE)***; (14 acres) is a moderately deep, well-drained soil type found on ridges and 15-30% side slopes. It is eroded and contains 1-3% organic matter. They are moderately permeable soils at 0.6 to 2 inches per hour above 60 inches and available water capacity is low at 3.9 inches above 60 inches, and can be subject to drought. The pH ranges from 3.6 to 5.5. Bedrock depth begins at 20-40 inches. This soil type has a site index of 95 for YEP.

***Hosmer silt loam (HoB2)***; (2 acres) are deep, well-drained soils that develop on 2-6% eroded slopes. They have a fragipan, an altered subsurface soil layer that restricts water flow and root penetration, from 20-36 inches deep. These soils are deeper than Zanesville and are typically formed from a deeper loess cap.

***Zanesville silt loam (ZnB)***; (20 acres) is a widespread, moderately well-drained soil with a depth of 24-39 inches to the water table, seasonally. It occurs on 2-6% slopes in upland areas and is eroded, allowing a very high surface runoff rate. Organic matter content is moderately low at 1-2% and permeability is very slow. Available water capacity is around 8.2 inches above 60 inches. The pH ranges from 4.5 to 6.0. Bedrock begins at a depth of 50-90 inches. They can have a fragipan at 20-32 inches.

**Zanesville silt loam (ZnC3);** (1 acre) is similar to ZnC3 except that it occurs on 6-12% slopes in upland areas and is severely eroded. This soil has a site index of 69 for white oak and 90 for yellow-poplar.

**Zanesville silt loam (ZnD3);** (3 acres) is similar to ZnC3 and ZnC2 except that it occurs on 12-18% slopes and is severely eroded.

### **Roads and Access**

This tract has decent access as old county roads adjoin it on the east and north sides. These are both gravel, unimproved roads no longer maintained by the County. The north road (CR 400S) does not appear to be an active road anymore, with eroded gravel, mud and overgrown vegetation. The county road to the east (CR 550E) also has erosion/drops/drainage issues and repair needed for heavy equipment use. The road on the west side (CR 450E) connects from SR 364 and loops onto CR 350S and then onto CR 550E, where the tract can be accessed. There is also Firelane 3 that leads directly to a trail in Tract 1105 connecting to CR 550E and the horse trail, which provides easy access to Tract 1106.

### **Boundary**

The entire north, west, and southern property lines are bordered by private land. The entire eastern boundary is bordering Pike State Forest compartment 11, tract 05 and is also CR 550.

### **Wildlife**

A Natural Heritage Database Review was completed for tract 1106 in 2016. 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.

This tract has an abundance of wildlife based on the amount of signs. This tract apparently receives high hunting pressure as well. This is evident by the number of deer stands located throughout the tract. Some deer stands were old and had fallen down and were degrading as well, suggesting hunting has been prevalent in this area for some time. New stands were seen in the northern and southern ridges. Deer trails were noted throughout the tract as well, with browsing evident on the greenbrier. Evidence of woodpecker activity was noted on snags, especially on the southeastern side of the tract. Wildlife and wildlife signs noted during the cruise included whitetail deer, eastern cottontail, snakes, gray squirrels, American Crows, Blue Jay, Great Blue Heron, Turkey Vultures, various woodpeckers and a variety of songbirds: Wood Thrush, Ovenbird, N. Cardinal, Mourning Dove, N. Parula, E. Wood Pewee, Tufted Titmouse, Carolina Wren, Red-eyed Vireo, House Sparrow, and Field Sparrow. Habitat types are diverse within this tract providing lots of niche partitioning. Food should be plentiful within the undergrowth of black raspberry, greenbrier, and other fruit-bearing vegetation. There are multiple creeks running through the ravines; however, during this survey, the creeks were dried up completely.

The Division of Forestry has instituted procedures for conducting forest resource inventories so that the documentation and analysis of live tree and snag tree densities are examined on a compartment level basis in order to maintain long-term and quality forest habitats. The number of snags for all size classes surpasses the optimal maintenance level, but Legacy Trees in the tract are less than the available maintenance for optimal Indiana Bat habitat in all size classes.

All snags were retained during the inventory. Management practices conducted on 1106 will be conducted in a manner that will maintain the long-term and quality forest habitats for wildlife populations, and promote Legacy Tree development.

**Table 2. Live Legacy Trees and Snags for 1106.**

	<b>Maintenance Level</b>	<b>Optimal Level</b>	<b>Inventory</b>	<b>Available Above Maintenance</b>
<b>Legacy Trees</b> *				
11"+ DBH	360		348	-12
20"+ DBH	120		95	-25
<b>Snags</b> <b>(all species)</b>				
5"+ DBH	160	280	442	282
9"+ DBH	120	240	314	194
19"+ DBH	20	40	47	27

\* **Species Include:** AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO

### **Communities**

Tract 1106 contains moderately dry-mesic ridgetops, dry-mesic slopes, mesic slopes, and occasional bottomland ecosystem types. Oak-hickory forest communities were primarily found along dry ridgetops and the dry-mesic slopes. These slopes were typically south-facing, receiving the most sunlight. Within these communities, associates include Virginia creeper, poison ivy, rattlesnake fern, greenbrier, other oaks, and hickories. Understory species consist of sugar maple, American beech, and sassafras, with less frequent appearances of oaks and hickories. Mesic slopes contain a dominant overstory of sugar maple and American beech with scattered oaks. Further, yellow-poplar tends to be a heavy component to these ecosystem types, with the understory characterized by shade-tolerant species of sugar maple and American beech. A dense layer of spicebush and other herbaceous plants usually occupy the ground floor. Bottomland sites include overstory associates such as sugar maple, American sycamore, and yellow-poplar, with understory individuals of beech-maple, elm, and ash. Wetland asters and nettle are commonly found in these areas.

### **Exotic Species**

Invasive multiflora rose is significant throughout the tract, and will require control treatments and monitoring to achieve tract objectives. On nearly every plot sampled during the 2016 inventory, multiflora rose was noted. Japanese and Amur honeysuckle were noted in the northeastern part of the tract and autumn olive was seen sprouting in the west-central portion of the tract. Problem occurrences of these invasives should be treated thoroughly before any harvesting operation begins. There is no evidence of past treatments. It should be noted that the above species are widespread in the county and eradication is neither expected nor practicable. Control efforts should be directed towards problem occurrences and key species of concern, including Amur honeysuckle, autumn olive and areas targeted for oak regeneration.

### **Recreation**

This tract contains a horse trail that travels from tract 1105, onto CR 550E, where it then continues into tract 1106, remaining in the eastern half of the tract before exiting from the southeastern corner and back onto CR 550E. The trail appears to have been maintained, but there are a few steep climbs to be aware of that have been eroded due to rainstorms. Presence of horses has been noted along the trail. Other likely recreational activities on this tract include hiking, biking, hunting, bird watching, wildlife viewing, and mushroom hunting. Trail considerations are to be incorporated into forest resource management implementation strategies.

### **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 management or construction activities.

### **Tract Description and Silvicultural Prescription**

#### **Tract Summary Data**

Total Trees/Ac. = **131 Trees/Ac.**

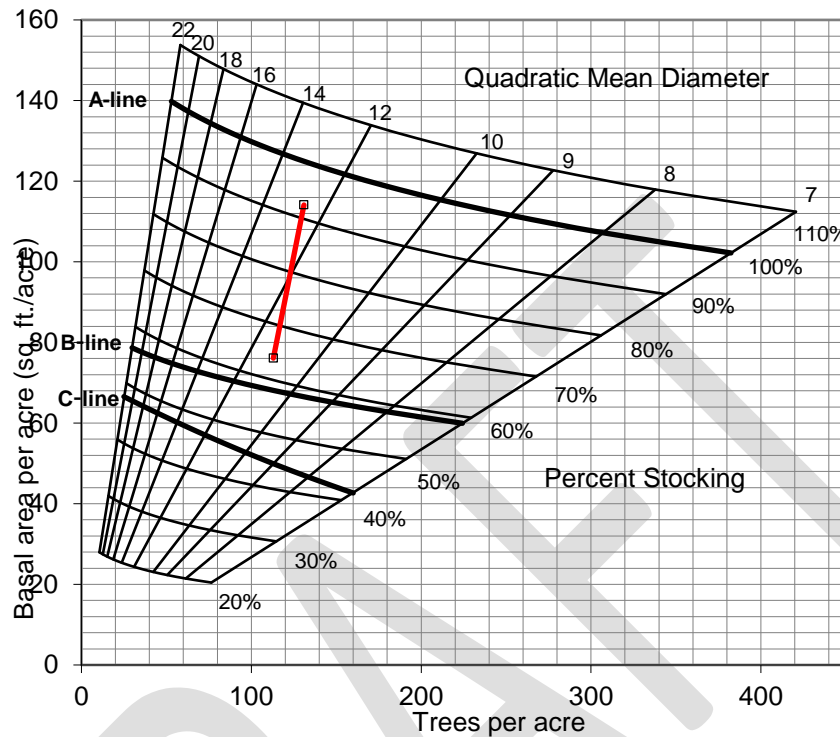
Basal Area = **114.1 Sq. Ft./Ac.**

Present Volume = **10,549 Bd. Ft./Ac.**

Overall % Stocking Hardwoods = **93%** (Fully Stocked)

Harvestable Trees = **18 Trees/Ac.**

**Figure 3. Gingrich Stocking Level Chart for Tract 1106.**



The current forest resource inventory was completed by Sabrina Schuler and Evan McDivitt. Twenty-five prism points were sampled over 40 acres (1 point for every 1.6 acres). A tract summary is provided in Table 1. The stocking level is indicated by the chart provided above in Figure 3. The tract's forest resource is composed of 3 different strata.

### **Mixed Hardwoods Stratum**

Mixed hardwoods tend to be variable in composition and thus may have more complicated prescriptions attached to them. This stratum occupies around 25.6 acres, covering roughly 64% of the acreage. The average total basal area for this stratum is around 110.7 square ft./acre. The overstory is dominated by yellow-poplar, with much of the mid-story growth being beech-maple. Some white pine and white oak are present in the overstory. Regeneration consists primarily of beech-maple, with an occasional oak species and yellow-poplar.

Pre-harvest invasive species TSI should be conducted to reduce competition by invasive species against desirable species such as oak and poplar in establishing a new cohort in the regeneration layer. Next, approximately one to two years following a good mast year for oaks, a mid-story removal (also called an oak shelterwood) is recommended. This mid-story removal is recommended because soils in this tract are considered intermediate to high-quality sites for oaks (upland oak site index > 65). The procedure should remove the mid-story shade tolerant species such as beech and maple, while leaving the dominant overstory completely intact. The mid-story removal may be accomplished through 1.) herbicide treatment (individual tree treatments such as tree injection, hack and squirt, or basal bark application only so as not to harm oak advance



reproduction); 2.) prescribed fire (which would give oak rootstock a competitive advantage upon resprouting); or 3.) a combination of both. Following the mid-story removal, once desirable oak advance regeneration has been allowed to reach approximately 3-4 feet in height, a regeneration harvest is recommended as soon as possible before advance oaks lose apical dominance. This mid-story removal may be restricted to places within the mixed-hardwood stratum where dominant oaks are present in the overstory. The mid-story removal should be utilized in areas where good oak regeneration can be expected and potentially where group openings are planned.

Single tree selection cuttings are prescribed to remove mature to over-mature trees and any cull trees in poor form. There are many yellow-poplar that are currently exceeding maturity that should be the main targets for removal, some ranging up to +30" DBH. These improvement cuttings will enable release of quality oaks and any oak regeneration occurring in the understory. Oak-hickory is the preferred stratum type and will require removal of crown competition for release of these valued species. The result will yield an increase in timber and wildlife diversity. These areas should be opened only if good regeneration for oak permits and TSI follows through.

### **Oak-Hickory Stratum**

The 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. This stratum occupies around 11.2 acres, covering roughly 28% of the acreage. The average total basal area for this type of stratum is around 105.7 square ft./acre. The overstory is dominated primarily by white oak, northern red oak, and pignut hickory, with much of the mid-story growth being beech-maple. There are a few sugar maple and yellow-poplar that make their way into the canopy layer. Regeneration consists primarily of beech-maple, white ash, and some oak.

Pre-harvest invasive species TSI should be conducted to reduce competition by invasive species against desirable species such as oak and hickory in establishing a new cohort in the regeneration layer. Next, approximately one to two years following a good mast year for oaks, a mid-story removal (also called an oak shelterwood) could be conducted in sites appropriate to oak regeneration. This mid-story removal is recommended because soils in this tract are considered intermediate to high-quality sites for oaks (upland oak site index > 65). The procedure will remove the mid-story shade tolerant species such as beech and maple, while leaving the dominant overstory completely intact. The mid-story removal may be accomplished through 1.) herbicide treatment (individual tree treatments such as tree injection, hack and squirt, or basal bark application only so as not to harm oak advance reproduction); 2.) prescribed fire (which would give oak rootstock a competitive advantage upon resprouting); or 3.) a combination of both. Following the mid-story removal, once desirable oak advance regeneration has been allowed to reach approximately 3-4 feet in height, a regeneration harvest is recommended as soon as possible before advance oaks lose apical dominance. The mid-story removal should be utilized in areas where good oak regeneration can be expected and potentially where group openings are planned.

Single tree selection is prescribed to remove mature and over-mature, undesirable trees to release the growing stock of high quality stems, as well as promote regeneration of the oak-hickory stratum. Most of the higher quality, seed trees should be left in the stand, but more of the co-

dominant trees should be targeted for removal, such as beech-maple. Damaged trees that can be considered as cull trees are suggested for removal in the stand to promote a healthy forest. Most likely, regeneration will be comprised of mixed hardwoods, mainly beech-maple unless some TSI is implemented, with a component of oak. Areas with an abundance of oak regeneration should be considered for release through a group selection cut.

### **Eastern White Pine Stratum**

Pines were typically planted for erosion control purposes during the first half of the 20<sup>th</sup> century. As these pines have matured and slowly declined, native hardwoods have become established in canopy gaps and have to an extent reached the overstory where most of the pines are now. This stratum occupies approximately 3.2 acres, covering roughly 8% of the acreage. The average total basal area for this stratum is around 170.6 square ft./acre. The overstory is dominated by mature white pine and yellow-poplar mostly, but can be mixed with oak-hickory in certain places. Understory growth is composed of beech-maple for the most part, with other occasional hardwood species.

For this tract, a small amount of white pine could be retained for wildlife and the rest removed so native hardwoods can return to the site. The main goal is to promote oak-hickory regeneration, and thus, harvesting the pine is prescribed. Most of the white pine in this plantation are on the decline and have succumbed to over-maturity, resulting in large snags that can be preserved along with downed woody debris. This has provided large gaps, in which there is an opportunity for TSI of invasives and beech-maple. Overall, group openings are an option for management in these areas for long-term forest regeneration and sustainability. Areas where pole-sized hardwoods have emerged and entered the canopy should be prescribed TSI for croptree release if not adequately released during the timber harvest. Some quality pine or snag can be retained to provide wildlife benefit, diversity, and cover.

### **Proposed Activities**

Invasive species TSI is recommended prior to timber harvest operations. The beech-maple understory may require TSI to promote oak-hickory regeneration (mid-story removal). Postharvest TSI on residual beech-maple should be performed along with invasives follow-up in large gap openings. A prescribed burn may help with setting back invasives and promoting oak regeneration as part of the post-harvest TSI. A regeneration review should be conducted three years after conducting all treatments. The tract should be inventoried in 15-20 years to see how treatment has been handled and what species are establishing.

Based on this information, a managed timber harvest over the entire tract area is prescribed within the next 5 years. The prescribed managed harvest would yield around 206,070 bd. Ft. Total harvestable basal area for the tract should be 38.0 square ft./acre, leaving around 76.1 square ft./acre. Table 2 below provides approximated harvest and leave volumes associated with each tree species.

**Table 3. Overview of Sawtimber Estimates in Tract 1106 of Valuable Trees in July 2016.**

<b>Species</b>	<b>Harvest</b>	<b>Leave</b>	<b>Total</b>
American Beech	0	1,330	1,330
American Sycamore	3,010	2,510	5,520
Black Cherry	0	4,710	4,710
Black Gum	0	3,280	3,280
Black Oak	2,150	5,550	7,650
Eastern White Pine	57,740	32,860	90,600
Northern Red Oak	1,590	9,650	11,250
Pignut Hickory	3,320	10,610	13,930
Red Maple	0	1,690	1,690
Sugar Maple	3,490	2,310	5,800
Sweetgum	4,530	0	4,530
White Ash	3,460	2,870	6,330
White Oak	13,710	16,070	29,780
Yellow Poplar	113,070	122,490	235,550
<b>Tract Totals (bd. Ft.)</b>	<b>206,070</b>	<b>215,880</b>	<b>421,950</b>
<b>Per Acre Totals (bd. Ft./Ac.)</b>	<b>5,150</b>	<b>5,400</b>	<b>10,550</b>

**Proposed Activities Listing**

**Proposed Management Activity**

**Proposed Period**

Pre-harvest Invasives TSI	CY2017-2018
DHPA timber sale project review	CY 2017-2018
Access road repairs	CY2017-2020
Mid-Story Removal (1-2 yrs after next acorn crop year)	CY2017-2020
Assess oak advance reproduction after mid-story removal	CY2019-2022
Timber Marking (once oak advance repro = 3-4 ft.)	CY2019-2022
Timber Sale	CY2019-2022
Post-harvest TSI	CY2020-2024
Regeneration Opening Review	3-5 Years Postharvest
Horse trail maintenance as needed	CY2017-2036
Reinventory and Management Guide	CY2035-2036

## Appendix 1 – Wildlife

A Natural Heritage Database Review was completed for tract 1106 in 2016. Three avian species, four vascular plants, one community type, and one vertebrate species of special concern were identified within a mile of tract 1106. The activities prescribed in this guide will be conducted in a manner that will not threaten the viability of these species.

A Broad-winged Hawk (*Buteo platypterus*), a state species of special concern, was identified within a mile of tract 1106. The Broad-winged Hawk is found in eastern deciduous forests during the summer months. They spend most of their time underneath the forest canopy hunting small mammals.

The Red-shouldered Hawk (*Buteo lineatus*), a state species of special concern, was identified within a mile of tract 1106. The Red-shouldered Hawk is found in eastern deciduous forests near rivers and swamps and are year-round residents in Indiana. They soar over forests or perch in wait for their prey of small mammals, amphibians, and reptiles.

The Mississippi Kite (*Ictinia mississippiensis*), an uncommon species within the state, was identified within a mile of tract 1106. The Mississippi Kite is a very social bird that lives in bottomland hardwood forests. These birds typically nest near tree-lined prairies, but have been seen nesting in urban environments. They are streamlined in order to hunt large flying insects, but sometimes perch on high limbs hunting for other prey, such as snakes, amphibians, and small birds.

Buttonweed (*Diodia spp.*), an uncommon species within the state, was identified within a mile of tract 1106. Buttonweed is a small flowering plant found in southern and eastern US and other wetter, tropical areas in Central and South America. Buttonweeds have been identified as a persistent weed in lawns because they grow close to the ground, allowing them to seed very well even when mowers run them over.

Blunt-leaved Senna (*Senna artemisioides*, also known as sicklepod), a more common species in the state, was identified within a mile of tract 1106. Blunt-leaved Senna is a flowering plant that grows in North America and globally. Parts of this plant are used for various purposes around the world. Some purposes are listed: leaves as a meat substitute, seeds and roots as a coffee substitute and folk medicine respectively, and other portions as cassia gum food additives.

American Featherfoil (*Hottotina inflata*), a state species of special concern, was identified within a mile of tract 1106. American Featherfoil is an aquatic flower that inhabits shallow pools, swamps, ditches, and ponds. Due to declining habitat from draining wetlands, urban expansion, and overharvesting of beavers, this plant species is especially rare within the state. There are hopes that the increasing beaver population will create wetland habitat for the plant to root in.

Buttercup Scorpionweed (*Phacelia covillei*), a state species of special concern, was identified within a mile of tract 1106. Buttercup Scorpionweed is an annual forb native to eastern and central North America that resides within floodplains and adjacent forest slopes. Development, land use changes, and competition with invasives have led to its gradual decline, making it especially noteworthy in Indiana's heritage base.

Wet-mesic Floodplain Forest is listed as a state significant forest type considered rare or uncommon at the state and global level. Wet-mesic floodplain forests occur along streams and are one of the more common community types near water. They generally occur in bottomlands, where running water is present and where the soil is well-aerated with high soil moisture content. Within this community type, there usually is no true dominant overstory, but rather a diverse mix of tree species. Silver maple, hackberry, bur oak, pin oak, sweetgum, American elm, and green ash are typical of wet-mesic floodplain forests, along with other wetter species such as American sycamore and black willow. Spicebush usually occurs in the understory, alongside bladdernut. This community type is known for having a much more diverse overstory composition than its regeneration layer. Wood frogs, water snakes, and Belted Kingfishers are usually found in wet-mesic floodplain forests. An area of Pike State Forest has been identified by the DNR Division of Nature Preserves as an ideal example of this habitat type and it is located within one mile of tract 1106.

The eastern box turtle (*Terrapene carolina*), a state species of special concern, was identified within a mile of tract 1106. The eastern box turtle is commonly found in upland woodlands, bottomlands, forest borders, and wet meadows. These turtles nest and take cover within natural soil depressions under leaf litter, within slash and brush piles, or within brier thickets. Hibernation requires logs and deep leaf litter or soft soil for them to bury themselves underneath. Collection for the pet trade and forest conversion to agriculture are the biggest threats to this species.

This stand has an abundance of wildlife based on the amount of signs. This tract apparently receives quite a bit of hunting pressure as well. This is evident by the number of deer stands located throughout the tract. Some deer stands were old and had fallen down and were degrading as well, suggesting that hunting has been prevalent in this area for quite some time. New stands were seen in the northern and southern ridges. Deer trails were noted throughout the tract as well, with browsing evident on the greenbrier. Where some of the trees have grown old and became snags, woodpecker activity was very high. This was noted heavily on the southeastern side of the tract. Wildlife and wildlife signs noted during the cruise included whitetail deer, eastern cottontail, snakes, gray squirrels, American Crows, Blue Jay, Great Blue Heron, Turkey Vultures, various woodpeckers and a variety of songbirds: Wood Thrush, Ovenbird, N. Cardinal, Mourning Dove, N. Parula, E. Wood Pewee, Tufted Titmouse, Carolina Wren, Red-eyed Vireo, House Sparrow, Field Sparrow. Habitat types are diverse within this tract providing lots of niche partitioning. Food should be plentiful within the undergrowth of black raspberry, greenbrier, and other fruit-bearing vegetation. There are multiple creeks running through the ravines; however, during this survey, the creeks were dried up completely.

The Division of Forestry has instituted procedures for conducting forest resource inventories so that the documentation and analysis of live tree and snag tree densities are examined on a compartment level basis in order to maintain long-term and quality forest habitats. The number of snags for all size classes surpasses the optimal maintenance level, but Legacy Trees in the tract are less than the available maintenance for optimal Indiana Bat habitat in all size classes. All snags were retained during the inventory. Reasons for lack of Legacy Trees may have occurred due to the vast amount of larger, less-conditioned trees, or lack of wildlife intervention.

Management practices conducted on 1106 will be conducted in a manner that will maintain the long-term and quality forest habitats for wildlife populations, and promote Legacy Tree development.

**Table 2. Live Legacy Trees and Snags for 1106.**

	<b>Maintenance Level</b>	<b>Optimal Level</b>	<b>Inventory</b>	<b>Available Above Maintenance</b>
<b>Legacy Trees</b>				
*				
11"+ DBH	360		348	-12
20"+ DBH	120		95	-25
<b>Snags (all species)</b>				
5"+ DBH	160	280	442	282
9"+ DBH	120	240	314	194
19"+ DBH	20	40	47	27

\* **Species Include:** AME, BIH, BLL, COT, GRA, REO, POO, REE, SHH, ZSH, SIM, SUM, WHA, WHO

**Appendix 2-Cultural**

There are two possible cultural sites on the tract: one on the east side and one on the north side. The eastern site is across from a homesite on the other side of the road. There is trash and debris in this site and it appears to be an old clearing but no foundations or evidence of a building is found. This could be a barn site or maybe just a clearing or pen for livestock. The area on the north side also has the look of a homesite, but evidence is limited. This could have been another barn site or had some other use. Part of the problem is both sites have been used as log yards in the past. The homesite areas, if indeed home or building sites, are very disturbed.