

## RESOURCE MANAGEMENT GUIDE

Martin State Forest  
Alex Gust/Bailey McIntire  
Management Cycle End Year 2041

Compartment 6  
Date: 6/30/2021  
Management Cycle Length 20 Years

Tract 4  
109 Acres

### Location

Tract 4, also known as 6360604, is located about 4 miles northeast of Shoals Indiana on the southeast side of US 50 and CSX Railroad line in Martin County, T 3N, R 3W, Sections 13 & 14. Tank Spring Nature Preserve (Comp 6 Tract 3) borders the tract to the north.

### General Description

The tract is mostly a northern aspect dominated slope. The far southern edge of the tract falls on the south facing slope south of fire lane 6A. The timber is mostly mesic oak hickory but there are some mixed hardwoods. Most areas of oak-hickory, except for the south slope, are mesic. Also, along the western section of the tract is the CSR railroad tracks, which makes up approximately 12 acres of the tract.

### History

- 1942 – This property was originally acquired by the USDA in 1942. The NW ¼, NE ¼ and 10 acres off the W side of the NE ¼, NE1/4, Section 14 were acquired in a “taking” action. The SE ¼, NE ¼, Section 14, and the W ½, NW ¼, Section 13 were purchased at a tax sale.
- This area was transferred to state of Indiana in a 1966 land exchange with the forest service.
- Short section of fire lane was constructed in 1994 connecting this tract to Tract 7 to the southwest when an easement was purchased allowing access.
- In 1997 the tract area was simplified where the tract was reduced from 127 acres to what it is now. The acres it was reduced by were added to Tract three to the north.
- In 1999 an inventory was conducted by Jim Lauck which reported an estimated volume of 822,921 board feet, 8,229 board feet/acre. Top three species by volume were black oak, Yellow Poplar, and white oak,
- The tract was harvested in 2000 where 873 trees containing an estimated 189,429 board feet was sold for \$67,642.00. Top three species by volume were black oak, white oak, and yellow poplar.
- In 2002 post-harvest TSI was completed by property staff.
- In 2012 an inventory was conducted by Abe Bear which reported an estimated volume of 799,170 board feet, 7,332 board feet/acre. Top three species by volume were northern red oak, white oak, and yellow poplar.

## **Landscape Context**

The primary land use in the area is timber production. This tract is part of a larger block of Martin State Forest. The tract to the north is the Tank Spring Nature Preserve and is primarily used for recreation. A large block of land to the north and east is owned by one individual. It is primarily used for timber production and open grassland. The only developed land in the area is the US Gypsum plant to the south and scattered residential homes. No changes in landscape are expected to occur in the surrounding area.

## **Topography, Geology and Hydrology**

The topography is very workable in this tract. Much of the tract has a northern dominated aspect. Slopes are mild and there are no rock rims to restrict access. At least one flowing spring was found on the western side of the tract

## **Soils**

### **AcIf – Adyeville-Tipsaw-Wellston complex, 18 to 50 percent slopes**

This steep sloped soil type is somewhat moderately deep well drained to excessively drained found on hillsides.

### **WhfC2 - Wellston silt loam, 6 to 12 percent slopes**

This moderately sloping, well drained soils is on narrow ridgetops and on side slopes of the uplands.

### **AgrB - Apalona-Zanesville silt loams, 2 to 6 percent slopes**

This is a gradual sloping, moderately drained soil found on uplands and upper side slopes. The fragipan can limit rooting depth.

### **WhfD2 - Wellston silt loam, 12 to 18 percent slopes**

This steeply sloping, moderately well drained soils on structural scarps, ridges, and hill slopes.

### **WprAH—Wirt loam, 0 to 2 percent slopes frequently flooded, brief duration.**

This is a near level, deep, well-drained soil type experiences occasional flooding during parts of the year.

## **Access**

The primary access for this tract is fire lane 6A from Tank Spring Road. The fire lane has steep descent from the county road but manageable for equipment.

## **Boundary**

Beginning at the southeast tract corner, the boundary heads north up the hill and crosses the fire lane just west of the small wildlife pond in tract 5. The boundary follows the drainage northwest until reaching the section line dividing tracts 4 and 3. The boundary turns west along this line and meets HWY 50. HWY 50 forms the western boundary until reaching the west portion of the south property line. Here the tract boundary turns east and follows the property line to a corner stone marking the northeast corner of private property. There are bits of wire and stone fence along this line. At the corner stone, the line turns south for ¼ mile to another corner stone located just on the east side of fire lane

6A. Here, the line turns east for ½ mile to the point of beginning. The final ½ mile length is also private property line. There are bits of wire fencing and a ¼ stone along this line. All private property lines were painted orange in the summer of 2020.

**Ecological Considerations**

Wildlife use this tract heavily and many species were observed during the inventory. Those observed were eastern wild turkey, white-tailed deer, red and fox squirrels, chipmunks, various songbirds, hawks, turkey vultures, and a few rabbits. There are numerous mast-producing trees on the tract, especially hard mast. Several den trees or potential den trees were seen during the inventory.

The Indiana DNR Division of Forestry has developed compartment level guidelines for snag tree retention, an important wildlife feature. Snags are standing dead or dying trees. Snags provide value in a forest in the form of habitat features for foraging activity, den sites, decomposers, bird perching, bat roosts, squirrel caches, and stores a wide variety of invertebrates. As time passes, these snags fall contributing to the nutrient cycling as downed woody debris (DWD). DWD decomposes providing nutrients for remaining and new vegetative growth as well contributing to the complexity of the forest floor.

Snags	Maintenance Level	Inventory	Above Maintenance level
5”+ DBH	436	768	332
9”+ DBH	327	657	330
19”+DBH	54.5	159	105

A snag inventory was conducted along with the timber inventory, and it showed to be above maintenance level for snags in all size classes. The prescribed management will maintain or enhance the relative abundance of these features.

This tract is over half oak-hickory community with the remaining acres being mixed hardwood in the northern aspect slopes and lower portions of the tract by ephemeral drainages. There is also some open area where the CSR railroad tracks run along the west side of the tract.

The oak-hickory community overstory is mostly black oak with a good representation of white oak and of other species from the red oak group (red and scarlet) and some hickory (shagbark and pignut.) Midstory in this community has a good mixture of white oak and pignut hickory with some black oak and shagbark hickory present as well. Regeneration openings created during the 2000 harvest are dominated by yellow poplar with some black cherry and white ash present but being overtopped by the poplar. Greenbrier was observed. Throughout the tract there are some oak saplings, but it is mostly dominated by maple (red and sugar), American beech, and white ash. The non-woody community of the stand is a mixture of species commonly associated with this forest type which includes but not limited to, green brier, viburnum, and blackberry.

The mixed hardwood community overstory is mostly yellow poplar with American beech, maple (sugar and red), and some oak (white, black, red) and pignut hickory mixed in. In the midstory it is mostly red and sugar maple, American beech, and blackgum with a few pignut hickory and white oak. For the understory it is almost exclusively sugar maple and American beech with some red maple, white ash, and blackgum. The non-woody community of the stand is a mixture of species commonly associated with this forest type which includes but not limited to, spicebush, viburnum, and various species of grasses. There were some multiflora rose observed.

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

**Recreation**

The Tank Spring hiking trail runs through the eastern portion of the tract which is moderately well traveled. Other recreation use on this tract is hunting and there were a couple old stands found during the inventory.

**Cultural**

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

**Tract Subdivision Description and Silvicultural Prescription**

**Forest Condition**

*A current forest resource inventory was completed on 06/30/2021 by Seasonal Resource Manager Bailey Mcintire. A summary of the estimate tract inventory results is in the tables below.*

**Oak-Hickory- 62 acres**

**Stand Summary Data (Trees > 14” DBH)**

Species	# Sawtimber Trees	Estimated Total Bd. Ft.
Black Oak	423	179,180
Northern Red Oak	334	168,580
White Oak	198	97,580
Yellow Poplar	91	59,470
Bitternut Hickory	186	49,640
Sugar Maple	162	32,080
American Beech	33	13,120
Shagbark Hickory	44	9,580
Pignut Hickory	25	6,860
Chinkapin Oak	15	6,610
Sassafras	10	4,500
Black Cherry	6	3,880

Black Walnut	7	3,110
<b>Total</b>	<b>1,534</b>	<b>634,190</b>

Inventory analysis for this cover type shows an estimated total volume of 634,190 board feet (BF) with 102,672 - 139,872 BF available for removal during a timber harvest. For the midstory it is predominantly white oak and hickory (pignut and shagbark) with a few black and red oak throughout. Some sugar and red maple are present in the midstory as well. In the understory it is dominated by sugar maple and American beech with some red maple. There is some oak and hickory saplings present but few and scattered. With the canopy now closed throughout most of the tract the midstory oak and hickory is starting to slowly decline. This portion of the tract would benefit from an improvement harvest to release midstory oak and hickory and to capture mortality in the larger black oaks which show decline. Some areas could benefit from a shelterwood cut or regeneration opening to reduce mid shade tolerant species and improve sunlight advancing the oak and hickory mid and understory. The harvest would focus on removing poor quality, damaged, low vigor, poor health, and salvage blowdown. Prior to or shortly after the harvest this area would benefit from a prescribed fire with the goal of exposing bare mineral soil and reducing the amount of maple and beech saplings focusing in areas that are identified to have potential for oak and hickory regeneration or where already present. This would help to promote the establishment of less shade tolerant species such as oak, hickory, and black cherry to ensure they remain a strong component within this cover type.

**Mixed Hardwood- 35 acres**

**Stand Summary Data (Trees > 14" DBH)**

<b>Species</b>	<b># Sawtimber Trees</b>	<b>Total Bd. Ft.</b>
Yellow Poplar	245	107,140
American Sycamore	66	55,420
Black Oak	58	44,360
Northern Red Oak	122	38,920
Sugar Maple	37	14,140
Sassafras	55	12,270
Bitternut Hickory	29	9,050
Shagbark Hickory	26	8,760
Pignut Hickory	58	6,530
American Beech	24	4,870
Black Walnut	15	3,820
Boxelder	70	2,550
<b>Total</b>	<b>805</b>	<b>307,830</b>

Inventory analysis of this cover type shows an estimated total volume of 307,830 BF with 35,910 - 53,410 BF available for removal through a timber harvest. The midstory is predominantly yellow poplar, red and sugar maple, American beech and blackgum. The understory is almost exclusively red and sugar maple and American beech with some white ash. Most of this cover type has low to moderate quality maple and beech and would benefit from a harvest removing some of the poorest quality to release better, more

vigorous trees. Areas with low basal area (BA) and poor-quality trees would be ideal locations for regeneration openings. The goal of the openings would be to promote species diversity, vigor, and quality. Other areas will be marked for improvement focusing on the removal of poor quality, damaged, low vigor, and poor health trees to sustain and improve the health of the stand long term while releasing the better-quality trees.

The entire tract would benefit from some post-harvest TSI which would focus on releasing trees from competition and complete openings that were put in during the harvest. Further, TSI would focus on removing poor form/vigor stems thus releasing the better quality and healthier saplings in the midstory and understory.

### **Summary Tract Silvicultural Prescription and Proposed Activities**

Both cover types would benefit from an improvement harvest utilizing single tree and patch cuts or group selection openings. Oak shelterwood could be used to promote less shade tolerant species in some locations. The harvest would remove an estimated 138,582 - 193,282 BF. Prior to harvest, timber stand improvement (TSI) is recommended to reduce vines in the mixed hardwood stand and thin old openings established during the previous harvest. Within two years after the harvest, TSI is recommended to complete any openings established and reduce the understory in any shelterwoods established. Following post-harvest TSI a prescribed fire regime should be started to reduce shade tolerant species in the understory and expose bare mineral soil to promote species which requires more light and bare mineral soil for seed germination. 3-5 years after the harvest a walkthrough should be conducted to evaluate regeneration within any shelterwood or openings for additional TSI needs. The evaluation should be done every 5-10 years after the initial to closely monitor the regeneration and any invasive species that may become established. Also, every year the fire lane should be maintained by brush hogging as labor staff permit to maintain accessibility. In 2042 this tract will need to be inventoried and a new management guide will need to be written for future management.

**Soils/Hydrology:** Management activities conducted on this tract will abide by State established BMP's to minimize the impacts of the management on soils and hydrology.

**Wildlife:** Activities prescribed for this tract will maintain habitat for wildlife and even enhance habitat for some species that require a range of forested habitat for example closed canopy and early successional through management. Also, for bats the number of snags will increase with the TSI and prescribed fire within the tract.

**Recreation:** Recreation within the tract will be temporally suspended during active forest management for public safety.

## **Proposed Activities Listing**

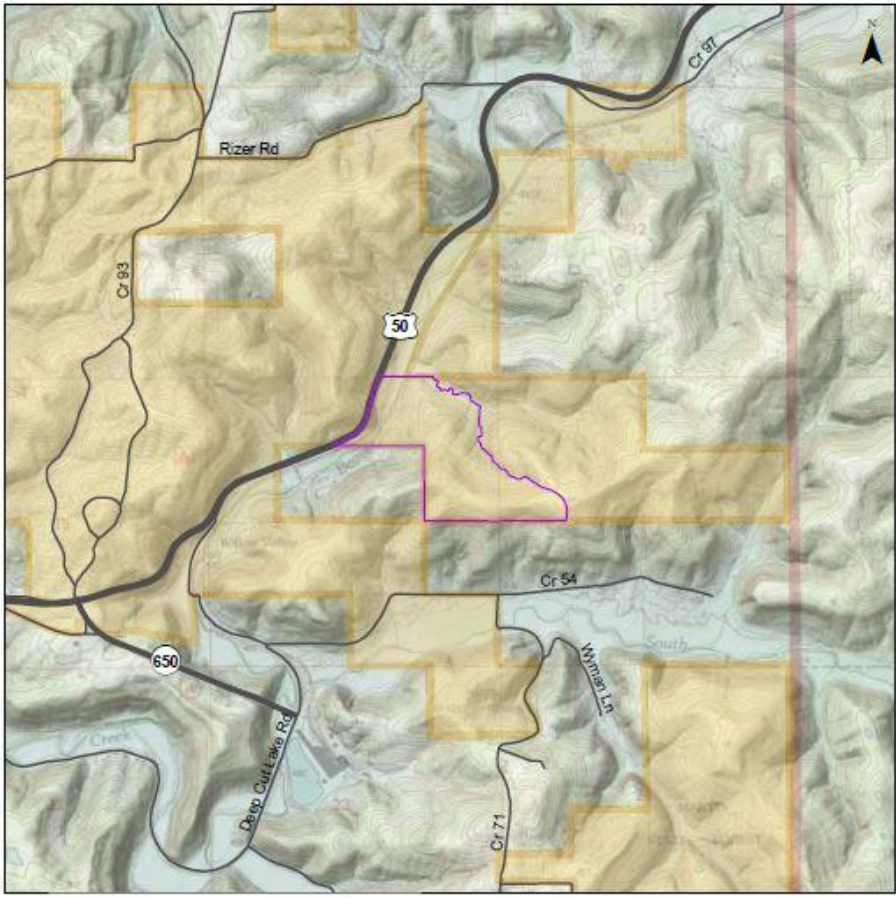
### *Proposed Management Activity*

Pre- Harvest TSI/Treat invasives  
Timber Harvest  
Post-Harvest TSI Including Invasives  
Prescribed Fire Regime  
Regeneration opening monitoring  
Inventory and Write new Guide

### *Proposed Date*

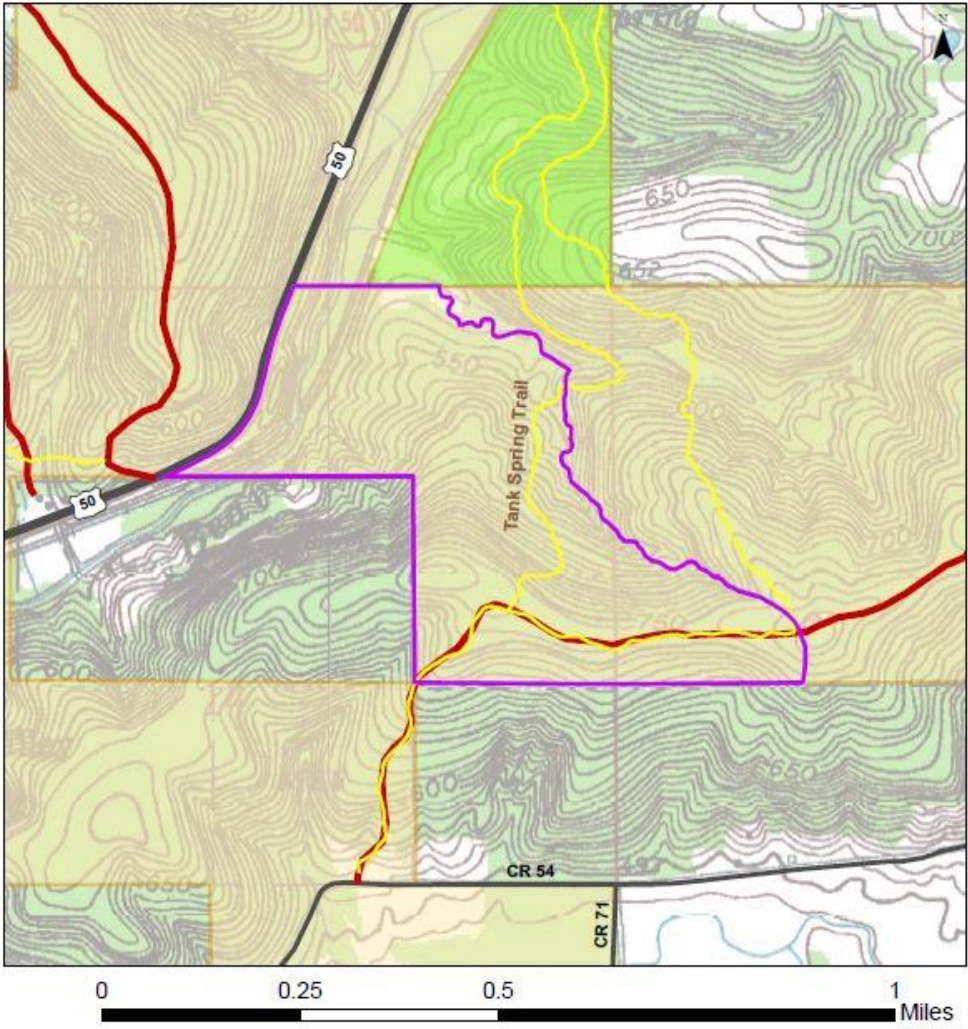
Summer/Fall 2023-2024  
2023-2026  
1-2 Years after Harvest  
At least 1 Year after TSI  
3 years post-harvest-2041  
2040-2042

# Location Map Compartment 6 Tract 4



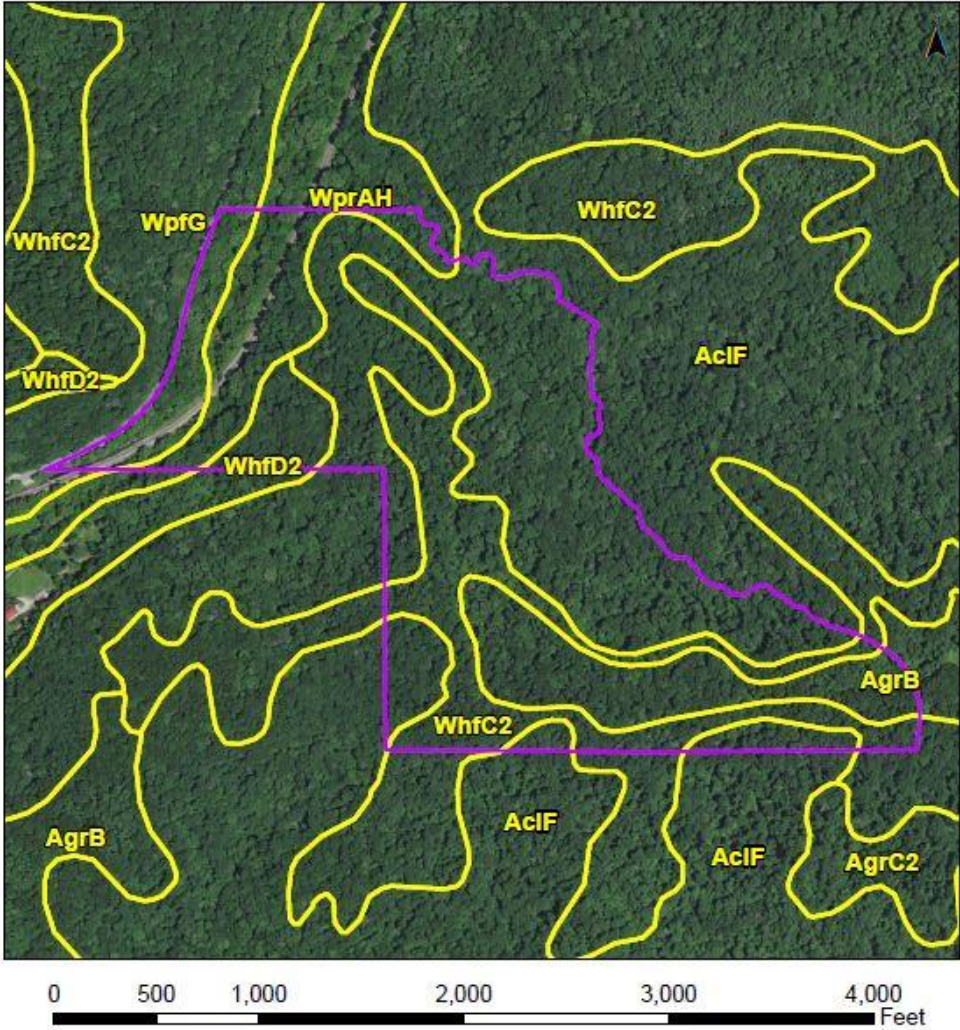


Martin State Forest  
Compartment 6 Tract 4  
Tract Map



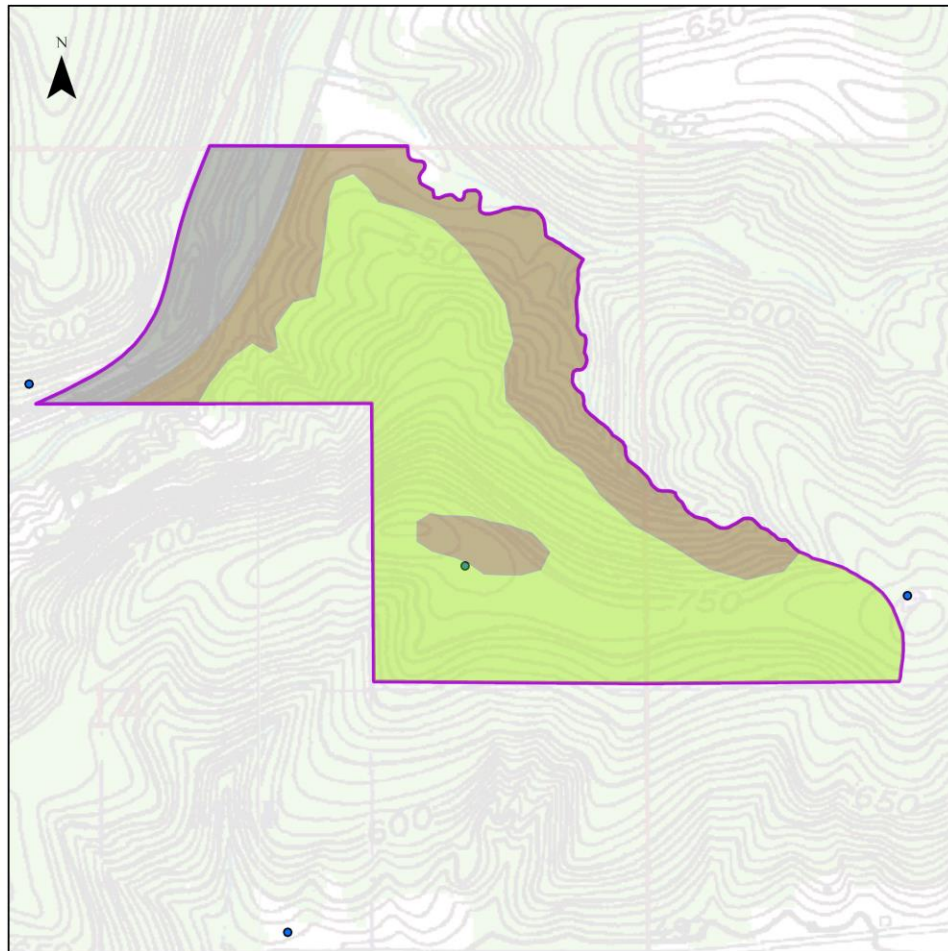
- Recreation Trail
- Fire Lane
- Tract boundary
- Nature Preserve
- State Forest

Martin State Forest  
Compartment 6 Tract 4  
Soils Map





# Martin State Forest Compartment 6 Tract 4 Cover Types Map



- |                        |               |
|------------------------|---------------|
| Tract Boundary         | Beech-Maple   |
| Wildlife Ponds         | Tree Planting |
| <b>CoverType</b>       | Conifer       |
| Dry Oak-Hickory        | Old Field     |
| Mesic Oak-Hickory      | Non-forest    |
| Bottomland Oak-Hickory | Water         |
| Bottomland Hardwoods   |               |
| Mixed Hardwoods        |               |

0 0.13 0.25 Miles