# Resource Management Guides
## Clark State Forest
## 30-day Public Comment Period (February 12, 2025 – March 13, 2025)

The Indiana State Forest system consists of approximately 160,251 acres of primarily forested land distributed across the state. These lands are managed under the principle that we're stewards of this land for the future. This work is guided through legislation and comprehensive scientific national and international forest certification standards which are independently audited to help insure long-term forest health, resiliency, and sustainability.

Resource management guides (RMGs) are developed to provide long-term, scientific forest management planning tailored to each forest compartment (300-1,000 acres in size) and tract (10 - 300 acres in size). There are 1,590 tracts across the state forest system statewide. Annually, 50-100 tracts are reviewed, and these guides are developed based on current assessments. Through science-based management practices, we prescribe management actions on select tracts every 15-25 year, diversifying the forested landscape and sustaining ecosystems.

The RMGs listed below and contained in this document are part of the properties annually scheduled forest inventories under review for Clark State Forest.

Compartment 2 Tract 15
Compartment 4 Tract 8
Compartment 18 Tract 1
Compartment 18 Tract 2

**To submit a comment on this document, go to:**

https://www.in.gov/dnr/forestry/state-forest-management/public-comment/submit/

You must indicate the State Forest Name, Compartment number and Tract number in the "subject or file reference" line to ensure that your comment receives appropriate consideration. Comments received within 30 days of posting will be considered and review posted at:

https://www.in.gov/dnr/forestry/state-forest-management/public-comment/

Note: Some graphics may distort due to compression.

| | | |
|---|---|---|
| Clark State Forest | Compartment: 2 | Tract: 15 |
| Forester: Cody Moore | Date: June 26, 2024 | Acres: 59 |
| Management Cycle End Year: 2044 | Management Cycle Length: 20 years | |

**Location**

Compartment 2, tract 15, also known as 6300215, is located in Scott County, Indiana. This tract lies in the southwest corner of section 16, Township 2 North of Range 6 East. 6300215 has two intermittent streams running along its boundaries. One runs along the northern boundary and the other runs along parts of the eastern boundary. Taylor Road makes up the entirety of the eastern boundary of the tract.

**General Description**

This tract is being divided into two cover types: mesic oak-hickory and mixed hardwoods, with the mixed hardwoods being in the northeastern low-lying areas. The dominant overstory tree species are chestnut oak and white oak. This tract last experienced a harvest in 1981 which consisted entirely of single-tree selection. The hardwood forests now have high stocking and large higher quality trees that are reaching the age where mortality is becoming a concern. Across each cover type, regeneration is primarily beech and maple. Management in this tract will aim to capture mortality, lower the stocking to promote forest growth, and provide the residual structure needed to regenerate desired forest types. The mesic oak-hickory cover type will have a focus on catering to the healthier vigorous oaks. The mixed hardwoods cover type will have a focus on increasing diversity with a cover type favoring yellow-poplar and oaks.

**History**

- 1941 – Land acquisition from Weaver, Amy V.
- 1981 – North and west property line ran, marked with orange paint and flagging
- 1981 – Timber sale consisting of 54,211 board feet (bdft) sold to Housewoods Inc.
- 1988 – North and west property line ran. Northwest corner was not found.
- 1988 – New method cruise – 1,481 bdft/acre
- 2000 – Land acquisition from Just, Glen & Rachel & Kenneth; Bledsoe, Mark & Kay
- 2000 – Inventory and Management plan done by Forester, David Pyle (964 bdft/acre harvest)
- 2024 – Inventory and Management plan done by Forester, Cody Moore

**Landscape Context**

This tract is bordered by state property on the north, south, and east sides. The western edge is bordered by private property. To the north, there are thousands of acres of forested lands within Clark State Forest. The Clark State Forest Back Country Area is north of the tract; an undeveloped area managed for older forest conditions with longer management cycles. To the east and south there is approximately a quarter mile of forested lands within Clark State Forest before it becomes privately owned. Once privately owned property begins in these directions, it is more forested land for approximately a half mile before reaching some rural areas and small agricultural fields. To the west, there is approximately a quarter mile of privately owned forests before going back to forests within Clark State Forest. This being considered, within a mile of the tract, 80% of the land is forested, 15% is rural areas and agricultural fields, and the remaining 5% is open bodies of water

in the form of privately owned lakes.

**Topography, Geology, and Hydrology**
The topography of this tract is moderate. There is a total of approximately 140 feet of elevation change from the lowest to the highest points in the tract. To the northeast, there is a low-lying area consisting of 0-2% slopes. Apart from this area, slopes range from 3-25%. All the fingers within the tract head downhill towards the northeastern bottoms. That being the case, most slopes are east and northeast facing.

6300215 is in the Mississippian Borden mapped bedrock formation. The formations constituting the Borden Group are the New Providence Shale, the Spickert Knob, and the Edwardsville. The Borden Group is composed dominantly of gray argillaceous siltstone and of shale. Fine-grained sandstone is common. Interbedded limestones form discontinuous lenses and facies that are minor except for the interval of the Floyds Knob Limestone Member at the base of the Edwardsville Formation.

Tract 6300215 is located in the Little Ox Creek watershed. There are two unnamed mapped intermittent streams that flow through this tract. The northern intermittent stream runs along the northern border of the tract until adjoining the other intermittent stream that runs along the eastern edge of the tract. After these streams meet, they flow north into Little Ox Creek. Little Ox Creek eventually flows into a privately-owned lake a half mile north of the tract. General riparian management zone (RMZ) guidelines will be implemented throughout 6300215 in accordance with the Indiana Logging and Forestry Best Management Practices 2022 BMP Field Guide.

**Soils**
**GmaG (48 Ac)** - Gnawbone-Kurtz silt loams, 20 to 60 percent slopes
This moderately to very steep, moderately deep, well-drained complex is found on side. It is well suited to trees. The hazard of erosion and equipment limitations are main management concerns. These should be considered when planning management activities and implementing Best Management Practices for Water Quality. Kurtz has a site index of 60 for northern red oak and Gnawbone has not been evaluated.

**WhcD (8 Ac)** - Wellrock-Gnawbone silt loams, 6 to 20 percent slopes
This strongly sloping, deep, well-drained soil is on side slopes in the uplands. It is well suited to trees. Erosion hazards are a management concern that should be considered when implementing Best Management Practices for water quality. Wellrock has a site index of 90 for yellow poplar and 70 for white oak. Gnawbone has not been evaluated for site index.

**BcrAW (3 Ac)** - Beanblossom silt loam, 1 to 3 percent slopes, occasionally flooded, very brief duration
This nearly level, deep, well-drained soil is found along alluvial fans and flood plain. It is well suited to trees. Management planning should consider wet times of year. This soil has not been evaluated for site index.

**Access**
6300215 can be accessed by vehicle and by foot. The south and southeastern boundary of the tract runs along Taylor Road. Taylor Road ends at a gate which is the start of a fire lane which also serves as a disabled hunter trail. This disabled hunter trail runs north along the remainder of the eastern border of 6300215.

**Boundary**
6300215 is surrounded by Clark State Forest on all sides but the western border. The western border being a north/south private property line that runs approximately half a mile. The tracts that border 6300215 are 6300403 to the east and 6300213 to the north.

**Ecological Considerations**
This tract contains diverse vegetation and wildlife resources conducive to providing habitat for a variety of wildlife species. Habitat types include mesic oak-hickory, mixed hardwoods, and riparian areas. Evidence of several types of wildlife were noted at the time of inventory including deer sign, turkey feathers, Eastern box turtles, and a variety of woodpeckers and songbirds.

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.

In the compartment that includes this tract, inventory data indicate snag densities exceed Division of Forestry "optimal" targets in all size classes. Additionally, legacy tree densities exceed Division of Forestry compartment-level targets in all size classes by a comfortable margin.

Very few invasive species were noted at the time of the inventory, but they did include Amur, also known as bush honeysuckle, and autumn olive, stiltgrass, and multiflora rose. All the invasive species found were along Taylor Road and the fire lane, thus invasive species management could focus on treating along the roadsides and keeping the invasive species from spreading to new areas. Seed producing woody species could be treated prior to any harvest to help minimize spread. Also, post-harvest monitoring should occur to control the more prevalent species that are active in the seed bank like Amur honeysuckle and autumn olive.

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 population viability of those species or communities.

**Recreation**
The main form of recreation that occurs within 6300215 is likely to be hunting. There is a gravel parking lot at the end of Taylor Road that showed a lot of activity during the deer season of 2024-2025 along with the disabled hunter trail that goes along the border of the tract. Other recreational

opportunities presented in this tract include hiking, wildlife viewing, and foraging.

**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**
*The current forest resource inventory was completed in June of 2024 by Forester C. Moore. and forestry intern I. Hyde. A summary of the estimated tract inventory results is located in the table below.*

**Tract Summary Data (Trees > 11" DBH)**

| Category | Estimate |
|---|---|
| Tract Acres (Forested) | 59 |
| Gingrich Stocking Percent (%) | 79 |
| Trees Per Acre | 103 |
| Basal Area Per Acre (SQFT) | 95.9 |
| Volume Per Acre (BDFT) | 8,187 |

**Tract Summary Data (trees >11"DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| Chestnut oak | 1,202 | 225,390 |
| White oak | 739 | 174,530 |
| Scarlet oak | 87 | 27,860 |
| Northern red oak | 29 | 14,520 |
| Red maple | 97 | 14,440 |
| American beech | 75 | 9,140 |
| Yellow-poplar | 55 | 7,600 |
| Pignut hickory | 51 | 5,160 |
| Black gum | 53 | 2,550 |
| Sugar maple | 12 | 1,860 |
| Total: | 2,400 | 483,050 |

For the purposes of this resource management guide, this tract is being divided into two management cover types based on forest composition: mesic oak-hickory and mixed hardwoods.

*Mesic Oak-Hickory, 55 acres*
This cover type is located all throughout the tract, making up approximately 93% of the tract acreage. The slopes within this cover type are mostly gradual 5-25% slopes which are east and northeast facing. Percent stocking is estimated at 78%, classifying it as fully stocked. Chestnut oak and white oak make up most of the merchantable volume followed by scarlet oak and northern red oak. Overstory mortality in this cover type is very high, mainly taking the form of uprooted and overcrowded trees within the 20-30" dbh size class. There were high numbers of white oak mortality noted along the drainages, mainly the 24" dbh size class. The dominant regeneration in these areas of mortality tends to yellow-poplar around the drainages and oak-hickory on the

ridgetops. This demonstrates that the seed bank would respond well to more light reaching the forest floor. The herbaceous layer is mostly spicebush and greenbrier.

**Mesic Oak-Hickory Data (trees >11"DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| Chestnut oak | 1,168 | 218,220 |
| White oak | 727 | 171,060 |
| Scarlet oak | 87 | 27,860 |
| Northern red oak | 29 | 14,520 |
| Red maple | 49 | 7,570 |
| Pignut hickory | 51 | 5,160 |
| American beech | 21 | 2,280 |
| Yellow-poplar | 37 | 1,440 |
| Black gum | 37 | 850 |
| **Total:** | **2,206** | **448,960** |

Stocking is high in this cover type, which can be attributed to the high density of stems per acre. It should be noted that the inventory taken in 2000 had a basal area of approximately 94 which is one square foot per acre lower than the basal area measured in the most recent inventory in 2024. This basal area not changing can be contributed to the high mortality throughout the tract. As trees got bigger, trees kept dying, resulting in the basal area staying approximately the same. A selective harvest would be ideal for the majority of this cover type. This selective harvest would focus primarily on capturing mortality and releasing crop trees. There may be areas of high mortality, poor quality trees, and ideal oak regeneration, that a patch-cut opening could be implemented. In most sites affected by mortality along the ridgetops, ideal oak regeneration was found.

An improvement harvest is recommended for this cover type. The goal is to bring down the basal area from approximately 95 to 60-65. This could be accomplished with the use of a shelterwood harvest or a single-tree selection harvest. Mid-story removal can be completed by chemical methods, mechanical methods, or with prescribed fire. If prescribed fire is used, the area could be repetitively burned at 3 to 5-year intervals to ensure the mid-story is properly controlled. A selective harvest along with patch-cut openings could also be used to promote and improve the cover type as it is. Invasive species control is not required but could be used before a harvest. Invasive species control is also recommended in areas where the timber harvest or timber stand improvement (TSI) activity creates a canopy gap opening allowing high quantities of light to reach the ground. It is recommended to remove between 200,000 to 250,000 board feet from this cover type.

*Mixed Hardwoods, 4 acres*

This cover type is found in the northeast corner of the tract, where the two intermittent streams come together. Mixed hardwoods make up 4 acres of the tract which is approximately 7% of the tract acreage. Most of the canopy trees in this cover type are either chestnut oak, red maple, American beech, or yellow-poplar. The only other species that were present in measurable amounts were white oak, sugar maple, and blackgum. The percent stocking is 86, classifying this cover type as fully stocked. Most of this cover type consists of large American beech and red maple, which contributes to the lack of diversity. The yellow-poplar, white oak, and chestnut oak are of nice

quality. These species are ideal and should be managed for in this cover type. Without management, this cover type would see a continued decline in diversity, with shade tolerant species contributing to the growth of more shade tolerant species. With forest management, biodiversity could be improved, benefiting wildlife and timber quality. The herbaceous layer is mostly spicebush. Invasive species are a concern in this cover type, mostly being found near the fire lane and the streams.

**Mixed Hardwoods Data (trees >11"DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| Chestnut oak | 34 | 7,170 |
| Red maple | 48 | 6,870 |
| American beech | 54 | 6,860 |
| Yellow-poplar | 18 | 6,160 |
| White oak | 12 | 3,470 |
| Sugar maple | 12 | 1,860 |
| Black gum | 16 | 1,700 |
| **Total** | **194** | **34,090** |

Stocking is high in this cover type, which can be attributed to the dense American beech in the northeast, near the fire lane. This area could benefit from a patch-cut opening, as this cover type has proven there are yellow-poplar in the seed bank that would respond well to more sunlight and disturbance. This regeneration opening could be improved through pre-harvest or post-harvest TSI, targeting the understory American beech. Before any timber management occurs, the invasive species near the fire lane could be treated to prevent further spread. Near the uphill edges of this cover type, there are some larger oaks that could be harvested to capture mortality. This could also contribute to increasing the sunlight reaching the forest floor and releasing higher quality oak trees in the area, as these oaks are rather short-bodied with large tops.

A selective harvest, mid-story removal, and patch-cut openings could be used throughout for a possible transition to an oak-hickory cover type or to promote regeneration. The goal in the mixed hardwoods cover type is to bring down the basal area to 60-65. This basal area could be lower if a large regeneration opening is implemented. Mid-story removal can be completed by chemical methods, mechanical methods, or with prescribed fire. If prescribed fire is used, the area could be repetitively burned at 3 to 5-year intervals to ensure the mid-story is properly controlled. A selective harvest along with patch-cut openings could also be used to promote and improve the cover type as it is. Invasive species control is advised for the high presence areas and is recommended in areas where harvest or TSI creates a regeneration opening allowing high quantities of light to reach the ground. This harvest could remove 15,000 – 25,000 board feet.

**Summary Tract Silvicultural Prescription and Proposed Activities**

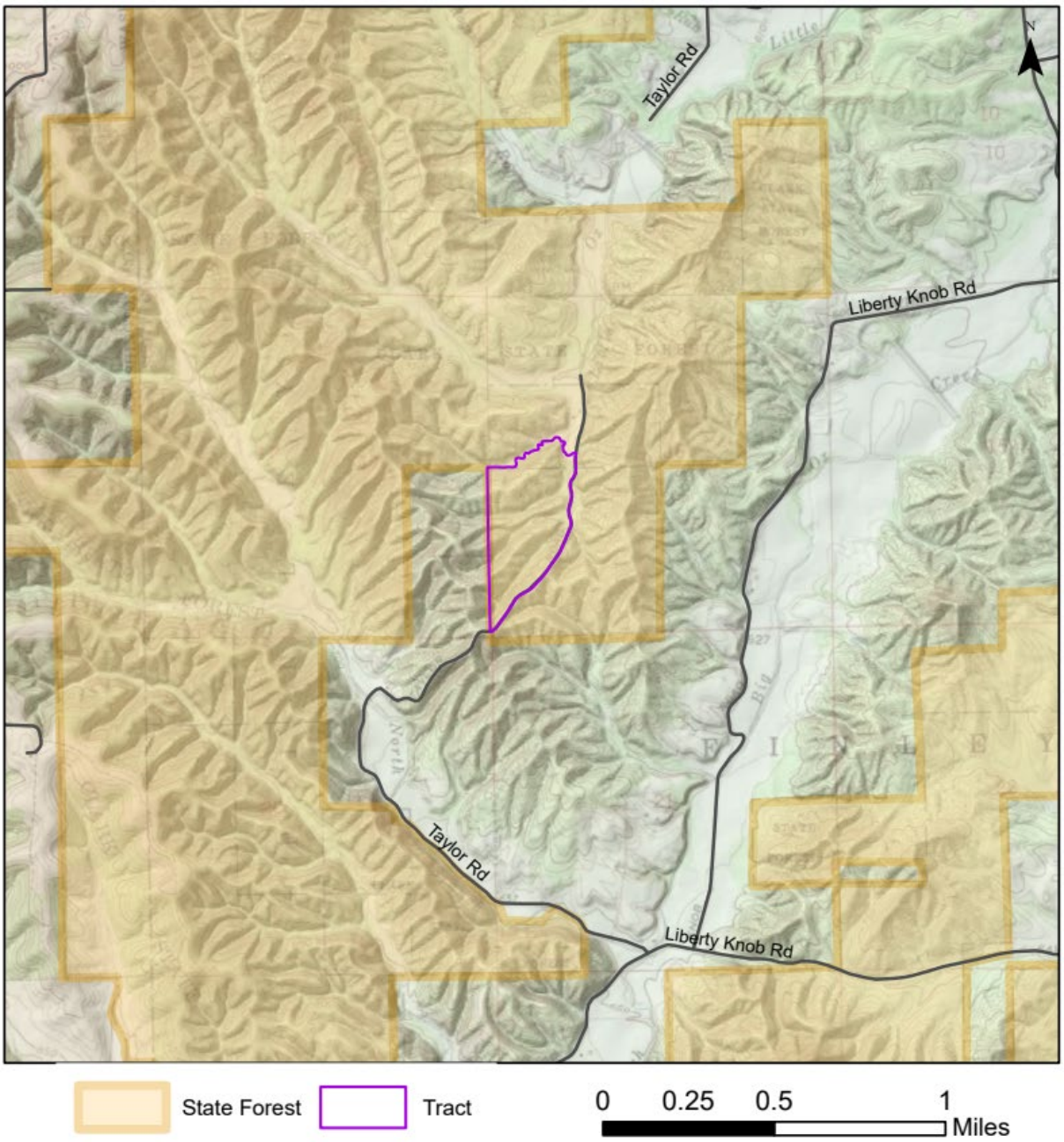
Management recommendations in this tract could begin with pre-harvest invasive species control that could be used to limit seed producing populations or reduce less pervasive invasive species. Pre-harvest TSI could be utilized to help promote oak or yellow-poplar regeneration. A harvest is recommended to lower the basal area, improve regeneration conditions, or to transition an area of the tract from one cover type to another. This could be done by using single-tree selections, shelterwood harvests, or patch-cut openings. Post-harvest TSI and a prescribed fire regime could

be used to promote and ensure success. It is recommended that a total of 215,000 – 275,000 board feet be removed from 6300215.

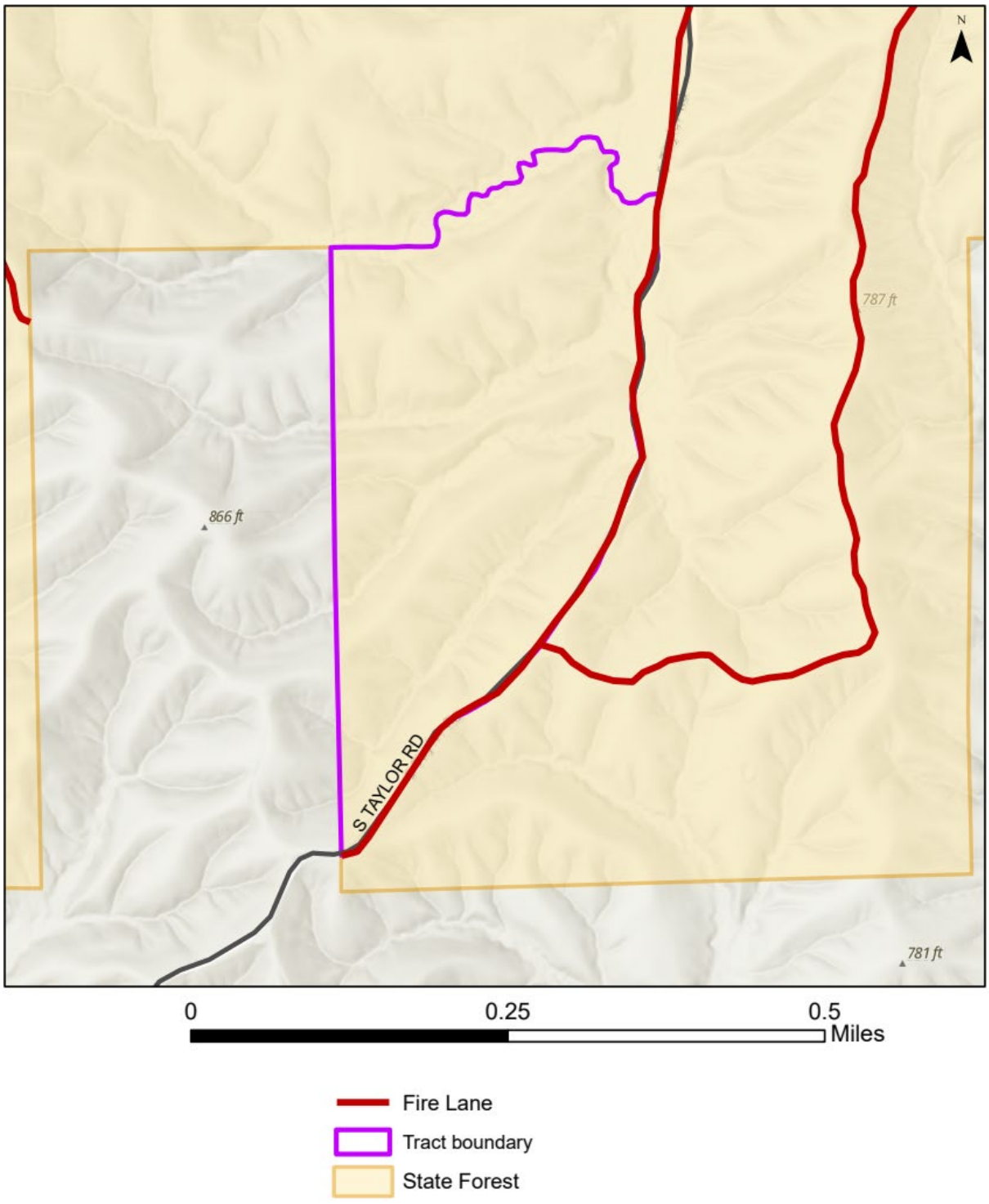
**Proposed Activities Listing**

| *Proposed Management Activity* | *Proposed Date* |
|---|---|
| Pre-harvest TSI/invasive species control | 2025-2026 |
| Timber Harvest | 2026-2028 |
| Post-harvest TSI/invasive species control | Within 2 years of harvest |
| 3-year regeneration review | Three years after harvest |
| Prescribed fire regime | 2026+ |
| Next forest inventory | 2044 |

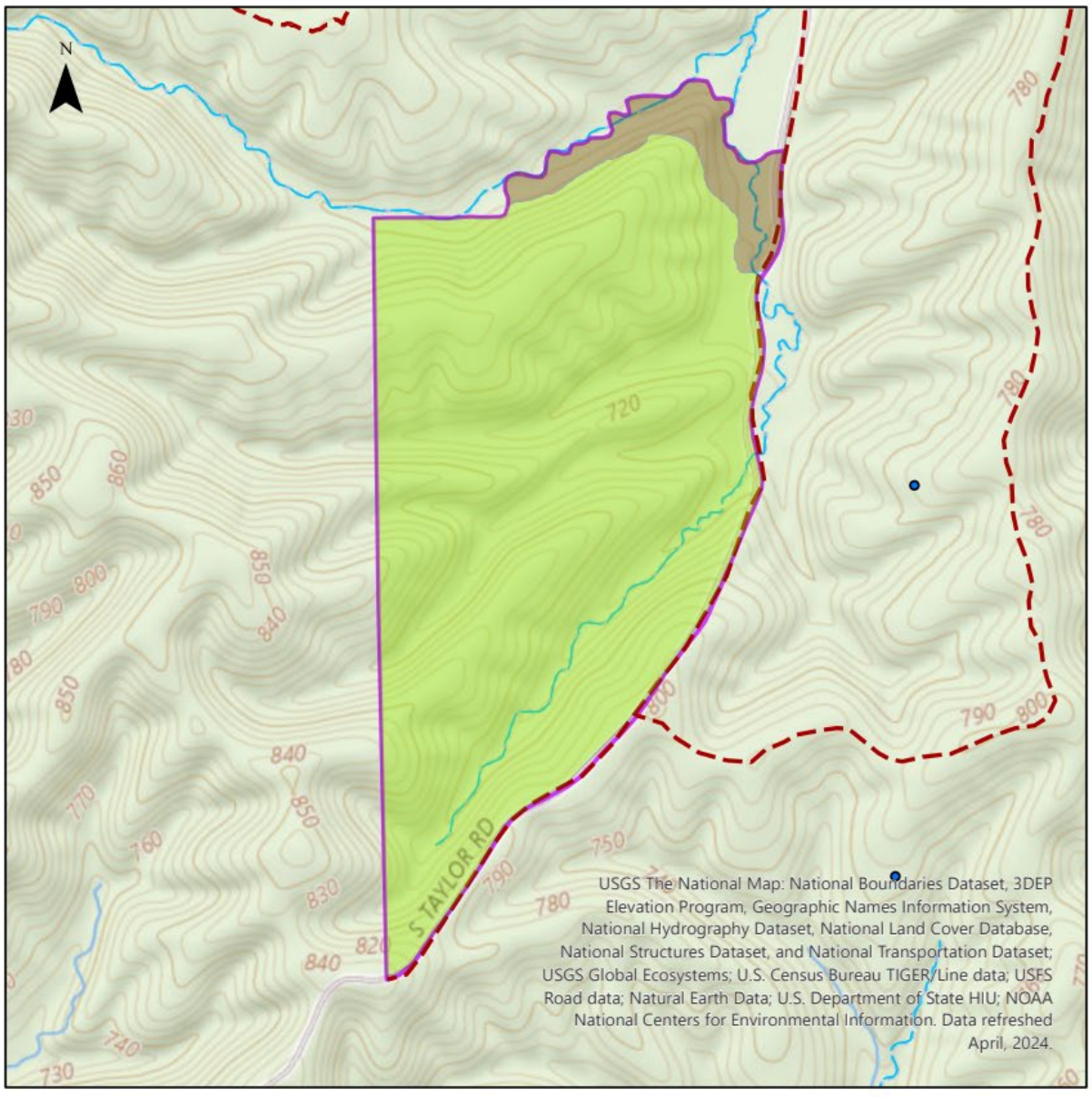
# Clark State Forest
# Location Map
# Compartment 2  Tract 15



# Clark State Forest
# Compartment 2 Tract 15
# Tract Map



# Clark State Forest
# Compartment 2 Tract 15
# Cover Types Map




Tract Boundary
Mesic Oak-Hickory
Mixed Hardwoods
FireLanes
Wildlife Ponds

0 0.13 0.25 Miles

| | | |
|---|---|---|
| Clark State Forest | Compartment 4 | Tract 8 |
| Forester: Alwine | Date: June 20, 2022 | Acres: 135 |
| Management Cycle End Year: 2043 | Management Cycle Length: 20 | |

**Location**
Compartment 4 Tract 8, also known as 6300408, is located in Scott County, Indiana, ~5.5 miles northwest of Henryville, Indiana, and ~8 miles southeast of Scottsburg, Indiana, south off Salem Road. More specifically, it is mostly located in the NW ¼ of Section 27, T2N, R6E. A small western portion of the tract is located in NE ¼ of Section 28, T2N, R6E.

**General Description**
This tract has two cover types: dry oak-hickory and conifer. The dominant tree species is chestnut oak. The dominant regeneration is American beech and maple. The conifer cover type was open, disturbed ground prior to state purchase in 1939. It grew back into a Virgina pine stand with mixed hardwoods. Oriental bittersweet is the main invasive plant issue in the tract, with a wide variety of invasive plants noted during the forest inventory. Management in this tract will be focused on promoting healthy, sustainable oak and hardwood forests by treating invasive species, helping to promote the regeneration of oaks through a combination of understory and overstory disturbances.

**History**
- Land acquisition from William & Avia Crowley in 1939
- Land acquisition from Clifford Richey in 1939
- Land acquisition from Jennie White in 1950
- Open and disturbed land located in northern portion of tract from 1940-1960 aerials
- Inventory conducted and Resource Management Guide written in 1976 by Don Westefer
- Inventory by State Forest Inventory Program in 1986
- Reopened Bowen Loop Trail
- Timber harvest conducted in 1990 by DoF personal processed by state sawmill
- Timber harvest marked and sold by forester David Pyle to Eric Wheeler in 1997
- Forest Inventory completed by Alwine in 2022
- Resource Management Guide written by Alwine in 2023

**Landscape Context**
A vast majority of the surrounding landscape near this tract is forested land. A lot of this is additional Clark State Forest property but includes privately owned forest lands as well. Homes and agricultural fields are located in smaller quantities, approximately 10 percent of the land area within 1 mile. Most of this is livestock pastureland and crop fields located in the flat lowlands between the Knobs.

**Topography, Geology, and Hydrology**
The terrain varies from very steeply sloped near the southern ridge to flat along Salem Road. The main topographical feature in the tract is the ridgeline that makes the southern border. The majority of the tract is located on the north facing slopes and fingers that slope down from the ridgetop. The western line of the tract runs along a ridgetop that runs north all the way until it reaches Salem Road. All these fingers end into a relatively flat lowland south of Salem Road.

6300408 is in two watersheds, the Pigeon Roost Creek and Big Ox Creek watersheds. Most of the tract is in the Pigeon Roost Creek watershed with only small portions along the southern ridgetop and the northwest corner being in the Big Ox Creek watershed. There is one mapped blueline stream located within 6300408. It is an unnamed stream that flows north through the eastern half. It flows off state forest property where it connects with a second unnamed blue line stream that flows north of Salem Road. Multiple ephemerals run north in the western half until they flow together and then into the blue line stream in 6300406 that flows east. All this flows further east picking up more unnamed streams until it flows into Pigeon Roost Creek. The water in the Big Ox Creek watershed takes 2 different paths. The small area in the northwest flows north until it hits Salem Road and then follows the roadside drainage west until it flows into Big Ox Creek. The skinny slivers along the ridgetop flow south into the South Branch of Big Ox Creek. The south Branch of Big Ox Creek flows for approximately 6 miles until it reaches Big Ox Creek. There are two small manmade wildlife ponds. One is in the southeast corner and the other is rather central within the tract. General riparian management zone (RMZ) guidelines will be implemented in these areas in accordance with the Indiana Logging and Forestry Best Management Practices 2022 BMP Field Guide.

**Soils**

BcrAW- Beanblossom silt loam, 1 to 3 percent slopes, occasionally flooded, very brief duration, 7.4 acres

This nearly level, deep, well-drained soil is found along alluvial fans and flood plain. It is well suited to trees. Management planning should consider wet times of year. This soil has not been evaluated for site index.

BfbC2- Blocher, soft bedrock substratum-Weddel silt loams, 6 to 12 percent slopes, eroded, 1.4 acres

This moderately sloping, deep, moderately well-drained soil is found on side slopes in the till plains. It is well suited to trees. Erosion hazards are a management concern that should be considered during implementation of Best Management Practices for Water Quality. Blocher has a site index of 76 for northern red oak and 90 for yellow poplar and Weddel has a site index of 70 for northern red oak and 75 for yellow poplar.

BvoG-Brownstown-Gilwood silt loams, 25 to 75 percent slopes, 20 acres

This moderate to very steep, deep, well-drained soil is found sideslopes in the uplands. It is well suited to trees. Equipment limitations and erosion hazards are main management concerns that should be considered during sale layout and implementation of Best Management Practices for Water Quality. Brownstown has a site index of 50 for black oak and gilwood has not been rated.

ComC3- Coolville silt loam, 6 to 12 percent slopes, 1.6 acres

This moderately sloping, deep, moderately well-drained soil is on side slopes in the uplands. It is well suited to trees. Erosion hazards are concerns that should be considered during implementation of Best Management Practices for Water Quality. This soil has a site index of 66 for northern red oak.

ConD- Coolville-Rarden complex, 12 to 18 percent slopes, 1.9 acres

These strongly sloping, deep, moderately well-drained soils are found on side slopes in the uplands. It is well suited to trees. Erosion hazards are concerns that should be considered during implementation of Best Management Practices for Water Quality. Coolville has a site index of 66 for northern red oak and Rarden has a site index of 71 for black oak.

GgfD- Gilwood-Wrays silt loams, 6 to 18 percent slopes, 5.5 acres
This gently to moderately sloping, moderately deep, well-drained complex is found on side slopes of the uplands knobs. The hazard of erosion is main management concerns that should be considered when implementing Best Management Practices for Water Quality. Wrays has a site index of 70 for white oak and 90 for yellow poplar and Gilwood has not been evaluated.

GmaG- Gnawbone-Kurtz silt loams, 20 to 60 percent slopes, 64.4 acres
This moderately to very steep, moderately deep, well-drained complex is found on side. It is well suited to trees. The hazard of erosion and equipment limitations are main management concerns. These should be considered when planning management activities and implementing Best Management Practices for Water Quality. Kurtz has a site index of 60 for northern red oak and Gnawbone has not been evaluated.

PcrB2- Pekin silt loam, 2 to 6 percent slopes, eroded, 7.0 acres
This gently sloping, deep, moderately well-drained soil is on alluvial terraces. It is well suited to trees and has a site index of 70 for white oak and 85 for yellow poplar.

PcrC3- Pekin silt loam, 6 to 12 percent slopes, severely eroded, 5.6 acres
This moderately sloping, deep, well-drained soil is found on side slopes adjacent to drainageways on alluvial terraces. It is well suited to trees and has a site index of 70 for white oak and 85 for yellow poplar.

RblD3- Rarden silty clay loam, 12 to 18 percent slopes, severely eroded, 3.6 acres
This strongly sloping and moderately steep, moderately deep, well-drained and moderately well-drained soil is on side slopes in the uplands. This soil is fairly well suited to trees. Erosion hazards, equipment limitations, and windthrow hazards are management concerns. These should be considered during planning and implementation of Best Management Practices for Water Quality. This soil has a site index of 67 for northern red oak.

SoaC2- Spickert silt loam, 6 to 12 percent slopes, eroded, 4.9 acres
This moderately sloping, deep, moderately well-drained soil is found on side slopes in the uplands. It is well suited to trees. A fragipan is present at 20 to 36 inches below soil surface that inhibits drainage. Erosion hazards are a management concern that should be considered when implementing Best Management Practices for Water Quality. This soil has a site index of 100 for yellow poplar and 60 for white oak.

StaAQ- Steff silt loam, 0 to 2 percent slopes, rarely flooded, 5.3 acres
This nearly level, deep, moderately well-drained soil is on bottom land. It is flooded for brief periods, mainly in winter and spring. It is well suited to trees and has a site index of 88 for black oak and 107 for yellow poplar.

StdAQ- Stendal silt loam, 0 to 2 percent slopes, rarely flooded, 0.7 acres
This nearly level, deep, somewhat poorly drained soil is on bottom land along small streams. It is well suited to trees. Seasonal wetness limits equipment and should be considered when planning management activities. This soil has a site index of 90 for pin oak and yellow poplar.

StmC, Stonehead silt loam, 6 to 12 percent slopes, 3.7 acres
This moderately sloping, deep, moderately well-drained soil found on side slopes in the uplands. It is well suited to trees. This soil has a site index of 100 for yellow poplar and 60 for white oak. These soils are subject to rutting from forestland equipment and implementation of Best Management Practices for Water Quality will be considered.

WhcD- Wellrock-Gnawbone silt loams, 6 to 20 percent slopes, 2.3 acres
This strongly sloping, deep, well-drained soil is on side slopes in the uplands. It is well suited to trees. Erosion hazards are a management concern that should be considered when implementing Best Management Practices for water quality. Wellrock has a site index of 90 for yellow poplar and 70 for white oak. Gnawbone has not been evaluated for site index.

**Access**
Access to this tract is good. Salem Road runs the entire northern boundary of the tract. There is a larger parking space located at the northwest corner of the tract south of Salem Road. There is a secondary parking location at the northwest corner of tract that can fit one vehicle at the bottom of a gated fire lane that runs into the Bowen Loop Connector Trail. The connector trail starts at the larger parking space, runs west across the northern portion of the tract until it runs south close to the western boundary. It connects to the Bowen Loop which runs along the southern boundary of the tract. These fire lanes/trails are accessible by ATV. There is also an old, no longer official trail that runs south from the northeast parking area through the middle of the tract up to Bowen Loop.

**Boundary**
The boundaries of this tract are combination of roadway, more state forest land, and private property. Salem Road runs the northern border until the northwest section corner of Section 28. 6300406 is located north of Salem Road. At the section corner, the line does due west for a short distance before following a ridge south until it reaches the main ridgetop in the area. The boundary follows this ridgetop around the southern border. Bowen Loop is present on this ridgetop but does not precisely follow the boundary line. At the southeast corner the line kicks north down the main finger in that area until it reaches the private property boundary. The line then follows the private property boundary due north until it reaches Salem Road. Other Clark State Forest tracts that share boundaries with 6300408 include 6300407, 600411, 6300801 and 6300410.

**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.

There was a wide array of invasive plants observed in this tract, mostly located in the conifer cover type. Invasive plants observed include oriental bittersweet, Japanese honeysuckle, Japanese stiltgrass, multiflora rose, autumn olive, Asian bush honeysuckle, oriental privet, Amur cork tree, and Ailanthus. Oriental bittersweet is the largest concern as it is the most prevalent, but the others poise similar threats to biodiversity. Some trumpet vine, more of an exotic than an invasive plant, was noted along Salem Road. The main populations of invasive plants are located in the flat lowland areas of the conifer cover type. Given this area was heavily disturbed and now suffering from mortality, especially Virginia pine, invasive plants are thriving. Autumn olives were mainly around the wildlife ponds, possibly planted for wildlife. The invasive plants are scattered in the oak portion of the tract, mainly random volunteers. Special attention will be required to ensure the invasive pressures in this tract are controlled and spread is prevented.

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**
The main recreational use is horseback riding using the Bowen Loop Trail, the Bowen Loop Connector Trail, and a short portion of the Cross Country Trail that runs through the southeast corner. This part of the Cross Country Trail is also a part of the Overland Mountain Bike Trail. Dispersed camping locations were observed in the area, likely by users of the Knobstone Trail which is located south of the tract. Besides hiking, multiple signs of hunting were also observed. Other recreational activities available include foraging and wildlife viewing.

**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**
The current forest resource inventory was completed in the fall of 2022 by forester Alwine. An overview of the results are located in the table below. Trees larger than 11 inches in DBH and of merchantable quality are included in volume summaries and considered "sawtimber trees."

**Tract Summary Data (trees >11”DBH):**

| Species | # Sawtimber Trees | Total Bd. Ft. |
|---|---|---|
| Chestnut oak | 2,968 | 388,810 |
| Virginia pine | 700 | 105,530 |
| White oak | 614 | 96,480 |
| Red maple | 530 | 87,060 |
| Northern red oak | 301 | 73,420 |
| Sugar maple | 573 | 57,240 |
| Yellow-poplar | 295 | 55,780 |
| Pignut hickory | 420 | 51,780 |
| Black oak | 187 | 38,570 |
| Scarlet oak | 132 | 29,960 |
| American beech | 160 | 23,290 |
| Shagbark hickory | 42 | 8,730 |
| Blackgum | 16 | 3,880 |
| American sycamore | 13 | 3,430 |
| Black walnut | 45 | 1,040 |
| Total | 6,996 | 1,025,000 |

For the purposes of this resource management guide, this tract is divided into two management cover types based on management history and forest composition: dry oak-hickory and conifer.

*Dry oak-hickory, 88 acres*

The dry oak-hickory cover type is located on a majority of the slopes within the tract and was not open as of the 1940s. It is dominated by chestnut oak on the upper slopes with more white oak located on the lower slopes. It is fully stocked with a Gingrich percent stocking of ~95. It has 118 trees per acre and 121 square feet per acre of basal area. Chestnut oak accounts for over half of the merchantable volume with oak and hickory species making up a combined ~85 percent. The tree form quality varied from poor to average. The nicest timber within this tract were white oaks on the lower slopes. Overstory mortality varied throughout the tract but was worse with the chestnut oak, occurring in scattered small patches. While this cover type is dominated by oak-hickory species in the larger size classes, it is a different story in the smaller size classes. Mesophication is the biggest threat. Located on a large north facing ridge front and without continued understory disturbances, shade tolerant species including American beech, red and sugar maple and ironwood are dominating this level of the forest. The inventory forester noted multiple times how vacant of plant life the ground cover layer was due to excessive shading from midstory trees. Other understory trees at far lower frequencies included blackgum, white ash, yellow-poplar (regenerating in pockets of higher mortality), sassafras, serviceberry, greenbrier, red elm, hickories, lowbush blueberry and ground level oak regeneration. Invasive species were not well established in this area and were located in the highest densities on the boundary with the conifer cover type and near the Bowen Lake Loop Trail. Oriental bittersweet volunteers were found in low densities and Japanese stiltgrass was in most of the drains. It was also found in some pocket openings where trees have fallen on heavy slopes near drains.

| Species | Volume per acre |
|---|---|
| Chestnut oak | 4,378 |
| White oak | 1,086 |
| Northern red oak | 827 |
| Sugar maple | 510 |
| Pignut hickory | 465 |
| Scarlet oak | 337 |
| Red maple | 325 |
| American beech | 262 |
| Black oak | 147 |
| Virginia pine | 140 |
| Shagbark hickory | 98 |
| Blackgum | 44 |
| Total | 8,619 |

The desired future condition of this cover type is to keep the oak and hickory species as the dominant overstory species. With these species losing in the understory to shade tolerant species, management will be aimed at lowering the competitive edge of the shade tolerant species by promoting the growth and replacement of overstory oaks. A harvest is prescribed to lower the stocking to promote individual health and growth. This harvest should be marked with a mix of selective tree harvesting (i.e., single tree or group selection) and regeneration opening (i.e., patch-cuts). Crop trees will be selected based on species and quality and will be released. In areas with appropriate open midstory conditions, a shelterwood style cutting is recommended to help promote oak regeneration. Midstory work will be required in the vast majority of the tract to allow for a shelterwood cut. Adding too much light to the existing midstory without treatment will only increase rate of mesophication. A midstory removal is also prescribed to reach these goals. Prescribed fire is the best way to do this. Fire has been on the landscape as an intermittent disturbance in southern Indiana since the indigenous people settled here and had a deep impact in the ecology we see today. Prescribed fire will help cull the shade tolerant species at a large scale while also reducing leaf litter and stratifying the soil to promote seed germination and new growth. Fire intervals should be on a 3-to-5-year schedule, or until the newly established seedlings are of size to compete. A secondary option would be a midstory removal done by foresters through a combination of chemical and mechanical treatments. Post disturbance invasive species monitoring is recommended to minimize invasive species entering from nearby areas.

*Conifer, 47 acres*

Based on a historical aerial photograph from 1940, we can see that this cover type was open ground before the state acquisition of the land. When this land was left to grow again into forest, Virginia pine was the dominant tree to return. Virginia pine commonly colonizes heavily disturbed lands on Clark State Forest and the surrounding lands. Virginia pine makes up ~40 percent of the merchantable volume in this cover type. It is located on the lower slopes of the tract near Salem Road with one small pocket on the ridgetop that was also open ground in the 1940 photograph. There are an estimated 114 trees per acre and an average 97 square feet per acre of basal area. The percent stocking is ~78. Mortality varies greatly but similar to a lot of 60+

year old Virginia pine stands, blowdown of these species is present. In these areas, most of the replacement species are the shade tolerant species located in the stand prior to the mortality. Most of the invasive species present in the tract are in this cover type. The highest densities are near Salem Road and the connector trail, along the drainages and Virginia pine pockets with mortality. With the excess light and no monitoring or control, those populations exploded.

| Species | Volume per acre |
|---|---|
| Virginia pine | 2,016 |
| Red maple | 1,259 |
| Yellow-poplar | 1,208 |
| Black oak | 553 |
| Sugar maple | 259 |
| Pignut hickory | 227 |
| American sycamore | 74 |
| Black walnut | 23 |
| Total | 5,619 |

The desired future condition is healthy hardwoods. The first step in the process should be invasive plant management to keep invasive plants from choking the forest and expanding their range within the tract. If invasives plants are not able to be treated before a harvest, consider avoiding the infested areas. The Virginia pine could be removed, creating larger patch-cut openings. The openings can then be planted into oak-hickory forest or allowed to regenerate naturally into a mixed hardwoods stand. In areas of current mixed hardwoods, crop trees could be selected and released. Tree species that benefit wildlife like oaks, hickories and walnuts will be a top priority for growing. Post-harvest invasive species control should be strongly considered as the seed bank for these invasive plants will be well established due to the many years these plants have been here.

**Summary Tract Silvicultural Prescription and Proposed Activities**

The goal in this tract is to sustainably promote the oak-hickory forests present and to consider converting the Virginia pine dominated conifer areas to hardwoods. Pre-harvest invasive species management should be conducted. A timber harvest is prescribed. The harvest could remove between 450,000 and 550,000. aimed to promote oaks and remove the declining Virginia pine in larger openings will help us reach our desired future conditions. After the harvest is completed, invasive species control and post-harvest timber stand improvement (TSI) could be implemented. The TSI could be focused on releasing oak regeneration, releasing trees to achieve desired conditions, and decreasing the presence of maple, beech, and ironwood regeneration in the oak-hickory cover types. This should be done within 2 growing seasons of the harvest. Special attention on treating oriental bittersweet will be required. Prescribed fire will then be used to help promote open oak forests with more light reaching the ground to promote growth. If able to plant, this should be done soon after the harvest as well to keep too much growth from becoming established. Regeneration checks will be conducted 3-5 years post-harvest. This tract should be inventoried again in 20 years.

Other considerations

**Regeneration evaluation –** Three to five years after the completion of the timber harvest, a regeneration inspection will be performed to ensure that desired regeneration is occurring within the harvest area. If deemed unsatisfactory, mitigations will be made.

**Timber stand improvement (TSI)** – TSI could be performed within two years of timber harvest completion. TSI is prescribed to complete regeneration openings, remove species inhibiting desirable regeneration, and address problem occurrences of invasive species.

**Best management practices (BMP) –** During and after completion of the proposed management activity, BMPs will be implemented in order to minimize soil erosion.

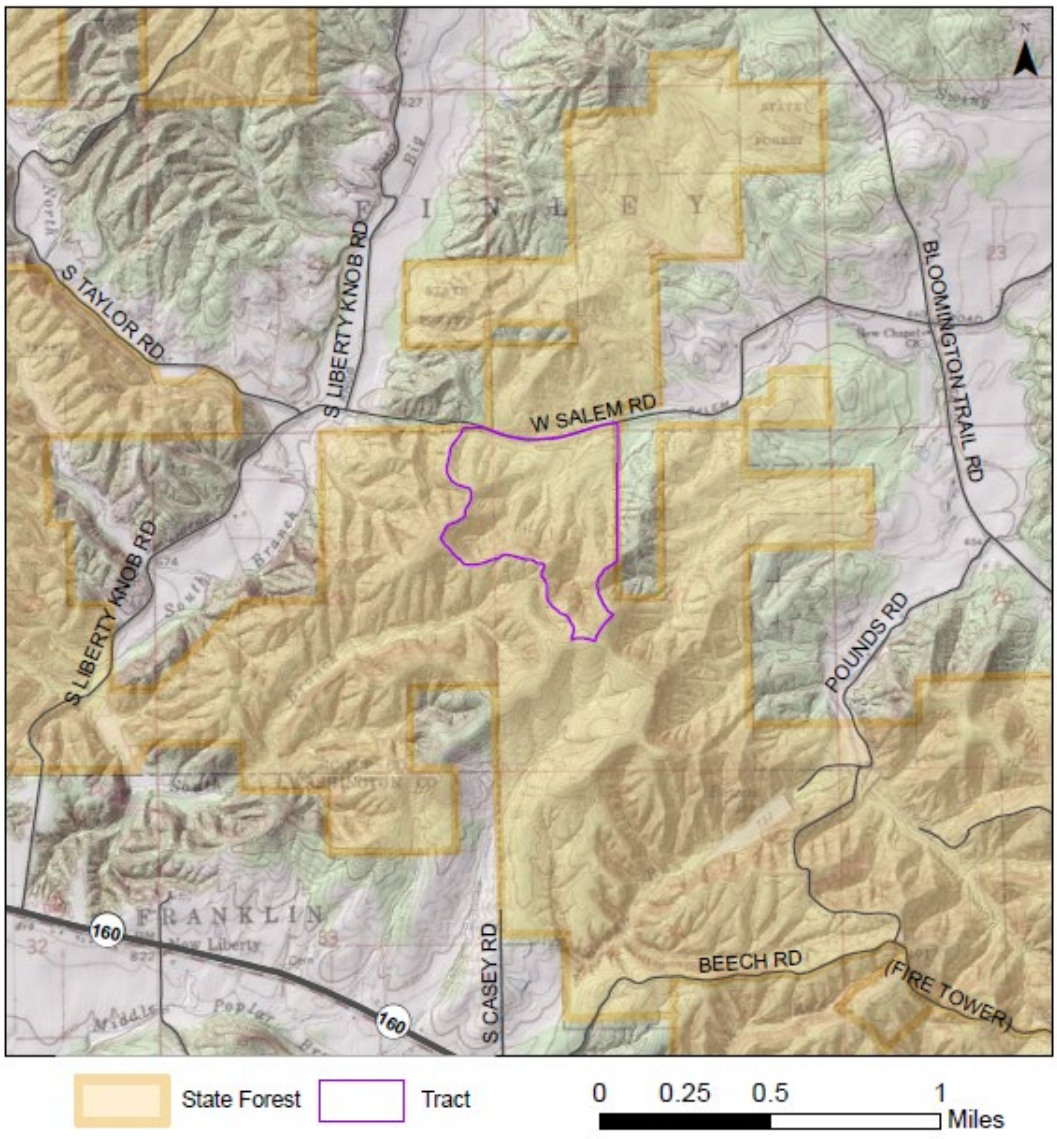
**Guide revision –** This tract should receive another inventory and management guide approximately 20 years following the completion of this inventory.

**Prescribed fire –** A regime of prescribed fire may be started within this tract to reduce the abundance of shade tolerant species in the midstory and to help control invasive species.

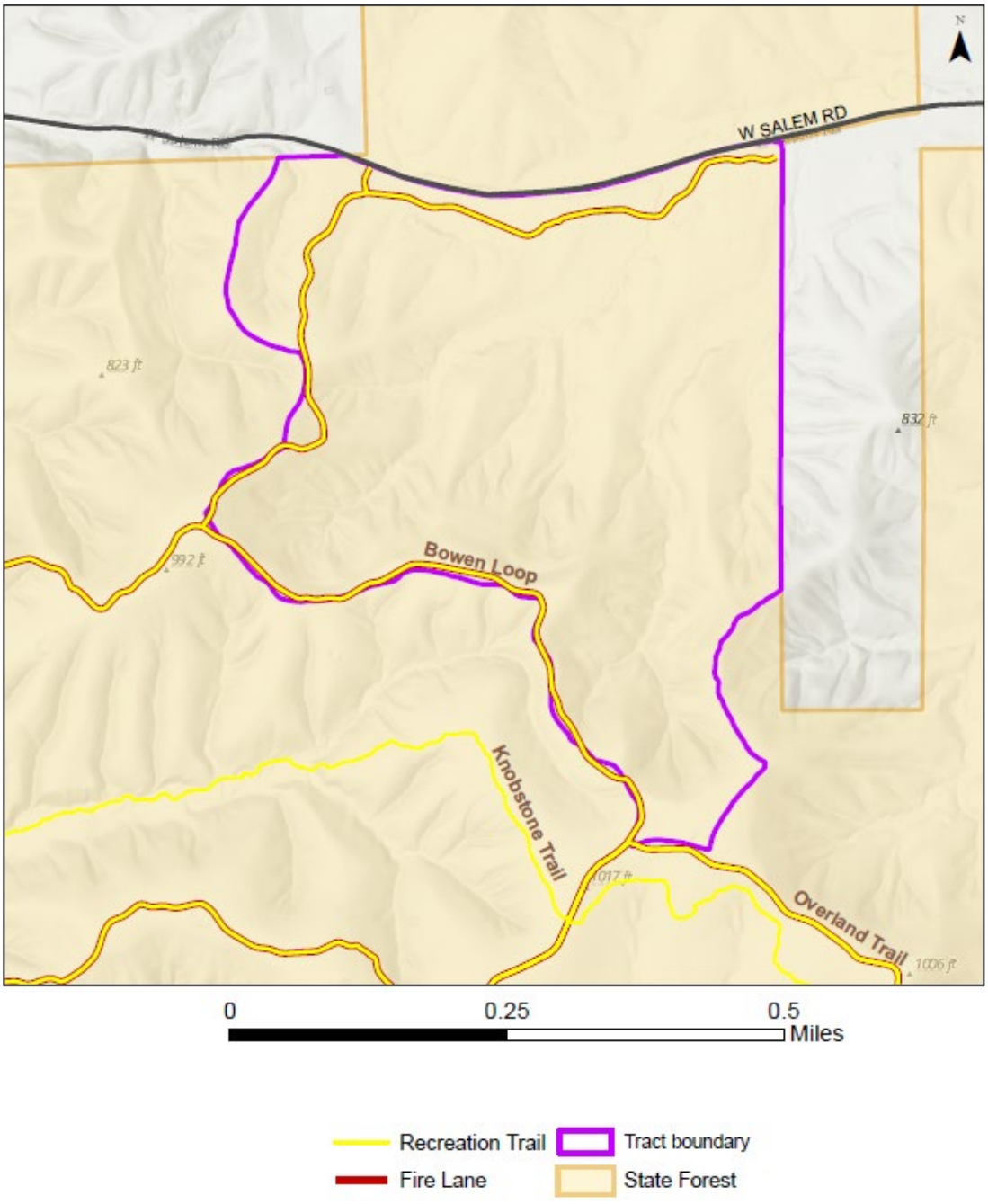
**Proposed Activities Listing**

| **Proposed Management Activity** | **Proposed Date** |
|---|---|
| Invasive species management | 2023-2025 |
| Timber harvest | 2025-2027 |
| Post-harvest TSI/invasive species management | Within 2 years post-harvest |
| Tree planting -optional | 2027-2029 |
| 3-year regeneration opening review | Three years after harvest |
| Prescribed fire regime | 2027+ |
| Next forest inventory | 2043 |

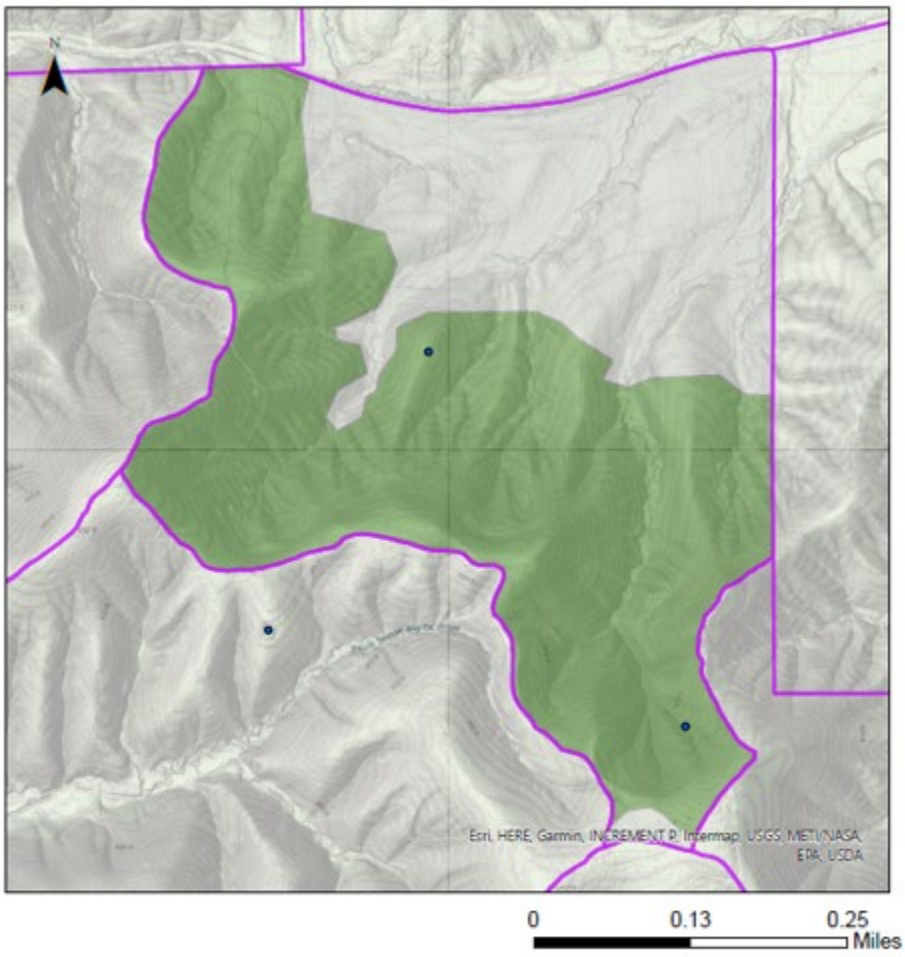
# Clark State Forest
# Location Map
# Compartment 4  Tract 8



# Clark State Forest
# Compartment 4 Tract 8
# Tract Map



# Clark State Forest
# Compartment 4 Tract 8
# Cover Types Map



| | | |
|---|---|---|
| Clark State Forest | Compartment: 18 | Tract: 1 |
| Forester: Cody Moore | Date: October 9, 2024 | Acres: 158 |
| Management Cycle End Year: 2044 | Management Cycle Length: 20 years | |

**Location**

Compartment 18, Tract 1, also known as 6301801, is located in Clark County, Indiana. This tract lies in 4 different Sections: the northeast quarter of this tract lies in the southwest quarter of the southwest quarter of Section 32, Township 1N of Range 6E; the northwest quarter of the tract is in Section 31, Township 1N, Range 6E; the southeast quarter of the tract is in Section 5, Township 1S, Range 6E; and the southwest quarter of the tract is in Section 6, Township 1S, Range 6E. 63001801 lies on the east side of Top of the Rock Horse Trail in Clark State Forest half-mile south of horse trail intersection number 2, with the southern extent of the tract bordering the Kelly Branch intermittent stream.

**General Description**

This tract has been divided into three cover types: dry oak-hickory, mesic oak-hickory, and mixed hardwoods, with the mixed hardwoods mainly being in the deep drainages. The dominant overstory tree species are chestnut oak and white oak. The hardwood forests have high stocking and large higher quality trees that are reaching the point where mortality is becoming a concern. Occasionally across the tract, there are pockets of mortality. Across each cover type, regeneration is primarily beech and maple. Management in this tract will aim to capture mortality, lower the stocking to promote forest growth, and provide the residual structure needed to regenerate desired forest types. The desired forest types being higher quality/healthier chestnut oaks on the ridgetops, white oaks in the rest of the oak-hickory cover type, and yellow-poplar in the mixed hardwoods.

**History**

- 1940 – Land acquisition from Jackson, Hamilton, and Jennie
- 1940 – Land acquisition from Thomas, Otheis G. & Maggie
- 1951 – Land acquisition from Clark County Auditor
- 1964 – Land acquisition from Durning, Alvin H., and Mary S.
- 1966 – Land acquisition from Hostettler, Homer E., and Dorothy
- 1969 – Land acquisition from Clark County Board of Commissioners
- 1975 – Forest inventory and management guide completed by Wagner
- 1984 – Land acquisition from Durning, H. Lee, and Cathy D.
- 1987 – Land acquisition from Heath, Charles David
- 1987 – Inventory completed for State Forest Inventory Program
- 2024 – Forest inventory and management guide completed by Moore

**Landscape Context**

This tract is surrounded by Clark State Forest on all sides. North of the tract there is thousands of acres of Clark State Forest. There is a quarter mile stretch of Clark State Forest on the south side of the tract before you reach private land. Approximately 95% of the land within a mile of the tract is forested, with the last 5% being either Deam Lake or the developed areas surrounding it.

**Topography, Geology, and Hydrology**
The topography of this tract has a wide variety including over 40% slopes and a gradual 2-5% slope along the southeastern portion of the tract. There is a total of approximately 340 feet of elevation change from the lowest to the highest points in the tract. There is a knobby ridge to the west with a finger heading eastward through the center of the tract. These knobs slope mostly southward and eastward being steep at the higher elevations but turning into a gradual roll as they head downhill towards the drainages.

6301801 is in the Mississippian Borden mapped bedrock formation. The formations constituting the Borden Group are the New Providence Shale, the Spickert Knob, and the Edwardsville. The Borden Group is composed dominantly of gray argillaceous siltstone and of shale. Fine-grained sandstone is common. Interbedded limestones form discontinuous lenses and facies that are minor except for the interval of the Floyds Knob Limestone Member at the base of the Edwardsville Formation.

Tract 6301801 is located in the Muddy Fork watershed. There are two mapped intermittent streams that flow through this tract: Kelly Branch and an unnamed mapped intermittent that connects to Stone Branch. Kelly Branch begins on the western end of the tract and flows southeast along the southern border of the tract. After leaving 6301801, it continues for another 1.4 miles until it feeds Muddy Fork. The unnamed stream begins just a few hundred feet north of 6301801 and flows south to the northern border of the tract, following the border southeast for approximately a mile until it reaches Deam Lake. Deam Lake's outflow is Big Run stream, and it connects to Muddy Fork within a mile of exiting Deam Lake. General riparian management zone (RMZ) guidelines will be implemented in these areas in accordance with the Indiana Logging and Forestry Best Management Practices 2022 BMP Field Guide.

**Soils**
**GmaG (132.7 Ac)** - Gnawbone-Kurtz silt loams, 20 to 60 percent slopes
This moderately to very steep, moderately deep, well-drained complex is found on side. It is well suited to trees. The hazard of erosion and equipment limitations are main management concerns. These should be considered when planning management activities and implementing Best Management Practices for Water Quality. Kurtz has a site index of 60 for Northern red oak and Gnawbone has not been evaluated.

**GgbG (24.1 Ac) -** Gilwood-Brownstown silt loams, 25 to 75 percent slopes
This moderately to very steep, moderately deep, well-drained complex is on side slopes in the knobs. It is suited to trees. The hazard of erosion is the main management concern that should be considered when implementing Best Management Practices for Water Quality. Brownstown has a site index of 50 for black oak and Gilwood has not been evaluated.

**GgfD (1.4 Ac)** - Gilwood-Wrays silt loams, 6 to 18 percent slopes
This gentle to moderately sloping, moderately deep, well-drained complex is found on side slopes of the uplands knobs. The hazard of erosion is the main management concern that should be considered when implementing Best Management Practices for Water Quality. Wrays has a site index of 70 for white oak and 90 for yellow poplar and Gilwood has not been evaluated.

**SolC2 (0.4)** - Spickert-Wrays silt loams, 6 to 12 percent slopes, eroded
This moderately sloping, deep, moderately well-drained soil is found in side slopes in the uplands and knobs. It is well suited to trees. A fragipan is present at 20 to 36 inches that inhibits drainage. Erosion hazards are a management concern that should be considered when implementing Best Management Practices for Water Quality. Spickert has a site index of 60 for white oak and 100 for yellow poplar and Wrays has a site index of 70 for white oak and 90 for yellow poplar.

**Access**
6301801 can be accessed by UTV, horseback, and by foot. There is a fire lane that runs along the northeastern border of the tract, and this fire lane also serves as part of Top of the Rock Horse Trail. There is a spot on Deam Lake Loop Horse Trail that comes within 400 feet of the eastern tip of 6301801, but it does not enter the tract.

**Boundary**
6301801 is surrounded by Clark State Forest on all sides. The state forest tracts that border it are as follows: 6301608 to the west, 6301807 to the southwest, 6301802 to the southeast, and 6301516 to the northeast. Kelly Branch creek runs along the southwestern border and an unnamed intermittent stream runs along the majority of the northeastern border.

**Ecological Considerations**
This tract contains diverse vegetation and wildlife resources conducive to providing habitat for a variety of wildlife species. Habitat types include dry oak-hickory, mesic oak-hickory, mixed hardwoods, and riparian areas. Evidence of several types of wildlife were noted at the time of inventory including deer sign, turkey feathers, Eastern box turtles, and a variety of woodpeckers and songbirds.

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.

In the compartment that includes this tract, inventory data indicate snag densities exceed Division of Forestry targets at all size classes. Additionally, legacy tree densities exceed Division of Forestry compartment-level targets at all size classes by a comfortable margin.

The invasive plants noted at the time of inventory included Japanese honeysuckle, oriental bittersweet, Japanese stiltgrass, multiflora rose, and ailanthus. A majority of the invasive plants were located near the streams, thus invasive management could focus on keeping these invasive species from spreading to new areas. Seed producing woody species and vines should be treated prior to any harvest to help minimize spread. Also, post-harvest invasive species monitoring and treatment should occur to control the more common invasive species which will be prevalent in the seed bank like multiflora rose and ailanthus. Top of the Rock Horse Trail has multiflora rose

and, stilt grass, and ailanthus as well. Treating them could also be a priority to keep them from becoming more widely established.

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**
The main form of recreation that occurs in this tract, is likely to be horseback riding due to Top of the Rock horse trail that runs along its northwestern border. Some evidence of hunting was noted during the forest inventory. Other recreational opportunities presented in this tract include hiking, wildlife viewing, and foraging.

**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**
*The current forest resource inventory was completed in June of 2024 by Forester C. Moore. A summary of the estimated tract inventory results is located in the table below.*

**Tract Summary Data (Trees > 11" DBH)**

| Category | Estimate |
|---|---|
| Tract Acres (Forested) | 158 |
| Gingrich Stocking Percent (%) | 80 |
| Trees Per Acre | 98 |
| Basal Area Per Acre (SQFT) | 99.4 |
| Volume Per Acre (BDFT) | 8,073 |

**Tract Summary Data (trees >11"DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| Chestnut oak | 4,321 | 730,685 |
| White oak | 1,093 | 256,210 |
| Scarlet oak | 345 | 69,317 |
| Yellow-poplar | 225 | 63,219 |
| Black oak | 179 | 46,624 |
| Virginia pine | 382 | 45,985 |
| Sugar maple | 474 | 37,954 |
| Northern red oak | 74 | 28,857 |
| Pignut hickory | 78 | 13,912 |
| American beech | 63 | 11,148 |
| Black walnut | 42 | 5,484 |

| | | |
|---|---|---|
| Red maple | 58 | 4,556 |
| Black gum | 20 | 3,063 |
| **Total:** | 7,354 | 1,317,014 |

For the purposes of this resource management guide, this tract is being divided into three management cover types based on forest composition: dry oak-hickory, mesic oak-hickory, and mixed hardwoods.

*Dry Oak-Hickory, 83 acres*

This cover type is located in the northwestern portion of the tract on the main ridge and the steep slopes surrounding it. It encompasses approximately 53% of the tract acreage. It is dominated by dense chestnut oaks growing moderately well with some other varieties of oaks scattered amongst them. Percent stocking is estimated at 90% classifying it as fully stocked. Chestnut oak makes up ~74% of the merchantable volume. Other dominant overstory species included yellow-poplar and scarlet oak. Overstory mortality in this cover type is above average. The dominant regeneration in these areas tended to be American beech, chestnut oak, white oak, black oak, sassafras, white ash, Virginia pine, sugar maple, and yellow poplar. There was a good amount of oak regeneration present on the highest points of the knobs, likely because of the high germination rates of chestnut oak acorns and the dominance of chestnut oaks throughout the cover type. With forest management, these areas could continue to be predominantly oak-hickory. The herbaceous layer is dominated by greenbrier throughout the cover type with some pockets of Christmas ferns.

**Dry Oak-Hickory Data (trees >11”DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| Chestnut oak | 3,545 | 550,595 |
| Yellow-poplar | 165 | 50,113 |
| Scarlet oak | 233 | 46,702 |
| White oak | 250 | 39,242 |
| Black oak | 93 | 18,783 |
| Virginia pine | 97 | 17,342 |
| Northern red oak | 20 | 10,831 |
| Sugar maple | 113 | 6,323 |
| Black walnut | 34 | 3,173 |
| Black gum | 20 | 3,063 |
| Pignut hickory | 46 | 1,057 |
| **Total:** | **4,616** | **747,224** |

This cover type is dominated by chestnut oak. With the stocking being fully stocked, there are some nice trees that could be released from competition. This cover type is seeing high mortality, more than likely caused by intense competition and shallow soils. The understory is composed of more shade tolerant species that are creating competition for more desirable species. The ultimate goal is to keep this as an oak-hickory cover type for the foreseeable future. To do this, the oaks and hickories will need a competitive advantage by the removal of less desirable shade tolerant species. Mid-story removal is recommended due to most of the mid-story being

undesirable and can be completed by chemical methods, mechanical methods, or with prescribed fire. If prescribed fire is used, the area could be repetitively burned every 3-5 years to ensure the mid-story is properly controlled.

An improvement harvest is also recommended for this cover type. The goal is to bring the basal area down from approximately 114 to 50-70. This could be accomplished with the use of shelterwood harvests, single-tree selection harvest, or patch-cut openings. Invasive species control is advised along the recreational trail on the western edge of the tract and is recommended in areas where the timber harvest or timber stand improvement (TSI) activity creates a regeneration opening allowing high quantities of light to reach the ground. It is recommended to remove between 250,000 to 300,000 board feet from this cover type.

*Mesic Oak-Hickory, 63 acres*

This cover type is located in the eastern and southeastern portion of the tract on the low gradual slopes heading towards the intermittent streams. The mesic oak-hickory cover type encompasses approximately 40% of the tract acreage. With a lot of the cover type being on west-facing slopes, the tree quality is poor. This poor quality is reflected in the larger white oak that are competing with the next generation of white oak, which have higher quality as a result of competition. Percent stocking is estimated at 77%, classifying it as well above the B-line. White oak makes up most of the merchantable volume in the lower areas of the cover type and chestnut oak makes up the most merchantable volume on the higher areas. Other dominant overstory species includes Virginia pine, black oak, and scarlet oak. Overstory mortality in this cover type is average with the potential to become above average because of the poor quality of the largest trees. The dominant regeneration in these areas tended to be American beech, sugar maple, and yellow poplar with a few pockets of advanced oak regeneration where mortality has occurred. This demonstrates how well the area would respond to canopy removal. The herbaceous layer is mostly spicebush and greenbrier.

**Mesic Oak-Hickory Data (trees >11”DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| White oak | 821 | 208,718 |
| Chestnut oak | 757 | 178,331 |
| Virginia pine | 285 | 28,643 |
| Black oak | 86 | 27,841 |
| Scarlet oak | 112 | 22,615 |
| Northern red oak | 54 | 18,026 |
| Pignut hickory | 32 | 12,855 |
| Sugar maple | 93 | 10,858 |
| American beech | 54 | 9,324 |
| Yellow-poplar | 24 | 4,920 |
| **Total:** | **2,318** | **522,131** |

This cover type is dominated by white oak. With the stocking being in the fully stocked section, there are some higher-quality crop trees that could be released from competition. The understory is composed of more shade tolerant species that are creating competition for more desirable

species. The ultimate goal is to keep this as an oak-hickory cover type for the foreseeable future. To do this, patch-cut openings should be avoided, as the yellow-poplar would beat the desirable oaks and hickories. With this being a west-facing slope, too much sunlight would result in poor-quality trees. A sparse single-tree selection would result in desirable species with higher quality.

An improvement harvest is recommended for this cover type. The goal is to bring down the basal area from approximately 95 to 60-80. This could be accomplished with the use of a shelterwood harvest or single-tree selection harvest. Invasive species control is advised along the streams and is recommended in areas where the timber harvest or TSI activity creates a canopy gap opening allowing high quantities of light to reach the ground. It is recommended to remove between 200,000 to 250,000 board feet from this cover type.

*Mixed Hardwoods, 12 acres*

This cover type is found scattered in the bottom areas of the tract, near the streams. It is the smallest of the cover types, only covering approximately 7.5% of the tract acreage. Most of the canopy trees are sugar maple with the occasional large white oak. Percent stocking is estimated at 45% putting it right at the C-line. Sugar maple makes up ~44% of the merchantable volume. Other dominant overstory species included white oak and yellow-poplar. Overstory mortality in this cover type is surprisingly high. At the furthest southern extent of the tract, it appears it was planted in Virginia pine many years ago, as there is some remanence of root balls, now appearing as large mounds. The canopy now stands roughly 35-40 feet tall, stocked densely with American beech and maples. It appears that the Virginia pine was left standing too long without management, all falling susceptible to blowdown, then the understory of beech and maple was left to grow beneath them. The other areas of this cover type encompassed skinny drainages with steep banks that resulted in root failure and mortality. The dominant regeneration in these areas tended to be American beech, white ash, Virginia pine, sugar maple, and yellow-poplar. With forest management, these areas could recover to a more biodiverse area, as the current situation is in the realm of an American beech monoculture. The herbaceous layer, where there is one, is dominated by spicebush. Invasive species in this area was moderate with the occasional multiflora rose growing close to the streams.

**Mixed Hardwoods Data (trees >11”DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| Sugar maple | 268 | 20,773 |
| White oak | 22 | 8,250 |
| Yellow-poplar | 36 | 8,186 |
| Red maple | 58 | 4,556 |
| Black walnut | 8 | 2,311 |
| American beech | 9 | 1,824 |
| Chestnut oak | 19 | 1,759 |
| **Totals:** | **420** | **47,659** |

Stocking is right on the C-line for this cover type. The overstory lacks diversity with sugar maple and American beech being the most prominent tree species in most areas of this cover type. With most of the American beech being pole sized undergrowth growing in a Virginia pine blowdown area, it is recommended to make large patch-cut openings in those areas to regenerate yellow-

poplar and hopefully grow some oaks and black walnuts as well. The basal area will not see much of a change, as the majority of the trees being removed will be pole sized. The goal is to promote a diverse, healthy cover type. This harvest could remove 10,000 – 15,000 board feet, with most of the work being done through Timber Stand Improvement.

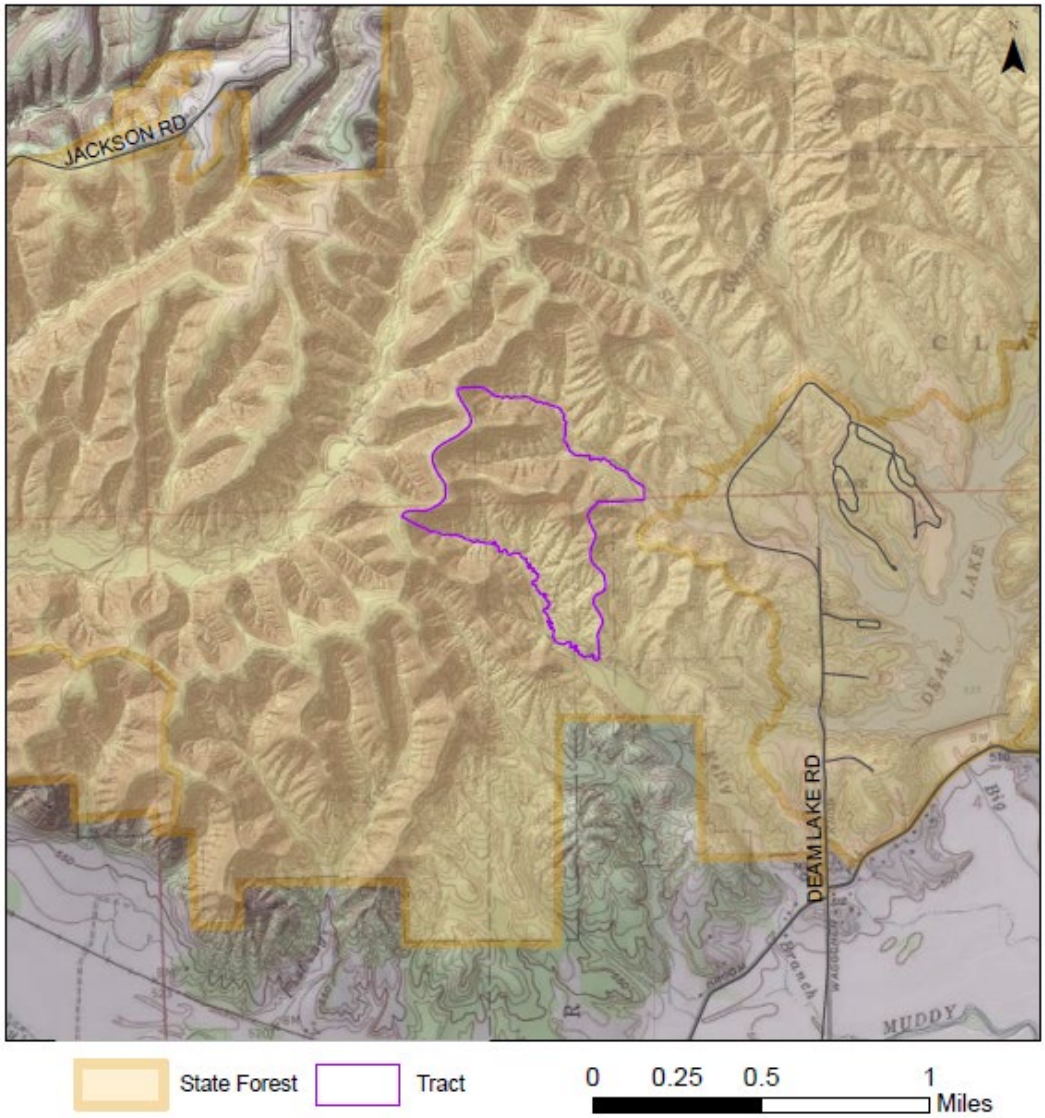
A selective harvest, mid-story removal, and patch-cut openings are recommended throughout for a possible transition to an oak-hickory cover type or to promote yellow-poplar regeneration. Mid-story removal can be completed by chemical methods, mechanical methods, or with prescribed fire. If prescribed fire is used, the area could be repetitively burned at 3 to 5-year intervals to ensure the mid-story is properly controlled. A selective harvest along with regeneration openings could also be used to promote and improve the cover type as it is. Invasive species control is advised for the high presence areas and is recommended in areas where harvest or TSI creates a regeneration opening allowing high quantities of light to reach the ground.

**Summary Tract Silvicultural Prescription and Proposed Activities**
Management recommendations in this tract could begin with pre-harvest invasive species control that could be used to limit seed producing populations or reduce less pervasive invasive species. Pre-harvest TSI could be utilized to help promote oak regeneration. A harvest is recommended to lower the basal area, improve regeneration conditions, or to transition an area of the tract from one cover type to another. This could be done by using single-tree selections, shelterwood harvests, or patch-cut openings. Post-harvest TSI could be used to promote and ensure the success of the new tract. It is recommended that a total of 460,000 – 565,000 board feet be removed from 6301801.

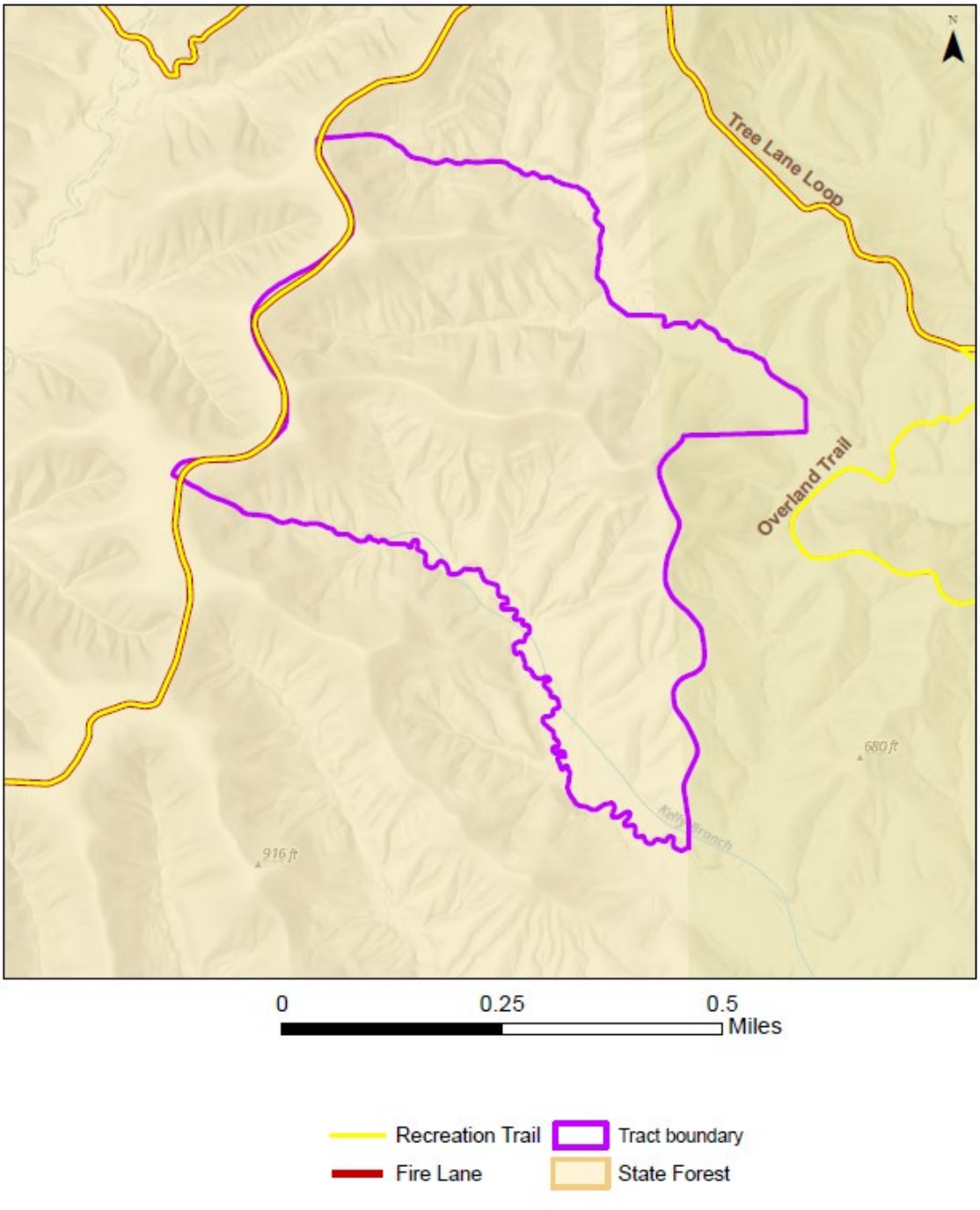
**Proposed Activities Listing**

| *Proposed Management Activity* | *Proposed Date* |
|---|---|
| Pre-harvest TSI/invasive species control | 2024-2025 |
| Timber Harvest | 2025-2027 |
| Post-harvest TSI/invasive species control | Within 2 years of harvest |
| 3-year regeneration opening review | Three years after harvest |
| Prescribed fire regime | 2025+ |
| Next forest inventory | 2044 |

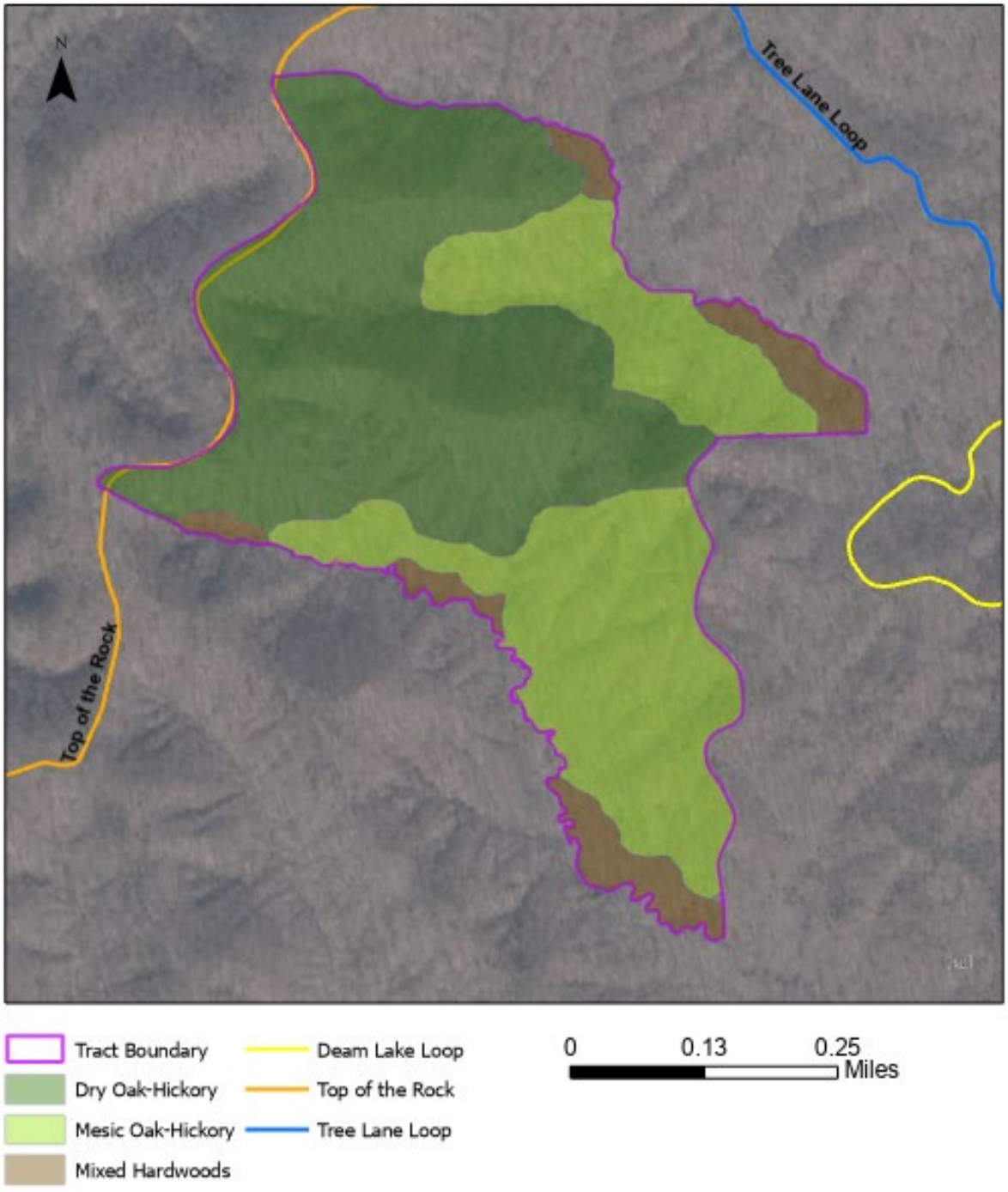
# Clark State Forest
# Location Map
# Compartment 18  Tract 1



# Clark State Forest
# Compartment 18 Tract 1
# Tract Map



# Clark State Forest
# Compartment 18 Tract 1
# Cover Types Map



| | | |
|---|---|---|
| Clark State Forest | Compartment: 18 | Tract: 2 |
| Forester: Cody Moore | Date: June 20, 2024 | Acres: 126 |
| Management Cycle End Year: 2044 | Management Cycle Length: 20 years | |

**Location**
Compartment 18, tract 2, also known as 6301802, is located in Clark County, Indiana. This tract lies in the northern half of Section 5, Township 1 South of Range 6 East. 6301802 has three different streams running along its boundaries including the Kelly Branch and two unnamed streams. The Deam Lake Loop Horse Trail, which is also part of the Overland Trail, runs through the northeast section of this tract.

**General Description**
This tract has been divided into two cover types: mesic oak-hickory and mixed hardwoods, with the mixed hardwoods sticking to the northern and southern portions of the tract, in the low-lying areas. The dominant overstory tree species are white oak and chestnut oak. There was a timber harvest covering approximately 75% of this tract in 2005, including primarily single tree selection and some storm-damage regeneration openings. The hardwood forests now have high stocking and large higher quality trees that are reaching the age where mortality is becoming a concern. Across each cover type, regeneration is primarily beech and maple. Management in this tract will aim to capture mortality, lower the stocking to promote forest growth, and provide the residual structure needed to regenerate desired forest types. The desired forest types being healthy vigorous oaks in the oak-hickory and yellow-poplar in the mixed hardwoods.

**History**
- 1964 – Land acquisition from Sneed, Addie May
- 1964 – Land acquisition from Durning, Robert L. and Elizabeth
- 1964 – Land acquisition from Durning, Alvin H. and Mary S.
- 1964 – Land acquisition from Dunbar, Robert L. and Kathryn
- 1975 – Forest inventory and management guide completed by Philip Wagner
- 1987 – Inventory completed for State Forest Inventory Program
- 1995 – Land acquisition from Bottom, Joyce Alice and Sylvester A. Meyer Jr.
- 2004 – Forest inventory and management guide completed by Jamie Winner
- 2004 – Tornado went through southeastern portion of tract, causing 28 acres of damage
- 2005 – Timber harvest removing 286,000 board feet (bdft), including tornado damage

**Landscape Context**
This tract is bordered by other Clark State Forest tracts on the west, north, south, and east sides, with a portion of the southern border shared with private property. To the north and west of this tract, there are thousands of acres of forested lands within Clark State Forest. Not far to the east, is Deam Lake State Recreation Area. To the south lies approximately a mile of privately owned forested areas before reaching agricultural fields. This bring considered, within a mile of the tract, 90% of the land is forested with the exception of the other 10% being the waters of Deam Lake.

**Topography, Geology, and Hydrology**
The topography of this tract is diverse, with steep slopes reaching 40% to the north and gradual 0-5% slopes to the south. There is a total of approximately 260 feet of elevation change from the lowest to the highest points in the tract. In the far northeast corner of 6301802, you will find a dry knobby ridge. This ridge heads eastward to the other side of the tract, extending fingers south which all slope south towards the Kelly Branch. There is a small portion in the north that has north-facing slopes which are coming down from said ridge.

6301802 is in the Mississippian Borden mapped bedrock formation. The formations constituting the Borden Group are the New Providence Shale, the Spickert Knob, and the Edwardsville. The Borden Group is composed dominantly of gray argillaceous siltstone and of shale. Fine-grained sandstone is common. Interbedded limestones form discontinuous lenses and facies that are minor except for the interval of the Floyds Knob Limestone Member at the base of the Edwardsville Formation.

Tract 6301802 is located in the Muddy Fork watershed. There are three mapped intermittent streams that flow through this tract: Kelly Branch, an unnamed intermittent stream that feeds Stone Branch, and another unnamed intermittent stream that feeds Deam Lake. Kelly Branch begins just west of the tract, follows along the southern border, flowing southeast approximately another mile until it feeds Muddy Fork. The first unnamed intermittent begins on the eastern border of 6301802 and runs south-southeast a few hundred feet beyond the tract into Deam Lake. The second intermittent is running along the northern border of the tract, running eastward a few hundred feet until reaching Deam Lake. Deam Lake's outflow is Big Run, and it connects to Muddy Fork within a mile of exiting Deam Lake. General riparian management zone (RMZ) guidelines will be implemented throughout 6301802 in accordance with the Indiana Logging and Forestry Best Management Practices 2022 BMP Field Guide.

**Soils**
**GmaG (77 Ac)** - Gnawbone-Kurtz silt loams, 20 to 60 percent slopes
This moderately to very steep, moderately deep, well-drained complex is found on side. It is well suited to trees. The hazard of erosion and equipment limitations are main management concerns. These should be considered when planning management activities and implementing Best Management Practices for Water Quality. Kurtz has a site index of 60 for Northern red oak and Gnawbone has not been evaluated.

**ConD (22 Ac) -** Coolville-Rarden complex, 12 to 18 percent slopes
These strongly sloping, deep, moderately well-drained soils are found on side slopes in the uplands. It is well suited to trees. Erosion hazards are concerns that should be considered during implementation of Best Management Practices for Water Quality. Coolville has a site index of 66 for northern red oak and Rarden has a site index of 71 for black oak.

**DbrG (19 Ac) -** Deam silty clay loam, 20 to 55 percent slopes
This moderately to very steep, deep, well-drained soil is on side slopes in the uplands. It is suited to trees. Equipment limitations and erosion hazards are concerns that should be considered during sale layout and implementation of Best Management Practices for Water Quality. This soil has not been evaluated for site index.

**ComC (5 Ac) -** Coolville silt loam, 6 to 12 percent slopes
This moderately sloping, deep, moderately well-drained soil is on side slopes in the uplands. It is well suited to trees. Erosion hazards are concerns that should be considered during implementation of Best Management Practices for Water Quality. This soil has a site index of 66 for northern red oak.

**GgbG (2 Ac) -** Gilwood-Brownstown silt loams, 25 to 75 percent slopes
This moderately to very steep, moderately deep, well-drained complex is on side slopes in the knobs. It is suited to trees. The hazard of erosion is the main management concern that should be considered when implementing Best Management Practices for Water Quality. Brownstown has a site index of 50 for black oak and Gilwood has not been evaluated.

**BcrAW (1 Ac**) - Beanblossom silt loam, 1 to 3 percent slopes, occasionally flooded, very brief duration
This nearly level, deep, well-drained soil is found along alluvial fans and flood plain. It is well suited to trees. Management planning should consider wet times of year. This soil has not been evaluated for site index.

**Access**
6301802 can be accessed by vehicle, horseback, bicycle, and foot. Deam Lake Loop Horse Trail loops into 6301802 in the northeastern corner of the tract. From that trail, one can work down the ridges within the tract for easy access. The Overland Trail, which follows Deam Lake Loop Horse Trail periodically, also runs through this tract.

**Boundary**
6301802 is surrounded by Clark State Forest on all sides but the southern border. A portion of the southern border being a private property line that runs approximately 0.16 miles. The tracts that border it are as follows: 6301807 to the southwest, 6301801 to the northwest, 6301516 to the northeast, 6301803 to the east, and 6301806 to the southeast. Kelly Branch stream runs along the southwest border, an unnamed intermittent stream runs along the northeast border, and another unnamed intermittent runs along the eastern border.

**Ecological Considerations**
This tract contains diverse vegetation and wildlife resources conducive to providing habitat for a variety of wildlife species. Habitat types include mesic oak-hickory, mixed hardwoods, and riparian areas. Evidence of several types of wildlife were noted at the time of inventory including deer sign, turkey feathers, Eastern box turtles, and a variety of woodpeckers and songbirds.

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.

In the compartment that includes this tract, inventory data indicate snag densities exceed Division of Forestry "optimal" targets in all size classes. Additionally, legacy tree densities exceed Division of Forestry compartment-level targets in all size classes by a comfortable margin.

Very few invasive species were noted at the time of inventory including multiflora rose, ailanthus, and Japanese honeysuckle. The majority of invasive species were noted being along the Deam Lake Loop Horse Trail and a few ailanthus trees were found within the tract, thus invasive species management could focus on keeping these invasive species from spreading to new areas. Seed producing woody species and vines should be treated prior to any harvest to help minimize spread. Also, post-harvest invasive species monitoring and treatment should occur to control the more common invasive species which will be prevalent in the seed bank like multiflora rose and ailanthus.

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 population viability of those species or communities.

**Recreation**
The main form of recreation that occurs in this tract, is likely to be horseback riding and hiking due to Deam Lake Loop horse trail that runs through the northeastern corner of the tract. Some evidence of hunting was noted during the forest inventory. Other recreational opportunities presented in this tract include biking, wildlife viewing, and foraging.

**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**
*The current forest resource inventory was completed in June of 2024 by Forester C. Moore. A summary of the estimated tract inventory results is located in the table below.*

**Tract Summary Data (Trees > 11" DBH)**

| Category | Estimate |
|---|---|
| Tract Acres (Forested) | 126 |
| Gingrich Stocking Percent (%) | 73 |
| Trees Per Acre | 117 |
| Basal Area Per Acre (SQFT) | 82.8 |
| Volume Per Acre (BDFT) | 6,035 |

**Tract Summary Data (trees >11”DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| White oak | 2,076 | 387,910 |
| Chestnut oak | 764 | 200,090 |
| Virginia pine | 646 | 81,430 |
| American beech | 201 | 15,280 |
| Pignut hickory | 93 | 14,470 |
| Yellow-poplar | 94 | 11,380 |
| Red maple | 77 | 11,270 |
| Sweetgum | 42 | 10,050 |
| Black oak | 39 | 8,400 |
| Northern red oak | 46 | 8,160 |
| Scarlet oak | 20 | 4,620 |
| Black gum | 72 | 4,170 |
| Shagbark hickory | 81 | 3,150 |
| **Total:** | 4,251 | 760,380 |

For the purposes of this resource management guide, this tract is being divided into two management cover types based on forest composition: mesic oak-hickory and mixed hardwoods.

*Mesic Oak-Hickory, 113 acres*

This cover type is located all throughout the tract, making up approximately 90% of the tract acreage. Most of this cover type is gradually sloping south with the exception of the northern quarter of the tract which has steep north-facing slopes. The percent stocking is estimated at 70, classifying it as fully stocked. However, this stocking level should be carefully considered. The 2005 timber harvest which followed the 2004 tornado, had several large openings, which have no sawtimber trees in them. This pulls down the percent stocking for the cover type as a whole. This indicates the true percent stocking in the areas surrounding the regeneration openings is likely higher than the estimated 70%. White oak makes up most of the merchantable volume in this cover type. Other dominant overstory species includes chestnut oak and Virginia pine. Overstory mortality in this cover type is above average, which is mainly seen in the Virginia pines and places that weren’t included in the 2005 harvest. The dominant regeneration in these areas tended to be American beech, sugar maple, and yellow-poplar with a few pockets of advanced oak regeneration where mortality has occurred. This demonstrates how well the area would respond to more light reaching the forest floor. The herbaceous layer is mostly spicebush and greenbrier.

**Mesic Oak-Hickory Data (trees >11”DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| White oak | 2,054 | 380,010 |
| Chestnut oak | 1,225 | 189,130 |
| Virginia pine | 439 | 63,450 |
| Pignut hickory | 60 | 11,610 |
| Yellow-poplar | 56 | 8,880 |

| | | |
|---|---|---|
| American beech | 44 | 8,720 |
| Black oak | 39 | 8,400 |
| Northern red oak | 46 | 8,160 |
| Sweetgum | 9 | 7,190 |
| Red maple | 46 | 1,070 |
| **Total:** | **4018** | **686,620** |

With some of 6301802 experiencing a harvest in 2005, some of the tract is not in need of a harvest at this time. Quite a few large regeneration openings were made in that 2005 harvest, and these regeneration openings could be improved upon through the removal of trees bordering the openings and some scattered seed trees left within. The rest of the mesic oak-hickory cover type either experienced single-tree selection or went unharvested in 2005. As for the single-tree selection areas from the 2005 harvest, those areas have responded well. Stocking has increased to the point where some light thinning and removal of unhealthy or short-bodied trees is needed. Areas where a timber harvest haven't occurred are experiencing large mature white oak with high mortality. These areas will need harvested a little heavier, as they have gone a long time without management. There are also many undesirable Virginia pines in these areas that are growing off site, as they are in more low-lying areas than is recommended for the species. These Virginia pines are experiencing windthrow and seeing high rates of mortality.

An improvement harvest is recommended for this cover type. The goal is to bring down the basal area from approximately 81 to 60-65. This could be accomplished with the use of a shelterwood harvest or single-tree selection harvest. Mid-story removal can be completed by chemical methods, mechanical methods, or with prescribed fire. If prescribed fire is used, the area could be repetitively burned at 3 to 5-year intervals to ensure the mid-story is properly controlled. A selective harvest along with patch-cut openings could also be used to promote and improve the cover type as it is. Invasive species control is advised along the Deam Lake Loop Horse Trail and is recommended in areas where the timber harvest or timber stand improvement (TSI) activity creates a canopy gap opening allowing high quantities of light to reach the ground. It is recommended to remove between 300,000 to 350,000 board feet from this cover type.

*Mixed Hardwoods, 13 acres*

This cover type is found scattered in the bottom areas of the tract, near two of the three streams. Mixed hardwoods make up 13 acres of the tract, which is approximately 10% of the tract acreage. Most of the canopy trees within this cover type are either Virginia pine, chestnut oak, or red maple. Percent stocking is estimated at 86%, classifying it as fully stocked. Half of this cover type is found in the northern extent of this tract. In this northern area, there are many large bottomland species, like yellow-poplar, red maple, and sweetgum, they could benefit from thinning before mortality occurs. This area is in good condition and should respond well to forest management. The rest of the mixed hardwoods cover type is in the southern extent of this tract. Based on historical aerial photos, it appears there was a pine planting in the early 1900s. This planting has since been exposed to windthrow, resulting in all but a few pines being on the ground, and a young stand of American beech and red maple taking its place. With forest management, the southern area could recover to a more biodiverse area, as the current situation is in the realm of an American beech monoculture. The herbaceous layer, where there is one, is dominated by spicebush. Invasive species in this area were moderate with the occasional

multiflora rose growing close to the streams.

**Mixed Hardwoods Data (trees >11"DBH):**

| Species | # of Trees | Total Bdft |
|---|---|---|
| Virginia pine | 191 | 17,980 |
| Chestnut oak | 40 | 10,960 |
| Red maple | 28 | 10,200 |
| White oak | 42 | 7,900 |
| American beech | 142 | 6,560 |
| Scarlet oak | 18 | 4,620 |
| Black gum | 65 | 4,170 |
| Shagbark hickory | 26 | 3,150 |
| Pignut hickory | 30 | 2,860 |
| Sweetgum | 30 | 2,860 |
| Yellow-poplar | 35 | 2,500 |
| **Total** | **647** | **73,760** |

Stocking is high in this cover type, as a result of the thick stand of young American beech in the south and the more mature stand of mixed hardwoods in the north. The areas of thick American beech are lacking in diversity but have a nice presence of oaks on the uphill side and yellow-poplar scattered throughout. This area could respond well to a patch-cut opening, either through pre-harvest TSI or harvesting of some trees through the means of a timber harvest and performing post-harvest TSI. If upon further inspection, the regeneration does not look promising for this area, a tree planting could be established as the small stumps could easily be removed for machine planting. The northern mixed hardwoods cover type would respond well to a selective harvest. There are some oaks and hickories scattered throughout this northern portion and releasing them would improve the biodiversity of the area.

A selective harvest, mid-story removal, tree planting, and regeneration openings could all be used throughout for a possible transition to an oak-hickory cover type or to promote regeneration. The goal in the northern areas is to bring down the basal area to 60-65. Mid-story removal can be completed by chemical methods, mechanical methods, or with prescribed fire. If prescribed fire is used, the area could be repetitively burned at 5-year intervals to ensure the mid-story is properly controlled. A selective harvest along with patch-cut openings could also be used to promote and improve the cover type as it is. Invasive species control is advised for the high presence areas and is recommended in areas where harvest or TSI creates a regeneration opening allowing high quantities of light to reach the ground. This harvest could remove 20,000 – 30,000 board feet.

**Summary Tract Silvicultural Prescription and Proposed Activities**

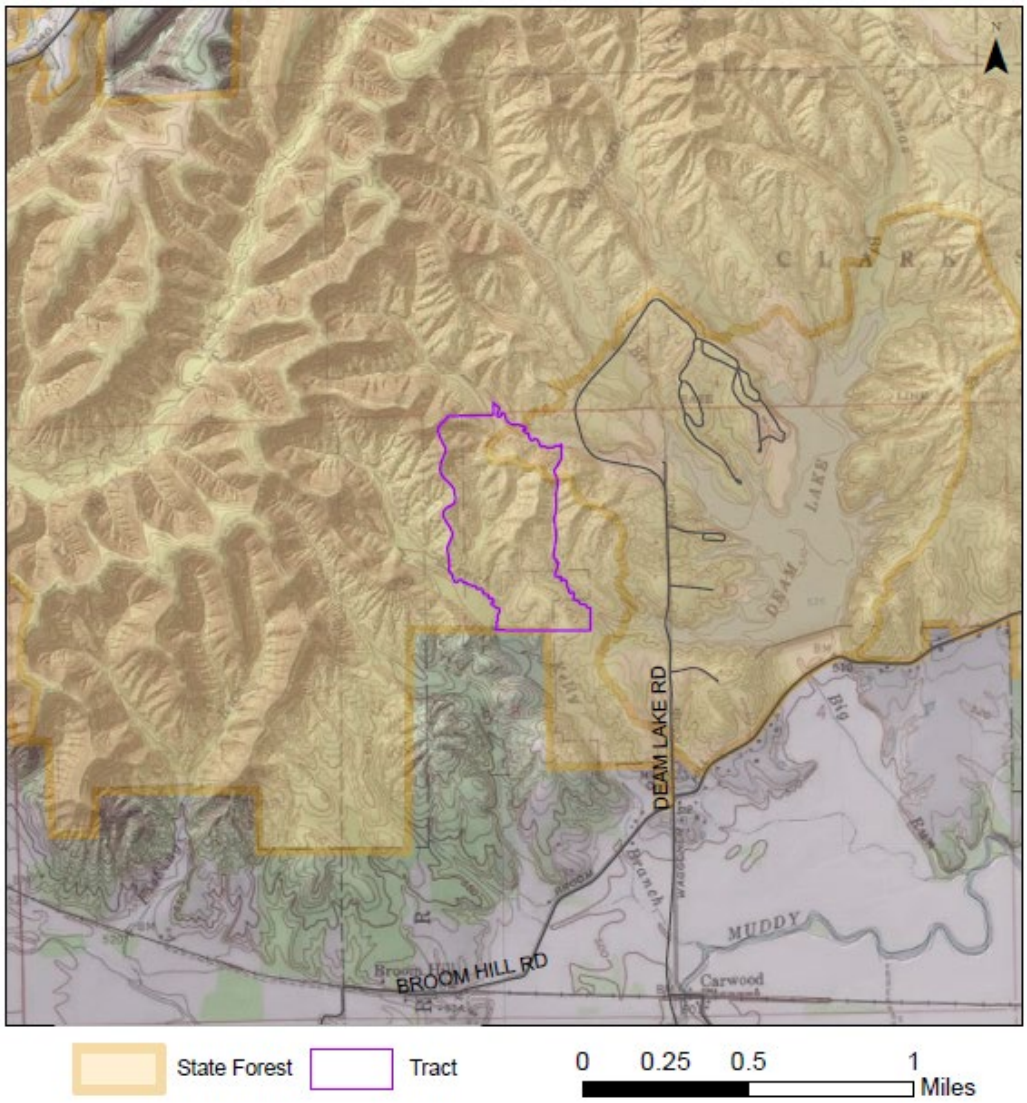
Management recommendations in this tract could begin with preharvest invasive species control that could be used to limit seed producing populations or reduce less pervasive invasive species. Pre-harvest TSI could be utilized to help promote oak or yellow-poplar regeneration. A harvest is recommended to lower the basal area, improve regeneration conditions, or to transition an area of the tract from one cover type to another. This could be done by using single-tree selection, a

shelterwood, patch-cut openings, or a combination. Post-harvest TSI and a prescribed fire regime could be used to promote and ensure success. It is recommended that a total of 320,000 – 380,000 board feet be removed from 6301802.

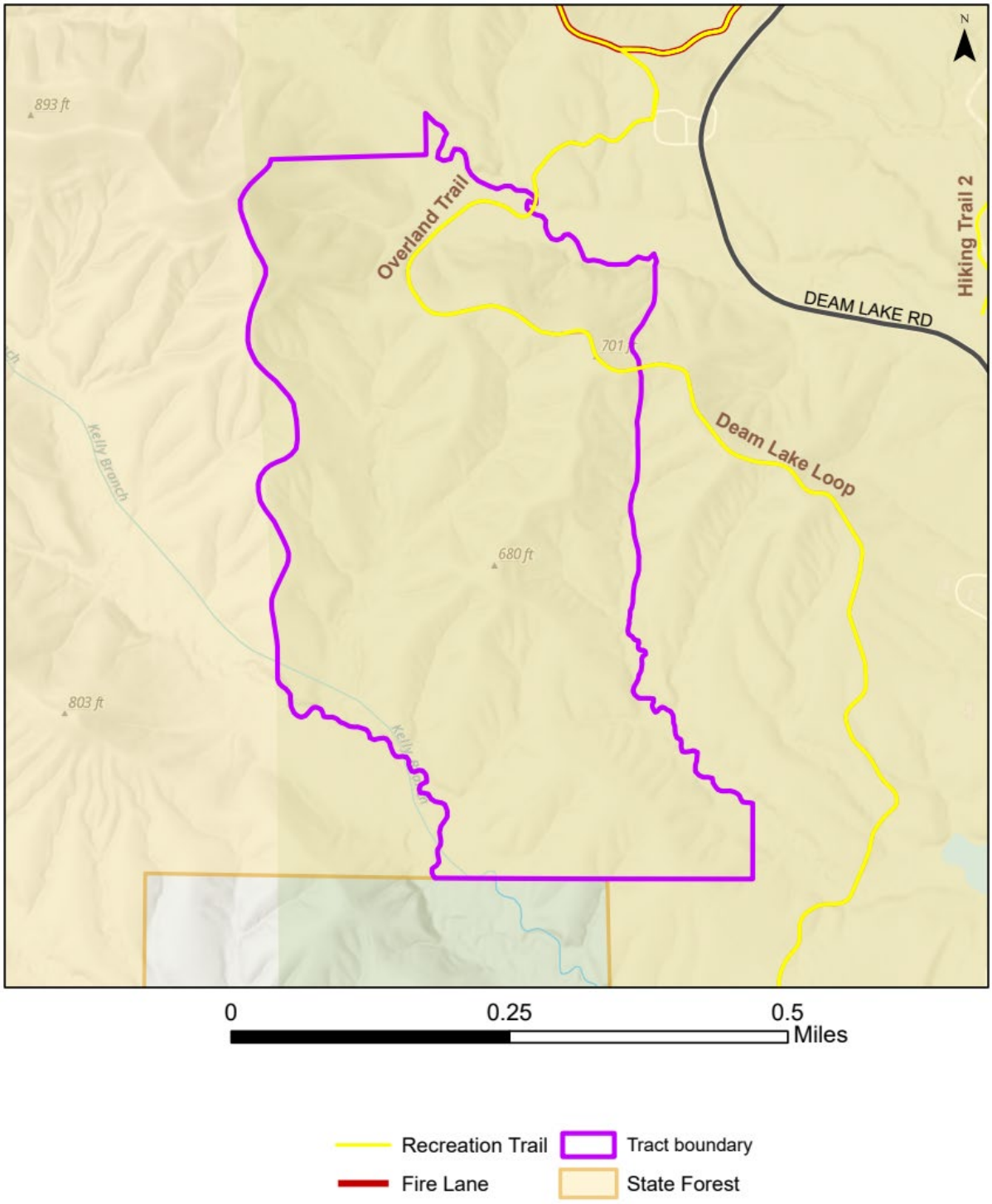
**Proposed Activities Listing**

| *Proposed Management Activity* | *Proposed Date* |
|---|---|
| Pre-harvest TSI/invasive species control | 2025-2026 |
| Timber Harvest | 2026-2028 |
| Post-harvest TSI/invasive species control | Within 2 years of harvest |
| Tree Planting | First 1-3 years postharvest |
| 3-year regeneration opening review | Three years after harvest |
| Prescribed fire regime | 2026+ |
| Next forest inventory | 2044 |

# Clark State Forest
# Location Map
# Compartment 18  Tract 2



# Clark State Forest
# Compartment 18 Tract 2
# Tract Map



# Clark State Forest
# Compartment 18 Tract 2
# Cover Types Map